Automotive Industry Skills Gap Analysis

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The Objectives of The Labour Market Analysis

Provides contextual background on labour market dynamics in the automotive value chain.

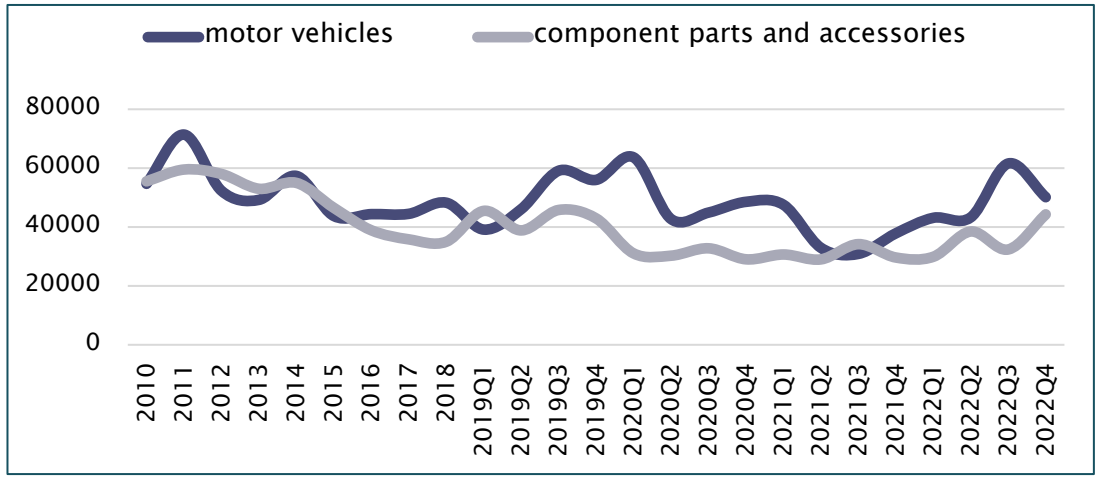
Map the occupations against each core value chain segment process to identify existing occupations and occupations that are transforming and emerging

Identify priority occupations

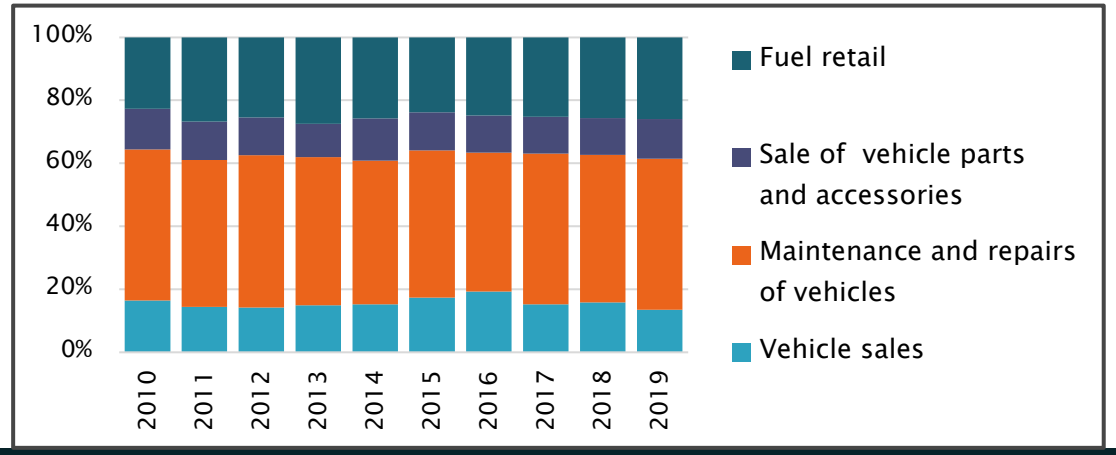
Overview of employment trends in the automotive industry

In 2022Q4, the automotive industry employed 649 000 workers in total, accounting for 0,6% of South Africa's total labour force

Graph 1: Employment in auto components and assembly (2010-2022Q4)



Graph 2: Employment in auto supporting industries (2010-2019)



Direct employment: 94 000 workers were directly employed in component manufacturing and vehicle assembly

Indirect employment: 556 000 workers were employed across several industries that support vehicle use, with maintenance and repairs of vehicles accounting for the largest share (48%)

Employment in auto supporting industries has experienced positive growth i.e. employment in retail fuel increased by 40% and in maintenance increased by 22% over the past decade.

