

Section 02

The future of Work

Our lives are increasingly affected by technology, and the rapid advances being made are mostly unpredictable. Warnings of job losses are everywhere – spreading fear amongst those most in need. Not only are blue collar jobs at risk, but also white collar jobs like bookkeeping, accounting and auditing clerks. Jobs that have elements that are predictable and repetitive are likely to have these elements of the job automated.

However, most studies being done on the kind of job losses expected are done in Europe and North America. This makes it hard to apply the research in the developing world context, and makes predictions in the developing world precarious at best. Marie Daniel and Salomé Teuteberg write about the possible outcomes in the developing world. Following this, Daniel B le Roux writes about the possibility of automation being a 'driver of economic equality', warning of the instability of the relationship between labour and capital in the changing world. Finally, Trenton Elsley sheds light on value chains and how strength lies in organising them.

02

The Future of Work: Union Responses

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Industry 4.0, the Fourth Industrial Revolution, the gig-economy and the internet-of-things are all terms becoming more generally used when discussing the future of work. These terms share the fact that technology is playing an increasing role in our daily lives and that it will alter the way we perform tasks.

As early as 1930, Maynard Keynes warned that: "We are being afflicted with a new disease of which some readers may not have heard the name, but of which they will hear a great deal in the years to come—namely, technological unemployment" (Keynes, 1930: unpaginated).

Central to the technological advances of our time is an intersection of hardware, software and humans in a context of artificial intelligence (AI) (Baldassari and Roux, 2017). One of the main advantages of AI is described as "its ability to help turn large and diverse data sets into enriched information that can help improve speed, cost and flexibility across the value chain" (Chitrakorn, 2018). While the cost associated with technology like AI is currently high, it is set to decrease and increasingly create workplaces less reliant on employees. The gig-economy, associated with innovations such as Uber and Airbnb, creates situations where jobs are secured through online platforms and employees have often not even met their employer (Smith, 2016).

The previous quote from Keynes illustrates that there has, throughout history, been fears that new technology would replace workers. While this may be true, some argue that the 19th and 20th century has shown that the new jobs created through technology, in fact, outnumber the job losses (Arntz, Gregory and Zierahn, 2016). Past president of The Institute for the Future, Roy Amara, is quoted as saying: "We tend to overestimate the effect of a technology in the short run and underestimate the effect in the long run" (The Age, 31 October 2006).

The Fourth Industrial Revolution will see humans increasingly involved in the design of jobs but less in the actual performance thereof. App developers, cloud computing specialists, data scientists, social media managers and sustainability managers are but to name a few of the occupations seen as synonym to the new wave of technology (Baldassari and Roux, 2017). Researchers predict that the new world of technology will bring a demand for more skilled labour in these fields (ibid). However, Osborne & Frey (2013) posit that not only are blue collar jobs at risk of automation, but also white collar jobs like bookkeeping, accounting and auditing clerks. Jobs that have elements that are predictable and repetitive

are likely to have these elements of the job automated. Jobs at risk include cashiers, clerks, and mining and maintenance workers, as many elements of these jobs are both predictable and repetitive.

Based on a literature review, desktop research and engagements with unions in various retail network alliances, this paper provides an analysis of what the future of work could entail in a developing context, and more specifically, Africa. The first section of the paper focuses on the retail sector as a case study relating to technological innovations. This sector is chosen in particular as it is a sector in which technology could have a direct bearing on employment based on the number of low skilled workers. The LRS is further well located to utilise the primary research it conducts through its supporting role in the UNIGlobal Shoprite, Massmart and Pick n Pay Network Alliances.

How relevant are some of the predictions regarding technological innovations in the developing world? The second section of this paper aims to answer this question by locating the impact of new technologies and different debates within the retail sector. Through the LRS's involvement with unions in the retail sector, it is possible to develop insights into the challenges unions are facing as a direct result of attempts at more "streamlined" supply chains. While it is difficult to predict to what extent job losses could be experienced in the sector, it becomes apparent that the future of work within the context of the Fourth Industrial Revolution will take on a more flexible format which could have serious implications for the social protection of workers. These dynamics are deliberated in the third section of the report.

Based on foregoing findings, the following two sections reflect on what responses the future of work will require from labour movements. Where section four considers national responses, section five focuses on the workplace and what those engaged in collective bargaining will have to look out for. The report concludes with broad recommendations for collective bargaining and broader campaign development. Although the report focuses on retail, the recommendations are formulated for all sectors and in support of cross-sectoral and cross-border alliances.

Technological Changes in the Retail Sector

Retailers are increasingly shaping their models based on convenience and the experience of shopping. E-commerce, which entails ordering shopping online, is becoming more and more prevalent. PrimeNow, for example, is a division within Amazon through which a delivery is made within one hour of ordering online (Smith, 2016). Services such as these allow customers to free up more space to dedicate to, among others, leisure or family. What is central to creating such systems of convenience is what is referred to as Big Data and the Internet of Things. The collection of data based on preferences and shopping trends makes it possible to develop software that can filter through thousands of items to match an item with a suitable buyer. Amazon has gone as far as to develop "anticipatory shopping software" (ibid.). Based on a buyer's previous browsing preferences, the software will assess whether the shopper is likely to buy a product and if so, start the shipping process even before the customer has pressed the "buy" button.

Based on the idea that the act of paying is associated with negative, retailers are moving towards automated stores in which customers do not have to make use of any till facility or encounter any employee. High-tech automated convenience stores are becoming more frequent across Chinese cities such as Beijing and Shanghai (Chitrakorn, 2018). These stores have no checkout, cash or salespersons. Each shopper has a unique ID through a mobile app and pays for the purchases through the app. To prevent theft, a sensor on the shelves can detect if an item has been lifted by a

customer. Such an item will be directly linked to the shopper's ID. Amazon has launched a similar store concept through "Amazon Go" that is also run through a mobile app. When a customer leaves a store their credit card is charged directly which means there is no line for checkout (Kestenbaum, 2017). An Irish company, Everseen, has gone a step further where no mobile phone is required once a shopper is registered. The store will recognize your face and run the purchase accordingly (ibid.).

In addition to the advantages customers could experience through automated stores and e-commerce, retailers have much to gain. Retailers would require less floor space in future as shopping goes online (Singh, 2008 and Omarjee, 2017). Retailers might only keep smaller stores in set locations as showrooms, but the remaining trade would take place through online platforms from central distribution centres. There will also be less reliance on actual employees. Automated tills; digital price displays through which thousands of prices can be changed within minutes; robotic shopping carts as well as robots that restock shelves and direct customers are but to name a few innovations set to decrease the reliance on human labour (Bhattarai, 2016).

Such a decreased reliance on human labour will not only have cost-saving effects, but also avoid the demands of organized labour such as providing workers with adequate social protection.



Figure 1: Robotic shopping cart and robots that restock shelves and direct customers.

What Is The Reality In The Developing World?

