OCCUPATIONAL FRAMEWORK
TRANSPORT VIA RAILWAYS

JABATAN PEMBANGUNAN KEMAHIRAN
KEMENTERIAN SUMBER MANUSIA

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Transport Via Railways
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ABSTRACT

The Transport via Railways Sector in Malaysia is undergoing a renaissance, with growth in passenger and freight custom to levels not seen for almost a hundred years. The industry is responding by providing ever better levels of service, underpinned by investment in trains, stations, and infrastructure and service provision. At the same time, it is improving its financial performance and efficiency so railway users and taxpayers get better value for money.

To sustain the competitiveness of the Rail industry, value integration through cross border connectivity to enhance mobility for the people is a crucial focus. The development of rail industries is integrating all elements from manpower development, rails infrastructure, and rail technology. These elements are clustered together to create a value chain, which ensures the progressive development of the rail activities.

The need of the workforce requires comprehensive and holistic development process integration from all sectors including the education and skills training as well as input from the industry. Support from all quarters, especially from the government is essential to ensure that the need of workers in this field will always be sufficient and sustainable.

With the Occupational Structure (OS) clearly defined, the industry stakeholders will be able to identify job areas and sub-areas that will require more intensive efforts in human capital development. Although, there have been past efforts in National Standards Development for the Sector, the need for a much comprehensive and holistic Occupational Framework is deem necessary to determine the overall composition of areas and sub-areas that may not yet have been focused on. The Occupational Structure, Job Descriptions and Skills-in demand that will be the outcome of this analysis shall be utilized as a “blueprint” or “framework” of the manpower planning for Transport via Railways sector in Malaysia.

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ABBREVIATIONS

AC	Alternating Current
AFC	Automatic Fare Collection
APM	Automated People Mover
ATO	Automatic Train Operation
BRIC	Brazil, Russia, India, China
CBD	Central Business District
CBT	Competency Based Training
CEO	Chief Executive Officer
CFO	Chief Financial Officer
CIO	Chief Information Officer
COO	Chief Operating Officer
CRCC	China Railway Construction Company
CSNR	China South North Railway
DC	Direct Current
DOE	Departmental of Environment
DSD	Departmental of Skills Development
DSD	Departmental of Skills Development
ECER	East Coast Economic Region
ECRL	East Coast Rail Line
EIA	Environment Impact Assessment
E-MAS	ERL Maintenance Support Sdn. Bhd
EMS	Environmental Management System
EPP	Entry Point Projects
ERLSB	Express Rail Link Sdn. Bhd.
ERP	Emergency Response Plan
ETP	Economic Transformation Programme
ETS	Electric Train Service
GM	General Manager
GTP	Government Transformation Programme
HOD	Head of Department
HSR	High Speed Rail
IMP	Industrial Master Plan
ISO	International Standard Organization

IT	Information Technology
JB	Johor Bahru
JD	Job Description
JPJ	Jabatan Pengangkutan Jalan/Road Transport Department
JPK	Jabatan Pembangunan Kemahiran
JTPOF	Jabatan Teknikal Penilaian Occupational Framework
KL	Kuala Lumpur
KL-CAT	Kuala Lumpur City Air Terminal
KLCC	Kuala Lumpur City Centre
KLIA	Kuala Lumpur International Airport
Km	Kilometer
KTMB	Keretapi Tanah Melayu Berhad
KVDT	Klang Valley Double Track
KVMRT	Klang Valley Mass Rapid Transit
LCCT	Low Cost Carrier Terminal
LRT	Light Rapid Transit
MA	Malaysia Airport
MD	Managing Director
MOT	Ministry of Transport
MQF	Malaysia Qualification Framework
MQSQF	Malaysia Occupational Skills Qualification Framework
MRT	Mass Rapid Transit
MSIC	Malaysia Standard Industrial Classification
NBR	North Borneo Railway
NKEA	National Key Economic Areas
NOSS	National Occupational Skills Standard
O&M	Operation & Maintenance
OA	Occupational Analysis
OCC	Operational Control Centre
OEM	Original Equipment Manufacturer
OS	Occupational Structure
OSHAS	Occupational Health and Safety Standard
PDRM	Polis Di Raja Malaysia/Royal Malaysia Police
PDS	Power Distribution System
Prasarana	Prasarana Malaysia Berhad
QA	Quality Assurance

QEMS	Quality & Environment Management System
QMS	Quality Management System
QMS	Quality Management System
R&D	Research & Development
RAMS	Reliability, Availability, Maintainability & Safety
RFI	Request for Information
RMK	Rancangan Malaysia Ke-
RTS	Rapid Transit System
SHE	Safety, Health & Environment
SMEs	Subject Matter Experts
SOP	Standard Operating Procedure
SPAD	Suruhanjaya Pengangkutan Awam Darat/Land Public Transport Commission
SSR	Sabah State Railway
JKNS	Jabatan Keretapi Negeri Sabah
TCCC	Train Control & Command Centre
TNB	Tenaga Nasional Berhad
TVM	Ticket Vending Machine

CHAPTER 1: INTRODUCTION

1.1 Chapter Introduction

i) National Skills Development Act 2006 (Act 652)

The National Skills Development Act 2006 (Act 652) came into effect on 1st September 2006 after it was officially gazetted on 29th June 2006, with the mandate of promoting, through skills training, the development and improvement of a person's abilities, which are needed for vocation, and to provide for other matters connected therewith. The Act 652 is significant because for the first time in the history of skills training in Malaysia, a national legislation has been enacted solely and exclusively for skills training and development. In addition, the meaning and scope of skills training has been clarified and given a statutory interpretation that can be used to distinguish it from other components of the country's national education and training system. The Act 652 also provides for the implementation of a Malaysian Skills Certification System, leading to the award of five (5) levels of national skills qualification, namely Malaysian Skills Certificate Level 1, 2 and 3; Malaysian Skills Diploma; and Malaysian Skills Advanced Diploma.

ii) Malaysia Qualification Framework (MQF)

The Malaysia Qualification Framework refers to the policy framework that satisfies both the national and international recognized qualifications. It comprises titles and guidelines, together with principles and protocols covering articulation and issuance of qualifications and statements of attainment. Element of qualification framework indicate the achievement for each qualification title. It will also provide progression routes for all the graduates in the respective occupational fields.

The MQF has eight levels of qualification in three sectors and supported by lifelong education pathways as shown in the chart 1. JPK governs the skills sector, in which there are five (5) levels of skills qualification. The definition for each level of skills qualification is specified in Malaysian Occupational Skills Qualification Framework (MOSQF).

<table>
<tr><th rowspan="2">MQF Levels</th><th colspan="3">Sectors</th><th rowspan="2">Lifelong Learning</th></tr>
<tr><th>Skills</th><th>Vocational and Technical</th><th>Higher Education</th></tr>
<tr><td>8</td><td rowspan="3"></td><td rowspan="3"></td><td>Doctoral Degree</td><td rowspan="9">Accreditation of Prior Experiental Learning (APEL)</td></tr>
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<tr><td>3</td><td>Malaysian Skills Certificate 3</td><td rowspan="3">Vocational and Technical Certificate</td><td>Certificate</td></tr>
<tr><td>2</td><td>Malaysian Skills Certificate 2</td><td rowspan="2"></td></tr>
<tr><td>1</td><td>Malaysian Skills Certificate 1</td></tr>
</table>

Table 1.0: MQF Chart

iii) Occupational Framework

Occupational Framework was previously known as Occupational Analysis (OA). Occupational Framework is an outcome of an occupational analysis and research work carried out on a particular industry sector. The contents of an Occupational Framework shall include occupational structure, occupational definitions, job descriptions, manpower requirements and industry intelligence. The Occupational Structure is a matrix that will show the occupational areas and career paths for a particular occupation. The information on manpower skills requirements, occupational descriptions and industry intelligence will allow an overall understanding of the industry's occupational areas. Manpower skills requirements are to identify the skills gaps, and shortages in workforce. Industry Intelligence is based on an actual qualitative and quantitative data from the industry to further strengthen and prove the reliability of the data.

Therefore, a properly planned development and analysis will enable the Occupational Framework to be precise and accurate thus ensuring that it will be a reliable source of information for further analysis of the industry and the development of NOSS and training requirements.

iv) National Occupational Skills Standard (NOSS)

National Occupational Skills Standard (NOSS) is defined as a specification of the competencies expected of a skilled worker who is gainfully employed in Malaysia for an occupational area, level and pathway to achieve the competencies and is gazette in Part IV of National Skills Development Act 652. NOSS is developed by the industry experts based on the needs of the industry and is utilized as the main tool in the implementation of Malaysian Skills Certification System in which the performance of existing industry workers and trainees are assessed based on NOSS for awarding of Malaysian Skills Certificate.

v) Competency Based Training (CBT)

Competency Based Training (CBT) is an approach to vocational training, which emphasizes on what a person can do in a work place as a result of education and training obtained. CBT is based on performance standards, which are set by the industry with main focus on measuring the performance while taking into account knowledge and attitude rather than the duration taken to complete the course. CBT is a learner-centric and outcome-based approach to training which allows each individual to develop skills at their own pace for a similar outcome, thus meaning training practices can be customized for each individual to achieve a similar outcome. CBT concept is the basis of Malaysian Skills Certification system, which is coordinated by JPK.

1.2 Objective of Study

The objectives of the study are as below:

- To produce Occupational Structure (OS) from data analysis, interviews, site visits and focus group;
- To determine job descriptions of each job title from the OS;
- To investigate the skills in demand in the industry.

1.3 Scope of Study

The scopes of work for the study to develop occupational framework are as listed below:

- To conduct literature review on the current industry;

- To consult with relevant industry representatives to obtain expert input from Industry;
- To develop, disseminate and analyze survey and questionnaire's data from industries via industry representatives;
- To perform focus group discussion with the industry representatives, interviews, site visits and/or any other methods in order to achieve the study outcome.

1.4 Background of the Transport via Railways Sector in Malaysia

Guided by the Land Public Transport Master Plan, the rail network continues to be the backbone of Malaysia's existing and future public transport system.

Government is also injecting substantial investments to improve the rail network across major cities in Malaysia. A good example of this is the new Electric Train Service (ETS) from Kuala Lumpur to Ipoh, which began in 2010. The ETS service was further expanded in 2015, with the introduction of the Kuala Lumpur to Padang Besar Electric Train Service (ETS). Meanwhile, the final package of the Gemas-Johor Bahru double tracking and electrification project completion is expected on 2018.

Rail usage is also the fastest growing among all modes of urban public transportation according to ridership data from rail operators. Daily ridership for urban rail services rose 8.5% to 631,988 commuters in 2015 from 557,921 in 2011. The Government has also committed a significant allocation of RM70 billion to fund infrastructure costs to expand and improve the urban rail network. This includes projects such as the LRT Ampang Line extension to Putra Heights, which is expected to complete by June 2016, and the LRT Kelana Jaya Line extension, which will be in full operation on June 2016. Meanwhile, LRT3 Line from Bandar Utama to Klang is expected to complete in August 2020. The much-anticipated MRT Line 1 from Sungai Buloh will be operational in phases. Phase 1 Sungai Buloh to Semantan will be operational by 31 Dec 2016, while the full line up to Kajang station will be operational in July 2017. MRT Line 2 with the total distance of 52.2 km spanning from Sungai Buloh - Serdang to Putrajaya is slated for completion in January 2022. Public transport modal share in 2016 are at 25-30% and by 2030 it's projected to grow by 40%. The government has approved this infrastructure investment and are working to complete it so they could persuade more members of the public to switch from their private vehicles to use public transport."

In the long haul, SPAD is also driving cross border connectivity for the Rakyat via projects such as the Kuala Lumpur-Singapore High Speed Rail (HSR) and the Rapid Transit System (RTS), which will spur socio-economic growth by enhancing business and leisure travel between Kuala Lumpur and Singapore.

1.5 Chapter Conclusion

With the Occupational Structure (OS) clearly defined, the industry stakeholders will be able to identify job areas and sub-areas that will require more intensive efforts in human capital development. Although, there have been past efforts in National Standards Development for the Sector, the need for a much comprehensive and holistic Occupational Framework is deem necessary to determine the overall composition of areas and sub-areas that may not yet have been focused on. The Occupational Structure, Job Descriptions and Skills-in demand that will be the outcome of this analysis shall be utilized as a “blueprint” or “framework” of the manpower planning for Transport via Railways sector in Malaysia.

CHAPTER 2: LITERATURE REVIEW

2.1 Chapter Introduction

A literature review and research is carried out to acquire insights on the scope, policies, programmes and activities in the Malaysian context. The scope covered under this survey includes descriptions, current analysis of the sectors/sub-sectors, job areas/sub-job areas, current situational of the sector, stakeholder, government initiatives, industry and market intelligence of the sector. The literature review includes:

a. Identification of the knowledge gaps in the current literature and research in regard OS in Passenger via Railways Sector. This is conducted through Research and review of the current and relevant literatures, journals, publications, statistical and non-statistical report, etc.;
b. Review and analysis of current NOSS Registry vs. Current Occupational Structure (OS); to identify the gap exist between NOSS and skilled workers impact to the sector;
c. Primary data collection through survey and questionnaires on the situation of the Transport via Railways Sector and prospect for its future development. The survey blended with both qualitative and quantitative questions and solicited through an online survey conducted using Google form, which was distributed to a non-probability convenience sample via email, Facebook and WhatsApp.

2.2 Stakeholders

Stakeholders are defined as a person, group or organization that has interest or concern in an organisation. Stakeholders can affect or be affected by the organization's actions, objectives and policies. For the purpose of this study the scope of stakeholder are confined within transport via railways sector servicing passengers and goods only. Service provider such as tourism (cable train, etc.) is being excluded from this study as it falls under Tourism Industry. The main stakeholders of Transport via Railways sector in Malaysia are as below:

a) Ministry of Transport (MOT)
b) Land Public Transport Commission (SPAD)
c) Keretapi Tanah Melayu Berhad (KTMB)
d) Express Rail Link Sdn Bhd (ERLSB)
e) Prasarana Malaysia Berhad (Prasarana)
f) Malaysia Airport (Sepang) Sdn. Bhd
g) Sabah State Railways (SSR)

The roles and functions of each stakeholder are described below:

Stakeholder	Roles & Functions
MOT	The Ministry of Transport is responsible for the formulation and implementation of policies, strategies and programs for transportation, which covers land (private), aviation and maritime sectors. These will ensure better services in providing an efficient, safe and effective transportation system towards strengthening multimodal transportation as well as enhancing the country's competitiveness. **Mission** Ensure that the various transport systems that are efficient, sustainable, integrated, secure, and user-friendly. **Motto** Sustainable transport heart of national transformation. **Function** • Plan, formulate and implement policies for maritime transport, rail, ports and civil aviation. • Oversee infrastructure projects, rail, maritime, ports and civil aviation. • Coordinate the integration between transport modes to achieve *seamless travel*. • Provide licensing services: - License/permit the operation of the *service provider* and the holder of the concession (except commercial land based vehicles). - Individual license-private/commercial vehicle drivers, pilot and others. - Domestic shipping license. • Register all modes of vehicles. • Determine *pricing policy* (except commercial land based vehicles). • Regulate the policies and operations of the concessionaire/government companies. • Verify/Monitor service standards, security *(service and safety standards)* and legislation. • Implement regional and international cooperation in the field of transport. **Objective** • The provision of integrated transport infrastructure network-based *supply driven*. • Preparation of high-tech transportation system, modern and efficient. • The provision of seamless and secure public transport services and goods. • Preparation of environmentally competitive transportation industry. • Provision of effective regulation and enforcement and integrity.

SPAD	The Suruhanjaya Pengangkutan Awam Darat (SPAD) was established on 3rd June 2010, following the passing of the Suruhanjaya Pengangkutan Awam Darat Act 2010 by the Parliament, which was gazetted in June 2010. The Commission became fully operational on 31st January 2011. **Vision:** To lead the transformation of land public transport to become the rakyat's mode of choice. **Mission:** Ensuring a safe, reliable, responsive, assessable, efficient, planned, integrated, affordable, and sustainable land public transport systems enhance economic growth and quality of life. Following the enactment of Land Public Transport Act 2010, SPAD took over the role of the Commercial Vehicle Licensing Board, the Department of Railways and the tourism vehicles licensing role of the Ministry of Tourism in Peninsular Malaysia. At present, the Commercial Vehicle Licensing Board, Department of Railways and the Ministry of Tourism continue to exercise their role of authority in Sabah and Sarawak. SPAD, which comes directly under the purview of the Prime Minister, brings together the functions of drawing up policies, planning, and regulating all aspects of land public transportation in Peninsular Malaysia, which includes rail, bus, and taxi services, as well as the road and rail-based freight transport. In addition, SPAD carries out an enforcement role for the public transportation system in Malaysia, in close co-operation with other enforcement agencies namely: the Royal Malaysia Police (PDRM) and the Road Transport Department Malaysia (JPJ). Among others SPAD has the following powers to empower them to carry out its function. SPAD plans, regulates, and enforces all matters relating to land public transport and has jurisdiction over Peninsular Malaysia. **Planning power** - Establishing a Master Plan to ensure a comprehensive, integrated and sustainable infrastructure development. **Regulatory power** - Monitoring and regulating standard of performance of the industry's operators through licensing as well as auditing powers. **Enforcement power** - Encompassing powers to investigate as well as to compound/suspend/revoke licenses. In addition it has the power to seize vehicles for offenses relating to the illegal provision of land public transport and tourism vehicle services.

