



INDUSTRY STUDY

**INTERNATIONAL TRADE:
ELECTRONICS INDUSTRY**

NOVEMBER 2024

TIPS industry studies aim to provide a comprehensive overview of key trends in leading industries in South Africa. For each industry covered, working papers will be published on basic economic trends, including value added, employment, investment and market structure; trade by major product and country; impact on the environment as well as threats and opportunities arising from the climate crisis; and the implications of emerging technologies. The studies aim to provide background for policymakers and researchers, and to strengthen our understanding of current challenges and opportunities in each industry as a basis for a more strategic response.

This industry study examines global trade trends in the electronics industry, with a focus on South Africa's position in the global trade of electronic products.

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EXECUTIVE SUMMARY

The electronics sector is extremely competitive, inventive, high-tech, and knowledge-based. In recent years, modern technology has advanced continuously, compelling both consumers and businesses to adapt to technological advances such as digitalisation. For firms, this meant incorporating advanced technologies into the manufacturing process, which included employing electronic components to create high-tech products for competitiveness. Electronic components can process information, making them crucial in the manufacturing value chain for a wide range of applications including telecommunications, consumer electronics, defence, automotive, healthcare, and many more. Electronic products, such as computers, smartphones, and medical devices, are heavily traded worldwide.

The Global South dominates the international export market, particularly in computer and smartphone production. The Global South countries, notably China, Hong Kong, and Chinese Taipei dominate the computer export market. Furthermore, China contributes more than 40% of global export output.

For imports, the leading computer importers are the northern countries, notably the United States (US), which has imported 25% (on average) of automatic data processing devices (including computers and laptops) over the last decade. Other northern countries that dominate imports include the Netherlands, the United Kingdom (UK) and Germany. Furthermore, the US is a net importer of cell phones, having spent an average of R1.9 trillion in real terms over the last decade.

The North dominates global trade in medical instruments and appliances, with the US, Germany, and the Netherlands being the largest importers and exporters. South Africa's position in the world market is relatively small; its global trade share has averaged less than 1% over the last decade. South Africa also contributed less than 2% to the global export market over the recent decade.

In the domestic market, the European Union (EU) was the leading exporter of electronic products in the early 2000s but this shifted in the late 2000s to China. South Africa is a large importer and consumer of office and equipment products, including laptops and computers. The two largest markets for the importation of electronics are Europe and Africa. South Africa mainly imports and distributes television and radio receivers.

The Southern African Customs Union (SACU) and the Southern African Development Community (SADC) regions are significant for South Africa's manufactured exports, including the electronics industry. Botswana and Namibia are important export partners. Export declines in 2008 and 2020 are presumed to be driven by external shocks, such as the Global Financial Crisis and the COVID-19 pandemic – although the demand for medical equipment during the pandemic led to a surge in domestic medical appliance exports.

Foreign Direct Investment (FDI) is mostly concentrated in manufacturing facilities for medical appliances and instruments. International businesses offer services for various electrical devices and telecommunications. Telecommunications corporations have created more data centres and expanded infrastructure.

This study examines global trade trends in the electronics industry, with a focus on South Africa's position in the global trade of electronic products. The first section assesses the advantages and potential of the industry. Specifically, it focuses on the leading domestic importers and exporters of electronic products. The latter part of this section discusses trade with Africa, identifying the main trade partners and regions. Section two covers FDI in the industry by foreign investors in the past six years. The third section focuses on dominant firm exporters. The study ends with a conclusion.

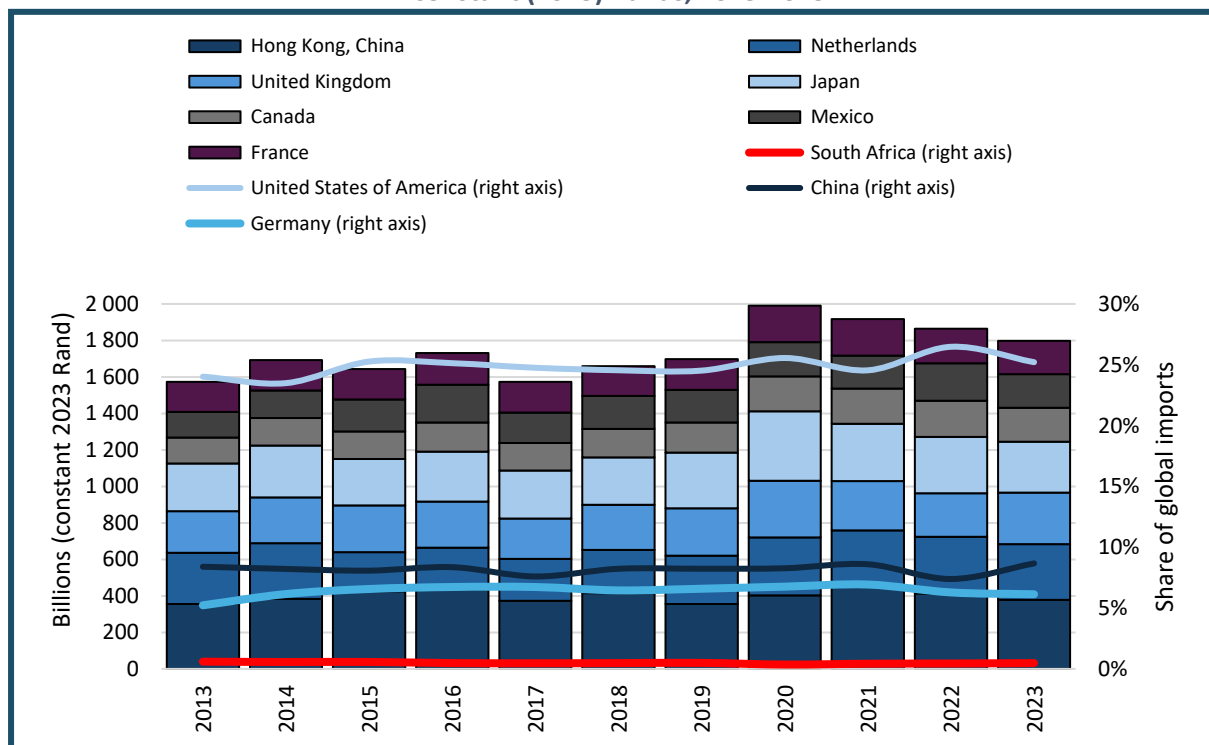
1. INTERNATIONAL TRADE AND REGIONAL TRADE

The Global South countries lead as global exporters of electronic products, dominantly cellphones and computers production compared to medical devices which are primarily produced in the north, particularly European Union countries, mainly Netherlands and Germany. In Africa, South Africa's export partners are dominantly in the SACU region with Botswana and Namibia as the major partners. Further analysis is detailed in the following subsections.

