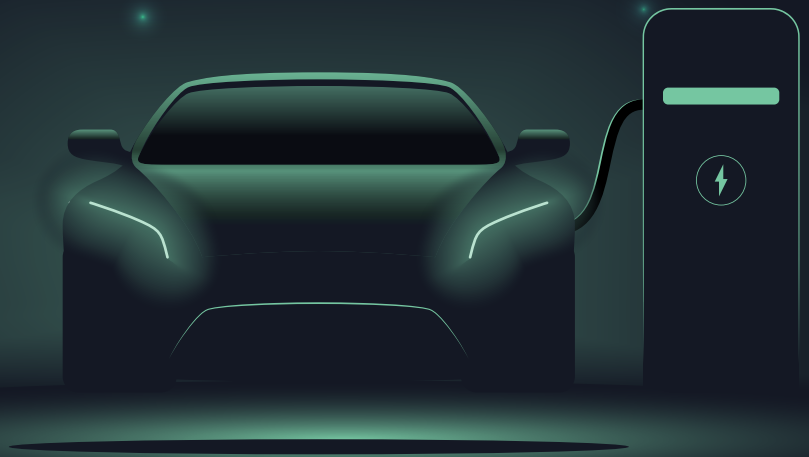


# ELECTRIFYING TRANSPORTATION FOR A SUSTAINABLE FUTURE



ACCELERATING EV MANUFACTURING SKILLS IN SOUTH AFRICA



## INTRODUCTION

The Electric Vehicle (EV) industry is poised to shape the future of transportation while mitigating the adverse effects of greenhouse gas emissions. Recognizing its economic and environmental significance, IYF, in partnership with the British High Commission; Pretoria and the Skills for Prosperity Programme (S4P), through our High Gear initiative, have conducted an in-depth research study focusing on the competencies required for EV manufacturing in the Republic of South Africa. This research culminated in a landmark report which highlights the knowledge and skill gaps among Technical and Vocational Education and Training (TVET) college students and proposes a competency framework to bridge these gaps.



## CRITICAL FACTORS

### ECONOMIC AND ENVIRONMENTAL IMPACT:

The EV industry encompasses the automotive, energy, and transport sectors, making it a priority industry for any economy.

EVs have significant economic and environmental impacts, including reducing greenhouse gas emissions and fostering sustainable development.

### COMPETENCY GAP ANALYSIS

Our research report reveals competency deficiencies in the South African EV industry, particularly concerning infrastructure and electricity challenges.

Through surveys, interviews, and focus group discussions with TVET students, lecturers, and industry stakeholders, we identified a substantial knowledge and skill gap in EV manufacturing and maintenance.



## CRITICAL FACTORS

### COMPETENCY FRAMEWORK:

To address these gaps, we have developed a comprehensive competency framework based on the, internationally recognised, Competency-Based Education (CBE) philosophy.

The framework covers pre-manufacturing knowledge, manufacturing acumen, and post-manufacturing skills, encompassing a Technology-Integrated Competency Model and a Managerial Competency Model.

### RECOMMENDATIONS:

Our report provides recommendations for TVET students, the South African Government, and TVET College management to optimize the framework's utilization.

We advocate for robust engagement among stakeholders, including the TVET directorate in the Department of Higher Education and Training (DHET), the Quality Council for Trades and Occupations (QCTO), the public and private sector to collectively intervene in enhancing EV-related teaching and learning and ultimately ensuring that South Africa's Automotive Manufacturing Sector is best positioned to assure the successful transition from Internal Combustion Engine vehicle manufacturing, maintenance and operation to Electric Vehicle integration.

### KEY COMPETENCIES INCLUDE:



ELECTRIC VEHICLE  
SYSTEM ENGINEERING



RENEWABLE  
ENERGY



QUALITY &  
STANDARDIZATION



CHARGING  
INFRASTRUCTURE



WORKPLACE  
BEHAVIOUR



DESIGN AND  
MANUFACTURING  
PROCESSES



BATTERY  
INFRASTRUCTURE  
OPERATION



ELECTRIC VEHICLE  
MAINTENANCE



COGNITIVE & PERSONAL  
EFFECTIVENESS



THE GREEN  
SUPPLY CHAIN  
& LOGISTICS



## FOSTERING COLLABORATIVE PARTNERSHIPS FOR EV ADVANCEMENT

Our work extends beyond the competency framework for EV manufacturing, maintenance, and operation. We strive to foster an ecosystem of collaboration and innovation, bringing together industry stakeholders, government bodies, educational institutions, and communities.

By facilitating cross-sector partnerships, we aim to create a supportive environment that nurtures the growth of the EV industry in South Africa.

### DRIVING EQUITABLE AND SUSTAINABLE DEVELOPMENT THROUGH ELECTRO MOBILITY

As part of the Just Energy Transition Partnership (JETP), we are committed to advancing a sustainable and equitable future for all. One crucial aspect of this transition is the widespread adoption of EVs as a cleaner and more efficient mode of transportation.

By collaborating with stakeholders from various sectors, we aim to accelerate the integration of EVs into our communities, addressing not only environmental concerns but also the social and economic dimensions of the transition. Our work in supporting the strengthening of EV manufacturing, maintenance, and operation aligns with the partnership's objectives, ensuring that the benefits of the JETP extend to all, promoting job creation, reducing emissions, and fostering a more inclusive and resilient society. Together, through the JETP, we are driving transformative change towards a sustainable and equitable energy future.

Through our initiatives, we envision a future where EVs are not just a mode of transportation but a catalyst for sustainable development. By embracing electro mobility, we can reduce our reliance on fossil fuels, decrease air pollution, and create new opportunities for job creation and economic growth. Together, we can pave the way for a cleaner, greener, and more prosperous South Africa, with electric vehicles at the forefront of our sustainable transportation revolution.

#### CONCLUSION:

By addressing knowledge and skill gaps and implementing the competency framework, IYF will lead the skills planning/enrichment as we prepare for the country's readiness for the EV industry. Together, we can contribute to sustainable development, foster green innovation, and establish South Africa as a key player in the global EV market.

PLEASE VISIT OUR WEBSITE  
FOR THE DETAILED EV  
RESEARCH REPORT AND  
COMPETENCY FRAMEWORK:

[iyfsa.org/Competency-Report/](https://iyfsa.org/Competency-Report/)