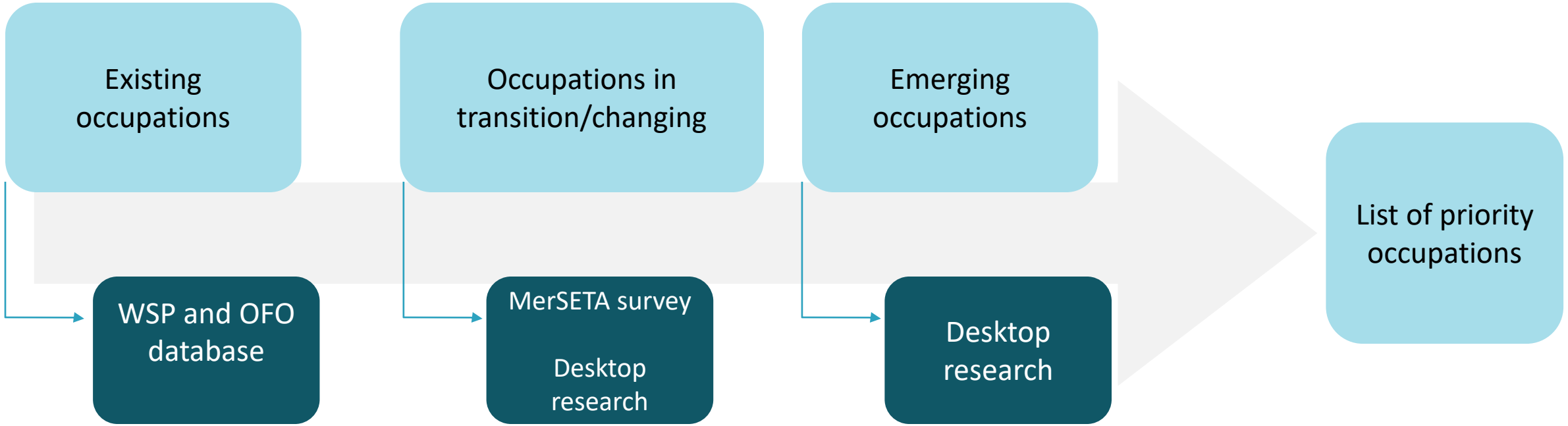
Demographic data indicates: The local automotive industry remains dominated by men, with 70,3% of assembly workers being men & only 29,7% women (women held a quarter (25,8%) of jobs in component manufacturing)

Median age of an employee in vehicle assembly is 40 -49 while in component manufacturing is 30 -39.

Majority of the workforce in automotive manufacturing are in a possession a matric qualification.

Assessment of NEV transition on occupations in the automotive value chain

The transition to NEVs means new occupations will be created, while some will either transition or cease to exist.



Occupations at risk and changing

"At risk" occupations are conceptualised as occupations that are likely to disappear due to the transition to NEVs.

"Transforming" occupations are those where the occupation itself will remain, but the skills required will change

- ILO identified a minimum of **64 occupations as undergoing a "transforming" phase**
- **Auto assembly**: Few occupations are at risk. However, a significant number of occupations require upskilling, in particular occupations that are considered highly skilled.
- **Retail**: Nearly all occupations in retail need retraining. Salespeople, insurers and marketing need to understand the specifications of NEVs and safety.
- **Aftermarket**: These occupations are mostly medium skills i.e. diesel mechanic, although this occupation may not completely disappear, but there will be a significant reduction in the demand for such occupations.
- **Infrastructure and use:** Relatively few occupations, but most occupations that require reskilling are medium skilled occupations i.e service station personnel.

ASSEMBLY	
Occupations at-risk	**Occupations requiring training**
Fuel Manager	Engineering Manager
	Industrial Engineer
	Industrial Engineering Technologist
	Production Engineer
	Production Engineering Technologist
	Mechanical Engineer
	Mechanical Engineering Technologist
	Metallurgical Engineer
	Metallurgical Engineering Technologist
	Draughtsperson
	Manufacturing Technician
	Industrial Engineering Technician
	Environmental Engineering Technician
	Engineering Supervisor
	Production / Operations Supervisor (Manufacturing)
	Maintenance Planner
Diesel Mechanic	Metal Machinist
	Mechatronics Technician
	Welder
	Toolmaker
	Metal Machinist
	Fitter and Turner
	Automotive Engine Mechanic
	Mechanical Fitter

Occupations emerging

Emerging occupations are occupations that are not always reflected under the existing OFO classification system, updated framework required.

Demand for software skills, R&D skills,electronic engineers, cybersecurity and expertise in charging infrastructure and smart grids is expected to increase*

- **Auto assembly (PHEVs and BEVs)**: Electrochemical equipment assemblers, electric propulsion engineers, EV test engineers, high voltage technicians and electric vehicle architects, among other occupations.
- **Component manufacturing:** Cell manufacturing and battery assembly related occupations, including R&D, certification, and circular economy
- **Retail and aftermarket:** New occupations will be created in the aftermarket industry, particularly for conversions of ICE vehicles to NEVs and LIB repairs, battery swapping services.
- **Infrastructure and vehicle use:** Many of the emerging occupations in charging infrastructure are in jobs that have opened up opportunities for newly trained existing workers in NEVs, e.g. electricians, engineers, site planners. Other emerging occupations in building and supporting charging infrastructure includes repairers, distributors and supporting admin.