KTMB	KTM was privatised in 1992. The main intercity passenger & freight operator is KTMB, a corporation owned by the Ministry of Finance Incorporated. It operates ETS (Electric Train Services), Intercity operation, KTM Commuter, and KTM Cargo. **Mission:** Be the preferred land transportation system by providing safe, efficient and reliable integrated rail services for people and goods. • Be competitive and responsive to market needs. • Achieve our goals through a highly trained and motivated workforce using modern technology and process innovation. • Provide reasonable profit and long-term growth to shareholders. **Functions:** • Service provides for passenger and freight. • Infrastructure operator • Infrastructure maintenance provider
ERLSB	Express Rail Link Sdn Bhd (ERLSB) was awarded the concession on 25 August 1997 to finance, design, construct, operate and maintain the KLIA Ekspres and KLIA Transit and other ancillary activities related to railway services for 30 years. ERLSB's shareholders are YTL Corporation Berhad, Tabung Haji, SIPP Rail Sdn Bhd and Trisilco Equity Sdn Bhd with 45%, 36%, 10% and 9% shareholding respectively. The train operation and maintenance is efficiently managed by ERLSB's wholly owned subsidiary, ERL Maintenance Support Sdn Bhd (E-MAS). E-MAS was established in 1999 and initially owned by Siemens and ERLSB with shareholding portion of 51% and 49% respectively. After three years in operation i.e. in June 2005, ERLSB took over Siemens shareholding whilst E-MAS continues to operate and maintain the train system under the ERLSB flagship. **Vision:** To be the premier and preferred transportation mode providing international standards of service and recognised internationally as the top service provider in rail connection. **Mission:** To provide a seamless service experience that is fast, reliable, comfortable and convenient.
PRASARANA	Rapid Rail Sdn Bhd was established to place all three-rail operators of Prasarana Malaysia Berhad (Prasarana) - Ampang Line, Kelana Jaya Line and Monorail Services - under one administrating umbrella. The history of Rapid Rail Sdn Bhd traced back to 2002 when Prasarana officially took over the assets and operations of Star- LRT and Putra-LRT;

	and changing the name to Ampang Line and Kelana Jaya Line respectively. In 2007, the rail operations of Prasarana grew bigger with the acquisition of KL Monorail services. **Vision:** To be preferred World-Class Mass Public Transport System provider. **Mission:** To increase public transportation usage through reliable, affordable, proficient, integrated and dynamic services on a sustainable basis.
Malaysia Airport (Sepang) Sdn. Bhd.	Malaysia Airports (Sepang) Sdn. Bhd. (MA (Sepang)) manages, operates and maintains KL International Airport (KLIA), including the Low-Cost Carrier Terminal (LCCT-KLIA) in Sepang, and provides airport related services such as parking at the airport. MA (Sepang) is a wholly owned subsidiary of Malaysia Airports Holdings Berhad. The company is also responsible for the future development of these terminals as well as the management, operation, and maintenance of 203 acres of KLIA Free Commercial Zone. MA (Sepang) is certified with the ISO Integrated Management System that covers QMS ISO9001 (Quality Management System), EMS ISO 140001 (Environmental Management) and OSHAS 18001 (Occupational Health and Safety Zone). The free Commercial Zone as KLIA is also certified with MS ISO 9001: 2000 Quality Management System. **Vision:** To be global leader in creating airport cities **Mission:** Together we create joyful experiences by connecting people and businesses
SSR	Sabah State Railway Department (SSR) or known as North Borneo Railway (NBR) is a fully owned by the State Government of Sabah Ministry of Infrastructure Development operated since 1896. Sabah State Railway (SSR) is a railway system and operator in the state of Sabah in Malaysia. It is the only rail transport system operating on the island of Borneo. The railway consists of a single 134km line from Tanjung Aru, near Kota Kinabalu, to the town of Tenom in the interior Division with a total of 15 stations. **Vision:** To become the main mode of public transport options by 2030. **Mission:** Modern rail services providing efficient, reliable, competitive, comfortable, and safe passengers, goods, livestock and agricultural products through the development process of the organization and modernization of human model and the ongoing modernization of assets.

	Objectives: • Providing and upgrading of rail system that can meet the needs of the people in line with the country's development as a responsibility of the government. • Upgrading socioeconomic areas with rail services through the facilities of the railway transport is cheap and efficient. • Promoting the train service and attractive location along the route as a tourism product. • Connecting areas that do not have infrastructure with rail services. • Increasing and diversifying revenue through rail, construction and leasing of railway assets. • Providing alternative transportation options that are more affordable, efficient, safe and comfortable.

Table 2.0: Roles & Functions of Transport via Railways Sector Stakeholders

2.3 Government Initiatives

The need for a practical and encompassing public transport motivates the Government to invest in expansion of the railway transport system to cater for current and future national development agenda. The government initiatives is best illustrated in Figure 2.0 below.

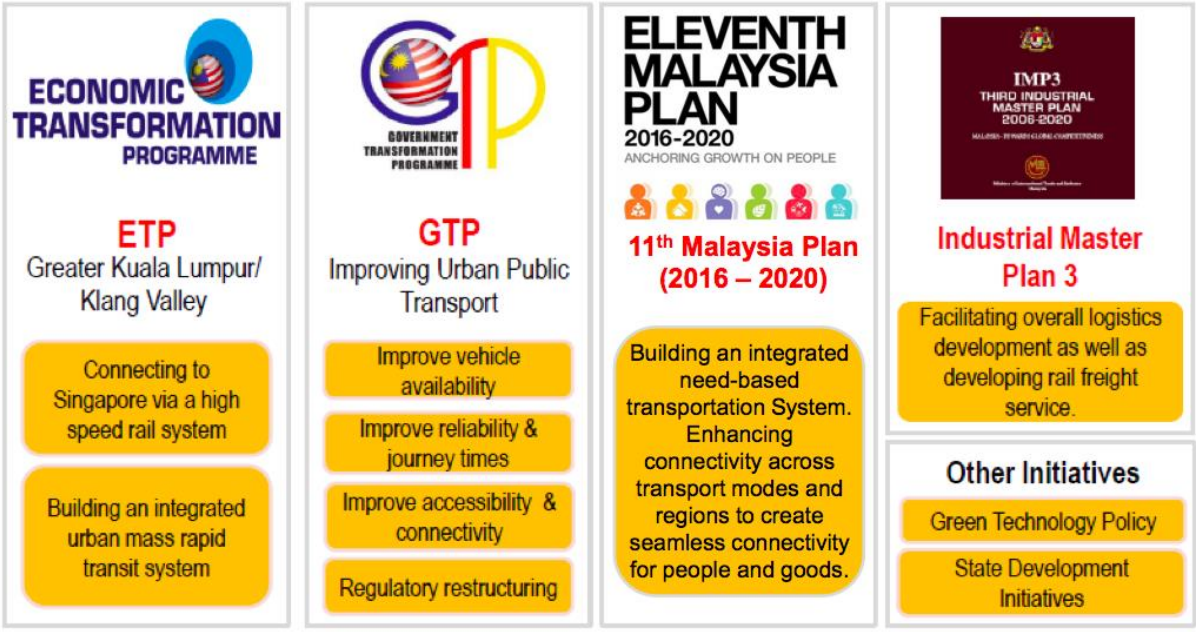


Figure 2.0: Snapshots of Government Initiatives

2.3.1 ETP – Greater Kuala Lumpur/Klang Valley

As the capital and commercial heart of the country, the Greater Kuala Lumpur (KL)/Klang Valley NKEA represents a crucial component in the plan to transform Malaysia into a high-income nation by 2020. The overall aim is to transform the region into a world-class metropolis that will boast top standards in every area from business infrastructure to live ability. By 2020, the NKEA is projected to create 300,000 new jobs through the implementation of nine Entry Point Projects (EPPs).

Key focus:

i. Connecting to Singapore via a high-speed rail system.
ii. Building an integrated urban mass rapid transit system.

2.3.2 GTP – Improving Urban Public Transport

The improvement of rail services will continue to be a point of emphasis in the GTP 2.0 as it is the highest utilized mode of public transport in the country. Three major initiatives will be launched under this work stream affecting each of the systems serving the Greater Kuala Lumpur/Klang Valley area, namely the inter-city KTM Komuter trains, the inter-city RapidKL Light Rail Transit and KL Monorail. The specific initiatives:

- **Enhancing the KTM Komuter:** The GTP 2.0 lab has identified several areas of enhancement to improve the services of the KTM Komuter. These are track rehabilitation programmes, power upgrades of KTMB's networks as well as upgrading of the communication and electrification system. The goal here is to increase the reliability and efficiency of the KTM.

- **Extending the Kelana Jaya and Ampang LRT lines:** This initiative will address the linkages of the high-volume Kelana Jaya and Ampang LRT lines to other locations. The multi-billion-ringgit line extension project will connect the existing Sri Petaling LRT station to the Ampang line, as well as the Kelana Jaya station on the Kelana Jaya line to Putra Heights. These line extension projects, which are expected to complete in 2016, will see the current morning peak daily capacities of both lines increased by 100,000 commuters.

- **Expanding the KL Monorail capacity:** This initiative will see the RapidKL monorail doubling its fleet capacity to reduce bottlenecking in certain stations

such as Hang Tuah and KL Sentral. Twelve sets of four-car monorail trains will be put into service by June 2013. A proposal under the Urban Rail Development Plant of the Land Public Transport Master Plan drafted by SPAD is also calling for the monorail line to be further extended by 2017.

2.3.3 11th Malaysia Plan (2016 -2020)

The focus of transport infrastructure development during the Eleventh Plan will be on greater utilisation of existing facilities with emphasis on better delivery, quality of services and capacity improvement. Network expansion will focus on connecting underserved areas. Integrated trasnport planning will be geared towards providing mobility and connectivity for goods and people. Towards achieving this, better coordination and collaboration between various stakeholders is required. The Klang Valley Mass Rapid Transit (KVMRT) Line 1 will traverse 51 km between Sungai Buloh and Kajang through 31 stations serving about 1.2 million people, with a daily expected ridership of 400,000. MRT Line 1 was initiated under RMK10 but its implementation was extended into RMK11.

Additionally, the construction of Light Rail Transit (LRT) Line 3 connecting Bandar Utama to Klang started in 2016 is expected to complete in 2020. The line will run over 36 km through 25 stations.

2.3.4 Industrial Master Plan 3 (IMP3)

IMP3 focuses on facilitating the overall logistics development as well as developing rail freight service. Other initiatives are Green Technology Policy and State Development Initiatives.

2.4 Industry/Sector and Market Intelligence

2.4.1 Transport Via Railways Services Provided by the Operators

Services	Description
A. KTMB	
KTM COMMUTER  	KTM Komuter service covers the Greater Kuala Lumpur/Klang Valley and beyond connecting 53 stations and several integrated hubs such as KL Sentral and Bandar Tasik Selatan. Introduced in 1995, the KTM Komuter has long been a staple mode of transport for many Kuala Lumpur and Klang Valley residents. The service operates on a daily basis with two lines for the Central Sector, namely, the Seremban - Batu Caves Line, and the Tanjung Malim - Pelabuhan Klang Line. The service was further expanded in 2015 with the introduction of the Northern and Southern Sectors. For the Northern Sector, the first of the two lines to operate was the Kamunting - Butterworth - Gurun Line. The second of the two lines is operational since Apr'2016 and run from Butterworth to Padang Besar. For the Southern Sector, passengers can board the Seremban to Gemas Line, which runs from Seremban to Pulau Sebang/Tampin and Gemas.
KTM INTERCITY 	KTM Intercity covers a large area within the Peninsular with daily trips from Kuala Lumpur. Passengers can enjoy the coaches offered ranging from first class, second-class and economy class. KTM Intercity offers two types of services, the intercity express and shuttle services. Currently, the KTM Intercity services are divided into two sectors: • North and South Line • South and East Coast Line

ELECTRIC TRAIN SERVICE (ETS) 	The Electric Train Service (ETS) is a speedy and convenient intercity rail service for passengers looking to make the trip to the Northern or Southern states of Malaysia. At present, commuters have the option of two routes, namely, the KL Sentral - Ipoh Line; Gemas -Padang Besar Line; and the KL Sentral – Padang Besar Line.
FREIGHT SERVICES BY KTMB 	KTM operates freight train services daily of which about 80% are concentrated in the northern sector of Peninsular Malaysia. In line with the strategy to focus more on containerized and long haul cargo, KTM now carries maritime containers, cement and food as main commodities. In the first quarter of 2016, KTM was recognized by the Malaysia Book of Records for the longest cargo service in South East Asia stretching across 1.9km, 120 wagons and 2400 tonnes single locomotive.

Services	Description
B. PRASARANA	
LIGHT RAIL TRANSIT (LRT)  **Ampang Line**	The LRT or Light Rail Transit train service is operated by Prasarana Malaysia Bhd. Currently, the two lines available from the LRT services are the Kelana Jaya line, running from Gombak to Kelana Jaya and the Ampang line, which runs from Sentul Timur to Ampang and Bandar Kinrara. Additionally, Prasarana is completing construction on two key developments: The Kelana Jaya Line Extension Project will see the line stretching further through 13 new stations, including Ara Damansara, Subang Jaya and USJ before halting at Putra Heights Integrated Station, where it will link up to the Ampang Line Extension Project. Commuters can expect to begin utilising the extended Kelana Jaya line in the 2nd quarter of 2016.

 **Kelana Jaya Line**	The Ampang Line Extension Project will extend the route to 12 new stations, starting from the Sri Petaling Station and passing through Kinrara and Puchong before ending at the Putra Heights Integrated Station. Completion of the extension will take place in the 2nd quarter of 2016. Planned next in the agenda for the LRT is the construction and completion of the LRT3, a new LRT line which will run from Bandar Utama to Klang. Route mapping and pre-development matters are currently being formulated.
MONORAIL 	The KL Monorail is an intra-city public transit system that links many key destinations within Kuala Lumpur's busiest areas and is operated by Prasarana Sdn. Bhd. The KL Monorail offers a hassle-free way to travel through the city as it serves central commercial, employment and shopping districts. The 8.6km long KL Monorail system runs across 11 stations from KL Sentral in Brickfields that passes through the Central Business District (CBD) of Kuala Lumpur and ends at Titiwangsa Station on Jalan Tun Razak.

Services	Description
C. ERLSB/E-MAS	
KLIA EKSPRES/KLIA TRANSIT 	In 2002, Express Rail Link Sdn Bhd (ERL) launched its two flagship services, the KLIA Ekspres and KLIA Transit, which are high-speed rail services in Malaysia. By its 10th year of operations in 2012, ERL had transported over 40 million passengers and today, continue to provide convenient, accessible and speedy travel options to its passengers. **KLIA Ekspres** The KLIA Ekspres which commenced operation on 14 April 2002 is a daily high speed, non-stop air-rail connection between KLIA and Kuala Lumpur City Air Terminal (KL CAT) at KL Sentral station with a journey time of 28 minutes at 15-minutes interval during peak hours and 20-minutes

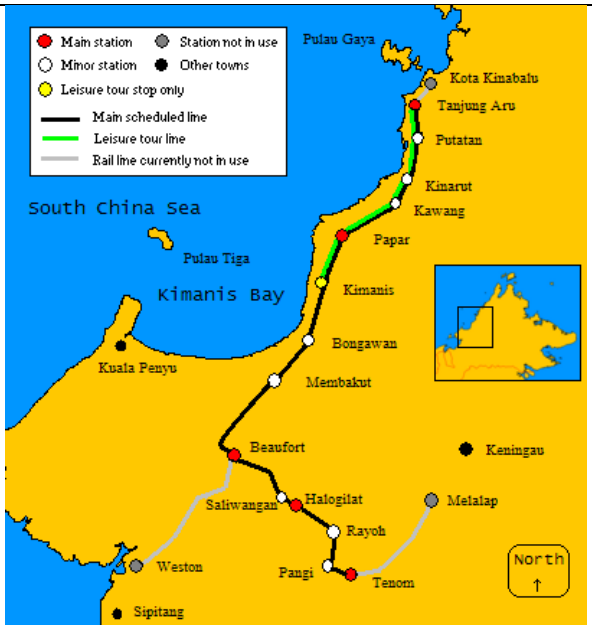
	frequencies during off-peak hours. Passengers can also take a 3-minute ride between KLIA2 and KLIA. The trains run 4 services per hour during peak hours and 3 services per hour during off-peak hours. **KLIA Transit** The KLIA Transit is a commuter service that stops at three intermediate stations i.e. Bandar Tasik Selatan, Putrajaya/Cyberjaya and Salak Tinggi with a total journey time of 35 minutes at 30-minutes frequencies. It first started operation on 1 June 2002. The other ancillary activities are retail space provisioning at KL CAT and advertising spaces on the trains, stations and InfoScreen. ERLSB is operated by a team of one hundred, proficient personnel from various departments i.e. Marketing and Sales Management, Office Services Management, Air Rail Services Management, Human Resource and Training Management, Information & Services Management, Finance and Revenue Management and Customer Services Management.

Services	Description
D. Malaysia Airports (Sepang) Sdn. Bhd	
 **AEROTRAIN (KLIA)**	The Aerotrain is an automated people mover (APM) system located within the Kuala Lumpur International Airport in Malaysia. Opened in 1998 along with the airport, the Aerotrain system consists of two stations, one in the Main Terminal Building and the other in Satellite Building A. The system is the only means of transport for passengers between the two terminals. The Aerotrain is fully automated and driverless with a track length of 1.2 km. Usually, two trains ply between the two stations. In accordance with the Spanish solution, when the train reaches the platform, the exit doors will open first for passengers to disembark, after which the entrance door on the other side will open.

	The Aerotrain supported various operating modes such as Synchronized Double Shuttle Mode, Offset synchronized Double Shuttle Mode, Unsynchronized Double Shuttle Mode, Single Shuttle Mode, On-Call Mode, Test Train Mode and lastly Out Of Service Mode. The Aerotrain has 4 major sub-systems, which is the Central Control System, Vehicle System, Station Automatic Train Operation (ATO) System and Power Distribution System (PDS). The trains have an operating speed of 56 km/h with a 3-phase 600V power supply at 50 Hz. A 100 hp DC Electric Motor constitutes the propulsion system of the trains. The maintenance of the Aerotrain is scheduled at 1000hrs till 1200hrs and 0000hrs till 0500hrs everyday. During those periods, only one of the trains will be running for operation and the other one will undergo maintenance works and safety checks. The frequency of the train decreases from every 2.5 minutes to every 5 minutes during the maintenance periods.

Services	Description
E. SSR (Sabah State Railway)	
 **Train – Main Station**	Sabah State Railway (SSR) is a railway system and operates in the state of Sabah in Malaysia. It is the only rail transport system operating on the islands of Borneo. The railway consists of a single 134km line from Tanjung Aru, near Kota Kinabalu, to the town of Tenom in the interior division with a total of 15 stations. SSR provides services for passenger and goods and manages the infrastructures maintenance and rehabilitation.