The debates arguing that jobs are at risk of being replaced or computerized is to a large extent based on studies conducted in Europe and Northern America (Arntz, Gregory and Zierahn, 2016). While this may be true, there are some who argue that this is not the norm. Arntz et al. (2016) conducted a study in which they compare different countries in the Organisation for Economic Co-operation and Development (OECD). Although most OECD members are high-income economies with a very high Human Development Index (HDI) and are regarded as developed countries the findings could have potential relevance to developing parts of the world:

"We further find heterogeneities across OECD countries. For instance, while the share of automatable jobs is 6 % in Korea, the corresponding share is 12% in Austria. Differences between countries may reflect general differences in workplace organisation, differences in previous investments into automation technologies as well as differences in the education of workers across countries" (Arntz et al., 2016: 4).







Although a similar study could not be found for developing countries it starts to illustrate that the future of work is a context-dependent phenomenon. Services such as automated stores and online shopping are associated with middle to high-level income groups. When we are considering Africa, it is well known that affordability and literacy levels differ to that of the global North. The Living Standards Measure (LSM) is a tool used in South Africa to group people according to their living standards. It divides the population into 10 LSM groups, 10 (highest) to 1 (lowest). A successful retailer such as Shoprite's majority of buyers is located in the mid-range LMS as illustrated in Figure 1.

There is a case to be made that a large percentage of the buying power in developing countries is located in an LSM bracket that does not necessarily support automation processes.

The development of automated stores and Big Data represents complex systems operated at very high costs. In 2017, Amazon admitted that "scaling this technology [automated stores] for uncontrolled numbers of people is too taxing, it takes the system beyond its capacity" (Kestenbaum, 2017).

As the cost of automation decreases this could change, but it is difficult to foresee when as automation is further reliant on infrastructure - like good internet connections. Automation can, therefore, be regarded as a slow process that has to overcome economic, societal and legal hurdles which are often more pronounced in a developing context.

Figure 2: The target LSM divisions of some of the Shoprite divisions

Brand	Summary	Target market	Store count		
			RSA	Non-RSA	Total
	Affordable and accessible, Shoprite caters to the mass middle-income market by providing its lowest prices on basic goods, including groceries and household products. As the Group's original and flagship brand, Shoprite owns the most stores in South Africa, and is the main spearhead for growth into Africa.	LSM 4 – 7	458	155	613
	The chain's simple philosophy – "When we save, Usave" is backed by a strategy of small-format stores offering a limited range of basic foods at everyday low prices to lower-income consumers. The small-format stores are an ideal vehicle for the Group's expansion into Africa and allow for greater penetration into previously underserved communities in South Africa.	LSM 1 – 5	302	65	367
	Convenience, quality and freshness define the Checkers brand. Time-pressed upper-income consumers in search of a world-class shopping experience enjoy great value on a wide selection of groceries, household products, fresh and convenience foods and speciality lifestyle ranges of wine and coffee. Located in shopping malls and other convenient premises across South Africa and some neighbouring countries, the brand caters to discerning shoppers in affluent residential areas.	LSM 8 – 10	202	7	209
	Checkers Hyper offers the same speciality food selections and great value as Checkers, but within large-format stores that encourage bulk rather than convenience shopping. The general merchandise ranges are far wider in Hyper stores, focusing on categories like small appliances, pet accessories, garden and pool care, outdoor gear, home improvement, homeware, baby products, toys and stationery. Checkers Hyper stores operate in South Africa only and are found in areas with high population densities.	LSM 8 – 10	37	—	37
	The OK Furniture chain brings affordable quality to homes across Africa. With its vast geographic spread of stores, the brand offers a wide range of furniture, bedding, loose carpeting, electrical appliances and home entertainment products at the lowest prices, cash or on credit. Choice quality goods and exceptional service define the 'no problem' shopping experience.	LSM 5 – 7	338	69	407
	This chain of small-format stores sells a carefully selected range of white goods and home entertainment products, as well as bedding and loose carpeting. Located mainly in high-density areas, shoppers can choose to pay with cash or take advantage of competitive credit options.	LSM 5 – 7	24	5	29

It further has to be acknowledged that the experience a retailer is trying to create in the developing world could differ fundamentally from that in the global North. Retailers in sub-Saharan Africa could have already started the automation process, but it becomes a branding decision. It relates back to the experience they want to craft in a context where price is valued more than convenience.

Another potential consequence of automation is increased economic disparity, which makes for bad social capital on the side of MNCs in developing countries. Daniel le Roux (2018) makes an argument for automation being a 'driver of economic inequality':

"Businesses around the world are cottoning on to the value of transferring labour from human workers to machines. Automation can increase efficiency and decrease labour costs. It helps employers to avoid complex challenges like wage increase demands, labour protests and strikes. Consumers also benefit from automation when products and services become cheaper because of reduced input costs.

"But while there are numerous benefits to automation, recent economic trends in the developed world suggest that it may also be a key driver of economic inequality."

Some are also more cautious regarding the role of technology in retail and the extent that automation would actually lead to job losses. Kestenbaum (2017) reasons that technology is important but will remain as only a tool in which the connection between a consumer and a product is made. It is not the answer to all the challenges existing in the sector. Arntz et al. (2016) bring forward the idea that predictions of a jobless future are based on an occupation rather than job-task approach. When considering that certain tasks within one occupation rather than a whole occupation could be automated, it becomes apparent that the job automatability has been overestimated. Where previous studies estimated the percentage of job losses based on automation through an occupation-based approach to be 47% in the US, a task-

based evaluation brings such estimations down to 9%. It is yet to be discovered what similar percentages in developing countries will represent.

While this section, on the one hand, proves that the future of work is content driven and that some argue that the extent of automation is often exaggerated, it is anticipated that routine or predictable tasks are more susceptible to displacement than non-routine tasks. Such predictions place a sector such as retail at a higher risk than an industry such as Information Technology (IT). It is predicted that while the jobs themselves may not entirely vanish, the jobs will be 'redefined'. If a job radically changes, a worker may indeed not have the new skillset.

Flexibility in the Retail Sector

Automation comes at a cost and to compensate for these additional costs, retailers will continue to reduce costs such as labour:

"All on-demand mobile services keep sales costs low by using an app for ordering, payment, and feedback. But the biggest part of this rebalancing is labour costs. As an aggregation and distribution channel for people providing personal services, a company with an Uber-All business model creates scale that has been difficult to realize heretofore. In addition, by engaging people to provide personal services on demand, companies can lower the overhead costs associated with full-time employees by taking advantage of broader shifts in labour markets" (Smith, 2016: 387).

The reality is that work is starting to take on a more flexible form in which workers are not protected and jobs are not secured (Omomowo, 2011). Outsourcing of work is fundamental to a value chain in which cost dominates all decisions. Outsourcing becomes a way for organisations to rid themselves of less-skilled workers and to have that work done at a lower cost.

Within the Shoprite, Massmart and Pick n Pay Alliances, to which the LRS provides strategic research support, it has become evident that these companies are moving towards a more flexible workforce.