1.1. Trends in global imports

The United States dominates the global import market for automatic data processing devices, including personal computers (PCs) and laptops, with an average import of 25% over the last decade (Figure 1). Other northern countries, such as the Netherlands, the UK, and Germany, are also major importers of these products. China, Japan, and Hong Kong are among the largest importers in the Global South. South Africa's imports grew by 21% in 2021, just after the COVID-19 outbreak. The increase in demand could be because people began working remotely. Overall, South Africa accounts for less than 2% of the worldwide import market.

Figure 1: Top global importers of automatic data-processing machines (including computers), in constant (2023) Rands, 2013-2023.

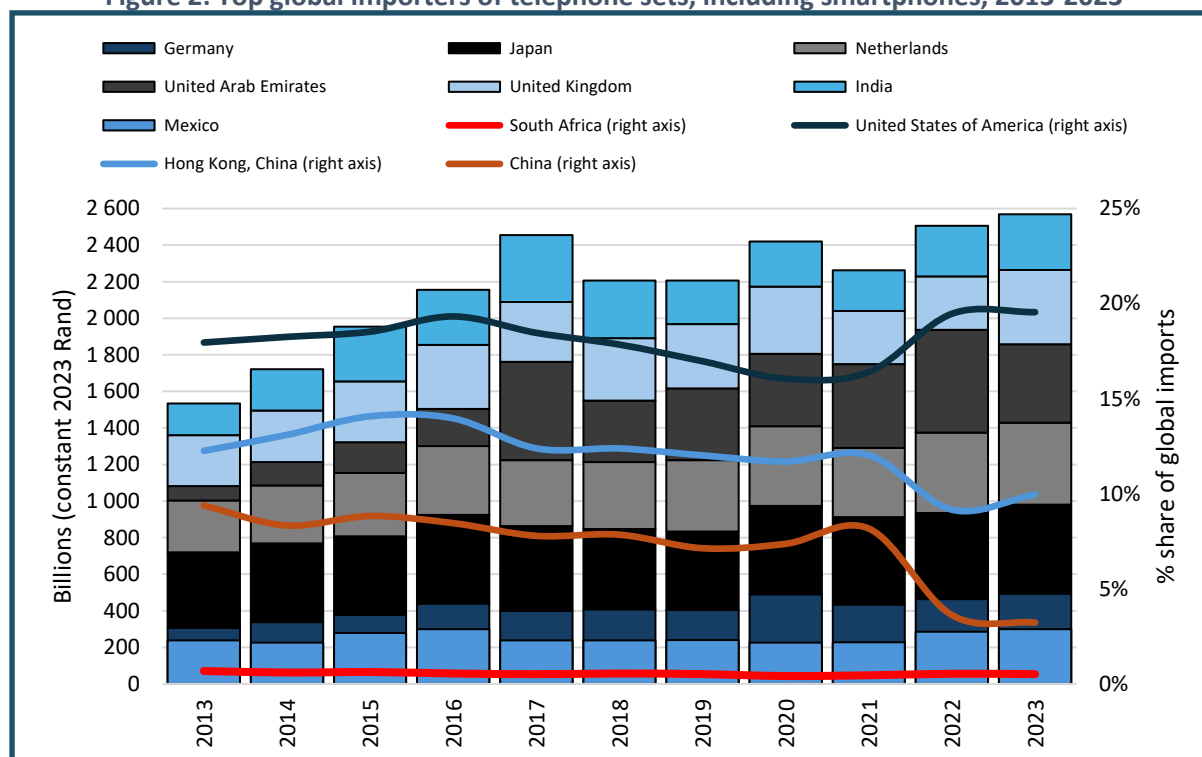


Source: Calculated from ITC Trade Map. Electronic database. Series on imports of automatic data-processing machines and units thereof; magnetic or optical readers, machines (HS 8471).

Accessed at www.trademap.org in July 2024.

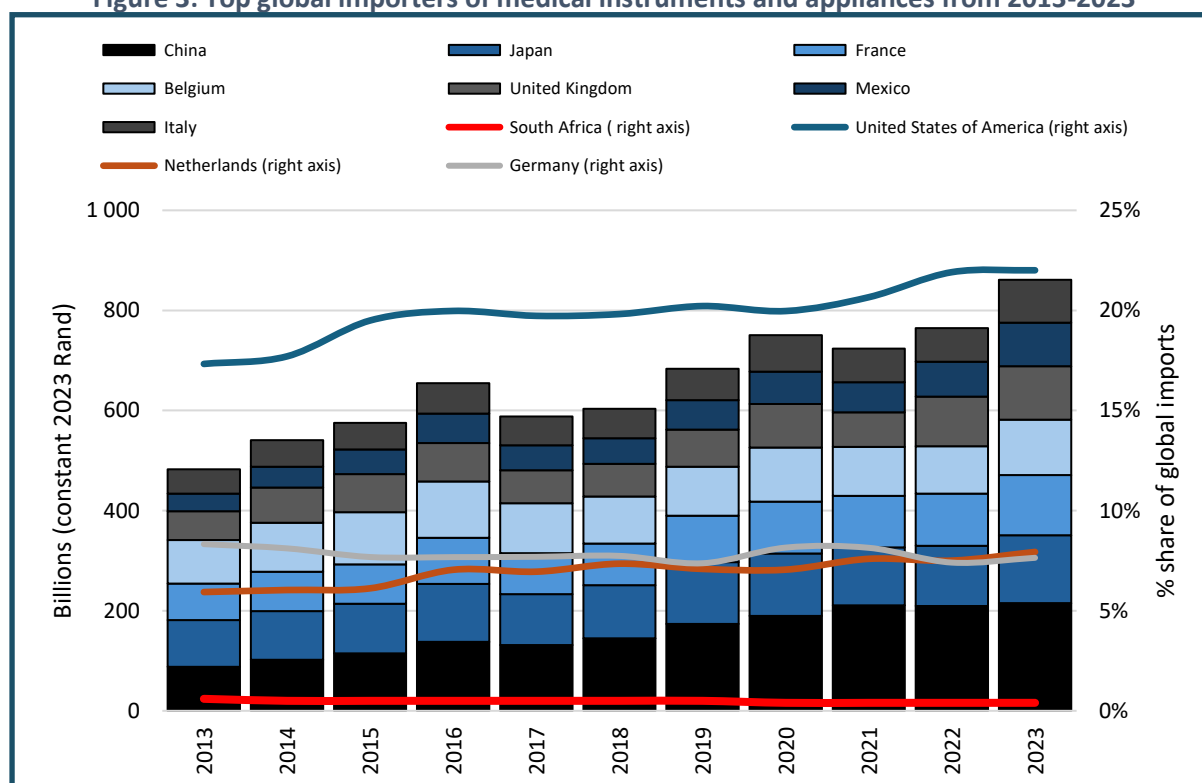
The United States is the world's largest smartphone importer, with an average value of R1.9 trillion in real terms over the last decade, followed by Hong Kong with an average value of R1.3 trillion. South Africa's proportion of the global import market is less than 1%, falling from 0.7% in 2013 to 0.5% in early 2023 (Figure 2). The Northern countries including the European Union dominate the global import market of medical instruments and appliances. On average, the US accounted for about 20% of the global imports market, Germany 8%, and the Netherlands 7% in the past decade. South Africa accounted for less than 1% share of the global imports of medical instruments and appliances (Figure 3).