Classic Train - Steam

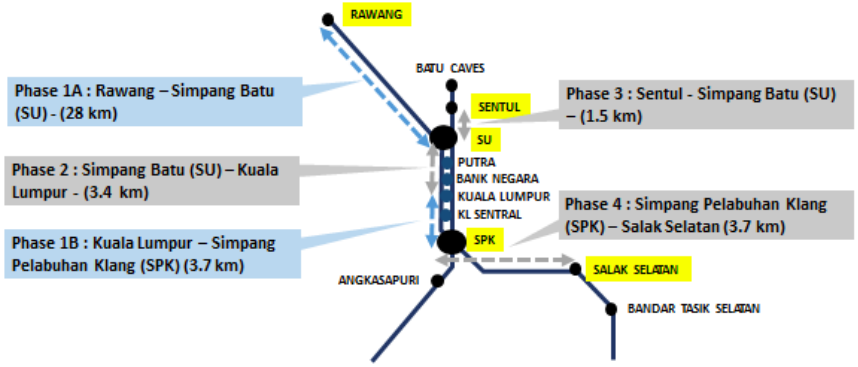


SSR, with Sutera Harbour Resort, is also operating a tour train known as North Borneo Railway which caters to the tourism industry in Sabah. It uses a classic train powered by steam.

Services	Description
F. AUTOMATED FARE COLLECTION (AFC)	
 Automated Fare Collection Machine	Until the full Auto Fare Collection (AFC) integrated ticketing system in 2012, the three rail networks operated independently on their own ticketing system. An AFC system is the collection of components that automate the ticketing system of a public transportation network - an automated version of manual fare collection. An AFC system is usually the basis for integrated ticketing. With a combined ridership of more than half a million daily, the AFC services are the key revenue-generating contributor to Rail the sector and the company operating it. Apart from transport convenience via the AFC, waiting time in between trains at the LRT and Monorail has been made much shorter with increased frequencies, and more comfortable with the introduction of four-car trains for the Kelana Jaya lines.

Table 2.1: Transport via Railways Sectors Services

2.4.2 Upcoming and Underway Projects

Projects	Descriptions
1. The Klang Valley Double Track Project (KVDT) **Owner: KTMB**	As part of KTM Berhad (KTMB) efforts to improve the quality of its services to the public, the Klang Valley Double Track (KVDT) project involves infrastructure and system upgrades to ensure safe, reliable and comfortable train services. The KVDT project entails the rehabilitation of 42 kilometres of tracks between Rawang and Salak Selatan as well as Sentul and Simpang Batu. Through this initiative KTMB will focus on enhancing 16 stations along these routes and upgrade the existing signaling and electrification system.  Scheduled to run between 2016 and 2019, this project is crucial to ensure smoother train commutes and alleviate problems such as delays and cancellations due to failure and derailment. The scope of work for KVDT is as follows:  • PHASE 1A [Rawang – Simpang Batu] Rawang – Kuang – Sungai Buloh – Kepong Sentral – Kepong – Segambut • PHASE 1B [Kuala Lumpur – Simpang Pelabuhan Klang] Kuala Lumpur – KL Sentral

	• PHASE 2 [Simpang Batu – Kuala Lumpur] Segambut – Putra – Bank Negara – Kuala Lumpur • PHASE 3 [Sentul – Simpang Batu] Sentul – Putra – Segambut • PHASE 4 [Simpang Pelabuhan Klang – Salak Selatan] KL Sentral – Mid Valley – Seputeh – Salak Selatan
2. Klang Valley Mass Rapid Transit (KVMRT) Project (MRT Line 1, 2, 3) **Owner: MRT Corp**	The Klang Valley Mass Rapid Transit (KVMRT) System is set to be one of the most important and largest transport infrastructure projects Malaysia has embarked on. This project is listed as an Entry Point Project (EPP) under the Economic Transformation Programme's Greater Kuala Lumpur/Klang Valley National Key Economic Areas (NKEA), and will provide a major boost in the integration and efficiency of urban public transport. The KVMRT project will see the construction of three MRT lines; MRT Line 1, MRT Line 2 and MRT Line 3. 

MRT Line 1

The MRT Line 1 begins from Sungai Buloh and runs through the city centre of Kuala Lumpur before ending in Kajang, spanning 51 km with a total of 31 stations along its route. It will feature both elevated and underground stations and is expected to run at a frequency of 3.5 minutes. As the supervising agency for the MRT project, SPAD is responsible in ensuring that the outlined construction targets are met. Phase One of the MRT Line 1 from Sungai Buloh to Semantan will be open to commuters by the end of 2016, while Phase Two, from Semantan to Kajang will be in operation by July 2017.

MRT Line 2

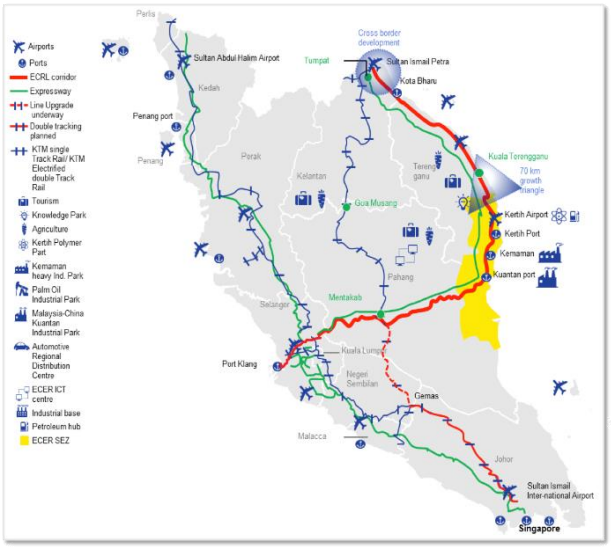
The Government has allocated RM28 billion for the implementation of the MRT Line 2 for the Sungai Buloh-Serdang-Putrajaya link. The MRT Line 2 will serve a corridor with a population of around 2 million stretching from Sungai Buloh via Central Business District of Kuala Lumpur to Bandar Malaysia, Kuchai Lama and Serdang before ending at Putrajaya. The 52.2km line will include a 13.5km underground section between Jalan Ipoh and Kuchai Lama and 38.7km of viaduct. There will be 37 stations, 26 of which will be elevated with 11 underground stations. The stations will include Sri Damansara, Kepong, Kampung Batu, Jalan Sultan Azlan Shah, Jalan Tun Razak, KLCC, Tun Razak Exchange, Kuchai Lama, Seri Kembangan and Cyberjaya.

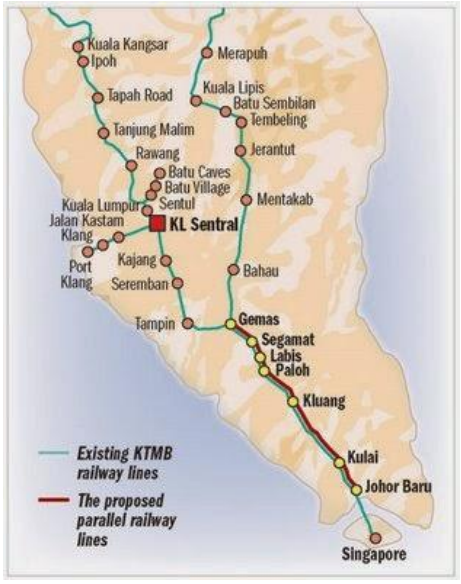
The initial phase of the line between Sungai Buloh and Kampung Batu is due to be operational by July 2021 and the remainder of the line from Kampung Batu to Putrajaya Sentral is scheduled to open by July 2022. The MRT Line 2 is expected to have a ridership of 529,000 passengers per day. This is expected to further improve the chronic traffic congestion currently in Kuala Lumpur.

MRT Line 3

The MRT Line 3 which is part of the third and final line for the Klang Valley Mass Rapid Transit Project is at its planning and development stage. The announcement of the project will be revealed at a later date.

3. Subang SkyPark Terminal Extension Project **Owner: KTMB**	The Subang Skypark Terminal Extension Project aims to provide a rail-based public transport to connect commuters to the Subang Airport, the SkyPark Terminal. The new line will start from the Subang Jaya station, spanning 8.157km long and will end at the Subang SkyPark Terminal station, which is located in front of Terminal 3, of the airport. The construction of the double track adopts the existing rail system operated by KTM Komuter for Greater Kuala Lumpur/Klang Valley including 25kV electrification system, signalling and communication system as well as direct control of the train from the Train Control and Command Centre (TCCC) in KL Sentral which is the integrated hub of the Kuala Lumpur city.
4. The Light Rail Transit Line 3 (LRT3) **Owner: Prasarana**	The LRT3 is a project that is currently being developed under the Urban Rail Development Plan by SPAD. It is a key part of the National Land Public Transport Master Plan, which aims to create a public transport system that is competent, efficient, integrated and sustainable, while simultaneously raising the socio-economic levels in Malaysia. The planned route for the LRT3 will ultimately link Bandar Utama to Klang, with an overall distance of 36 kilometers. 25 stations positioned along the route. Construction of the LRT3 will begin in 2016, once relevant approvals from various key stakeholders have been obtained. The expected completion date of the LRT3 is by 2020.a and promoting a better quality of life for the *rakyat.*
5. East Coast Rail Line (ECRL) Project	The East Coast Economic Region (ECER), is an area measuring more than 66,000 square kilometres or 51% of the total area of Peninsular Malaysia with a total population of 4.43 million (2014). ECER covers the states of Kelantan, Terengganu and Pahang, as well as the district of

Status: RFI (Request for Information) **Owner: SPAD**	Mersing in Johor. Infrastructure development is critical to the growing ECER and rail is a key enabler for the region that can connect economic centres including industrial areas and provide a link to Greater Kuala Lumpur/Klang Valley efficiently. To unlock this growth, ECRL has been identified as a high impact infrastructure project that will form the backbone of ECER's multimodal transport infrastructure. This will complement existing road/expressway infrastructure as the Lebuhraya Pantai Timur and the existing KTMB East Coast Line and ports.  Status: Under planning and study by SPAD.
6. The Malaysia-Singapore Rapid Transit System (RTS) **Owner: SPAD**	The first phase of the RTS project was a joint engineering study that was conducted by a consortium consisting of Aecom Perunding Sdn. Bhd., Aecom Singapore Pte. Ltd. and SA Architects Sdn. Bhd., and was completed in 2013. Phase Two of the project began at the end of May 2016. Phase 2 began on 26 April 2011 for a period of 18 months. In the first 8 months, Aecom is to perform Concept Design for two (2) options and after 8 months, one (1) final scheme will be selected to proceed to the remaining 10 months of the Detailed Design, which will be completed by November 2017. Status: Under planning and study by SPAD.
7. Gemas – Johor Bahru Electrified Double Tracking	The Gemas – Johor Bahru (JB) electrified double tracking rail project is expected to begin by the end of 2016. The project, which will cost about RM7 billion, will take between three and seven years to complete. The project would have included building over 200km parallel railway tracks, including stations, depots, halts, yards and bridges and cover systems

(EDTP) Project	such as electrification, signaling and communications. This included the realignment between Pulau Sebang, Melaka to Gemas section. The length of the line to be electrified and double-tracked is 197 km between Gemas and JB. The project includes the constructions of 11 stations at Segamat, Labis, Bekok, Paloh, Kluang, Mengkibol, Rengam, Layang-layang, Kulai and Kempas Baru, and 3 future stations at Tenang, Chamek and Senai. The upgraded line is supposed to cater for at least 22 services daily involving KTM ETS, KTM Intercity and shuttle train services.  The Gemas – JB line will complete the whole electrified double tracking rail network up to Padang Besar. Current, only 46% of the 1,641.4km of railway network in Malaysia consist of electrified double tracks. The completion of the Gemas – JB project will increase the percentage to 58%. Status: On 11 December 2015, the Chinese company China Railway Construction Company (CRCC) has been awarded to build Gemas – Johor Bahru Electrification and Double-Tracking project.
8. High Speed Rail (HSR) **Owner: MyHSR Corp** **Status: Under discussion between Msia & Singapore**	In 2010, the Malaysian Government launched the Economic Transformation Programme (ETP) with the objective of transforming the country into a high-income nation. Under the Greater Kuala Lumpur/Klang Valley National Key Economic Area (NKEA) component of the ETP is the Southern Corridor High Speed Rail project, popularly known as the HSR project. The initiative is one of the Entry Point Projects (EPPs) that aims to improve both the economic dynamism of Malaysia's capital city as well as its live ability rankings relative to other global cities.

At present, commuters looking to travel from Kuala Lumpur to Singapore and vice versa have three options of transport: air, road, and an existing intercity rail network. The routes relevant to the HSR project has seen strong growth in the past few years in terms of passenger-kilometres of travel, with the total travel market growing from 5.47 million passenger-kilometres in 2005 to 7.45 million passenger-kilometres in 2011.

There is a clear need to improve connectivity between Malaysia and Singapore, for currently daily traffic congestion is acute, and far exceeds the capacity of the Causeway and Second Link. Primarily, the objective of SPAD, along with other relevant government agencies and the Malaysian and Singaporean governments, is to reduce the travel time between the two nations to 90 minutes; thereby strengthening the link between two of Southeast Asia's most vibrant and fast-growing economic engines.

Additionally, the HSR presents an opportunity to build and rejuvenate smaller cities in Peninsular Malaysia by connecting them to the two major metropolises. The HSR is an efficient and safe mode of transport for commuters, which results in passengers saving a sizeable amount of travel time.

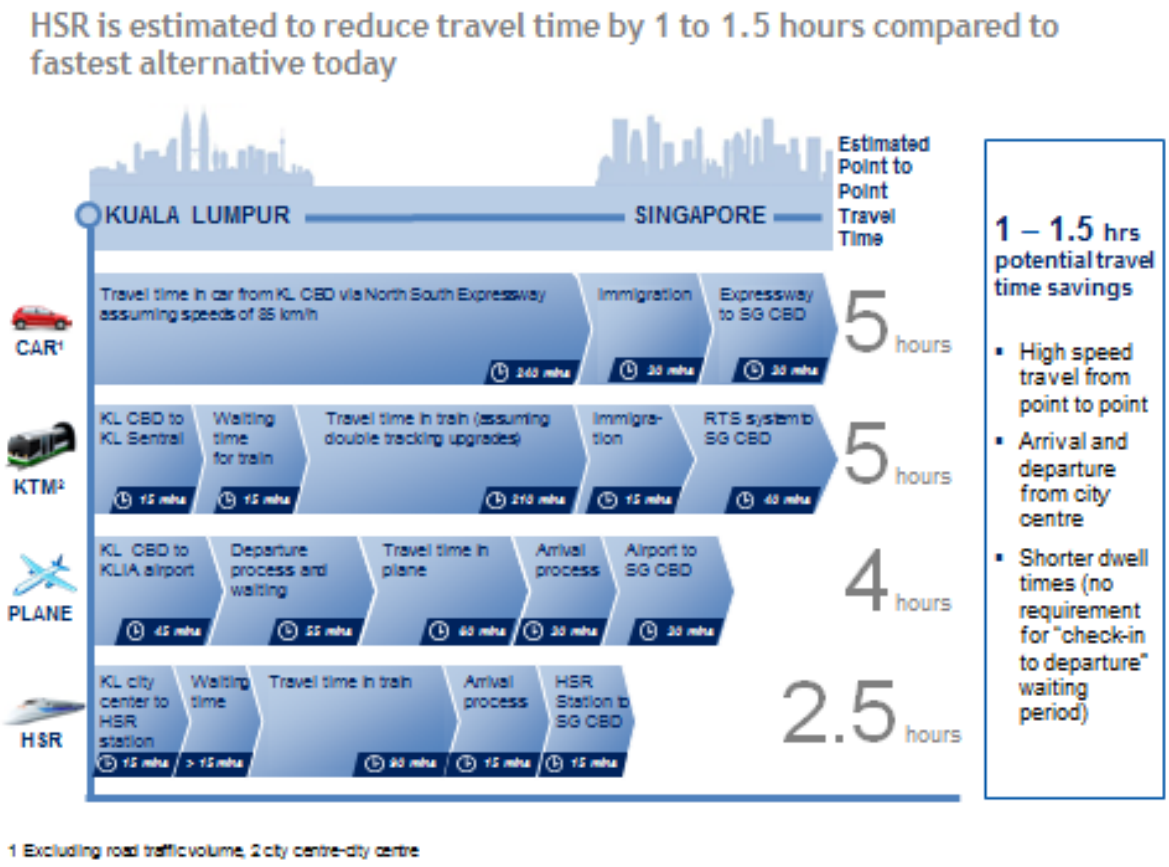


Table 2.2: Upcoming and Underway Transport via Railways Projects

2.4.3 Market Intelligence

A. Shaping the Future of Malaysian Rail Industry – Malaysian Rail Industry in 2030

Drivers	Descriptions
1. Policy and Institutional Framework	Similar to other industries (such as aerospace and maritime), rail industry involves cross-ministerial/agencies. There is need for a mechanism to effectively coordinate, facilitate and monitor the growth of the industry based on consensus vision, goals and development strategies at national level.
2. Technology and Human Capital Development	It relates to current and future workforce that will be supporting the local industry development. Apart from manpower, technology is one of the critical means to ensure sustainability and competitive advantage of the industry in the future.
3. Multimodal and Integrated Transport	It is about enhancing efficiency of national transportation leveraging on rail networks and its advantages. This can only be rationalized through an integrated arrangement and system for movement of passengers (multi-mode of public transportation) and cargos (integrating airport – seaport – ground transportation)
4. Market Competition and Value Added Products / Services.	Survival of local players to face intense competition in the same playing field with other established international competitors from both domestic and global rail market. The need to grow sense of innovativeness and climb up in supply chain to produce high value products.
5. Connectivity and Tourism.	Train as a preferred mode of transport by the public is also affected by the available connectivity. In Malaysia, it is just an option but not in other developed countries where it has become a necessity.
6. Safety and Security	Train is a medium used for transporting a mass number of people and goods which involve high risk, either due to external factors e.g. terrorism or internal factors e.g. derailment, collision. Nowadays, train is getting faster than before and able to reach more than 350 km/hr., which requires reliable systems in place.
7. Localization and Globalization	The growth of the industry is fueled by a number of business opportunities secured in domestic and global market. Sizable investment has been made by the Government imposed the element of local content. There is a need to develop local capabilities and reduce heavy dependency on foreign products for future sustainability.
8. Sustainability	As energy scarcity continues to dominate the discussion around the globe (so as climate change due to green gas emission), urbanization growth proportionate with the increase in population and congestion in cities. These are megatrends that will affect the existing policy and sentiment of people to move towards greener alternatives.

9. Geopolitical	The idea of Trans-Asia networks will give a significant impact to the way current logistics are working. Malaysia as a part of the network need to prepare itself and capitalize on potential opportunities resulted from this initiative.