A company such as Massmart is also bringing in the position of "general assistant" in which employees need to be able to multi-task and conduct various jobs at the same time. Employees are not adequately compensated for performing multiple tasks which in turns drain productivity (Massmart Alliance Meeting, 2017). Throughout these network meetings complaints relating to temporary workers and the conditions under which they are employed are heard:

"Key-time employees who are employed in Shoprite are not treated like employees nor according to our labour laws."

"The company survives through key-time employees."

"We need to be assisted with international campaigns against the employment status of key-time employees and/or to eliminate precarious work."

In an article written on how employers should structure work contracts towards the implementation of technological innovations the following is stated:

"...if your labour contract does not contain strong job security provisions or minimum-hours guarantees, count your blessings—and do not let the union negotiate those in during the next round of bargaining. However, employers that are signatory to a labour contract containing job guarantees over the life of the CBA, work-hour guarantees, and/or restrictions on the right to lay-off workers will want to jettison these provisions when the parties bargain for a renewal agreement. ... picture the retail establishment that wants to phase-out its cashiers and move to an automated check-out system, and, thus, reduce the workweek of its 10 full-time cashiers to part-time, only to find its hands tied with a guaranteed 40-hour workweek" (Korval, 2017:).

The above quote clearly states how employers are seeking more flexible workforces in the advent of the fourth industrial revolution. The steps employers are willing to take to free themselves from a permanent guaranteed workforce is in line with what retail workers are experiencing on the ground. Unions are constantly faced with employers whose main objective is to terminate all permanent contracts that provide employees with any form of social security.

While the outsourcing of work may become more prevalent, Tavis (2017: 8) speaks to one of the risks posed by a "loosely connected network of part-time workers". It is said that workers subcontracted into any company will be disengaged from the actual organization, its vision and objective.

Many businesses rely on elements of teamwork to advance and promote the company. This desire would not exist within a group of neglected contract workers and could result in negative long-term consequences such as losing institutional knowledge and damaging their reputation as an employer.

Unfortunately, these negative consequences are yet to be seen, especially in a sector such as retail in which employees are regarded as replaceable. As a result, unions and workers will have to be cautious of the tactics employers will use to ensure flexibility within their workforce.

A Response: The Broader Framework

The future of work is not only a concern within the workplace but also on a national level. As automation increases those with inadequate skills may be left behind and unemployment rates could soar. Within national debates the potential loss of jobs brings forward arguments for compensatory measures (guaranteed basic income and wealth redistribution), legislation protecting the rights of workers (realistic minimum levels of pay and benefits, restoring a decent work-life balance, and removing the impediments to union organizing) and ensuring sufficient (re-)training especially for low qualified workers (Arntz et al., 2016; Hodgson, 2016; Wright, 2018). New ownership models are also being discussed; if workers are replaced by robots, they could still be assured an income if ownership was to be shared among workers. As a result, worker cooperatives become more prevalent (Hodgson, 2016).

Labour, civil society, the private sector as well as government become key stakeholders towards developing a skills transition or relevant compensation measures. The International Labour Organisation (ILO) framework and the G20 Policy Priorities on the Future of Work identify the following key areas towards stimulating debate:

- **“Preventive labour market policy:** What role can labour market policy play in preventing technological unemployment and support the creation of quality jobs in times of structural change? Which instruments are necessary, in particular regarding skills in the digital world?
- **Social security in the digital age:** Which mechanisms of social security can be provided for workers in the digital world? How to

reform existing social security systems to include new forms of work (e.g. crowd working, free-lancers, self-employed)?

- **Future proofing labour law:** How can the legal frameworks evolve in response to a growing diversification of new and/or non-standard forms of employment without putting standard forms of employment at risk?
- **Agile industrial relations:** How to make co-determination work for all workers, including in new types of employment (e.g. platform workers)? What are appropriate collective bargaining solutions? How to foster innovation to harness technological change for better work? Is there a place for “innovation spaces” within companies to try out different arrangements of work organization, work design and working time?” (Ramutloa, 2017).

An analysis of relevant policy frameworks addressing these issues is beyond the scope of this report. It is, however, crucial that labour acknowledge these issues and work towards national campaigns to ensure pro-active debates and change. Altenburg, Kulke, Hampel-Milagrosa, Peterskovsky, and Reeg (2016) who conducted a study on retail modernization in developing countries explained how “despite the far-reaching impact of the supermarket revolution, this challenge has so far hardly been debated in development policy circles (Altenburg et al., 2016: 1). There is much to be done on the part of all stakeholders involved. In the absence of such pro-active action and policies, the tendency of capitalism to exacerbate income inequality will increase.

A Response: Bargaining at the Workplace

With regards to the future of work and bargaining in the workplace, this report highlights four areas that deserve attention.

The first is the need for trade unions to revisit the way in which they organize through an acknowledgement of the broader value chains in which they operate. Although the focus of a union is in the workplace, broader value chains and the dissemination of power are starting to play a more prominent role. Value chains describe where a company or operation is situated in the bigger picture of production and how it is situated there, or rather what power it has in the bigger picture of how things are produced. This has implications for organising and bargaining. Knowing where and how a company is situated in a value chain can help the trade union understand how to best negotiate for better pay or conditions of work. Revisiting strategies will have to be done on a step-by-step basis but will start, for example, through a retail worker looking beyond their own workplace at something such as distribution centres that influence the functioning of the company as a whole.

Having a presence in such areas of operation will increase the power of a union in relation to the employer.

The second concerns the way in which union, themselves will utilize technology:

“The advent of the Internet has seen a variety of contrary claims about their adoption by trade unions. Some have argued that the increasing use of the ICTs will further undermine the role of the traditional representative organisations, including trade unions, in favour of more issue-oriented groups, protest networks and/or individualised forms of participation. Alternatively, there has been interest in the notion of e-unions, virtual unions or cyber unions, where the ICTs are harnessed to reinvigorate and modernise union practices...”

In fact, it is only the labour that will decide where they want to stand. In this digital economy, only the powerful can survive.

Therefore, the workers continuously need to develop IT skills and to be on the alert so as to market them at every opportunity. Internet and e-commerce technologies are just tools, what the labour market is going to do with these tools will decide the future of the labour market” (Singh, 2008: 639-640).

Utilising technology within unions will become increasingly necessary if they were to target the broader value chains along which companies operate. As explained in the quote above, the organisations who have mobilized against big retailers or companies have been big NGOs and consumer movements in the Global North. This poses a challenge for unions. How do they respond to these big NGOs? NGOs operate differently as they do not have members - they report to a board. Should unions start thinking of alliances with quite different organisations or should they start utilising technology to expand their own campaigns? These are but a few questions that stand to be answered.

The third relates to the expansion of the traditional role of unions.

Traditionally trade unions would have focused on issues such as wage increases, benefits and working conditions during negotiations. Going forward, automation in the workplace will require an increased focus on issues relating to “education, training, and legal support in an increasingly complex environment” (Hodgson, 2016: 213). If the fourth industrial revolution is to result in a positive effect on employment, the reskilling of the workforce is pivotal. Tavis (2017) place employers on a continuum of options.