Figure 2: Top global importers of telephone sets, including smartphones, 2013-2023



Source: Calculated from ITC Trade Map. Electronic database. Series on imports of Telephone sets, incl. smartphones and other telephones for cellular networks or other wireless (HS 8517). Accessed on www.trademap.org in July 2024.

Figure 3: Top global importers of medical instruments and appliances from 2013-2023

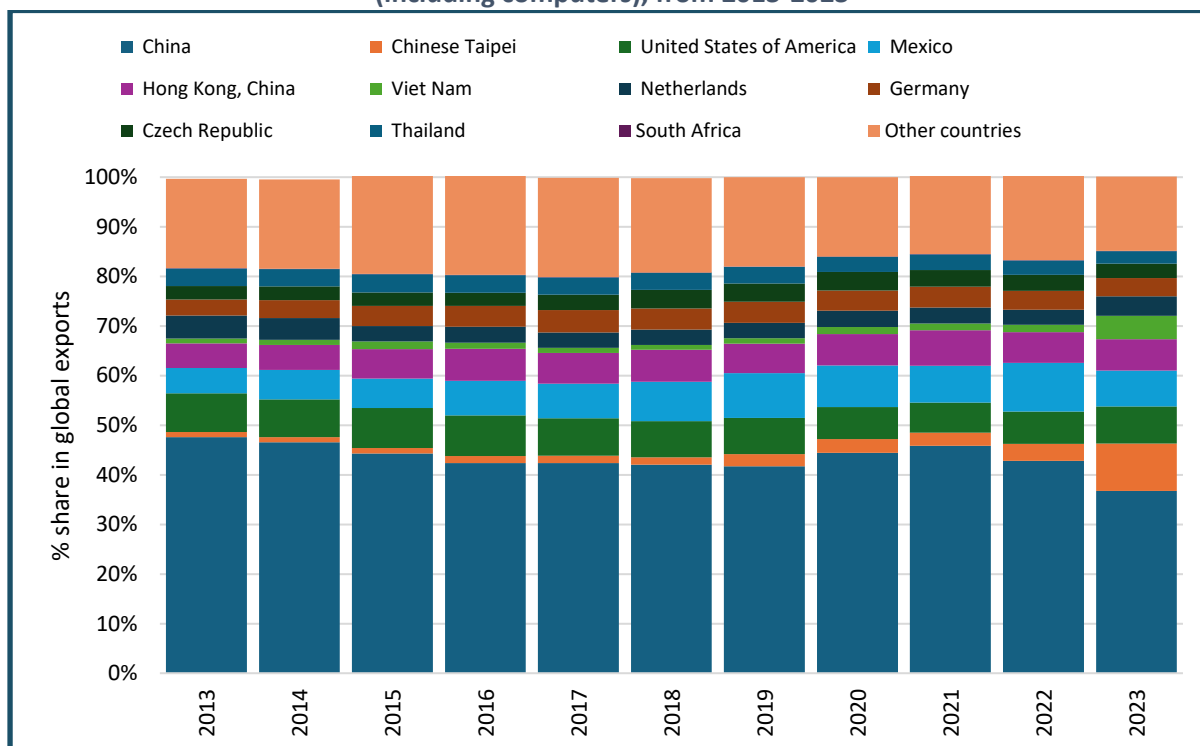


Source: Calculated from ITC Trade Map. Electronic database. Series on imports of Instruments and appliances used in medical, surgical, dental, or veterinary sciences (HS 9018). Accessed at www.trademap.org in July 2024.

1.2. Trends of global exports

China is the world's top exporter of computers, accounting for 43% (average) of total exports over the past decade (see Figure 4). Other Global South countries, such as Hong Kong (6%), and Chinese Taipei (3%), dominate the international export market as well. The Global North, primarily the United States, averaged 7%, whereas European Union countries such as the Netherlands and Germany participated in the export market with an average of less than 5% in real terms in the same period. South Africa's share of the global export market is less than 1%.

Figure 4: % share of top global exporters of automatic data-processing machines (including computers), from 2013-2023

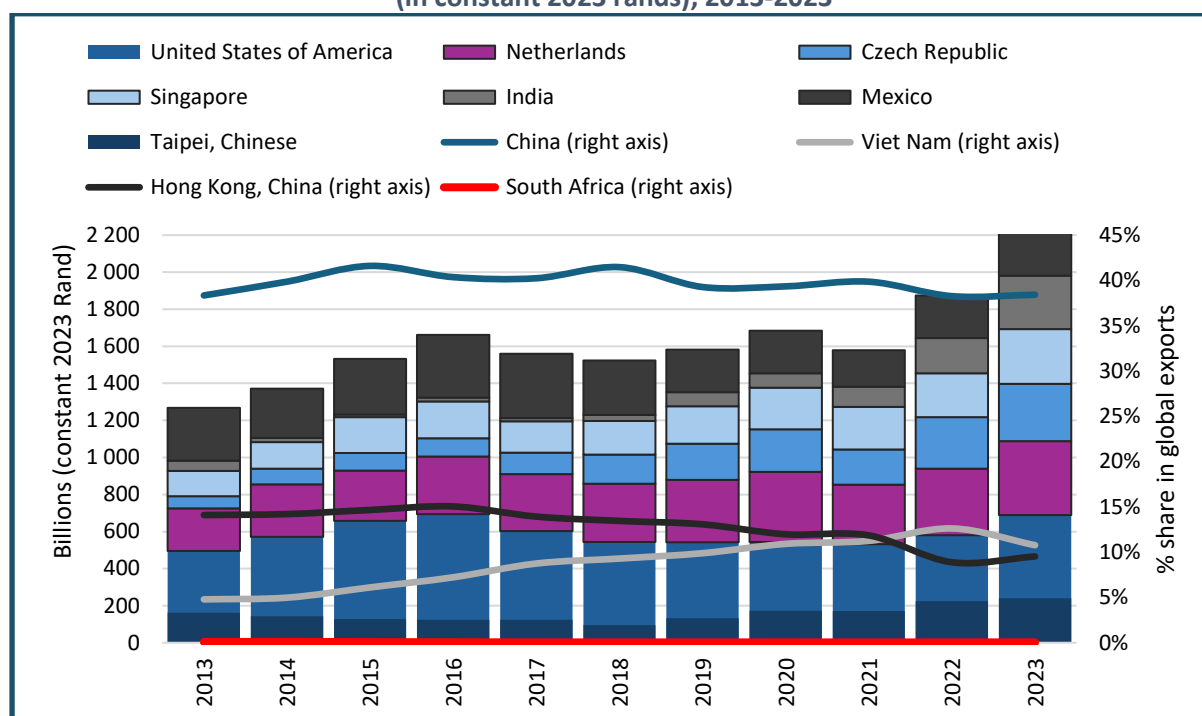


Source: Calculated from ITC Trade Map. Electronic database. Series on exports of automatic data-processing machines and units thereof; magnetic or optical readers, machines (HS 8471). Accessed at www.trademap.org in July 2024.

