

# The Sudden Impact on Manufacturing

## Mobility 2030



South African automotive exports earned the country R164.9-billion in 2017, translating to 13.9% of SA's total export earnings<sup>1</sup>. This is set to change in the not-too-distant future, as the effect of policy and regulatory changes in countries such as the UK and China translates into the decline of demand for internal combustion engine (ICE) motor vehicles and related components, which will have a significant impact on the economy.

With the global shift to a mobility ecosystem – which will ultimately change how people and goods move in the future – it is a critical time for SA to consider what role it will play in shaping the future of mobility, both domestically and globally. How does this impact the manufacturing sector? The short answer: In more ways than one.

The 2018 Automotive Export Manual (AEM) indicates that 2017 vehicle and component production accounted for 30.1% of SA's manufacturing output. The broader automotive industry's contribution to the gross domestic product (GDP) was 6.9%.

KPMG South Africa has unpacked some of the threats that lie ahead and focused on the opportunities they could potentially unlock.

### A Shift in Demand

Low demand for electric vehicles (EV) in the South African market, combined with expected rise in demand for EVs in markets that import South African produced motor vehicles and components, presents a medium- to long-term risk for SA manufacturing exports. In 2018, 57% of all motor vehicles and 49.6% of motor vehicle components produced have been exported to other countries. This translates into R139.4 billion of revenue at risk.

Behind the increase in expected demand is strategic decision making by other countries to invest in a future with electric and autonomous vehicles (AVs); develop new business opportunities and escape from the reliance on hydrocarbon fuels.

If South Africa wants to continue exporting vehicles, and attract investors, there needs to be shift to high-tech manufacturing. The miniaturisation of sensors, embedded components, intelligent materials (like memory foam exteriors) are avenues to explore. This is in addition to shifting of manufacturing capacity from primarily liquid-fuel based motor vehicles to EVs.

### What do our clients in the automotive sector need to ask themselves?

- Following a full analysis of the liquid-fuel value chain applied to car manufacturing – where will the greatest impact be?
- How can we adapt current capabilities to meet future needs? For example, adapting the manufacturing of side view mirrors to sensor-embedded mirrors. This could mean a consolidation of the industry and multiple mergers and acquisitions/partnerships.
- How can we re-skill and upskill the people most affected by these changes?

<sup>1</sup> Source: <http://www.engineeringnews.co.za/article/auto-exports-earned-south-africa-r165-billion-in-2017-2018-05-04>

## Powering Jobs in Africa

The current problem with electric vehicles is range anxiety. What if I need to drive a longer distance and have to recharge my car? Superior battery technology is a source of research and development investment. South Africa has the opportunity to create superior batteries in terms of:

- Faster charge time
- Greater energy storage
- Lower cost
- Smaller volume requirements
- Stability<sup>2</sup>

SA can also play an important role in the future adoption of fuel cells as clean and reliable alternative energy sources. Fuel cells, as an energy storage medium, is being considered as one of the most plausible choices for alternative energy, due to the abundance of elemental hydrogen available on the planet.

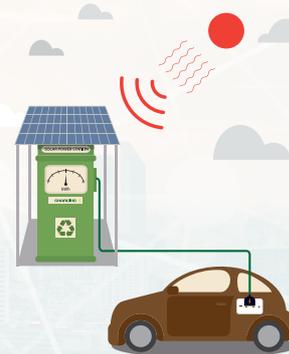
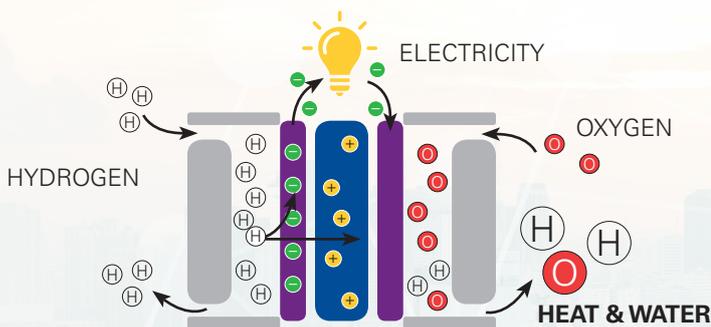
A major advantage of using fuel cells as an energy source is that the by-product produced from pure hydrogen is water. This means that, unlike other fuel sources such as petrol and diesel, there is almost no impact on the environment. This source of energy assists in reducing noise pollution and heat transmission, making them more stable compared to ICEs.

Platinum group metals (PGMs) are considered to be one of the key catalytic materials used in most fuel cells. With most of the world's reserves of PGMs in South Africa, there is great potential to reintroduce PGMs into the vehicle manufacturing process. With this comes the potential for socio-economic benefits to be derived from these natural resources. SA can harness these benefits through the development of PGM-based hydrogen and fuel cell technologies.

A number of car manufacturers, such as Toyota, have already started producing and testing fuel cell based vehicles. Industries in South Africa – such as telecommunications, hospitals, mines and the military – also utilise fuel cells.

## Benefits of Fuel Cells

- Emission from fuel cells is heat and water
- Refuelling of fuel cell powered vehicles is comparable to current petrol or diesel vehicles<sup>3</sup>



## Adapt and Thrive

What will electric and autonomous vehicles look like in the year 2030 and beyond? They could be characterised by a smaller number of parts and more technology, in terms of software – algorithms, external data feeds, data collection and interpretation. Sensors will become a crucial and larger part of the components required. It's clear that automotive manufacturing in South Africa (as we know it) will need to adapt to a new demand, or face a sudden impact. The good news is that there is time to prepare. KPMG South Africa is currently working with our clients to leverage new opportunities and adapt to the not-too-distant future. One thing is certain – the future of mobility is going to shake up many sectors. We will be ready when it happens.

<sup>2</sup> Source: <http://www.thedrive.com/tech/23586/volkswagen-invests-100-million-in-solid-state-battery-firm-quantumscape>

<sup>3</sup> Source: Department of Science and Technology of South Africa

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