The first option is where companies decide to invest in their workers through training to include them in the technological transition. A national policy framework with strong labour movement and civil society would assist in moving employers towards the positive end of the continuum.

The fourth issue speaks to the tactics employers will implement to start reshaping their workforce towards automation and a more flexible workforce.

As stated earlier, employers will try to bring in clauses like the following to ease their transition to automated functions:

“Management, in its sole and absolute judgment and discretion, shall have the unlimited right to lay-off, eliminate the jobs of, and/or reduce the workweek of bargaining unit employees during the term of this agreement. The Employer shall have the right to open or close departments as it deems appropriate and to use new and improved methods (including automation) which it deems to be in the best interests of its business” (Korval, 2017)

Language like this will allow employers to sub-out the warehousing and delivery services to a drone operation that can do it more cost-effectively because their associates’ labour costs are negligible. Based on the issues identified, the following section concludes with some key recommendations for unions faced with the challenges of the future of work.

Conclusion

There is no doubt that the world of work will be altered from how we know it to be today. While this report acknowledges these changes, it also emphasizes that fourth industrial revolution is context dependent and that the effect could be different in a developing country compared to a developed country. The question becomes less to what extent employers will try to replace humans with machines but rather to what extent they will want to employ a more flexible workforce without commitments towards social protection and decent wages.

Going forward, employers will increasingly try to structure their employment contracts to accommodate the transition to a more flexible workforce.

Within bargaining processes unions’ negotiators should thus focus on ensuring clauses such as the following:

- Guaranteed minimum working hours
- Job guarantees for the length of the CBA
- Restrictions on staff dismissals
- Restrictions on sub-contracting
- Protection of non-permanent workers
- Education and training (including re-skilling to meet new skills demands)

If the fourth industrial revolution is to result in a positive effect on employment, the reskilling of the workforce is pivotal. Unions will need to form part of a process in which there is a crafting of approaches to ensure the re-skill of workers.

There is further a need for labour movements to start looking at the broader value chains in which they operate. Such a broadening could result in more power in the hands of a union compared to employers. The way technology will be utilized by unions themselves is important in this regard. As technology is influencing all sectors it will also influence unions going forward. E-unions, virtual unions or cyber unions are becoming a reality. In this way, technology becomes a tool that can be utilised by unions to enhance their own influence. In addition to bargaining within the workplace, there is also the need for national debates to ensure the required skills transition or relevant compensation measures.

Such broader campaigns targeted to influence policy formulation include the following:

- Compensatory measures (guaranteed basic income and wealth redistribution)
- Legislation protecting the rights of workers (realistic minimum levels of pay and benefits, restoring a decent work-life balance, and removing the impediments to union organizing)

Training demands/programmes: ensuring sufficient (re-)training especially for low qualified workers

Change has been inevitable throughout history. There is, however, no reason why change cannot be accommodated for adequate social protection, compensation measures and/or training and (re)skilling opportunities for workers. Bargaining is a pivotal tool in ensuring workers receive protection and would gain immensely from being supported by broader support and awareness campaigns. Capacity

building to equip negotiators to bargain in complex environments is crucial. Employers will increasingly try to by-pass any responsibilities in the changing nature of work. Should this become the norm, the tendency of capitalism to exacerbate income inequality will increase.

Although the report focuses on retail, in particular, the recommendations are formulated for all sectors and in support of cross-sectorial and cross-border alliances.

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Many South African jobs could soon be automated, and the country isn't prepared

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Businesses around the world are cottoning on to the value of transferring labour from human workers to machines. Automation can increase efficiency and decrease labour costs. It helps employers to avoid complex challenges like wage increase demands, labour protests and strikes. Consumers also benefit from automation when products and services become cheaper because of reduced input costs.

But while there are numerous benefits to automation, recent economic trends in the developed world suggest that it may also be a key driver of economic inequality.

A growing body of scholars and thought leaders has warned that this new wave of the technological revolution could change the relationship between labour and capital in an unprecedented manner.

Importantly, these modern Luddites are not necessarily anti-technology. Their concern is with the way in which increasingly smart technologies exacerbate economic inequality. It does this by devaluing low-skilled labour and hollowing out the middle class, as is evidenced by trends in productivity and median household income in the US.

Limited work has been done to study the potential impact of automation on economies in the developing world. That's what prompted me to investigate the situation in South Africa. I used data collected by Statistics South Africa for its Quarterly Labour Force Survey and an automation index produced by academics from the University of Oxford. From this, I was able to estimate that occupations performed by almost 35% of South African workers – roughly 4.5 million people – are potentially automatable in the near future.

But the country appears ill-prepared for this reality. There is little discussion at policy level. Hardly any research has been done to investigate possible future scenarios. There's also a great deal of uncertainty about how the uptake of automation technology may further drive inequality and preserve the asymmetry in the country's economy.

Unpacking the data

South Africa is already one of the world's most unequal economies. Its unemployment rate hovers at around 27%. It is also no stranger to labour protests and strikes, making automation an attractive option for managers and capital owners.

The data I worked with indicate that roughly 14 million South Africans work in around 380 different occupation types. 64 of these occupations, employing an estimated 3.6 million workers, have a 90% or greater probability of being automatable in the near future.

These occupations include, for example, cashiers, tellers, secretaries and telephone salesmen.

The occupations of another 2.6 million workers, of whom 900 000 are employed as farmhands and labourers, have an 80%-89% probability of being automatable.

Workers of all skills levels are at risk. Accountants, auditors and dental technicians are all highly skilled and their jobs are extremely

susceptible to automation. In the US, a number of automated tax services are already available.

But trends suggest that people in low and medium-skilled occupations are generally more at risk than those who require extensive education.

So it is not surprising that the country's previously disadvantaged population groups are more exposed to job losses due to automation than their white counterparts. Half of all black South Africa workers are in occupations with an 80% or greater probability of automation;

so are 47% of coloured workers. For white employees, however, the proportion is only around 30%.

These differences are indicative of the manner in which technological advancement upholds the status quo by favouring skilled workers and those who can afford higher education. Despite these risks, it seems likely that as an ever-expanding range of automation technologies enter the market, many South African business owners will seize the opportunity to limit their dependency on human labour. This will have a negative effect in an economy that is already struggling to grow and create jobs.

No preparation

But there seems to be very limited high-level discourse about how South Africa plans to navigate this wave of technological advancement.

Elsewhere in the world, US presidential candidate for 2020 Andrew Yang is building his entire campaign around this issue. He is promising to introduce Universal Basic Income, through which every American over the age of 18 years will receive US\$ 1 000 per month from the government. This, he believes, will provide security and enable mobility for workers displaced by automation.

A number of European countries are also currently running large-scale Universal Basic Income experiments to investigate its potential as a response to automation.