VEHICLE ASSEMBLY	RETAIL	AFTERMARKET	VEHICLE USE
Electromechanical equipment assemblers	Sales Executive – Electric Vehicle Products	LIB repair specialists	Site planners/Urban planners
Electronic and electrical equipment assembler	Sales Specialist – Electric Vehicle Charging Products	Vehicle conversion specialists	Electric Vehicle Charging Electrical Engineer
Electric powertrain engineer			Director of Electrification and Micro grids
Modelling engineer			Engineers
Group Manager, Chassis and Electric Vehicle Structures			Business Development Manager Electric Vehicle Charging
Zero Emissions – Battery Electric Vehicle Engineer			Electricians
Field Engineer – Electric Vehicle Market			Electrical contractors
Mechanical Engineer – - Battery Electric Vehicle - High Voltage Battery Enclosure Job			Distributors
Electric Vehicle Engineer			Charging point operator
Electric Vehicle Build Engineer			E-mobility service provider
Mechatronics Engineer – Autonomous and Electric Vehicles			Salesperson and marketing
Mechanical Engineer – Electric Powertrai			Smart grid Specialist
Program Manager, Electric Vehicle Implementation			Software developers
			Emergency/First Responders/Safety Experts in NEVs

Skills Development & Training

Reskilling in the aftermarket

- Approx. **70 000 workers** were employed as petrol attendants, spread across 5 000 petrol stations
- South Africa petrol attendants benefit from **the Petroleum Product Act (PPA) No. 58 of 2003 (Amended) policy**, that maintains the role of petrol station attendants.
- NEV charging stations are currently self-service, therefore petrol attendants risk losing their jobs with no prospect of being absorbed in NEV charging.
- **Reskilling requires a strong education foundation**, especially within the EV ecosystem as the majority of occupations in EVs are highly technical skilled jobs that require vocational training and in some cases, a qualification

Upskilling electricians

- NEVs require qualified electricians, including high-voltage electricians.
- There are even fewer qualified high-voltage electricians – demand for these type of electricians mainly comes from Eskom, municipalities and mines
- There are **not enough qualified electricians to support the NEV ecosystem**, and the increased demand for electricians as a result of NEVs could lead to serious shortages of electricians in the country.

An inclusive transition: The case of informal mechanics

Demand for auto mechanics for ICE and NEV markets is likely to increase, in both quantity and the level of advanced technical skills required.

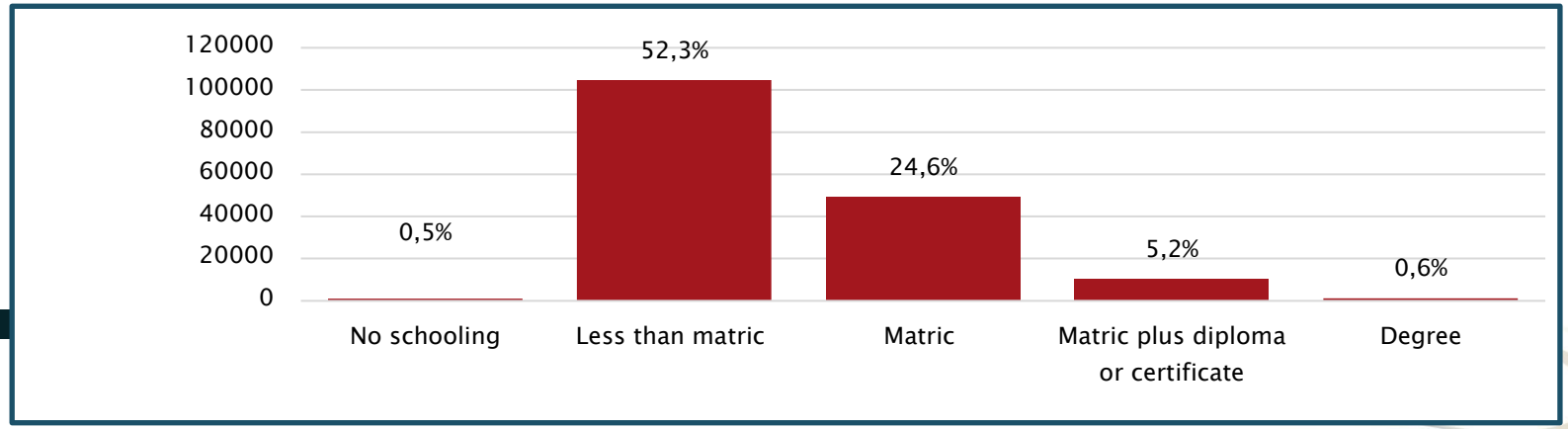
Approx. 46% mechanics were considered informal workers.

Informal mechanics **risk losing revenue** and **losing out on work (and potential customers), but also risk their safety**

Unqualified and poorly trained mechanics could negatively affect the quality of repairs.

Reduce APRL barriers for informal mechanics and electricians

Graph 3: Highest education attainment level among auto mechanics in 2020



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