The smartphone global export industry is dominated by Southern countries, primarily China and Hong Kong, with an average of R3.9 trillion and R1.2 trillion respectively over the last decade, as shown in Figure 5. Over 40% (average) of exports come from China, while the United States accounts for 6% (average). South Africa contributes less than 2% of the world's smartphone export market.

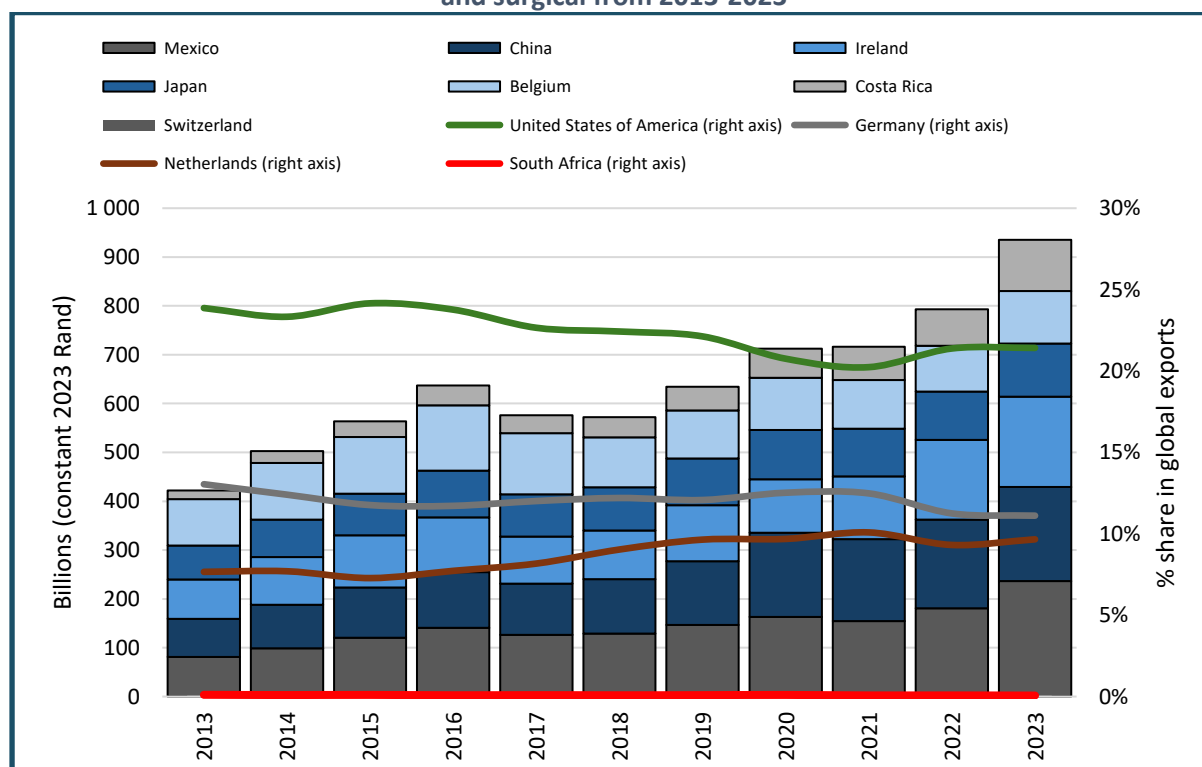
The global export market for medical devices and appliances is similarly dominated by the Global North countries, specifically the United States, Germany, and the Netherlands. Together, they contributed an average of 43% over the last decade. South Africa accounted for less than 1% (average) of the global export market and around R2 billion (average) in real terms during the last decade. (Figure 6)

**Figure 5: Top global exporters of telephone sets, including smartphones
(in constant 2023 rands), 2013-2023**



Source: Calculated from ITC Trade Map. Electronic database. Series on exports of telephone sets, including smartphones and other telephones for cellular networks or other wireless (HS 8517). Accessed at www.trademap.org in July 2024.

Figure 6: Top global exporters of instruments and appliances used in medical, and surgical from 2013-2023

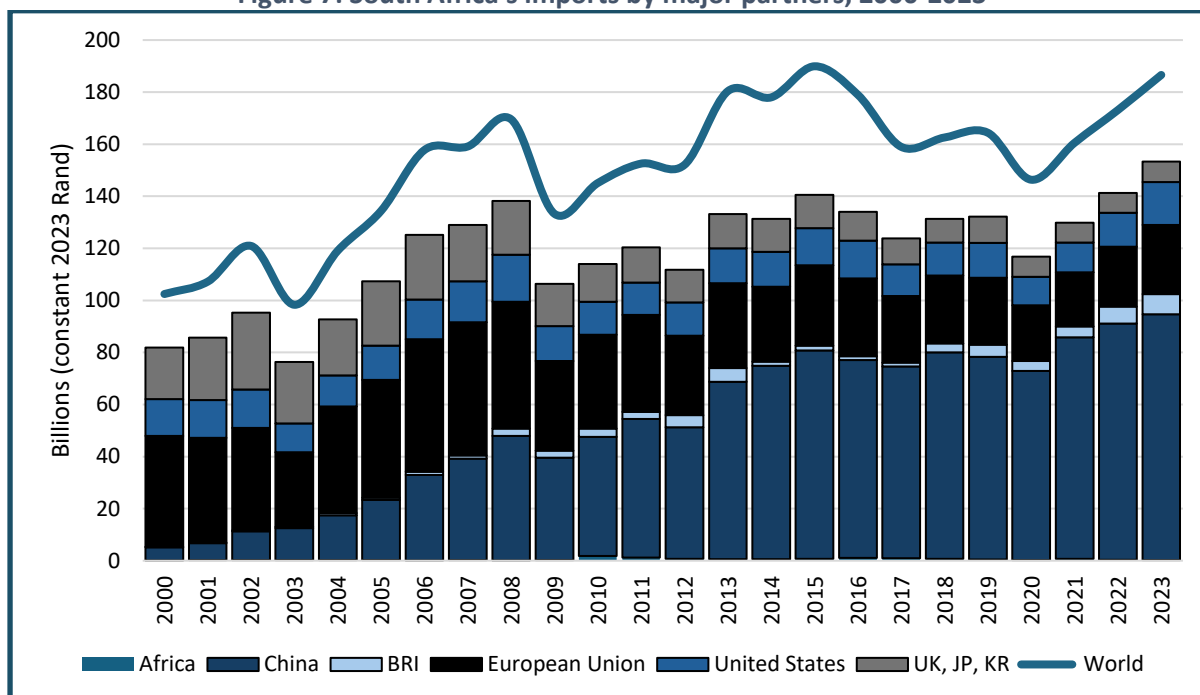


Source: Calculated from ITC Trade Map. Electronic database. Series on exports of Instruments and appliances used in medical, surgical, dental, or veterinary sciences (HS 9018). Accessed at www.trademap.org July 2024.