For South Africa, with its large number of low-skilled workers, a dramatically improved education system is an obvious and critical concern. Despite high unemployment, there remains a scarcity of skills in a wide variety of areas. This suggests a mismatch between supply and demand in the labour market.

It is also important to understand how technologies will displace work in future. This understanding can help to better inform young South Africans' career choices.

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Breaking the Chain: Value chain analysis as a tool for renewing trade union bargaining and organising strategies

By Trenton Elsley, Shane Godfrey and Mario Jacobs

It is by now common cause that the traditional industrial workplace and the permanent, full time, direct employment relationship that went with it are no longer the norm. The workplace is increasingly fragmented and reshaped by processes of externalization and the reorganisation of production. Even the traditional industrial factory setting now involves several layers of outsourcing.

The security and cleaning functions are two clear examples of the contracting out of work previously undertaken by employees of the factory. Depending on the sector, the externalization of functions may include transport & logistics, catering, and even production itself. In many instances, prices are being set more by buyers than by producers, which can have the effect of shifting the locus of power away from the workplace and the company where the trade union is strongest.

All of this has created a crisis of organisation and representation for trade unions as their traditional membership is reduced and

dispersed, industrial demarcation is reshaped and employment relationships are rendered more indirect and more insecure.

The trade union movement must of course move beyond lamenting the state of things to the development of strategies for dealing with these new realities. In this chapter we will argue that value chain analysis presents a way for trade unions to re-see the workplace and to examine what possibilities exist for renewing bargaining and organising strategies based on a new understanding of how production is organised.

Introducing value chains

The easiest way that we have found to begin to understand value chains is to break a familiar product down into the share of value that goes to each of the main areas of its production.

There is an example using a shoe on the following page. By looking at the size of the shaded areas it is easy to see where the most value is captured. It is clearly the retailer with a third (33%) and then the brand company with over 20% that get most of the value of the shoe.

The way that value is distributed in the manufacture and retail of a mobile phone is another good example. Again, it is obvious who gets the biggest share of the value of the phone and who gets the smallest share.

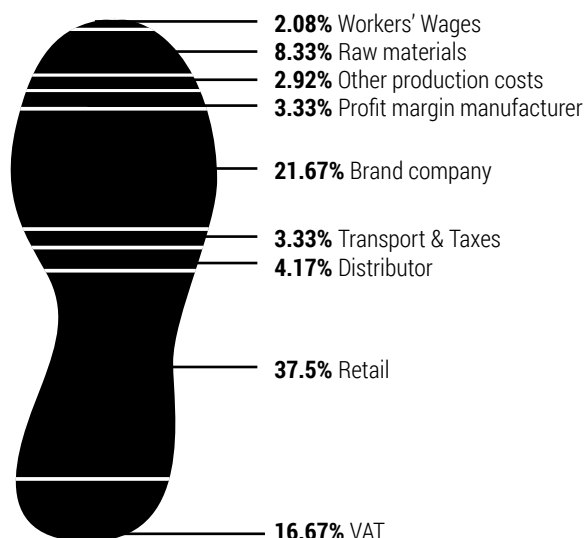
These two simple diagrams begin to describe the different parts of the production process of the shoe and the mobile phone. You might not have known exactly how the price of these products was shared between the different parts of the production process, but you probably do know a number of things about the products. You likely know who the big brand companies are and you certainly know the main retailers in your own country.

You know that there are many sectors and sub-sectors that can be involved in the production and sale of even one product or service. In the case of leather shoes, you know that there is animal farming somewhere down the production chain and that the leather must be processed. The plastics and metal sectors might be drawn into the manufacture of the soles of the shoes and the lace holes. The laces themselves will come out of the textile sector. We are talking about the input-output structure of the mobile phone and the shoe when we break down the different aspects of the production process and the different sectors that are involved in the manufacture of the product. We are talking about what goes into each stage of production (input) and what results from each stage of production (output).

There are four quite simple elements to value chain mapping.

1. Input-output structure (What materials and labour go into the processes of production and what is produced at various stages?)
2. Geography (Where are the companies, operations and workers in the value chain?)

Price analysis of a running shoe



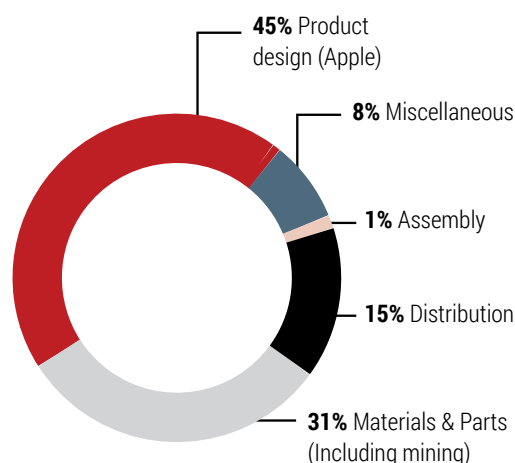
3. Institutional framework (How do laws and regulations affect companies and workers in the value chain?)
4. Governance or power (What power do the different companies in the value chain have? What power do workers have?)

The second element of value chain mapping is geography. This describes where the different parts of the production process are located. Trade unions have become increasingly aware that the boundaries between sectors and economies are not as defined as they once were. Globalisation means that we it is possible to buy a T-shirt at (i) a store near us that is (ii) branded by an American company, (iii) manufactured in Bangladesh and (iv) the material sourced from China.

This geographical spread of the production process also means that the clothing and textile workers in the different locations are not employed by the company that "makes" the T-shirt. The different workers in the geographically dispersed production process of the same product are governed by different laws and regulations, they are paid differently and they work under different conditions, even as they contribute to the production of the very same product. When we begin to talk about labour laws we are talking about the third aspect of value chain mapping – the institutional framework that the production process is situated in. This includes the legislation and policy environment in each of the countries that are involved in the production process. As you well know, the institutional environment can differ greatly between countries. Worker rights and trade union development, for example, are far more developed in South Africa than they are in Bangladesh.

The main message of the diagrams of the shoe and the mobile phone is what share of the value of the product goes to each sector. It is this sharing or lack of sharing of the value that shows us that there are power relations in the process. Now we are talking about the fourth aspect of value chain mapping, governance. Governance is a fancy word for power. The different companies in the production process do not have equal power in relation to one another. Quite often, a dominant client company in the value chain determines

How the value of a mobile phone is shared



the price of the different parts of the production process, which determines the money available to pay workers at the outsourced firm. So, the dominant client firm influences the conditions of employment, but doesn't employ the workers.

Perhaps now we can say what a value chain is. A value chain is made up of the companies in the various stages of the production process that produce a final product, including the company at the end of the value chain that sells the product. These companies perform their role in the value chain on a long-term basis, regularly interacting with the companies that supply them and the companies that they supply to in the next stage of the process. Finally, there is power being wielded in the value chain. This power might be wielded moderately by strong companies to coordinate the value chain, but it can be exercised rigorously to exert control over companies in the chain and push prices down. Power is what distinguishes a value chain from an ordinary supply chain (Godfrey & Jacobs, 2018).