Table 2.3: Drivers Shaping the Future of Malaysian Rail Industry

(Source: Future Rail 2030: Shaping the Future of Malaysian Rail Industry – myForesight)

B. Key Trends across the Global Rail Markets

High Speed, urbanization and emerging economies will be the key enables of the rail indutsry through 2020

1. High-speed rail (HSR) will be the biggest market opportunity with $900 billion potential for rail participants globally.
2. The BRIC (Brazil, Russia, India, China) and Middle East markets collectively will contribute $1 trillion in rail investment between 2011 and 2016.
3. Urbanization in Asia has increased demand for urban rail systems such as metro, light rail and monorail. About 120 urban rail systems have been identified in the Asian Region, including the Middle East.
4. Chinese South and North Railway (CSNR) emerge as one of the top 5 rolling stock OEMs globally.
5. Increasing fuel prices and rail's green tag will boost freight transport by rail globally. Considerable rail modal share gain will occur in North America and Europe by 3% and 5%, respectively, by 2020.
6. Rail IT deployment: smart ticketing, automated fare collection, and signalling will present the next wave of business opportunity in the rail sector globally.
7. Finally, North America's opening up to passenger rail will create a demand for 14,000 passengers rolling stock over the next 10 years.

Table 2.4: Key Trends across the Global Rail Markets

2.5 Occupational Structure Overview

In order to analyse the Transport via Railways sector, the existing Occupational Structure, Edition 2008 was referred to and compared. This document was used as a guideline during the focus group workshop. A total of two (2) sub-sectors exist in the current OS, namely:

i. Operation

ii. Maintenance

Each of the sub-sectors is further categorized into job areas as illustrated in Table 2.5.

Sector	No	Sub Sector	No	Job Area	No	Sub Job Area
Rail Industry	1	Operation	1	Station Operation	1	1.1. Manual Train Station Operation
					2	1.2. Automatic Train Station Operation
			2	Control Centre	3	2.1. Manual Train Control Center
					4	2.2. Automatic Train Control Center
			3	Train Operation		
	2	Maintenance	4	Rolling Stock	5	4.1. Mechanical (Body)
					6	4.2. Mechanical (Bogie)
			5	Electrical & Electronic	7	5.1. Locomotive
					8	5.2. Coaches & Wagon
					9	5.3. Electrical Train
			6	Railway	10	6.1. Track (Structure)
					11	6.2. Track (Permanent Way)
			7	Rail	12	7.1. Track vehicles
					13	7.2. Mechanise Operation
			8	Signaling & Communication	14	8.1. Communication
					15	8.2. Wayside
					16	8.3. Signaling
			9	Automatic Fare Collection (AFC)		
			10	Electrification	17	10.1. Power Line
					18	10.2. Electrification Competency

Table 2.5: Occupational Structure Summary

(Source: 2008, Rail Industry Occupational Structure)

The Subject Matters Expert (SMEs) then proceeded to review the existing OS and conducted an extensive brainstorming session to explore the possibilities of sub-sectors and job areas to match with current industrial practices and needs, relevancy future projections.

The findings of the session are statistically represented in Table 2.6 and Figure 4.0.

	Year 2008	Year 2016	Variance	Var %
Sector	1	1	0	0%
Sub-Sector	2	6	4	200%
Job Areas	10	18	8	80%
Sub Job Areas	18	9	-9	-50%
Total	31	34	3	10%

Table 2.6: OS 2008 vs. 2014 Comparative Table

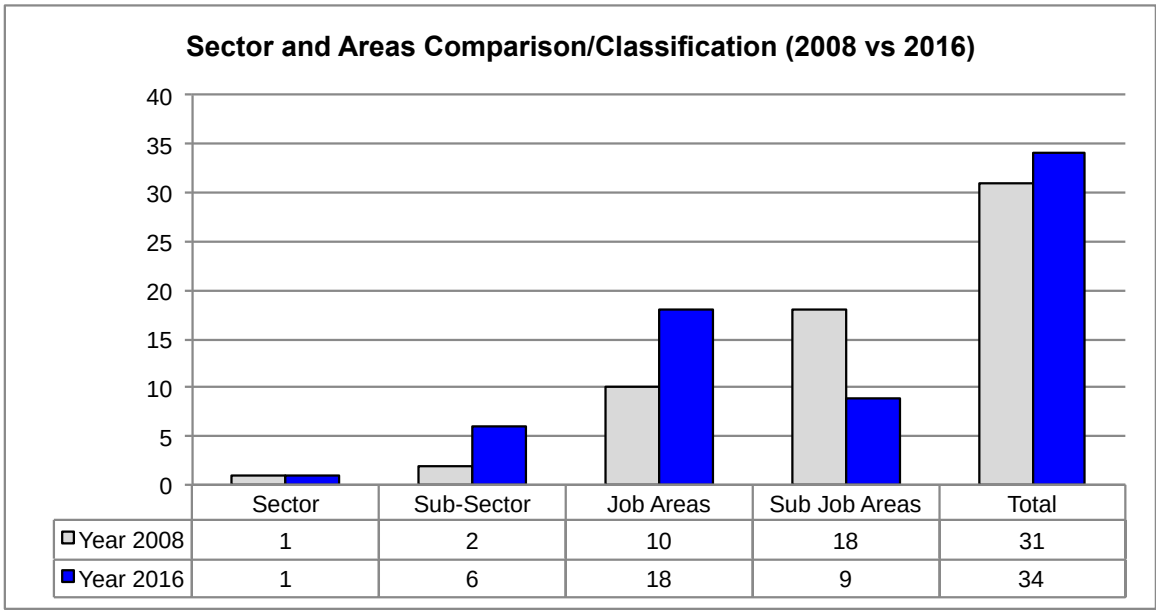


Figure 4.0: OS 2008 vs 2016 Comparison Trend

The finding reveals that the sector has been reclassified in accordance to Malaysian Standard Industrial Classification (MSIC) from Rail Industry to Transport via Railways which is a Digit 3 classification under MSIC.

The sub-sectors and job areas were reclassified. A total of six (6) sub-sectors were identified in 2016 as compared with two (2) in 2008. Eighteen (18) new job areas were identified and classified compared with ten (10) in 2008 and nine (9) sub-job areas were identified in 2016 compared with eighteen (18) in 2008. The addition of the job areas and sub-sectors were driven by the relevancy of the industry and new emerging trends of business units.

Table 2.7, illustrates the outcomes of the new Occupational Structure (OS) for 2016.

Sector	No	Sub Sector	No	Job Area	No	Sub Job Area
Transport via Railways	1	Operation	1	1.1. Station Operation	1	1.1.1. Manual Train Station Operator
					2	1.1.2. Automatic Train Station Operator
			2	1.2. Control Centre		
			3	1.3. Train Operation		
	2	Maintenance & Engineering	4	2.1. Rolling Stock	3	2.1.1. Mechanical
					4	2.1.2. Electrical & Electronics
			5	2.2. Permanent Way	5	2.2.1. Track
					6	2.2.2. Maintenance Vehicles
			6	2.3. Wayside, Electrical & Electronics	7	2.3.1. Signaling
					8	2.3.2. Communications
					9	2.3.3. Electrification
	3	Automated Fare Collection (AFC)	7	3.1. Operations		
			8	3.2. Software Maintenance		
			9	3.3. Field Maintenance		
	4	Quality Assurance (QA)	10	4.1. Engineering		
			11	4.2. Technical Support		
			12	4.3. Audit		
	5	Safety, Health & Environmental	13	5.1. Operational Safety		
			14	5.2. Occupational Health		
			15	5.3. Environmental		
	6	Facilities & Equipment Maintenance	16	6.1. Electrical		
			17	6.2. Mechanical		
			18	6.3. Building		

Table 2.7: Occupational Structure Summary 2016

Source: 2016, Transport Via Railway Occupational Framework

Sub-sectors were mapped representing the actual Transport Via Railways Sector as summarized below and each sector's description are defined in Table 4.0:-

1) Operation
2) Maintenance & Engineering
3) Automated Fare Collection (AFC)
4) Quality Assurance (QA)
5) Safety, Health & Environmental
6) Facilities & Equipment Maintenance

No.	Sub-Sectors	Descriptions
1	Operation	Responsible and accountable for the establishment, management, supervision, direction and coordination of all activities of Operations Department in line with the company's objective and mission.
2	Maintenance & Engineering	To ensure all trains and equipment are maintained and operated for safe train operations and as per scheduled. All assets are maintain, and managed with accountability
3	Automated Fare Collection (AFC)	To ensure all AFC machine are well maintained and manage accordingly for achieving optimum performance.
4	Quality Assurance (QA)	Ensuring that processes needed for the Quality Management Systems are established, implemented, maintained and continually improved.
5	Safety, Health & Environmental	• Responsible and accountable for the establishment, management, supervision, direction and coordination of all activities of Safety & Security Department in line with the company's objective and mission. • Ensuring that processes needed for the Environmental Management Systems are established, implemented, maintained and continually improved
6	Facilities & Equipment Maintenance	Preventive and corrective maintenance of Depot and equipment and building infrastructure and maintenance Services

Table 2.8: Sub-sectors descriptions

Job Areas for each sub-sector were identified and mapped representing the actual Transport via Railways Sector as summarised below and each job area's description are described in Table 2.9:-

1) Operation
    1.1. Station Operation
    1.2. Control Centre
    1.3. Train Operation
2) Maintenance & Engineering
    2.1. Rolling Stock
    2.2. Permanent Way
    2.3. Wayside, Electrical & Electronics
3) Automated Fare Collection (AFC)
    3.1. AFC Operations
    3.2. AFC Software Maintenance
    3.3. AFC Field Maintenance

4) Quality Assurance (QA)
   4.1. QA Engineering
   4.2. QA Technical Support
   4.3. QA Audit
5) Safety, Health & Environmental
   5.1. Operational Safety
   5.2. Occupational Health
   5.3. Environmental
6) Facilities & Equipment Maintenance
   6.1. Electrical Maintenance
   6.2. Mechanical Maintenance
   6.3. Building Maintenance

No.	Sub-Sectors	Job Areas	Job Area Descriptions
1	Operation	1.1. Station Operation	Performs overall supervision of station operation resources (manpower, infrastructures, facilities, and equipment) are functional and performing at the optimum level to receive and serve customers throughout Rail operating hours. Responsible in supervising and accountable for the establishment, supervision, direction and coordination of all activities in line with the department and company's objective and station operations SOP. Provide directions and advice to stations on the best practices to conduct sales activities, ensuring all company's products (Touch 'n Go, My Rapid etc.) are promoted and sold to guests and sales collections are collected, reconciled and reported.
		1.2. Control Centre	Lead, strategize and man Control Centre Unit to ensure monitoring activities of rail and train operations are conducted as per Standard Operating Procedures to ensure safe and minimal service failure/disruption. Optimize the utilization of resources for a safe, reliable, efficient, delightful and cost effective train's service at all time.
		1.3. Train Operation	Lead and control Train Operations Unit activities ensuring train operational targets are met efficiently and in the most cost effective

			manner. Ensure trains are manned by competent drivers, driving efficiently and safely to the destinations as per the set Train Operations Rules and Regulations, in meeting the operations target.
2	Maintenance & Engineering	2.1. Rolling Stock	Ensure all Trains and Equipment are well maintained and operated for safe train operations and as per schedule. Develop and implement Maintenance works for vehicle/rolling stocks regularly and periodically.
		2.2. Permanent Way	Ensure all Signalling, Communications and electrification related are well maintained as prescheduled and safe for operations. Develop and implement Maintenance works for guide way elements.
		2.3. Wayside, Electrical & Electronics	Develop and implement Maintenance works for wayside, electronics, and electrical systems.
3	Automated Fare Collection (AFC)	3.1. AFC Operations	Ensure availability of float money to all stations at all times with sales and collection tallied. Ensure availability of tokens at TVM AFC gates are ready to accept tokens at all times
		3.2. AFC Software Maintenance	Plan, manage and control the implementation of AFC software and computer system operation and maintenance activities (preventive and corrective) ensuring compliance to Maintenance Plan and Budget, Standard Operating Procedures and meeting regulatory requirements
		3.3. AFC Field Maintenance	Plan, manage and control the implementation of AFC's systems and equipment maintenance activities (preventive and corrective) ensuring compliance to maintenance.
4	Quality Assurance (QA)	4.1. QA Engineering	Manage resources, activities and to ensure that the respective procedures, system and processes are being implemented. Responsible for monitoring of quality level such as giving analysis/assessment of raw data and recommendation of corrective action. Preparing documents based on the Inspection and Test Plan and Technical Specifications. Witness all testing activities.

		4.2. QA Technical Support	Support functions related to Technical aspects of Railway Sector.
		4.3. QA Audit	Ensure that all processes in the company or department are executed according to the procedure and ISO 9001:2008 standard.
5	Safety, Health & Environmental	5.1. Operational Safety	Prepare and conduct safety and security training course for stations, new staffs and security staffs. Initiate investigation and preparing report for Dangerous Event Investigation when and as required. Supervise overall train operations safety in a routine basis to ensure compliance on safety standard. Carry out safety audit on train operations periodically.
		5.2. Operational Health	Assist in supporting the General Management for all safety & health related matters. Manage all safety & health inspection System. Assist HOD in conducting safety & health briefing and audit at workplace.
		5.3. Environmental	Ensure that all processes related to Environment Management are executed according to the procedure and ISO 14001:2004 standard.
6	Facilities & Equipment Maintenance	6.1. Electrical Maintenance	Perform preventive and corrective maintenance of electrical system.
		6.2. Mechanical Maintenance	Perform preventive and corrective maintenance of mechanical system.
		6.3. Building Maintenance	Perform preventive and corrective maintenance of Building infrastructure facilities.

Table 2.9: Job Areas Descriptions

2.6 Chapter Conclusion

It can be concluded in this chapter that the Transport via Railways in Malaysia is at a matured growth stage and has great potential. The Malaysian Government's significant investment and continuous support in the Transport via Railways Sector is achieving major breakthroughs in intensifying ridership take-up rate, which is targeted to 40% from 20%-25%. Intensifying support towards resolving key challenges encountered by the Transport via Railways would further enhance the industry and indirectly contribute towards Multimodal and Integrated Transport and sustainability.

CHAPTER 3: METHODOLOGY

3.1 Chapter Introduction

This chapter presents the research design and strategy of the study with regards to the Transport via Railways Sector. In addition, it explains the detailed research process and identifies the appropriate research method. A mixed methodology was adopted using both qualitative and quantitative methods to draw the strengths and minimize the weaknesses of each approach.

3.2. Research Methodology

The following are the main steps involved in the Transport via Railways Occupational Framework development. Both qualitative and quantitative research approaches are deployed into the process. The methodology of Occupational Framework development is categorized into three (3) stages as described in Table 3.0

Stage 1	**A. Preliminary information gathering** This process consists of the following important steps: (i) Literature review & research (ii) Design survey & questionnaires (iii) Pilot test (iv) Administer survey & questionnaire (online survey) (v) Interviews (vi) In-situ meeting/On-site meeting **B. Identifying Subject Matters Expert (SMEs)** **C. Focus Group Workshop** **D. Jawatankuasa Teknikal Penilaian OF/Department of Technical Evaluation (JTPOF1)**
Stage 2	**E. Data Analysis and Findings** (i) Occupational Structure (OS) (ii) Job Descriptions (JD) (iii) Skills-in Demand **F. Jawatankuasa Teknikal Penilaian OF/Department of Technical Evaluation (JPTOF2)**
Stage 3	**G. Finalizing Document & Handing Over**

Table 3.0: Occupational Structure Development Stages

The process of each stage is explained below:

Stage 1

A. Preliminary Information Gathering

Approach	Descriptions
(i) Literature Review & Research	A literature review and research is carried out to get insights on the scope, policies, programs and activities in the context of Malaysian Transport via Railways scenario. The scope covered under this survey includes descriptions, stakeholders, current analysis of sectors/sub-sectors aligning with Malaysia Standard Industrial Classification (MSIC), current status and progress of the respective sector, job areas/sub-job areas, job titles, market intelligence and competitiveness at global level.
(ii) Design Survey/ Questionnaires	The purpose of the survey is to collect the data and feedback from down the industries on the market/industry intelligence, stakeholders, skills-in demands, sector and job areas descriptions, job scope, nature and culture of work, job descriptions, occupational structure, career path, current and future trends of the industries. The content of the survey was developed based on the understanding of the industry conducted via literature reviews and communications. Primary data collection through survey and questionnaires on the situation of the Transport via Railways Sector and prospect for its future development. The survey blended with both qualitative and quantitative questions and solicited through an online survey conducted using Google form, which was distributed to a non-probability convenience sample via email, Facebook and WhatsApp. This study employs a structured questionnaire categorized into three sections that was administered through a systematically selected sample of Transport via Railways. Section I composing of 14 multiple choice questions, examine the situation of the Transport via Railways Sector and prospect for its future development, Section II specifically on skills in-demand (or shortages) in Transport via Railways sector with a total of 18 multiple choice questions and Section III consisting of respondents demographic profiles. Survey research, a method in primary data collection, is useful to measure multiple variables and examine the relationship between the variables.

	The respondents will consist of representatives from the organization/firm relevant to the sub-sectors of the Transport via Railways. Follow-up discussions with the Subject Matters Expert are continually done through focus group, WhatsApp and email feedback.
(iii) Pilot Test	Before the main questionnaires were deployed, the questionnaire was initially pre-tested on a small pilot sample of 12 respondents representing SMEs from Transport via Railways sectors. Pre-test was conducted to ensure the reliability of the scales and to obtain feedback from respondents' regards to the clarity of the survey items. The pre-test was conducted from 25th of May'16 to 2nd of June'16, which represents 12 respondents. The outcome of the pre-test was: • The practicality of each questionnaire was assessed and found to be inaccurate by the respondents and it was corrected, • A minor grammar was corrected, and • Sequence of questionnaire in terms of importance within the constructs was rearranged.
(iv) Administer the Survey/ Questionnaires	Based on the results of the pilot survey, leveraging on modern technology, participants were solicited through an online survey conducted using Google form, which was distributed to a non-probability convenience sample via email, Facebook and WhatsApp. (Refer to Annex III for the survey questionnaires). The invitation to the questionnaire included a short introduction of the research, an embedded link to the online questionnaire and estimated duration allocated to complete the questionnaire. Data was gathered from 9th June 16 till 29th June 16. Web-based questionnaire was preferred as it is faster, has wider reach on the number of respondents within a shorter time frame and with limited research cost incurred. Furthermore, to maximize reliability of the instrument used, the survey was constructed as follows: 1) an on-site interview was conducted to ensure the accuracy of the questionnaire developed, 2) a pilot survey was conducted to ensure the reliability of the questionnaire; 3) each question was framed succinctly to reduce ambiguity and minimize bias, thereby ensuring the high statistical value of the data; and, 3) each participant in the survey was asked to state their job position to make sure participation represents all level of designation in Transport via Railways sector.