1.3. Trends in domestic imports

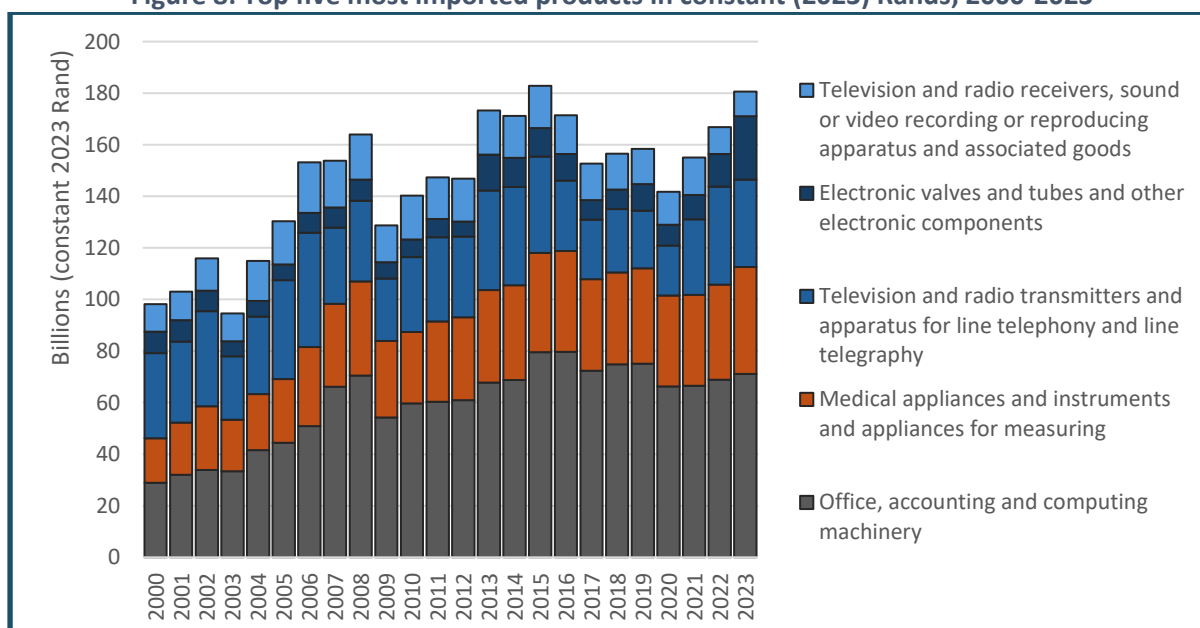
South Africa mostly imports electronics from China, which is a shift from the European Union in the early 2000s. Chinese imports accounted for 32% (on average) of South Africa's total imports over the last decade, while the EU contributed 24% on average. Imports from the BRI (the BRICS countries excluding China and South Africa) and African countries account for less than 5% on average. Figure 7 shows that imports from Africa surged to R1.9 trillion in 2010 from R216 million (in 2009).

Figure 7: South Africa's imports by major partners, 2000-2023



Source: Calculated from Quantec, EasyData. Series on RSA National Trade in International Trade Service. Accessed at www.easydata.co.za in April 2024. Deflated using CPI.

Figure 8: Top five most imported products in constant (2023) Rands, 2000-2023



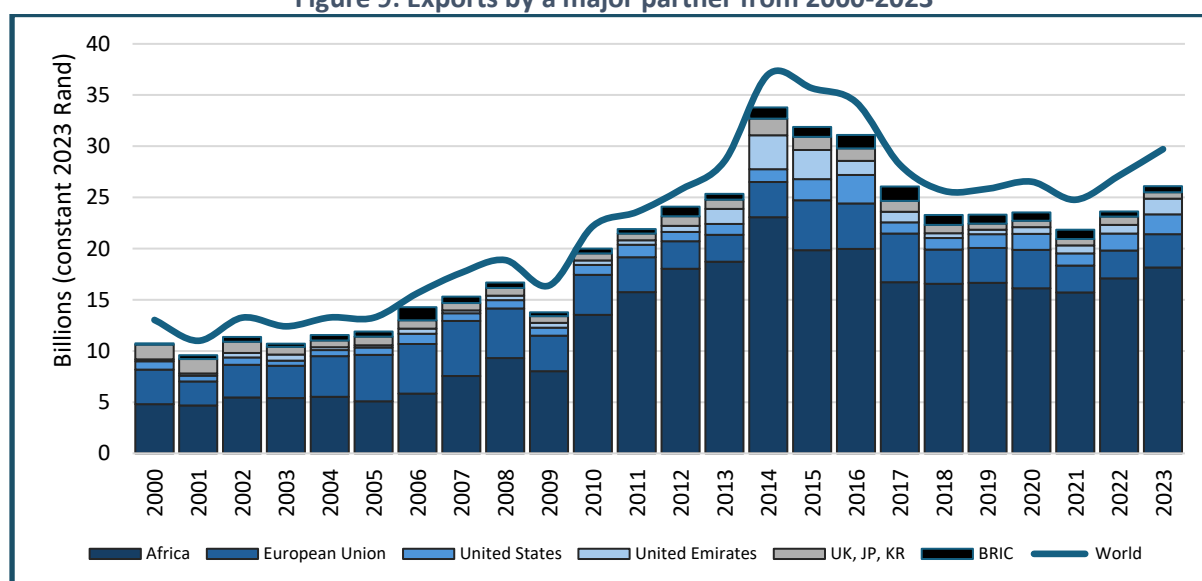
Source: Calculated from Quantec, EasyData. Series on RSA National Trade in International Trade Service. Accessed at www.easydata.co.za in July 2024, deflated using CPI.