We can distinguish between two types of value chain. "Producer-driven commodity chains are those in which large, usually transnational, manufacturers play the central roles in coordinating production networks (including their backward and forward linkages). This is characteristic of capital- and technology-intensive industries such as automobiles, aircraft, computers, semiconductors, and heavy machinery."

"Buyer-driven commodity chains refer to those industries in which large retailers, marketers, and branded manufacturers play the pivotal roles in setting up decentralized production networks in a variety of exporting countries, typically located in the third world. This pattern of trade-led industrialization has become common in labor-intensive, consumer goods industries such as garments, footwear, toys, housewares, consumer electronics, and a variety of handicrafts. Production is generally carried out by tiered networks of third world contractors that make finished goods for foreign buyers. The specifications are supplied by the large retailers or marketers that order the goods."
(Gereffi, 1999b in Kaplinsky & Morris, 2012)

Value chains and the division of labour

The value chain approach grew out of what is known as world systems analysis, which examines history over long periods and on a global scale. A key concept of world systems analysis is the axial division of labour. The working of the axial division of labour divides the global capitalist economy into three zones: the core, the semi-periphery, and the periphery. The main determinants of whether a country is in the core, semi-periphery or periphery are producer monopolies and competitiveness. Trade is the 'grease' that makes the axial division of labour work.

Prior to the 1970s global trade was dominated by the export of raw materials from undeveloped countries (on the periphery) to the developed economies of Europe and the United States (in the core of the world economy). The raw materials were used to manufacture products in Europe and the United States for use there, but many of these manufactured products were also exported to the countries of South America, Africa and Asia.

From about the 1970s, however, many firms in developed countries started to locate their manufacturing operations to developing countries, mainly because there was relatively cheap labour in these countries. Developing countries continued to export a lot of raw materials to developed countries, but now the pattern of global trade comprised significant exports of manufactured goods by developing countries to developed countries.

The axial division of labour between the core, semi-periphery and periphery of the world economy describes the geographical spread of the main sectors of the global economy. Even so, we can use this set of categories to understand to what is happening to the workplace and how people are employed.

The core, semi-periphery and periphery of the workplace are similar to the zones produced by the global axial division of labour. The wealth made by the main firm is distributed unequally to the employees, with the core employees getting the biggest share and those on the periphery getting the least. The risks go in the other direction. The workers on the periphery are in the most precarious jobs and bear the biggest risks of income and job insecurity, whereas those in the core are more secure and experience less risk. (Godfrey & Jacobs, 2019).

Over the last 20 to 30 years there have been a lot of changes to how people are employed.

You could say that in the core are workers who are employed by the company, are full-time, and who have indefinite contracts (they are permanent). These workers have reasonably secure jobs, they often get access to training and promotions, and some might qualify to join the company medical aid scheme and pension or provident

fund. These workers are more likely to be trade union members. There has been a gradual decline in the numbers of workers in direct, full time, permanent or indefinite employment and the conditions of service associated with this form of employment, which tend to be better than that for other forms.

The workers in the semi-periphery are in less secure employment. While they might be employed by the firm, they might not have full time employment and they might be employed for only a short period. They are employed by a service provider, but do their work at the firm (e.g. a cleaner or security guard). If employment at the firm is going to be reduced, it will usually be the part-time and temporary workers who are retrenched first. Such workers therefore do not have very much job security or income security. Their conditions of service and pay are strongly influenced by the terms of the contract between the client firm and the service provider.

Although they are employed by the service provider, their employment often depends on the contract being renewed with the firm at which they are providing the service. If the contract ends without being renewed they may well be retrenched. Such workers also often have lower pay and worse conditions than if they had been employed doing the same work by the client firm. Furthermore, fewer of these workers are union members. If they are, it will usually not be the same trade union that organises at the firm.

In the retail sector, we see a blurring of the boundary between the core and the semi-periphery. Permanent part time workers are the new norm in many large retailers. These workers are permanently employed, but are only guaranteed 80 hours per month. Despite their status as permanent employees, they effectively have half of a job. Workers in the periphery have even riskier jobs. They have low skills and are employed by labour brokers or labour only contractors to do work at the firm. These contracts are frequently short-term and insecure, and workers will not have access to training or any chance of advancing themselves at the firm. This is the most extreme form of contracting. These workers remain the employees of the labour broker, although they do their work at the client firm and this arrangement might continue for many years. These workers are least likely to be members of a trade union. Informal traders that cluster around large firms and factories can also be seen as part of the periphery of these firms.

We see that many workers are being pushed towards the semi-periphery and periphery of the workplace, rather than being employed in the core of the company. This trend fragments workers and presents serious challenges for both worker organisation and the representation of worker interests.

Trade unions and value chains

The work of a trade union is to make connections between workers. It starts with making the connection between two workers side by side in the same workplace. Then we make the connection between those workers and workers in other operations of the same company. Then we make the connection between workers in different companies in the same sector. Then we make connections between workers in different sectors of the economy. Ultimately, we wish to make the connection between workers in different national economies around the world. This work of making connections between workers proceeds through trade unions, national centres, federations and confederations and global unions and federations.

Organising workers and representing the interests of workers are central to making these connections between workers meaningful. Ideas and ways of thinking that help us renew our strategies for organising and bargaining are important. Value chain analysis offers just such an opportunity.

When we look at the diagram of the shoe, it suggests that workers and even the manufacturer of the shoe do not have very much power, since they get such a small share of the value of the shoe. In a similar way, the companies that are assembling mobile phones for multinational companies also have very little power.

“Today, transnational corporations dominate the global economy, controlling some 80 per cent of world trade through their own

operations and those of their business partners, organised in global value chains.” (Fichter, 2018)

Previously we said that there are two basic types of value chains, producer-driven and buyer-driven value chains. Understanding the character of the chain that a company is situated in provides clues to where power is located in the chain and therefore what power that the company that you are interested in has.

The implication for trade unions is that there is not much room to bargain pay and conditions upwards at some shoe manufacturers or at an electronics assembly company situated in a mobile phone global value chain.

Large retailers in particular have tended to assume powerful positions in modern day value chains. There has been a significant penetration of very large South African and international retailers into the sub-Saharan Africa (SSA) region. The major South African retailers are Shoprite, Pick n Pay and Walmart/Massmart, while clothing retailers such as Foschini and Truworths are also opening stores in the region. This development has created a network of manufacturers, intermediaries, and retail outlets in the SSA region, part of which is entirely regional and part of which is an extension of global value chains.

Centralised distribution

The Group has invested in an extended centralised distribution network that enables us to seamlessly manage the supply of products to our stores across the continent.

As the first South African retailer to receive the renowned ISO 9001 accreditation for import and export handling, we continue to pursue our strategic lead in supply chain management. Our International Trade Department sources products from anywhere in the world with extreme efficiency, assuring our customers of choice, availability of products and value for money. We have invested substantially to create a network of advanced distribution centres. Their accompanying transport operations are supported by sophisticated information management systems. A substantial portion of the investment in information technology and logistics infrastructure has been devoted to upgrading and expanding our distribution network.