(v) Interviews	Interviews, either directly or indirectly, are one of the methods to reinforce the information gathered from the survey. The interview focuses on the main stakeholders to seek their opinions and/or impressions.
(vi) In-situ Meeting/On-site Visit	In-situ meeting/on-site visit would be an important exercise towards engaging with SMEs and gaining substantial and niche information regarding actual practices of the industry. During the visit the facilitator is briefed and walk-through about the job areas, processes and job titles represented on the ground. This exercise if done effectively would add significant value to literature review, research, facilitation and Occupational Framework development.

B. Identifying Subject Matters Expert (SMEs)

SMEs who represent small, medium and large-scale organizations are identified and short listed for further communication and appointment. Normally these experts are from Human Resources, Managerial or Executives levels who have the overall view of the industry and future trends and projections. They should have sufficient experience and substantial knowledge on industry matters.

C. Focus Group Workshop

Engaging the SMEs from various organizations in one place plays a significant role towards the success of Occupational Framework development. SMEs attend the sessions, where they discuss exhaustively on the Sector, Sub-sectors, Job areas, Sub-job areas, and Job Titles involved. The facts obtained during the literature review will be presented and discussed with the SMEs. It is important for the team to gather consensus before the outcome of the meeting is to be presented at JTPOF (Jabatan Teknikal Penilaian Occupational Framewok) for approval.

D. Jawatankuasa Teknikal Penilaian Occupational Framework /Department of Technical Evaluation (JTPOF)

The consensus achieved by the focus group will then be documented and presented to the Department of Technical Evaluation where the work done will be assessed thoroughly by the panel of experts from the respective industry/sector. This is a crucial intervention by the

industry experts to ensure content maturity validation and approval before the team could proceed with next stage of Occupational Framework development process.
Comments and input gathered from the panel of industry experts will be adopted for strengthening and improving of the Occupational Framework documentation and to ensure its viability for the Transport via Railways Sector.

Stage 2

E. Data Analysis & Findings

Based on the activities done above, substantial data and information will be collated. The data and information will then be transformed to analytical form and then discussed with the SMEs. During the session, the following must be established:

a) Occupational Structure (Sector, Sub-sectors, Job areas, Sub-job areas, and Job Titles)
b) Job Descriptions (consisting description of job title, roles and functions, knowledge, skills and attributes).
c) Skills-in Demand (with justification)

E. Occupational Structure (OS) Development

The identification of the industry is important so that when identifying the relevant sub-sectors and areas under the industry, it will define the segmentation of the particular industry to other relevant industries. This will eliminate the possibility of duplication among common areas.

The researcher shall utilize facilitation techniques to develop Occupational Structure (OS) consisting of the following:

- Identification of sector/sub-sectors/job areas/sub-job areas aligning with the latest Malaysian Standard Industrial Classification (MSIC)
- Identification of Job Title based on the literature reviews conducted and organization structure.
- Identification of levelling based on Malaysian Occupational Skills Qualifications Framework MOSQF.

The rule of thumb is to avoid taking into account the organization structure, as this will include many other industries/sectors such as marketing, administration, human resources, research and development, assembly, construction, and public relations. These areas are

common across various industries and have different skill sets. Grouping based on similar skills set in terms of technical abilities is a determining factor. The occupational structure is developed based on the fallowing processes in Table 3.1:

No	Process	Descriptions
1	Identification of sector/sub-sectors/job areas/sub-job areas	The coverage of sub-sector should be able to accommodate a number of areas and sub-areas where applicable. Sub-sectors are identified as being components of an industry and can be clustered in terms of classification, segmentation or process driven. Segmentation as recognized by the industry and regulatory bodies are also taken into consideration.
2	Identification of job titles	In order to identify job titles, it is important to obtain consensus from Subject Matters Expert (SMEs) that the job title is common between organizations (Small, Medium or Large Enterprises) and is easily accepted by practitioners in the industry.
3	Identification of levelling	Levelling of job title is done based on the level of competency required to be deemed competent at a specific designation. The level description in Annex 1 is used as reference when determining the different levels relevant to a specific job title.

Table 3.1: Occupational Structure Development Process

F. Job Description Development

Job description is a broad and general written statement of a specific job, based on the findings of a job analysis. It generally includes duties, purpose, responsibilities, scope, and working conditions of a job along with the job's title, and the name or job title of the person to whom the employee reports. Job description usually forms the basis of job specification. To describe the Job Description clearly, the statement must consist of a Verb, Object and Qualifier. The rationale for determining the description attributes is to facilitate NOSS development especially in job and competency analysis.

Stage 3

G. Finalizing Occupational Framework Document and Hand Over

Follow-up discussions with the SMEs and proof-reader in a small group is vital to ensure all the write-ups and findings of the occupational framework are valid, reliable and compliant to standard documentation guidelines. The final OF report must be well presented with

discussion, conclusion and recommendations in order to help the general readers and interested parties comprehend the skilled workforce scenario in the industry.

The fully completed OF will finally be handed over to the stakeholder as a form of honouring their contribution and for the adoption of their industries and sectors.

3.3 Chapter Conclusion

This chapter elaborates on the methodology and approach undertaken in the research, which includes literature review, focus group meetings, qualitative and quantitative studies, surveys and primary and secondary data gathering. The development of the Occupational Framework obtained via the focus group session will be presented in Chapter 4.

CHAPTER 4: FINDINGS

4.1 Chapter Introduction

This chapter presents the findings for Transport via Railways Sector. In addition, it explains the detailed comparative analysis done by comparing the output of this study with existing Occupational Analysis (OA), NOSS or other relevant industry framework (local/international). Findings also include the outcome of surveys and questionnaire analysis conducted by the industry representatives and agreed occupational structure includes sector, subsector, job area, job title and levelling with an alignment to MSIC requirement. This chapter includes Job Descriptions detail for each of the Job Titles identified by the subject matter experts. Finally, Skills in-demand in a tabulated report provides the information on shortages of skilled workforce, skills gaps of existing workforce and emerging skills needs together with the necessary rationale/justification is furnished in this chapter.

4.2 Comparative Analysis

The preliminary step in Occupational Framework development is to review and analyse the existing NOSS and Occupational Structure of the industry. Transport via Railway (known as Train Industry) is categorized under Sector 5 in National Occupational Skills Standard (NOSS) from DSD NOSS Registry Version 24th May 2016. The NOSS registry summary for sector 5 is detailed below in Table 4.0.

BIL., /NO	Sub-SEKTOR/SUB-SECTOR	Kod/ Code	T1/ L1	T2 /L2	T3/ L3	T4/ L4	T5/ L5	Jumlah (Total)
5.1	Penerbangan/Aviation	TP,Q	3	3	16	8	9	39
5.2	Maritim/Maritime	TP,R	6	9	20	10	10	55
5.3	Jentera dan Pengangkutan Darat/Machinery & Land Transportation	P,TP, AT,AF	8	14	34	11	10	77
5.4	Pemasangan Kenderaan Bermotor/Assembly	TP,P	3	4	8	1	1	17
5.5	Pemasangan Motosikal/Motorcycle Assembly	TP	2	3	6	0	0	11
5.6	Jentera dan Pengangkutan Darat/Machinery & Land Transportation	W	0	1	2	0	0	3
5.7	Angkasa Lepas/Aerospace	TP	0	0	0	0	0	0
5.8	**Industry Keretapi/Train Industry**	**TP**	**6**	**11**	**11**	**5**	**5**	**38**
Jumlah/Total			**28**	**45**	**97**	**35**	**35**	**240**

Table 4.0: NOSS Registry Summary (May, 2016)

Areas and levels of NOSS that have been developed are:

i. Railway (L2 – L3)

ii. Electrical Multiple Unit (EMU) –(L2 – L5)

iii. Locomotive (L1 – L5)

iv. Station Operation (L1 – L3)

v. Coach & Wagon (L2 – L5)

vi. Signal & Communication System (L1 – L5)

vii. Locomotive & PGC (L1 – L3)

viii. Rail Electrification (L1 – L5)

ix. Rolling Stock QAC (L2 – L3)

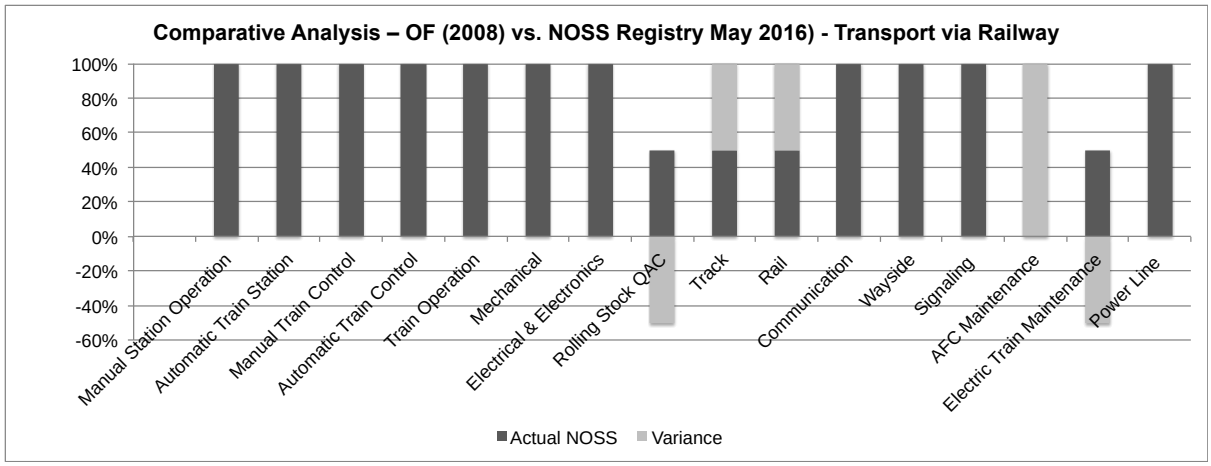
x. Electric Train Maintenance (L1 – L5)

Comparative analysis study as illustrated in Table 4.1, was undertaken to compare and contrast between the Occupational Structure (OS), which was established in 2008 against the NOSS Registry (Version 24th May 2016). Using statistical method, a trend analysis was configured and illustrated in Figure 4.1.

JOB AREA	SUB JOB AREA	OA 2008					Potential NOSS Package	NOSS Registry (Ver 24th May'16)					Actual NOSS	Variance
		L1	L2	L3	L4	L5		L1	L2	L3	L4	L5		
Station Operation	Manual Station Operation	1	1	1	1	1	2	1	1	1	1	1	2	0
	Automatic Train Station Operation		1	1	1									
Control Centre	Manual Train Control Centre	1	1	1	1	1	2	0	0	1	1	0	2	0
	Automatic Train Control Centre	1	1	1	1	1	2	1	1	1	1	1	2	0
Train Operation	Train Operation	1	1	1	1	1	2	0	1	1	0	0	2	0
Rolling Stock	Mechanical	1	1	1	1	1	2	0	1	1	1	1	2	0
	Electrical & Electronics	1	1	1	1	1	2	0	1	1	1	1	2	0
	Rolling Stock QAC	0	0	0	0	0	0	1	1	1	0	0	1	-1
Permenant Way	Track	1	1	1	1	1	2	0	1	1	0	0	1	1
	Rail	1	1	1	1	1	2	0	1	1	0	0	1	1
Signaling & Communication	Communication	1	1	1	1	1	2	1	1	1	1	1	2	0
	Wayside	1	1	1	1	1	2	1	1	1	1	1	2	0
	Signaling	1	1	1	1	1	2	1	1	1	1	1	2	0
AFC Maintenance	AFC Maintenance	1	1	1	1	1	2		0	0	0	0	0	2
Electric Train Maintenance	Electric Train Maintenance	0	0	0	0	0	0	1	1	1	1	1	2	-2
Electrification	Power Line	1	1	1	1	1	2	1	1	1	1	1	2	0
		Total					26	Total					25	1
													96%	4%

Table 4.1: Occupational Framework Analysis (Version 2016) vs. NOSS Registry Comparative Analysis (May 2016)

Figure 4.1: Comparative Analysis – OF (2008) vs. NOSS Registry May (2016)



Source: NOSS Registry May 2016 and OS 2008

The analysis of the number of NOSS is based on the common understanding of NOSS development classification whereby for each area, Levels 1-3 are considered as one NOSS (or package) and Levels 4-5 are considered one NOSS (or package).

The Occupational Structure (OS), established in 2008, had identified 26 potential NOSS titles for development in the Transport via Railways. The actual NOSS developed was at 25, which is equivalent to 98%, and the remaining 1 potential NOSS, equivalent to 4% is yet to be developed. Development of identified NOSS titles plays a significant role to ensure sufficient supply of competent workforce for the growth of Rail Industry in Malaysia.

4.3 Occupational Structure (OS)

In order to analyse the Transport via Railways sector, the existing Occupational Structure, Edition 2008, was referred and compared. This document was used as a guideline during the focus group workshop. A total of two (2) sub-sectors exist in the current OS, namely:

iii. Operation
iv. Maintenance

Each of the sub-sectors is further categorized into job areas as illustrated in Table 4.2.

Sector	No	Sub Sector	No	Job Area	No	Sub Job Area
Rail Industry	1	Operation	1	Station Operation	1	1.1. Manual Train Station Operation
					2	1.2. Automatic Train Station Operation
			2	Control Centre	3	2.1. Manual Train Control Center
					4	2.2. Automatic Train Control Center
			3	Train Operation		
	2	Maintenance	4	Rolling Stock	5	4.1. Mechanical (Body)
					6	4.2. Mechanical (Bogie)
			5	Electrical & Electronic	7	5.1. Locomotive
					8	5.2. Coaches & Wagon
					9	5.3. Electrical Train
			6	Railway	10	6.1. Track (Structure)
					11	6.2. Track (Permanent Way)
			7	Rail	12	7.1. Track vehicles
					13	7.2. Mechanise Operation
			8	Signaling & Communication	14	8.1. Communication
					15	8.2. Wayside
					16	8.3. Signaling
			9	Automatic Fare Collection (AFC)		
			10	Electrification	17	10.1. Power Line
					18	10.2. Electrification Competency

Table 4.2: Transport via Railways Sub-Sectors Description

Source: 2008, Rail Industry Occupational Structure

The Subject Matters Expert (SMEs) then proceeded to review the existing OS and conducted an extensive brainstorming session to explore the possibilities of sub-sectors and job areas to match with current industrial practices and needs, relevancy and future projections.

The findings of the session are statistically represented in Table 4.3 and Figure 4.2.

	Year 2008	Year 2016	Variance	Var %
Sector	1	1	0	0%
Sub-Sector	2	6	4	200%
Job Areas	10	18	8	80%
Sub Job Areas	18	9	-9	-50%
Total	31	34	3	10%

Table 4.3: OS 2008 vs. 2014 Comparative Table

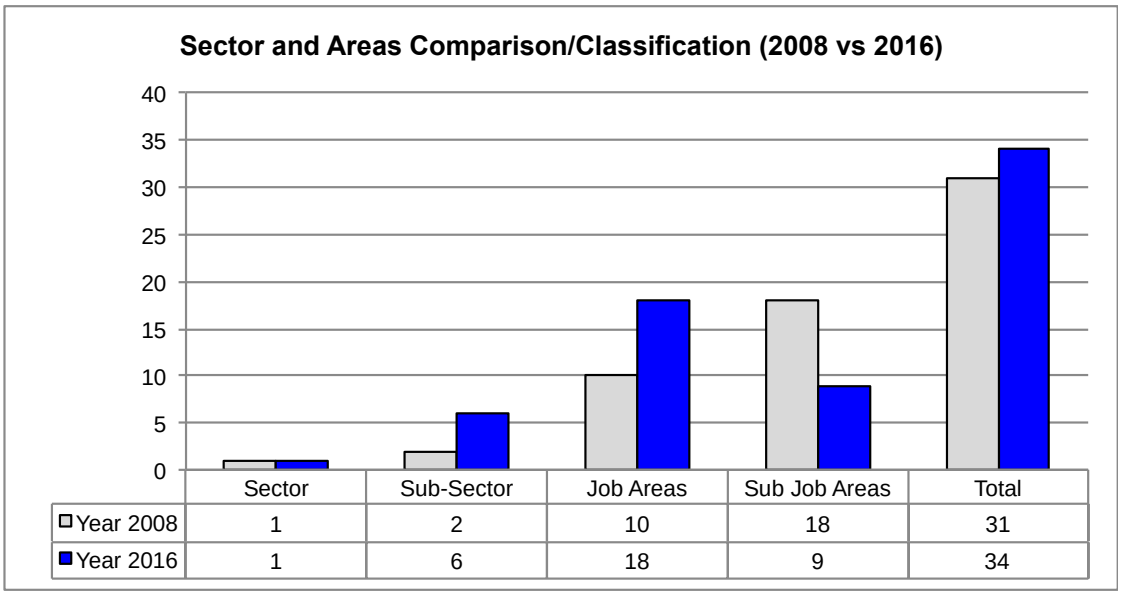


Figure 4.2: OS 2008 vs 2016 Comparison Trend

The findings define that the sector has to be reclassified and aligned in accordance with the Malaysian Standard Industrial Classification (MSIC) from Rail Industry to Transport Via Railways which is a Digit 3 classification under MSIC.

The sub-sectors and job areas were also reclassified. A total of six (6) sub-sectors were identified in 2016 as compared with two (2) in 2008. Eighteen (18) new job areas were identified and classified compared with ten (10) in 2008 and nine (9) sub-job areas were identified in 2016 compared with eighteen (18) in 2008. The addition of the job areas and sub-sectors were driven by the relevancy of the industry and new emerging trends of business units.

Table 4.4 illustrates the outcomes of the new Occupational Structure (OS) for 2016.