South Africa primarily imports office and computer machinery, making up 39% of electronic imports over the past 23 years. Medical appliances and television and radio transmitters also contribute significantly to imports. In 2023, office machinery constituted 38% of electronic imports, while medical appliances accounted for 22%. The least imported items were television and radio receivers, including video monitors and radio broadcasting receivers. (Figure 8)

1.4. Trends in domestic exports

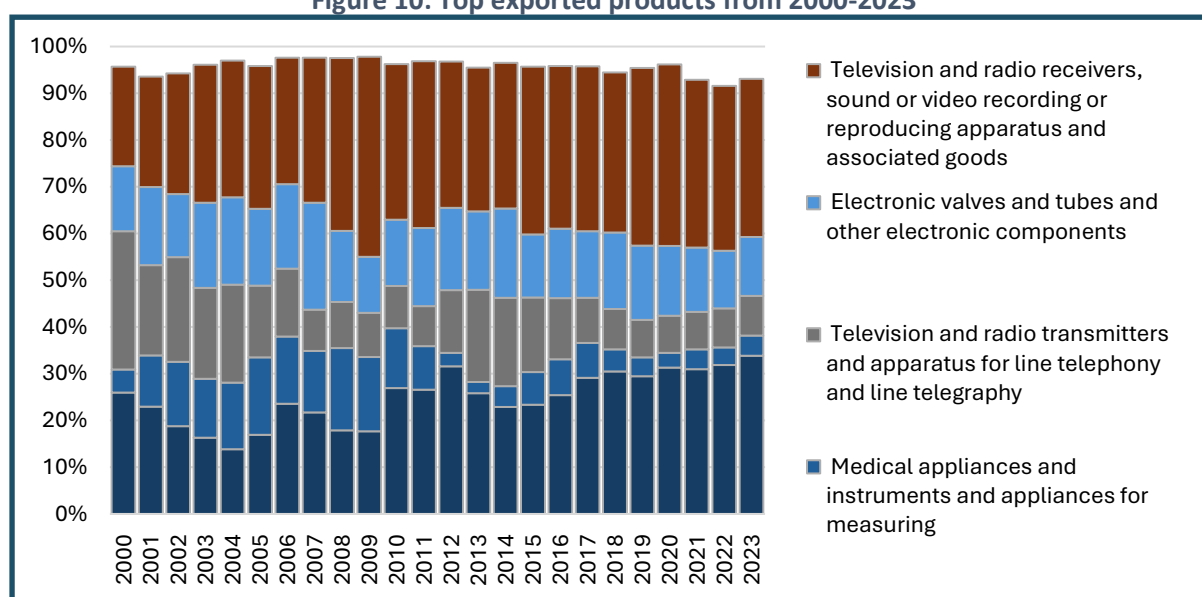
More than half of South Africa's electronics are sent to African countries, accounting for 61% of total exports in the sector. The European Union nations are the second-largest importers of South Africa's electronics, with an average of 11% during the last 23 years. In addition, the United Arab Emirates imports electronics from South Africa at a rate of around 5%. The BRIC countries export less than 5% of total exports (see Figure 9).

Figure 9: Exports by a major partner from 2000-2023



Source: Calculated from Quantec, EasyData. Series on RSA National Trade in International Trade Service. Accessed at www.easydata.co.za in July 2024. Deflated using CPI.

Figure 10: Top exported products from 2000-2023



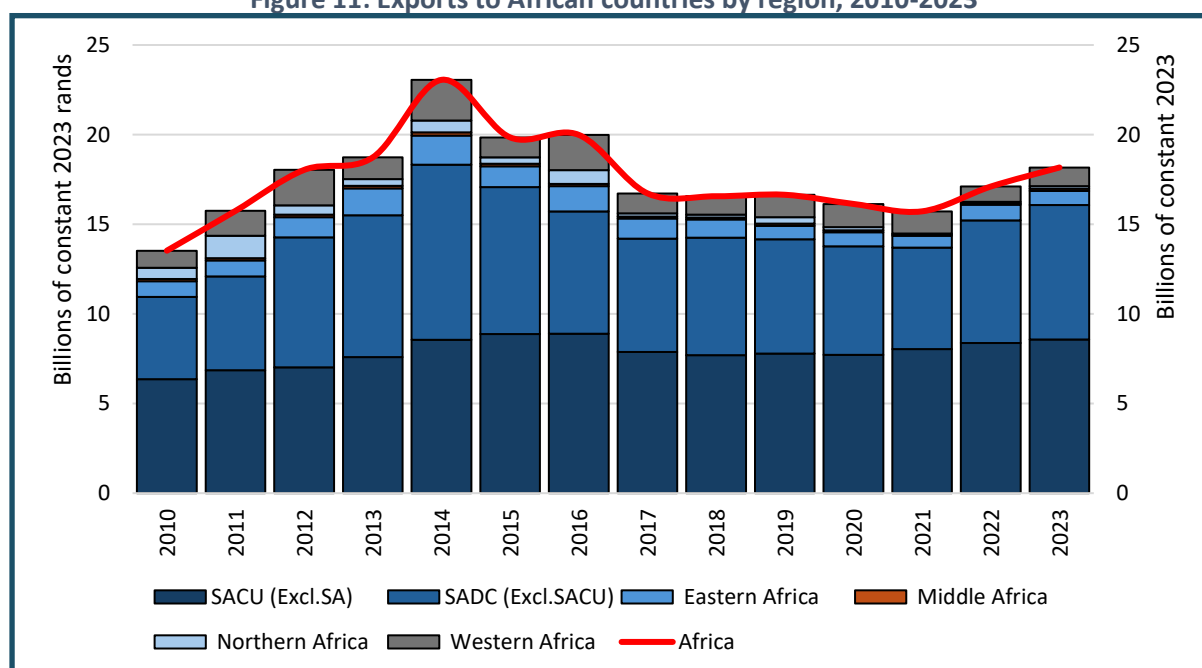
Note: Reflated with CPI and rebased to 2023. Source: Calculated from Quantec, EasyData. Series on RSA National Trade in International Trade Service. Accessed at www.easydata.co.za in June 2024.

Figure 10 shows that the domestic export market for electronics consisted mostly of communication products including television and radio receivers, microphones, headphones, loudspeakers, and others. Over the last 23 years, television and radio receivers accounted for an average of 33% of the total electronics exports, followed by office and computing apparatus (i.e. PCs) at 25%. Furthermore, exogenous shocks such as the financial crisis and the COVID-19 pandemic affected the local export market. Exports of electronics products dropped in 2009, particularly for electronic valves and other electronic components (-32%), and medical appliances (-22%). Similarly, the COVID-19 pandemic caused a fall in exports of most electronic products, except for medical appliances, for which exports increased by 21% from R824 million (in 2020) to R1 billion (in 2021).

1.5. Trends in exports to Africa

South Africa primarily exports electronics to the SACU and SADC regions, which together account for more than 80% of overall African exports over the last twenty-three years (Figure 11). South Africa exported 8% (average) to West Africa. East Africa followed with a 6% average in total electronic exports.