Trade unions in value chains

Let's zoom in on one aspect of the retail value chain to see what ideas it can provide us with when thinking about bargaining and organising.

When mapping retail value chains, the distribution function presents itself a strategic link in these chains. It is a key means of integrating and coordinating the value chain at the point at which it meets the retailer. A major source of efficiency and competitive advantage for retailers lies in the distribution function. The trend has been for large retailers to increasingly centralise this function and in doing so to invest large sums of money in this area of operations. The Shoprite Holdings annual report (2017) makes it clear that the distribution function lies at the heart of the retail business.

Distribution centres are key to the work process in retail operations. While retail stores remain relevant, the stores have also been reduced in some respects to empty vessels that are filled from distribution centres. The Shoprite distribution centre in Cape Town also supplies its African store operations.

The South African Commercial, Catering and Allied Workers Union (SACCAWU) has become aware of the strategic importance of distribution centres and has stepped up its efforts to organise these workplaces. The work of UNI Global Union in establishing a series of shop steward alliances organised around multinational retailers in Africa has allowed us to begin to map the value chain in the sector more systematically.

The Shoprite/Checkers distribution centre at Brackenfell is a 50,000 square metre facility with approximately 1,400 workers onsite across three shifts of continuous operations. Conversations with shop stewards at the company suggest that the average Shoprite store size is around 100-200 workers. This distribution centre is therefore a very large workplace by retail standards. In addition, we understand that Shoprite-Checkers exerts a high degree of control over its transport fleet, although it reportedly uses a mixture of in-house and contracted transport.

Over 100 Shoprite stores in SA currently don't order stock manually, because the distribution system knows what they need already and automatically replenishes the stock. This centralizes an important aspect of store management away from the store to the distribution centre.

There are at least three different labour broker companies contracted at the distribution centre. Pickers move around the distribution centre on motorized vehicles building up individual orders for stores, before dropping them at areas where multiple

orders are optimally packed for transport. The picker is guided by a voice prompt-and-respond system through a headset that advises them of the location of a product and the quantity to be loaded. The system recognizes individual voices and will only engage with the correct voice respondent. This management by technology effectively isolates and controls the worker. The company is also piloting individual training booths, not unlike a telephone booth, inside the workplace. These training booths offer a modular learning programme that a worker can move in and out of. This kind of on-the-job training system supports faster induction training and would limit the need for workers to have to leave the workplace for further training.

When thinking about regional value chains, a retailer like Shoprite struggles to centralise the distribution of perishable goods in particular, although the Shoprite Foodmark brand supplies over 200 stores outside of South Africa. The cost of intra-African export is high and they talk of red tape, bureaucracy and complex and inefficient import protocols with long time lines. It reportedly takes a container from Cape Town about 3 months to reach a country like Ghana. Perishable goods cannot survive the process.

This means that the retailer must source or develop suppliers of fresh goods in the countries to which it exports. Shoprite has 640 supplier farmers outside South Africa, with approximately 20 employees each according to Shoprite, resulting in about 12,800 livelihoods. There are 450 such suppliers in South Africa, but often much bigger, commercial entities. The table below provides a summary of Foodmark's efforts in this regard as of 2017.

Now we are beginning to map a regional agri-food value chain as it relates to retail multinational companies.

A new distribution facility was recently completed in Cape Town that is four times as large as the Brackenfell facility at 200,000 square metres and was projected to employ something like 5000 workers. Labour employed at the new centre will reportedly be 100% outsourced.

Despite its efforts to date, SACCAWU's foothold at the distribution centres remains limited to certain layers of administrative staff and to the company's transport division. The difficulty of organising a point in the value chain does diminish the importance of that point. SACCAWU's recognition of the strategic importance of these distribution hubs is what will fuel future efforts to organise. They will no doubt confront failure in future, but there is no surer path to success than the markers provided by what does not work along the way.

The starting point for beginning to integrate basic value chain thinking into unions is the local level

In a paper titled, *Organising In and Along Value Chains*, Fichter (2015) highlights the dominant role played by transnational corporations (TNCs), also referred to as multinational companies (MNCs), in modern value chains. He encourages trade unions to develop bold new approaches to fight the power of transnational corporations by securing their local and national power base within and along global value chains.

- The paper describes levels at which trade union movement can begin to act.
- Local Level
- National or Sectoral Level
- Global Level

Returning again to the retail sector, UNI Global Union has secured a global framework agreement with Shoprite, the largest retailer in Africa by far. This work at the sectoral and global level has delivered gains on the ground and the organisational gains won by an affiliate in Swaziland on the back of the global framework agreement bear testament to this.

UNI's conscious alliance building strategy has yielded several multinational networks, which are a critical resource for building trade union transnational power, now and in the future.

On the other hand, our work with trade unions in Africa suggests that it is unrealistic to expect shop stewards and even organisers to map vast global value chains. Value chain mapping can get very complex very quickly and it is important to maintain a clear focus to avoid being drowned in complexity. It is also true that for a number of unions in Southern Africa, the value chains clustered around retail operations quickly disappear over the border to South Africa, where the majority of manufactured goods come from.

The starting point for beginning to integrate basic value chain thinking into trade unions in Africa is the local level. It is useful to maintain a focus on the labour (worker) component of value chains, since this is the main currency of trade unions wherever they may be situated in a value chain.

Local unionists and workplace representatives can start by collecting information that can be helpful in negotiations with management and which begins to map one or more (global) value chain. Fichter provides some useful prompts to help a local unionist begin to map important aspects of the value chain.

Shoprite local fresh goods procurement in Africa, 2017

Country	No. of local farmers	% of Shoprite requirement
Ghana	70	40
Nigeria	102	50
Angola	76	25
Uganda	50	45
Malawi	82	20
Zambia	69	70
Mocambique	104	50
DRC	2	20
Namibia	58	45
Madagascar	24	50

When thinking about the different products and services of the company, ask where the products do or services of the workplace go, who are the (major) customers? How do they get to the customers (major logistic / transportation contractors)? Where do the materials, parts and components used in the workplace come from? Who are the major suppliers of materials? Who delivers products and services to your workplace? Can these links be followed further upstream (backwards to the suppliers of the suppliers) and downstream (forward to the customers of the customers)?

When thinking about suppliers and customers, ask what do you know about the major suppliers and business customers at your workplace? (ownership, turnover, profit, number of employees and agency, contract workers, etc.) Can you judge the role and importance of those companies in the value chain? Are there relevant competitors? How important is their product that you use to them? Is the supplier / customer a small / large unit in a larger corporation? What are the working conditions in those companies? What is the composition of the workforce (skilled / unskilled, men / women, permanent / temporary, etc.)?

When thinking about representation, ask which union(s) represent employees at the workplaces of suppliers or customers? Is there an employee representative body? Is there a union contract?