Sector	No	Sub Sector	No	Job Area	No	Sub Job Area
Transport via Railways	1	Operation	1	1.1. Station Operation	1	1.1.1. Manual Train Station Operator
					2	1.1.2. Automatic Train Station Operator
			2	1.2. Control Centre		
			3	1.3. Train Operation		
	2	Maintenance & Engineering	4	2.1. Rolling Stock	3	2.1.1. Mechanical
					4	2.1.2. Electrical & Electronics
			5	2.2. Permanent Way	5	2.2.1. Track
					6	2.2.2. Maintenance Vehicles
			6	2.3. Wayside, Electrical & Electronics	7	2.3.1. Signaling
					8	2.3.2. Communications
					9	2.3.3. Electrification
	3	Automated Fare Collection (AFC)	7	3.1. Operations		
			8	3.2. Software Maintenance		
			9	3.3. Field Maintenance		
	4	Quality Assurance (QA)	10	4.1. Engineering		
			11	4.2. Technical Support		
			12	4.3. Audit		
	5	Safety, Health & Environmental	13	5.1. Operational Safety		
			14	5.2. Occupational Health		
			15	5.3. Environmental		
	6	Facilities & Equipment Maintenance	16	6.1. Electrical		
			17	6.2. Mechanical		
			18	6.3. Building		

Table 4.4: Occupational Structure Summary 2016

Source: 2016, Transport Via Railway Occupational Framework

Sub-sectors were mapped to represent the actual Transport Via Railways Sector as summarized below and each sector's description is defined in Table 4.4:-

1. Operation
2. Maintenance & Engineering
3. Automated Fare Collection (AFC)
4. Quality Assurance (QA)
5. Safety, Health & Environmental
6. Facilities & Equipment Maintenance

The Occupational Structure for each Job Area and Sub-Job Area are as illustrated in below Table 4.5 – Table 4.14. Overall Occupational Structure is provided in Annex V.

Sector	**Transport via Railway**	
Sub-Sector	**Operation**	
Job Area	**Station Operation**	
	Manual Train Station Operation	**Automatic Train Station Operation**
Level 5	Station Operation Manager	
Level 4	Manual Train Operation Executive	Automatic Train Station Manager Superitendant
Level 3	Manual Train Station Master	Automatic Train Station Supervisor
Level 2	Manual Train Freight	N/A
Level 1	Station General Worker	

Table 4.5 Job Area: Station Operation

Sector	**Transport via Railway**
Sub-Sector	**Operation**
Job Area	**Control Center**
Level 5	Control Center Manager
Level 4	Control Center Executive/Operation Control Supervisor/Control Assistant Manager
Level 3	Control Center Operation Controller
Level 2	N/A
Level 1	N/A

Table 4.6 Job Area: Control Centre

Sector	Transport via Railway
Sub-Sector	**Operation**
Job Area	**Train Operation**
Level 5	Train Operation Manager
Level 4	Train Operation Executive/Superitendant
Level 3	Train Driver Supervisor
Level 2	Train Driver
Level 1	Assistant Train Driver

Table 4.7 Job Area: Train Operation

Sector	Transport via Railway	
Sub-Sector	**Maintenance & Engineering**	
Job Area	**Rolling Stock**	
	Mechanical	**Electrical & Electronics**
Level 5	Mechanical Engineer/Mechanical Manager	Electrical & Electronics Engineer/Manager
Level 4	Mechanical Technical Assistant/Technical Executive	Electrical & Electronics Technical Assistant/Technical Executive
Level 3	Mechanical Supervisor/Inspector	Electrical & Electronics Supervisor/Inspector
Level 2	Mechanical Technician	Electrical & Electronics Technician
Level 1	Mechanical Fitter	Electrical & Electronics Fitter

Table 4.8 Job Area: Rolling Stock

Sector	Transport via Railway	
Sub-Sector	Maintenance & Engineering	
Job Area	Permanent Way	
	Track	Maintenance Vehicle
Level 5	Track Engineer/Manager	Maintenance Vehicle Engineer/Manager
Level 4	Track Technical Assistant/Technical Executive	Maintenance Vehicle Technical Assistant/Technical Executive
Level 3	Track Supervisor	Maintenance Vehicle Supervisor
Level 2	Track Technician	Maintenance Vehicle Technician
Level 1	Track Fitter	Maintenance Vehicle Mechanise Operator

Table 4.9 Job Area: Permanent Way

Sector	Transport via Railway		
Sub-Sector	Maintenance & Engineering		
Job Area	Wayside, Electrical & Electronic System		
	Signaling	Communications	Electrification
Level 5	Signaling Engineer/Manager	Communication Engineer/Manager	Electrification Engineer/Manager
Level 4	Signaling Technical Assistant/Technical Executive	Communication Technical Assistant/Technical Executive	Electrification Technical Assistant/Technical Executive
Level 3	Signaling Supervisor	Communication Supervisor	Electrification Supervisor
Level 2	Signaling Technician	Communication Technician	Electrification Technician
Level 1	Signaling Fitter	Communication Fitter	Electrification Fitter

Table 4.10 Job Area: Wayside, Electrical & Electronic System

Sector	Transport via Railway		
Sub-Sector	**Automated Fare Collection**		
Job Area	**AFC Operations**	**AFC Software Maintenance**	**AFC Field Maintenance**
Level 5	Head, AFC Operation	Head, Software Maintenance	Head, Field Maintenance
Level 4	Associate, AFC Operation	Associate, Software Maintenance	Field Maintenance Engineer
Level 3	N/A	Software Maintenance Supervisor	Field Maintenance Supervisor
Level 2	AFC Operation Assistant	Software Maintenance Technician	Field Maintenance Technician
Level 1	N/A	N/A	N/A

Table 4.11 Job Area: Automated Fare Collection

Sector	Transport via Railway		
Sub-Sector	**Quality Assurance**		
Job Area	**QA Technician**	**QA Technical Support**	**QA Engineering**
Level 5	Head, Quality Assurance		
Level 4	QA Engineer/Executive	QA Technical Support Engineer/Executive	QA Engineering Engineer
Level 3	QA Supervisor	QA Technical Support Supervisor	QA Engineering Supervisor
Level 2	QA Technician	QA Technical Support Technician	QA Engineering Technician
Level 1	N/A	N/A	N/A

Table 4.12 Job Area: Quality Assurance

Sector	Transport via Railway		
Sub-Sector	**Safety, Health & Environmental**		
Job Area	**Operational Safety**	**Occupational Health**	**Environmental**
Level 5	Safety, Health & Environmental Manager		
Level 4	Operational Safety Executive	Occupational Health Executive	Environmental Executive
Level 3	N/A	Occupational Health Supervisor	N/A
Level 2	N/A	N/A	N/A
Level 1	N/A	N/A	N/A

Table 4.13 Job Area: Safety, Health & Environmental

Sector	Transport via Railway		
Sub-Sector	**Facilities & Equipment Maintenance**		
Job Area	**Electrical facility Maintenance**	**Mechanical Facility Maintenance**	**Building Maintenance**
Level 5	Electrical Facility Maintenance Manager	Mechanical Facility Maintenance Manager	Building Maintenance Manager
Level 4	Electrical Facility Maintenance Executive	Mechanical Facility Maintenance Executive	Building Maintenance Executive
Level 3	Electrical Facility Maintenance Supervisor	Mechanical Facility Maintenance Supervisor	Building Maintenance Supervisor
Level 2	Electrical Facility Maintenance Technician	Mechanical Facility Maintenance Technician	Building Maintenance Technician
Level 1	Electrical Facility Maintenance General Worker	Mechanical Facility Maintenance General Worker	Building Maintenance General Worker

Table 4.14 Job Area: Facilities & Equipment Maintenance

4.4 Surveys and Questionnaires Analysis

The objective of the survey and questionnaire is to identify and assess the situation of the Transport via Railway Sector and prospects for its future development. The survey is classified into 3 sections namely:

Section 1	The situation of the Transport via Railway and prospects for its future development
Section 2	Skills in-demand in Transport via Railway Sector
Section 3	Respondent Demographic Profile

More specifically, the study aims to: -

(a) Identify Transport via Railway prospects and landscape from various perspectives both locally and internationally;

(b) Identify Skills In Demand in the industry;

(c) Identify critical shortages in the industry;

(d) Ascertain the availability of NOSS for the shortages and skills in demand identified; and

(e) Recommend NOSS to be developed where NOSS are unavailable and review/update where the available NOSS are outdated.

i. Questionnaire Population and Participating Demographics

The scope of study was limited to SMEs who are invariably representing majority stakeholders from Transport via Railways Sector. The population of the study comprises 47 respondents from the industry consisting of Chief Officers (CEO, COO, CFO, CIO etc.), Senior Executives (MD, ED, President, Vice President etc.), Mid-level Executives (GM, Divisional Manager, Regional Manager etc.) and First-level Executives (Departmental Manager, Manager etc.) position involving with Operations, Maintenance & Engineering, Automated Fare Collection (AFC), Quality Assurance, Safety, Health & Environmental and Facilities & Equipment Maintenance.

Figure 4.3 illustrates the demographics of the respondents:

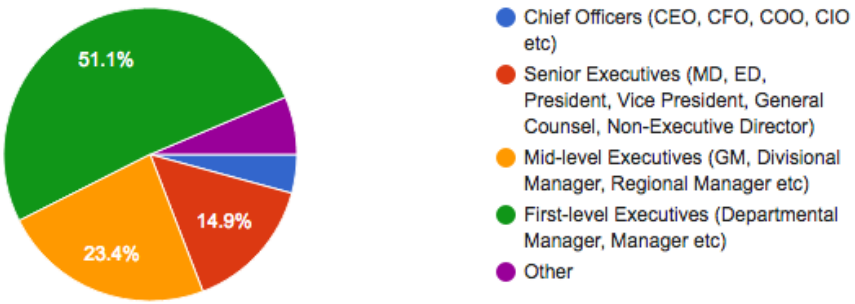


Figure 4.3: Job position in the firm

Figure 4.3 above shows that first-level executives represent 51.1% of the respondents, followed by Mid-level executives at 23.4%, senior executives at 14.9%, chief officers at 4.3% and the remaining 6.4% represent others.

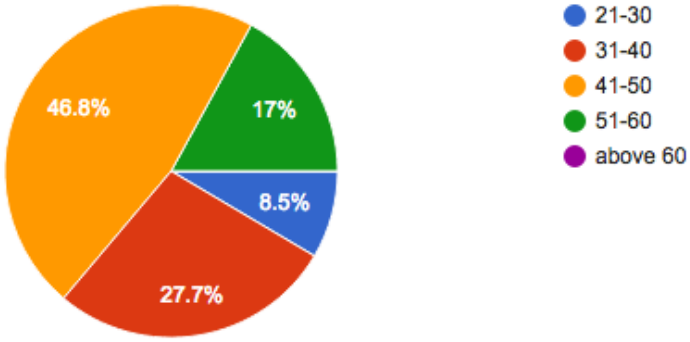


Figure 4.4: Age Group

Figure 4.4 above illustrates that 46.8% respondents are between the ages of 41-50, 27.7% between 31-40, 17% between 51-60 and 8.5% between the ages of 21-30.

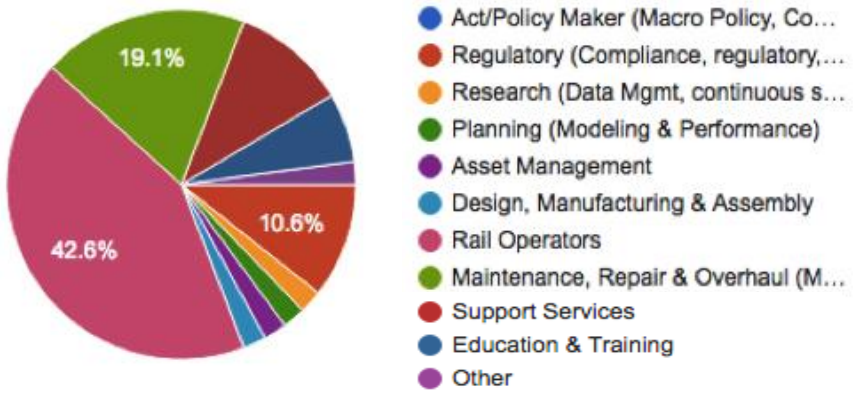


Figure 4.5: Respondents' areas of profession

Figure 4.5 above illustrates respondents' areas of profession which consist of 42.6% from rail operators, 19.1% from planning, 10.6% from regulatory, 10.6% from support services and remaining 17.1% comprises of other area of profession.

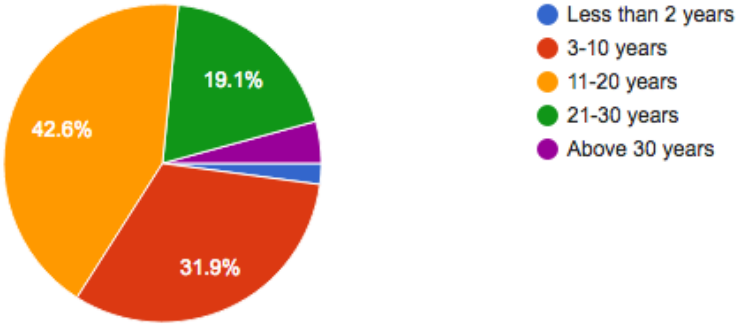


Figure 4.6: Respondent years of working experience or expertise

Figure 4.6 above shows that a significant number of respondents (42.6%) have working experience of between 11-20 years, followed by 3-10 years at 31.9%, 21-30 years at 19.1% and less than 2% at 6.4%.

ii. Situational Analysis of Transport via Railways

The survey summary results for factors influencing Transport via Railway sector (Table 4.15) reveal that 49% of the respondents say "very significant" whereby 47% respondents say "significant" for the growth of the industry. It is crucial for the stakeholders to strategize the necessary action plan for the identified factors for increased industry competitiveness.

Factors	Not Significant	Significant	Very Significant	Don't Know	Total
1. Changes in Business Model		28	18	1	47
2. Changes in Policy and Regulatory	2	27	16	2	47
3. Changes in Mobility (Multi-modal commuting combining door-to-door solutions using digital technology)	3	11	33		47
4. Development of new products (rolling stock etc.,)		9	38		47
5. Changes in Technology (High reliant of smart devices, business intelligence etc.,)		8	38	1	47
6. Changes in Infrastructures		10	37		47
7. Changes in consumer behaviors, culture an expectations.	1	19	26	1	47
8. Changes in Human Resources policy and system	2	37	7	1	47
9. Changes in Investment	2	27	18		47
10. Changes in efficiency and productivity (lead time, etc.,)	1	32	14		47
11. Access to new markets	2	32	12	1	47
12. Changes in leadership and management	1	26	19	1	47
Total	14	266	276	8	564
Total %	2%	47%	49%	1%	

Table 4.15: Factors Influencing Transport via Railways

Survey summary results for challenges affecting Transport via railway sector (Table 4.16 below) reveal that 48% of the respondents agreed that it's "rather challenging" and 29% agreed that it's "very challenging". It is crucial for the stakeholders to strategize the necessary action plan for each of the identified challenges for increased industry competitiveness.

Main Challenges	Not relevant	Not Really Challenging	Neutral	Rather Challenging	Very Challenging	Don't Know	Total
Labor cost increased		2	4	26	15		47
Energy cost increased			2	28	17		47
New investment Increased affecting Return of Investment (ROI)			13	22	12		47
Restructuring			13	25	8	1	47
Customer bahavior and expectation	1	1	3	32	11		47
Regulatory and policy changes		1	16	21	8	1	47
Skilled workers insufficient			4	10	33		47
High and frequent turnover of skilled workforce		1	3	10	33		47
Slow in decision making process	1	2	23	15	7		47
Slower pace of technological advancement		1	11	32	3		47
Frequent cases of accidents (affecting business and reputation)	3	6	10	27	4		47
Public perception and acceptance of Rail transportation	1		15	20	12		47
Total	6	14	117	268	163	2	564
Total %	1%	2%	21%	48%	29%	0%	

Table 4.16: Challenges Affecting Transport via Railways

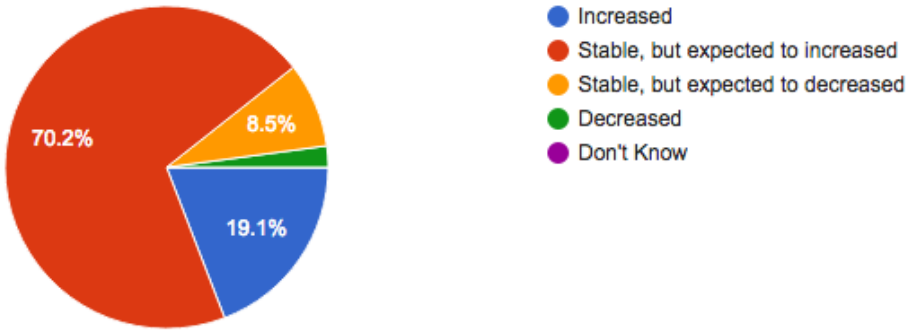


Figure 4.7: Workforce Flexibility in Transport via Railways

Figure 4.7 above describes that the workforce flexibility in Transport via Railway is rated at 70.2%, which represents “Stable, but expected to increase”.

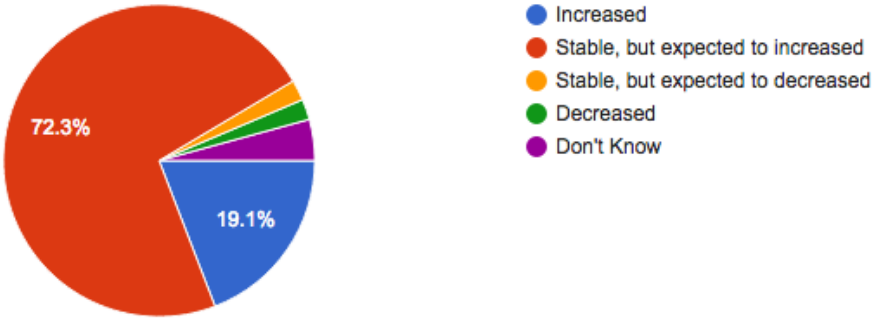


Figure 4.8: Investment in Human Capital & Life Long Learning (in terms of efficiency and productivity)

Figure 4.8 illustrates that the human capital and lifelong learning contribution to Transport via Railway Sector in terms of efficiency and productivity is rated at 72.3%, which represents “Stable, but expected to increase”.