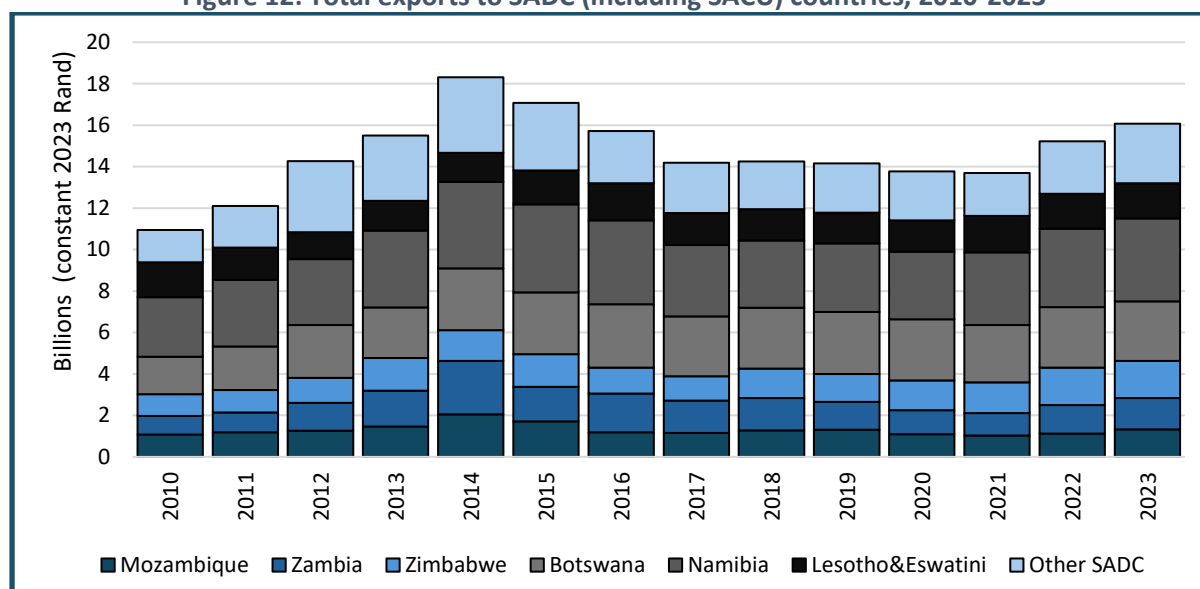
Figure 11: Exports to African countries by region, 2010-2023



Note: Reflated with CPI rebased to 2023. Source: Calculated from Quantec, EasyData. Series on RSA National Trade in International Trade Service. Accessed at www.easydata.co.za in July 2024.

Namibia is a key player in the regional electronics market, primarily importing electronic products from South Africa, with average imports of R3.6 billion over the past 23 years (see Figure 12). Botswana has also become an important export partner, spending an average of R2.7 billion on electronics during the same period. In addition, Lesotho and Eswatini contribute a combined average of R1.6 billion in total electronic exports. SACU nations collectively import the most electronics from South Africa.

Figure 12: Total exports to SADC (including SACU) countries, 2010-2023



Note: Reflated with CPI rebased to 2023. *Source:* Calculated from Quantec, EasyData. Series on RSA National Trade in International Trade Service. Accessed at www.easydata.co.za in July 2024.

2. FOREIGN INVESTMENT

This section discusses FDI in the electronics value chain and profiles the industry's top foreign investors. Several global businesses have made foreign direct investments in the sector during the last six years, establishing sites in several provinces to manufacture electronics and medical products. In terms of telecommunications, multinational firms provide services rather than manufacturing domestically, however, some corporations have expanded their operations.

According to the TIPS FDI Tracker database (2018-2023), various investments were publicly declared between 2018 and 2023 (see Table 1). These include investments in manufacturing facilities. For example, in 2019, the German medical and pharmaceutical device manufacturer B. Braun invested R300 million in South Africa for its integrated pharmaceutical factory in Gauteng. The plant manufactures sterile goods, dialysis concentrates, and disinfectants (B. Braun, n.d.). In addition, Dräger, a German firm that produces medical and safety technology products (Dräger, n.d.), invested R135 million in 2022 through its Dräger Safety Zenith subsidiary to create a new manufacturing plant. Furthermore, two optical fibre cable manufacturers made brownfield investments in 2023. Yangtze Optics Africa Cable made its first investment of R155 million in Dube Trade Port for additional plant and machinery. Another investment was made by Malesela Taihan Electric Cable (M-Tec), which committed to a R70 million investment to increase cable production. The company manufactures and supplies a variety of optical fibre cables, such as duct cables, aerial self-support cables, and direct buried cables (South African Government, 2023).

In addition, the TIPS FDI Tracker database (2018-2023) indicates that businesses have invested in ICT infrastructure projects related to communication services. Several telecom giants have started or expanded their services in the domestic market. In 2019, multinational corporations (MNCs) such as Helios Towers expanded their telecommunications infrastructure by investing R1.4 billion in acquiring existing infrastructure, new buildings, and cellphone sites. Google built the Equiano undersea fibre optics cable, which connects Europe and Africa for R2.3 billion. Another subsea cable, the Mauritius Telecom T3, was created by Liquid Intelligent Technologies, a UK-based corporation. It connects Mauritius to South Africa. Paratus Teleport, a Namibian ICT infrastructure company, established a satellite teleport facility in South Africa. Mastercard, a US company, is developing new technological

infrastructure. Furthermore, the TIPS FDI Tracker database highlights the recent establishment of various data centres by leading technology companies, including Teraco, Vantage Data Centers, Dimension Data, Acronis, and Equinix. Other investments included cloud infrastructure, with Amazon Web Services investing R30 billion in local cloud infrastructure and Google South Africa Cloud. Furthermore, the broadcasting services, notably the television business, received considerable investment in 2021. Netflix, in collaboration with the National Film and Video Foundation, contributed R28 million to assist South African filmmakers' creation of micro-budget feature films. Netflix, the internet streaming giant, also provided R929 million in financial aid to three South African films, including one international production.

Table 1: Foreign Direct Investments (FDI) from 2018-2023Q4

INVESTOR COMPANY	PROJECT NAME	INVESTMENT AMOUNT	DOMESTIC GEOGRAPHIC LOCATION	INVESTOR COUNTRY
B. Braun	B. Braun Pharmaceutical Plant	R300 million	Johannesburg, Gauteng	Germany
South Africa and German government	SKA MeerKAT telescope expansion	R400 million	Northern Cape	Germany
Dräger Safety Zenith/ Dräger	Dräger Southern Africa	R135 million	Easter London, Eastern Cape	Germany
Malesela Taihan Electric Cable (M-Tec)	M-Tec	R70 million	South Korea/South Africa	China/South Africa
Yangtze Optics Africa Cable	YOA fibre optic manufacturing plant project	R155 million	KwaZulu-Natal	China

Source: TIPS FDI Tracker. 2018 – 2023Q4.

Downloaded at <https://www.tips.org.za/manufacturing-data/fdi-tracker> in July 2024.