Some of this information is already available, some of it can be readily accessed. But some of it will take time to gather, and may

lead to questions or resistance from management if it is expected to provide the information.

The next figure illustrates an effort by trade unionists in the retail sector in South Africa to map the labour component of production from where they are situated in stores. We asked shop stewards and officials to look around the store and identify jobs done by workers from other companies, to identify those companies and then further interrogate who organises them or does not organise them.

The unions identified a range of occupations and functions in the workplace and named the companies that provided these functions. They went on to identify which unions currently organise these workers and discussed potential obstacles to their own union starting to organise these workers. In South Africa, the main obstacle to organising these externalised workers is a political one.

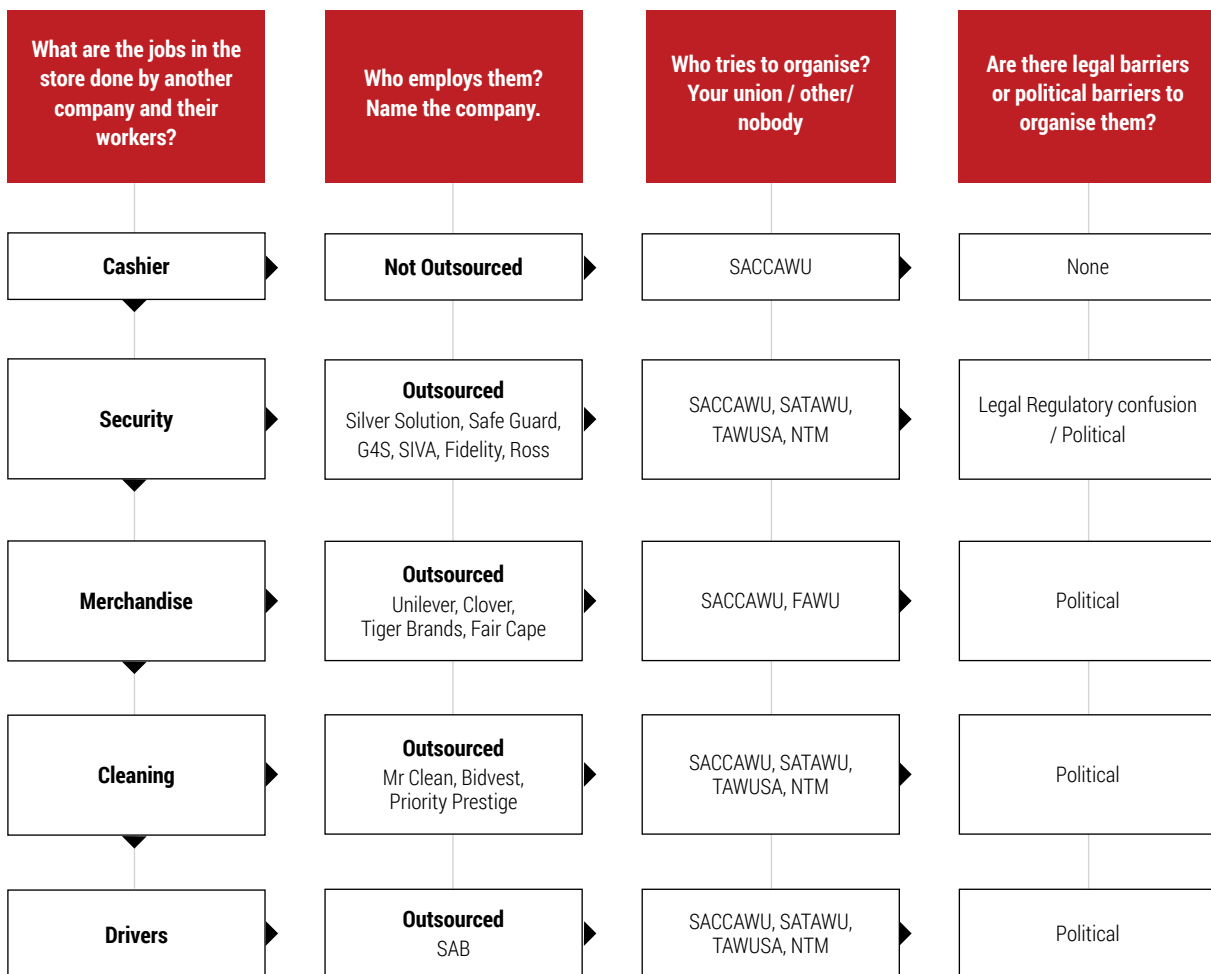
The union's own constitution might be a barrier, but also the policy of their federation of one sector, one union. The situation differs from country to country. Zimbabwean unions appear to have fairly narrow sectoral scope, while unions in Mocambique are free to organise across sectors. This is not to say that that where there are legal and political barriers to organising, unions cannot build power

in value chains. It does however mean that different approaches will be required, approaches that are sensitive to national contexts.

In another exercise, these retail unions considered three questions.

1. Where are sites of power in the value chain?
2. Where are potential sites of organising (existing and new)?
3. What is the possibility of establishing a presence there?

The Zimbabwean retail union identified that they could organise workers who work for the clearing agents on the border. It turns out the union already has membership there. The union also has organisational presence in the warehousing operation. The retailer has its own central warehouse in Zimbabwe and this warehouse and the drivers are organized. While some parts of the value chain can seem very distant from a shop steward in a store, it emerged in our discussions that the union actually had a presence at an agri-wholesaler positioned way down the chain. Rather than just being an interesting observation, the framing of the discussion in value chain terms allowed the union to recognize where that company is situated in relation to other companies that they organise.



Ideas from the local level for renewing strategy

We have attempted to introduce the trade union reader to the concept of value chains.

Knowing where and how a company is situated in value chains can help the trade union understand how to best negotiate for better pay or conditions of work and how best to direct its organising efforts to build power in value chains. We share the belief that trade unions should act at a local, sectoral and global level in their efforts to tackle inequality in value chains. We also believe that cultivating an understanding at the local level among shop stewards and organisers is key to underpinning efforts at other levels.

It is in this spirit that we give shop stewards the last word, by sharing their ideas for renewing bargaining and organising strategies based on a developing understanding of value chains. This group was drawn from different unions that organise at South African multinational retail companies with operations in Africa. Their ideas embrace the local, the sectoral and the global.

We must network among ourselves across different companies. We can strengthen visibility of the union at shop level.

We can promote the equal participation of both men and women in trade union activities.

We need to identify all forms of employment and include them. Some workers do not know they can be organized. Support functions such as cleaning and security need to be unionized. There needs to be cooperation between unions if necessary.

We can use regional trade union offices as a space where workers can be organized. This could provide a space for organising. This strategy provides a way of dealing with how retailers rotate workers between workplaces to prevent them from organising.

We can focus on the sector that gets the biggest share of the value in the chain.

We can develop our own standards. Unions need to set their own standards for workers in the absence of national laws or a global framework agreement.

We must pursue global framework agreements with all major companies in our sector.

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