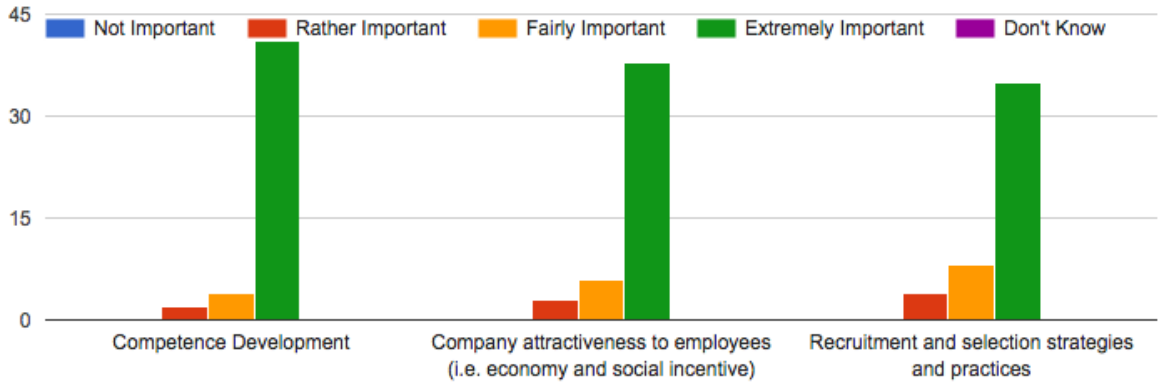


Figure 4.9: Importance of Human Resource strategy for Transport via Railways Sector

Figure 4.9 above illustrate the competence development, company attractiveness to employees and recruitment and selection strategies and practice rates extremely important at 87%, 81% and 75% respectively.

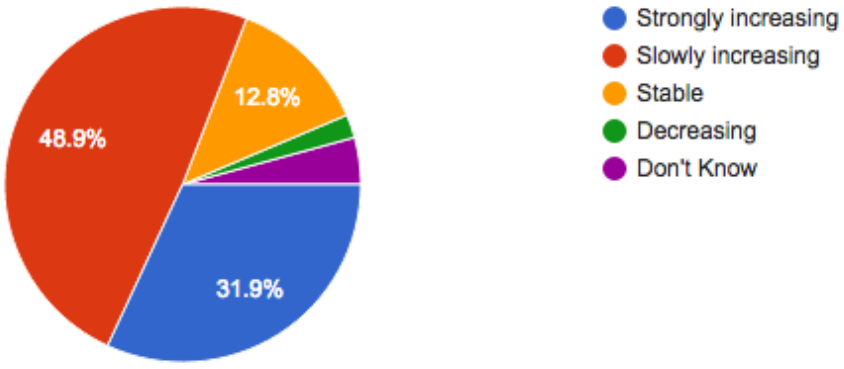


Figure 4.10: Rail Industry investment into R&D, New Product Development and New Processes

Figure 4.10 above illustrates that the rail industry investment into R&D, New Product Development and New Processes are showing progressive increment at a total of 81%. This is in line with new LRT and MRT lines and the upcoming HSR project.

Table 4.17 outlines the significant areas of transformation seen for Rail Sector in Malaysia and rating by respondents.

NS: Not Significant, RS: Rather Significant, FS: Fairly Significant, ES: Extremely Significant, DK: Don't Know

Transformation areas	NS	RS	FS	ES	DK
1. CONTROL, COMMAND & COMMUNICATION - Real-time intelligent traffic management systems deliver a high-capacity, energy-efficient, on-time railway. In-cab signaling has largely displaced need for the line side-signaling infrastructure. Communication systems are optimized for operations and customer services.				**O**	
2. ENERGY - An extensively electrified network has reduced reliance on fossil fuels and nonrenewable resources. Asset specification drives energy efficiency. Sensors, energy storage technologies and smart grid technologies monitor and manage energy use for maximum efficiency.				**O**	
3. INFRASTRUCTURE - A resilient railway with world-class asset management, which improves reliability, increases capacity and service levels and reduces delays. Trains and track equipment are specified through a whole-system approach to monitor each other and cause less damage. Intelligent maintenance provides accurate timely information for condition-based intervention.				**O**	
4. ROLLING STOCK - Reliable, energy-efficient, low whole-life cost rolling stock is based on modular designs to meet the evolving needs of rail customers. Rolling stock/infrastructures interfaces are optimized to minimize cost. Plug-and-play train fitments for sub-systems simplify replacements and upgrades without costly, time-consuming refits, improved, more efficient braking systems and bogie designs are deployed.				**O**	
5. INFORMATION - Integrated modular information system improves customer service, reduce operating costs and generate value through commercial exploitation. Data and information management, based on common architectures and open source technology, make information available in useable form when and where needed.				**O**	
6. CUSTOMER EXPERIENCE - Rail is the customers' mode of choice for reliability and ease-of-use, integrating with adjacent modes to create seamless door-to-door journeys. Passenger-friendly stations without queues or physical barriers feature revenue collection and security controls based on electronic systems.				**O**	
7. WHOLE-SYSTEM APPROACH - A whole-system approach features coordinated planning and operations, consistent and aligned asset management and the adoption of an industry wide framework to help the industry to implement change and improve reliability, availability, maintainability and safety (RAMS)				**O**	

8. INNOVATION - The rail sector has overcome inhibitors to innovation, including the misalignment of risk and reward, to become dynamic and attractive to entrepreneurial talent. Support for innovations includes identified priorities and test and trials facilities to simplify the introduction of novel technical solutions for operations and engineering applications.				**O**	
9. PEOPLE - Skilled, committed, adaptable people are attracted to working in the customer-focused, efficient rail sector. The leadership and technical skills are supported by learning and development systems. Repetitive tasks have been automated. A reliable supply chain provides specialist people support.				**O**	

Table 4.17: Rail Sector Significant Areas of Transformation

4.5 Job Descriptions (JD)

Job Description is an abstract of a job analysis, which contains the list of responsibilities, requirements, and job level, technical and soft skills attributed to the particular job. Job Description shall reflect the competencies performed for a particular job, which can be utilized to set the scope for the development of NOSS. Table 4.18 summarizes the number of job titles identified. There are total of 91 job titles comprises for all the 12 job areas.

JOB AREA	SUB JOB AREA	LEVEL					NO. OF JOB TITLES
		L1	L2	L3	L4	L5	
Station Operation	Manual Station Operation	1	1	1	1	1	5
	Automatic Train Station Operation			1	1		2
Control Centre				1	1	1	3
Train Operation		1	1	1	1	1	5
Rolling Stock	Mechanical	1	1	1	1	1	5
	Electrical & Electronics	1	1	1	1	1	5
Permenant Way	Track	1	1	1	1	1	5
	Maintenance Vehicle	1	1	1	1	1	5
Wayside, Electrical & Electronic System	Signaling	1	1	1	1	1	5
	Communications	1	1	1	1	1	5
	Electrification	1	1	1	1	1	5
AFC Operations			1	1	1	1	4
AFC Software Maintenance			1	1	1	1	4
AFC Field Maintenance			1	1	1	1	4
Quality Assurance	Quality Assurance		1		1	1	3
	QA Technical Support		1	1	1		3
	QA Engineering		1	1	1		3
Safety, Health & Environment	Operational Safety				1	1	2
	Operational Health			1	1		2
	Environmental				1		1
Facilties & Equipment Maintenance	Electrical Maintenance	1	1	1	1	1	5
	Mechanical Maintenance	1	1	1	1	1	5
	Building Maintenance	1	1	1	1	1	5
TOTAL NO. OF JOB TITLES IDENTIFIED		**12**	**18**	**20**	**23**	**18**	**91**

Table 4.18: Job Description (Job Titles Summary Table)

Each job title is described and detailed in Job Description (JD), which is furnished in Annex VI.

4.6 Skills In Demand

A skill shortage exists where an employer finds it difficult to find a worker with the right skills for a particular job vacancy within the company. This is especially so when the demand for workers for a particular job position is greater than the supply of workers who are qualified, available and willing to work under existing market conditions.

The survey conducted highlights the shortages prevailing across a range of positions in the Transport via Railway Sector. A 5 point Likert Scale was used to identify the level of seriousness of skills shortages as shown in Table 4.19.

Scale	Description of Seriousness	Definition
5	No Skill Shortage (or Not Applicable)	Operation is highly efficient and effective
4	Not Serious (1% to 5% skill shortages)	Operation runs as per normal
3	Fairly Serious (6% to 10% skill shortages)	Manageable and does not disrupt operations
2	Serious (11% to 15% skill shortages)	Operations are abnormal and meeting customer expectation is a concern
1	Very Serious (>15% skill shortages)	Operations may be halted

Table 4.19: Level of seriousness of skill shortages in the Transport via Railways Sector

The details of the findings on the level of seriousness in the job areas and job titles for the Transport via Railway sector are shown Annex IV. It is evident to observe that skills shortages are prevalent in all the sub sectors and job areas. The Likert scale analysis in Table 4.20 and Figure 4.11 below reveals 55 (60%) job titles are classified as serious, while fairly serious consists of 19 (21%) job tiles and not serious is at 17 (19%) job titles.

Seriousness Scale	Seriousness %	Job Titles	Job Titles %
No shortages	**0%**	**0**	**0%**
Not Serious	**1% - 5%**	**17**	**19%**
Fairly Serious	**6% - 10%**	**19**	**21%**
Serious	**11% - 15%**	**55**	**60%**
Very Serious	**above 15%**	**0**	**0%**
		91	**100%**

Table 4.20: Seriousness of Skills Shortages

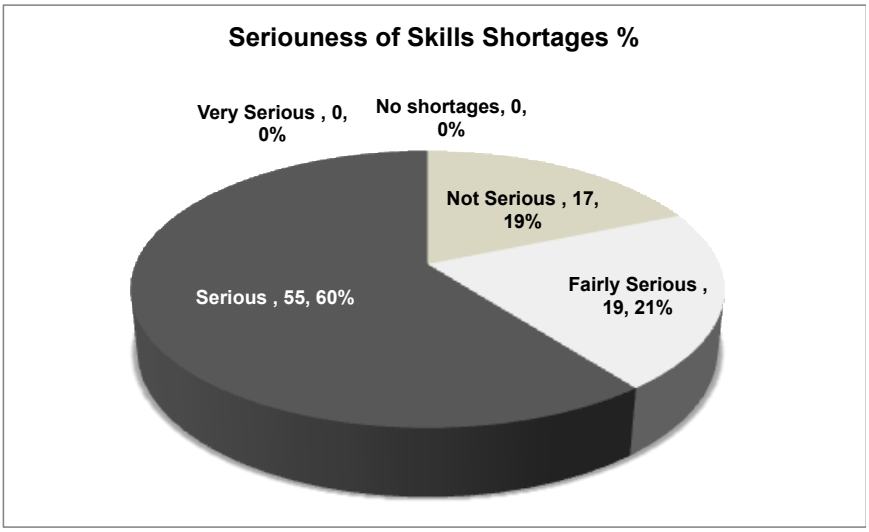


Figure 4.11: Seriousness of Skills Shortages Composition

Based on the above findings and degree of definition of the skills in-demand seriousness, skills shortages classified under Serious at 60% were selected by the focus group as Skills in-demand or Critical Skills. There are total of 55 job titles identified as Skills in-demand for Transport via Railway Sector. Further analysis to determine the skills in-demand by Sub-Sectors and Job Areas were conducted. A qualitative analysis of the data gathered illustrates the degree or criticality of skills in-demand for each of the sub areas identified under Transport via Railway sector. It is evident that skills shortages are identified for all the job areas at different level of skills in-demand. The percentage (%) for skills shortages is derived based on the following formula:

Skills Shortages % = (Critical Job Titles / Total Job Titles) x 100

Sub-Sector	Job Area	Total Job Titles	Critical Job Titles	Critical Job Titles %	Non Critical Job Titles	Non Critical Job Titles %
Operation	Station Operation	7	0	0%	7	100%
	Control Centre	3	3	100%	0	0%
	Train Operation	5	1	20%	4	80%
	Total	**15**	**4**	**27%**	**11**	**73%**
Maintenance & Engineering	Rolling Stock	10	9	90%	1	10%
	Permanent Way	10	9	90%	1	10%
	Wayside, Electrical & Electronics	15	13	87%	2	13%
	Total	**35**	**31**	**89%**	**4**	**11%**
Automated Fare Collection	AFC Operations	3	0	0%	3	100%
	AFC Software Maintenance	4	1	25%	3	75%
	AFC Field Maintenance	4	2	50%	2	50%
	Total	**11**	**3**	**27%**	**8**	**73%**
Quality Assurance	Quality Assurance	3	2	67%	1	33%
	QA Technical Support	3	2	67%	1	33%
	QA Engineering	4	2	50%	2	50%
	Total	**10**	**6**	**60%**	**4**	**40%**
Safety, Health & Environmental	Operational Safety	1	1	100%	0	0%
	Operatonal Health	2	1	50%	1	50%
	Environmental	2	2	100%	0	0%
	Total	**5**	**4**	**80%**	**1**	**20%**
Facilities& Equipment Maintenance	Electrical Maintenance	5	2	40%	3	60%
	Mechanical Maintenance	5	2	40%	3	60%
	Building Maintenance	5	3	60%	2	40%
	Total	**15**	**7**	**47%**	**8**	**53%**
Total Transport via Railway		**91**	**55**	**60%**	**36**	**40%**

Table 4.21: Skills shortages % for Transport via Railway Sub-Sector and Job Area

Table 4.21, details the total skills shortages for Transport via Railway whereby the skills in-demand identified from a total 91 job titles are 62% or equivalent to 56 job titles.

Figure 4.12 below, describes the skills in-demand for each of the sub-sectors.

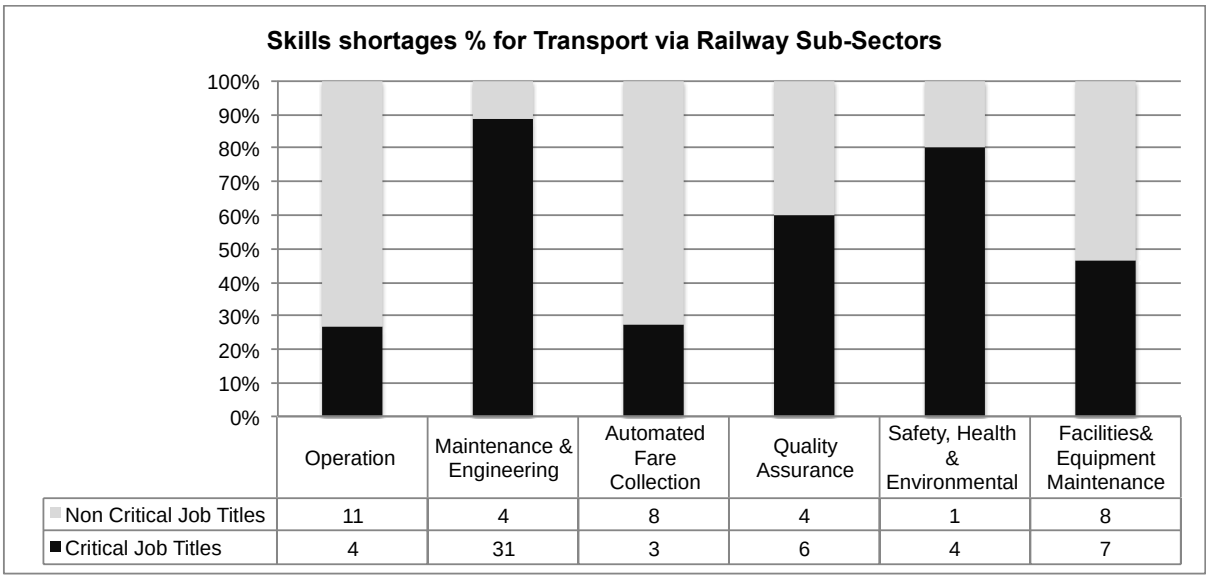


Figure 4.12: Skills Shortages % for Transport via Railway Sub Sectors

Figure 4.12 above illustrates the analysis of skills shortages of Transport via Railways Sub-Sectors. Maintenance and Engineering shows significant skills in-demand with a total of 32 (91%) job titles, followed by Safety, Health & Environmental at 4 (80%) job titles, Quality Assurance at 6 (60%) job titles and Facilities & Equipment Maintenance at 7 (45%) job titles. Operations and Automated Fare Collection represent insignificant skills in-demand at 4 (27%) and 3 (27%) job titles respectively.

Table 4.22 summarizes factors influencing skills in-demand for Transport via Railway for the identified job titles.