3. DOMINANT FOREIGN EXPORTERS

The domestic electronics industry has few local manufacturers, with exports dominated by multinational companies such as Samsung, LG, Hisense, Acer, and Lenovo, particularly in the telecommunications industry. In the field of medical devices, dominant exporters include companies like B. Braun Medical, BSN Medical, and Dräger. In telecommunication, the production of computers, laptops, and smartphones is mainly dominated by global original equipment manufacturers (OEMs) like Dell Computer, HP, Lenovo (South Africa). These global companies generally import products, provide wholesale services in the domestic market, and then export to regional markets. Local large tech companies are primarily involved in hardware wholesale and software distribution and have fewer manufacturers. Therefore, this section specifically addresses manufacturers that are primarily engaged in exporting medical products and, to a lesser extent, involved in the production of telecommunication products.

In the medical appliances industry, dominant exporters are large international companies such as BSN Medical, B. Braun Medical, and Dräger South Africa. They produce a range of medical products that are dominantly exported to neighbouring Sub-Saharan countries, albeit these companies also import from developed countries. For instance, BSN Medical imports from Germany, India, and

America and exports about 30% of its products to Africa, Germany, and the Middle East (WOW, 2023). Local medical producers that are exporters are mostly privately owned firms exporting to Africa with some firms shipping abroad. Sinapi Biomedical (Pty) Ltd and Southern Implants (Pty) Ltd export their products abroad, while Elite Surgical Supplies exports to Europe, Asia, the Middle East, and Africa. Similarly, a small firm, Electro Spyres Healthcare exports to markets in Africa, Asia, the Middle East, Europe, and North America. Table 2 further lists manufacturers (local and foreign) that are exporters in the industry.

In the telecommunication segment, for products such as computers, laptops, and smartphones the market is dominated by global OEMs such as Dell Computer, HP, Lenovo (South Africa), Samsung Electronics South Africa, Apple, and LG Electronics SA. These firms generally import products and provide wholesale services in the domestic market then export these to the regional markets. However, Acer is set to start its local production of consumer monitors in the domestic market in August 2024 (BusinessTech, 2024). The domestic market is dominated by large, listed firms providing services in hardware wholesale and software distribution such as Mustek, 4Sight Holdings, Datatec, and Alviva Holdings (delisted). Other firms are involved in assembling and exporting, Alviva Holdings, for example, imports and assembles ICT hardware and software products, and exports them to the Sub-Saharan African markets (WOW, 2024a). These firms also assemble and distribute global OEM products. For instance, Mustek assembles and distributes personal computer products and peripherals for major brands (Mustek Limited, 2024). In addition, a local manufacturer of electronic telecommunication equipment (i.e., TV components, set-top boxes, and PC boards), CZ Electronics, produces products for MultiChoice that are exported to MultiChoice branches around Africa.

**Table 2: Foreign and local manufacturers that export medical products
(including devices) in South Africa**

EXPORTER	EXPORT MARKET
B Braun Medical (Pty) Ltd	Supplies to the domestic market and neighbouring countries.
Dräger South Africa (Pty) Ltd	The company imports medical and safety products and equipment such as monitors and incubators from Germany, the US and the UK. Their export market is in the Sub-Saharan African market.
Electro Spyres Medical (Pty) Ltd	Manufactures medical products such as electro-surgical products, and ultra-sound gels that are exported to Africa, Asia, the Middle East, Europe and North America.
Elite Surgical Supplies (Pty) Ltd	Manufactures and imports arthroplasty, neuro, and specialist orthopaedic devices. Products are exported to Europe, Asia, the Middle East, and Africa.
Lodox Systems (Pty) Ltd	The company manufactures full-body digital X-ray image devices that are exported abroad.
Southern Implants (Pty) Ltd	The company manufactures dental implants for dentists and distributors globally.
SSEM Mthembu Medical (Pty) Ltd	Manufactures electro-medical devices and other products exported to the Southern African region. The company also imports and distributes these products.

BSN Medical (Pty) Ltd	The company exports about 30% of its manufactured medical products to Germany, Africa, and the Middle East. About half of their imports are from Germany, India, and the US.
Sinapi Biomedical (Pty) Ltd	The company manufactures plastic medical device products that are exported to more than 30 countries.

Source: WOW, 2023.

4. SUMMARY AND CONCLUSION

The electronics industry is labour-intensive due to high-demand production, which leads to job creation. However, South Africa's electronics industry is relatively small, with only a 1% revealed comparative advantage compared to similar economies such as China (29%) and Latin America (10%) between 2018 and 2022. Further, global analysis shows low competitive levels (less than 10% average) against global leaders in electronics manufacturing. Domestic challenges include the influx of cheaper imports of components and products from China, as well as intense competition from Chinese firms and Asian markets. The industry is also sensitive to external shocks, evidenced by drops in domestic exports in real terms during the global financial crisis of 2009 and the COVID-19 pandemic in 2020.

From 2013 to 2023, China dominated the global export market for computers and smartphones, accounting for approximately 80% of the combined global exports. The US was the primary importer of both personal computers and smartphones. Medical devices and appliances were mainly exported and imported by Northern countries such as the US and European Union states like Germany and the Netherlands. In the domestic market, China and the European Union are the main exporters of electronic products to South Africa. The most sought-after products are computers, which are in higher demand compared to other electronic products. In the export market, more than half of electronic products from South Africa are received by Africa, followed by the European Union. The top exported products in the communication category include television and radio receivers. Within the African region, SACU and SADC account for approximately 80% of South Africa's exports, with Botswana and Namibia being the primary recipients of electronic products.

In addition, foreign direct investments in the industry have been primarily aimed at setting up pharmaceutical plants by German companies such as B. Braun and Dräger in South Africa. Furthermore, investments have also been directed towards establishing data centres. Additionally, the dominant foreign exporters in the industry are multinational companies that have established operations in the domestic market. These companies rely heavily on importing components and products, which are then assembled in South Africa and exported to the African region.

In conclusion, South Africa has the potential to use its local manufacturing capacity to produce electronic products, despite facing challenges from cheap imports and strong competition from Chinese companies and Asian markets. To tackle these challenges, South Africa has the opportunity to focus on bolstering domestic production capabilities and promoting innovation. The industry could also greatly benefit from forming strategic partnerships and securing investments to enhance its global competitiveness. Furthermore, policy initiatives, such as the designation of products, have contributed to industry growth. For instance, in the Digital Terrestrial Television (DTT) project within the telecommunication industry, expanding designations to other electronic products could further enhance industry development. In addition, regional trade plays a vital role in industry development, as evidenced by the SADC and SACU regions being major importers of electronic products. The African Continental Free Trade Area (AfCFTA) presents an opportunity to expand into other African markets. Supporting smaller players is crucial to fostering export growth and strong competition.

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