No	Skills In Demand	Level	Job Knowledge	Job Competency	Qualification Requirement	New Development/Project (New LRT, MRT & Overseas Project)	Turnover (Internal trasnfer, further studies, family)	Job Security (renumeration, satisfaction, career development)	Oversupply (Local education)	Work load balance
1	Control Centre Operation Controller	L3	✓	✓	✓	✓		✓		✓
2	Control Centre Executive/Operation Control Supervisor/Control Assistant Manager	L4	✓	✓		✓				
3	Control Centre Manager	L5	✓	✓		✓				
4	Train Driver	L2	✓	✓		✓	✓	✓		✓
5	Mechanical Technician	L2	✓	✓	✓			✓	✓	✓
6	Mechanical Supervisor/Mechanical Inspector	L3	✓	✓	✓				✓	✓
7	Mechanical Technical Assistant/Mechanical Technical Executive	L4	✓	✓	✓	✓				
8	Mechanical Engineer/Mechanical Manager	L5	✓	✓		✓				
9	Electrical & Electronics Fitter	L1	✓	✓	✓				✓	✓
10	Electrical & Electronics Technician	L2	✓	✓	✓				✓	✓
11	Electrical & Electronics Supervisor/Electrical & Electronics Inspector	L3	✓	✓	✓				✓	✓
12	Electrical & Electronics Technical Assistant/Electrical & Electronics Technical Executive	L4	✓	✓	✓	✓				
13	Electrical & Electronics Engineer/Electrical Electronics Manager	L5	✓	✓	✓	✓				
14	Track Fitter	L1	✓	✓		✓	✓	✓		✓
15	Track Technician	L2	✓	✓		✓	✓	✓		✓
16	Track Supervisor	L3	✓	✓	✓	✓	✓	✓		✓
17	Track Engineer/Track Manager	L5		✓	✓	✓				
18	Maintenance Vehicle Mechanise Operator	L1	✓	✓						✓
19	Maintenance Vehicle Mechanise Technician	L2	✓	✓						✓
20	Maintenance Vehicle Mechanise Supervisor	L3	✓	✓						✓
21	Maintenance Vehicle Technical Assistant/Maintenance Vehicle Technical Executive	L4	✓	✓		✓				
22	Maintenance Vehicle Engineer/Maintenance Vehicle Manager	L5	✓	✓		✓				
23	Signaling Fitter	L1	✓	✓		✓	✓			✓
24	Signaling Technician	L2	✓	✓		✓	✓			✓
25	Signaling Supervisor	L3	✓	✓						✓
26	Signaling Tehnical Assistant/Signaling Technical Executive	L4	✓	✓						
27	Signaling Engineer/Signaling Manager	L5	✓	✓						
28	Communication Fitter	L1	✓	✓		✓	✓			✓
29	Communication Technician	L2	✓	✓		✓	✓			✓
30	Communication Supervisor	L3	✓	✓						✓

No	Skills In Demand	Level	Job Knowledge	Job Competency	Qualification Requirement	New Development/Project (New LRT, MRT & Overseas Project)	Turnover (Internal trasnfer, further studies, family)	Job Security (renumeration, satisfaction, career development)	Oversupply (Local education)	Work load balance
31	Communication Tehnical Assistant/Communication Technical Executive	L4	✓	✓		✓	✓			
32	Communication Engineer/Communication Manager	L5	✓	✓		✓	✓			
33	Electrification Fitter	L1	✓	✓	✓	✓	✓		✓	✓
34	Electrification Technician	L2	✓	✓	✓	✓	✓		✓	✓
35	Electrification Supervisor	L3	✓	✓	✓				✓	✓
36	Associate Software Maintenance	L4	✓	✓						
37	Field Maintenance Technician	L2	✓	✓		✓	✓			
38	Field Maintenance Supervisor	L3	✓	✓						
39	QA Technician	L2	✓	✓		✓	✓			
40	QA Supervisor	L3	✓	✓		✓	✓			
41	QA Technical Support Technician	L2	✓	✓		✓	✓			
42	QA Technical Support Supervisor	L3	✓	✓		✓		✓		
43	QA Engineering Technician	L2	✓	✓		✓		✓		
44	QA Engineering Supervisor	L3	✓	✓		✓		✓		
45	Operational Safety Executive	L4	✓	✓	✓			✓		
46	Operational Health Supervisor	L3	✓	✓	✓			✓		
47	Environmental Executive	L4	✓	✓	✓			✓		
48	Safety, Health & Environmental Manager	L5	✓	✓	✓			✓		
49	Electrical Facility Maintenance Technician	L2	✓	✓	✓	✓		✓	✓	
50	Electrical Facility Maintenance Supervisor	L3	✓	✓	✓			✓	✓	
51	Mechanical Facility Maintenance Technician	L2	✓	✓		✓		✓	✓	
52	Mechanical Facility Maintenance Supervisor	L3	✓	✓				✓		
53	Building Maintenance General Worker	L1	✓	✓	✓			✓		
54	Building Maintenance Technician	L2	✓	✓	✓			✓		
55	Building Maintenance Supervisor	L3	✓	✓	✓			✓		

Table 4.22: Matrix on Factors Influencing Skills In Demand for Transport via Railways

Table 4.23 details the factors influencing skills in demand for Transport via Railways

No	Factors	Description
1	Job Knowledge	Understanding and know-how of performing work activities in accordance to SOP and job manuals.
2	Job Competency	Possess relevant technical and soft skills such as communication, leadership, management etc.
3	Qualification	Possess suitable qualification to perform job effectively, Qualification many include licenses, certification, regulatory requirements etc. For example a charge man is required to maintain his log periodically for competency up gradation. Qualification mandatory pre-requisites for safety, health and environmental related job.
4	New Development/Project	Demand for skills are expected to increased due to new development or projects locally and internationally such as LRT, MRT and overseas project (Singapore, Middle East)
6	Turnover	Turnover is expected be a norm due to demand for internal transfer, promotions and job up gradation. Other reasons are further studies and family matters.
7	Job Security	Exist due to employee seeking for better remuneration, job satisfaction, and career development.
8	Oversupply	Local institutes and universities are continuously supplying certain technical related qualification into the market and this position has slow traction and employability.
9	Workload Balance	Employees that are incapable to handle workload balance between workplace and family are not able to cope with multiple task and skills.

Table 4.23: Factors Influencing Skills In Demand Explained

Table 4.24 outlines the skills gaps in existing workforce and emerging skills need and its rationale and proposed solutions:

Skill gaps in existing workforce		
Skills	Rationale, Challenges and Issues	Potential Strategies and Proposed Solutions
1. Technological Skills	• Knowledge transfer from former generation to existing workforce is incomplete thus affecting the quality and performance of work performed. • There is resistance towards new technology adoption resulting in inefficient and unproductive work performance. • Delayed in keeping abreast with latest advanced technology and engineering, environmental and safety standard affecting future growth of the sector.	• Establish institutionalize memory or databases to collect, collate and store all knowledge related mediums for future retrieval and standardization for all levels of management. • Plan and strategize suitable training to keep trend with the latest technology and industry advancement. • Organize and attend various conferences and events locally and internationally to keep abreast with latest technology advancement in rail sector.
2. Innovation Skills	• Potential to engage and empower workforce to contribute improvement ideas to reduce cost and improve the quality and productivity performance of the company.	• Engage and empower workforce to contribute improvement ideas that would add significant benefits to the bottom-line of the industry in terms of quality, cost, safety and productivity. • Recognize and reward significant ideas (IP, savings, quality etc.) to foster creativity and innovation among workforce. • Conduct internal and external conventions as part of recognition and best practice sharing within the industry.

Emerging Skill Needs		
1. R&D	There is huge opportunity for Malaysia to tap the R&D capability to design and develop rolling stocks and automation competency.	• Establish Rail Centre for Excellence • Collaborate with relevant bodies both locally and international to upgrade increase R&D capability.
2. Railway Safety	Increased public awareness of safety is crucial for to protect the reputation and image of national rail industry.	• Develop high level of safety standards and risk mitigation plan to eliminate the occurrence of accidents. • Develop and provide frequent public awareness and

		education program via social media and other effective mediums.
3. Consultancy Services	There is emerging need for providing operation and maintenance consultancy services locally and internationally due to the influx of new technology and expansion of projects abroad.	• Establish Rail Centre for Excellence with the aim to provide consultancy competency certification for Transport via Railway. • Create market demand as to create supply from local institutions higher learning.

Table 4.24: Skills gaps in existing workforce, its rationale and proposed solutions

4.7 Chapter Conclusion

Based on this chapter, the skills in-demand studies conducted through questionnaire/survey and focus group meeting clearly identify and highlight the seriousness of skills shortages with appropriate justification.

The visual representation of the Occupational Structure (OS), Skills in-demand and Job Description (JD) will enable the industry to interpret at a glance the levels of competency and available career path, taking into consideration the goals of equipping and raising highly skilled workforce. The identification of skills in-demand as well as the rationale and justification are important in determining the manpower requirements of the Transport via Railways Sector.

CHAPTER 5: DISCUSSION & CONCLUSION

5.1 Discussion

Based on the findings obtained throughout the Occupational Framework development process for Transport via Railways, a total of 6 sub-sectors, 18 job areas and 91 relevant and uptrend job titles are identified. There are total of 21 skills in-demand job titles identified for Transport via Railway.

Referring to Malaysia's economic plans and vision for the coming years, a framework of Transport via Railway Sector workforce has been identified. It is believed that the result of Occupational Framework will add significant strength to the development and certification of skilled personnel in this industry thus improving the quality of the local industry and generating Malaysia's global competitiveness.

5.2 Conclusion

The availability of NOSS will enable all stakeholders to initiate training and development programs, which are relevant to the needs and objectives of the organization for Transport via Railway Sector.

Systematic training can be carried out both off-the-job and on-the-job or combination of both to equip, retool and upgrade the skills of the workforce. In fact, a steady supply of highly trained and competent workers will spur the industry to be more competitive in the world market. Thus, the development of NOSS and review of outdated NOSS should be accorded top priorities in the context of human capital development in the upcoming years in line with the National High Income Policy. The development/review of outdated NOSS should be accelerated in view of the fact that the industry has high potential of high mega railway projects in the pipeline to meet vision 2020.

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ANNEX I: MOSQF LEVEL DESCRIPTOR

Annex I

Malaysian Occupational Skills Qualifications Framework (MOSQF)

Level	Level Description
1	Achievement at this level reflects the ability to use relevant knowledge, skills and procedures to **complete routine and predictable tasks** that include responsibility for completing tasks and procedures subject to **direction or guidance**.
2	Achievement at this level reflects the ability to select and use relevant knowledge, **ideas**, skills and procedures to **complete well-defined tasks and address straightforward problem**. It includes **taking responsibility** for completing tasks and procedures, **and exercising autonomy** and **judgment** subject to overall direction or guidance.
3	Achievement at this level reflects the ability to **identify and use relevant understanding,** methods and skills to **complete task** and address problems that are well defined with a **measure of complexity.** It includes taking responsibility for initiating and completing tasks and procedures as well as exercising autonomy and judgments **within limited parameter.** It also reflects awareness of different perspectives or approaches within an area of study or work.
4	Achievement at this level reflects the ability to identify and use relevant understanding, methods and skills to address problems that are well defined but **complex and non-routine**. It includes taking responsibility for overall courses of action as well as exercising autonomy and **judgment within fairly broad** parameters. It also reflects **understanding of different** perspective or approaches within an area of study or work.
5	Achievement at this level reflects the ability to identify and use relevant understanding, methods and skills to address **broadly defined, complex problem**s. It includes taking responsibility for **planning and developing courses** of action as well as exercising autonomy and judgment within broad parameters. It also reflects **understanding of different perspectives, approaches or schools of thought and the reasoning behind them.**
6	Achievement at this level reflects the ability to **refine** and use relevant understanding, methods and skills to address **complex problems that have limited definition**. It includes taking responsibility for planning and developing courses of action **that are able to underpin substantial change or development, as well as exercising broad autonomy and judgment.** It also reflects an understanding of different perspectives, **approaches of schools of thought and the theories that underpin them.**
7	Achievement at this level reflects the ability to **reformulate** and use relevant understanding, methodologies and approaches to address **problematic situations** that involve many interacting factors. It includes taking responsibility for **planning and developing** courses of action that initiate or underpins substantial change or development, as well as exercising broad autonomy and judgment. It also reflects an understanding **of theoretical and relevant methodological perspectives, and how they affect their area of study or work.**
8	Achievement at this level reflects the **ability to develop original understanding** and extend an area of knowledge or professional practice. It reflects the ability to address problematic situations that involve many complexes, interacting factors through initiating, designing and undertaking research, development or strategic activities. It involves the exercise of broad autonomy, judgement and leadership in sharing responsibility for the development of a field of work or knowledge, or for creating substantial professional or organisational change. It also reflects a critical understanding of relevant theoretical and methodological perspectives and how they affect the field of knowledge or work.

ANNEX II: LIST OF CONTRIBUTORS

LIST OF THE TRANSPORT VIA RAILWAYS OCCUPATIONAL FRAMEWORK DEVELOPMENT EXPERTS

No.	Name	Position	Expertise	Organization
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LIST OF THE TRANSPORT VIA RAILWAYS

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ANNEX III:

QUESTIONNAIRE

(ONLINE)

SURVEY ON THE SITUATION OF THE TRANSPORT VIA RAILWAYS SECTOR AND PROSPECTS FOR ITS FUTURE DEVELOPMENT

Dear Survey Participants,

In collaboration with the Department of Skills Development (DSD) of the Ministry of Human Resources, Adimega Sdn. Bhd. through the appointed consultant and facilitator John David is currently conducting an occupational framework development on the Transport via Railways Sector. From this analysis, the industry framework occupational job areas, titles, and occupational area structure will be identified and documented for the use of the Government, private sector, investors, employers, employees, educators or any personnel involved either directly or indirectly within this industry for development of skilled workforce which helps facilitate realization of high income status nation by year 2020.

To assist conduct this study successfully, your kind assistance, cooperation and response in completing the enclosed questionnaires would be highly appreciated. Your timely feedback and response is crucial for the success of this research and will provide valuable insights on the situation of the Transport via Railways sector and prospects for its future development.

If you are holding Chief Officers (CEO, COO, CFO, CIO etc), Senior Executives (MD, ED, President, Vice President etc), Mid-level Executives (GM, Divisional Manager, Regional Manager etc) and First-level Executives (Departmental Manager, Manager etc) position involving with Operations, Maintenance & Engineering, Automated Fare Collection (AFC), Quality Assurance, Safety, Health & Environmental and Facilities & Equipment Maintenance, you are eligible respondent for this survey. It will take no longer than 30 minutes of your precious time to complete the survey. Your answers need not to be perfectly accurate, as there is no correct answer to each question. All answer provided will be treated with high confidentiality and only aggregated data will be used in my analysis to maintain full anonymity.

The team would be grateful if you could complete this questionnaire by 30th June 2016 (14 working days). If you are interested in the results of this study, do feel free to drop me you email address. I am pleased to forward you a copy once available. I hope this research findings can help identify the situation of the Transport via Railways sector and prospects for its future development

Sincerely thanking you in advance of your kind cooperation and valuable time.

Regards,
John David (MBA, UK)
Management Consultant & Facilitator
johndavidprakash@gmail.com

* Required

SECTION 1: THE SITUATION OF THE TRANSPORT VIA RAILWAYS SECTOR AND PROSPECTS FOR ITS FUTURE DEVELOPMENT

1. **Following are Government organizations that shape the business landscape and facilitate the development of the local Rail Industry in the aspects of policy and regulatory.** *

How would you rate each one of them in terms of their relevance and involvement.
Mark only one oval per row.

	Not Significant	Fairly Significant	Rather Significant	Extremely Significant	Don't Know
SPAD (Policy and planning of rail transportation; regulation and enforcement of rail industry)	◯	◯	◯	◯	◯
MOT (Ensure Railway Act meets current requirement, oversee KTMB and RAC)	◯	◯	◯	◯	◯
MITI (Trade facilitation of transport and logistic sector)	◯	◯	◯	◯	◯
MIDA (Investment promotion in the manufacturing and services sectors)	◯	◯	◯	◯	◯
MATRADE (Export promotion for Malaysian products)	◯	◯	◯	◯	◯
SME Corp (SME development across economic sectors)	◯	◯	◯	◯	◯
Customs (Revenue collection, trade facilitation and import/export law enforcement)	◯	◯	◯	◯	◯
SIRIM (Standard development (ISO9001, ISO14001 etc) for railway industry)	◯	◯	◯	◯	◯

2. **Following organizations owns the local railways transport system.** *

Select the appropriate options available. You may select more than one options.
Check all that apply.

- ☐ Keretapi Tanah Melayu Berhad (KTMB) - Owned by Ministry of Finance Incorporated
- ☐ Prasarana Malaysia Berhad - 100% government-owned company, set up by Ministry of Finance (Malaysia)
- ☐ Sabah State Railway (SSR) - Independent; governed under Sabah State Administration
- ☐ Express Rail Link Sdn. Bhd (ERLSB) - Finance, design, construct, operate and maintain the KLIA Ekspres & KLIA Transit)
- ☐ Malaysia Airports Holdings Berhad (MAHB) - Airport Management
- ☐ Other: _____

3. **Following organizations operates the local railways transport system.** *

Select the appropriate options available. You may select more than one options.
Check all that apply.

- [ ] Keretapi Tanah Melayu Berhad (KTMB) - (KTM Komuter, KTM Intercity, ETS, Shuttle Tebrau, Cargo Service)
- [ ] Rapid KL - (Kelana Jaya Line, Ampang Line, KL Monorail)
- [ ] Sabah State Railway (SSR) - (Passenger and goods transport and tourism)
- [ ] ERL Maintenance Support Sdn. Bhd (Train operation & maintenance services)
- [ ] Malaysia Airport (Sepang) Sdn. Bhd (Manages, operates and maintains Aerotrain services)
- [ ] Other: .....

4. **What is the degree of modernization or restructuring undergoes by Transport via Railways Sector for the past years.** *

Select only one appropriate options available.
Mark only one oval.

- ◯ Major Changes
- ◯ Minor Changes
- ◯ No Changes

5. **In which areas were the main changes and how significant were they for Transport via Railways Sector?** *

Tick appropriate options available
Mark only one oval per row.

	Not Significant	Significant	Very Significant	Don't Know
Changes in Business Model				
Changes in Policy and Regulatory				
Changes in Mobility (Multi-modal commuting combining door-to-door solutions using digital technology)				
Development of new products (rolling stock etc.,)				
Changes in Technology (High reliant of smart devices, business intelligence etc.,)				
Changes in Infrastructures				
Changes in consumer behaviors, culture an expectations.				
Changes in Human Resources policy and system				
Changes in Investment				
Changes in efficiency and productivity (lead time, etc.,)				
Access to new markets				
Changes in leadership and management				

6. **What are the main challenges the Transport via Railways Sector had to face?** *

Tick appropriate options available
Mark only one oval per row.

	Not relevant	Not Really Challenging	Neutral	Rather Challenging	Very Challenging	Don't Know
Labor cost increased						
Energy cost increased						
New investment Increased affecting Return of Investment (ROI)						
Restructuring						
Customer bahavior and expectation						
Regulatory and policy changes						
Skilled workers insufficient						
High and frequent turnover of skilled workforce						
Slow in decision making process						
Slower pace of technological advancement						
Frequent cases of accidents (affecting business and reputation)						
Public perception and acceptance of Rail transportation						

7. **What is the impact of the following competitive elements in Transport via Railways Sector?** *

Tick appropriate options available
Mark only one oval per row.

	Not relevant	Not Really Impacting	Neutral	Rather Impacting	Very Impacting	Don't Know
Labor cost						
Energy cost						
Refurbishment/Rehabilitation cost						
Access to fiscal incentives and other (public) support measures						
Environmental Regulation						
Access to public Procurement						
Access to raw materials						
Promotion and enforcement of Intellectual Property Rights (IPR)						
Market Regulation (internal market)						
Health & security standards						
Trade policy (i.e Trans-Asian Railroad, billateral/multilateral agreements, TPPA, AFTA etc.,)						
Public perception and acceptance of Rail transportation						

8. **Has the workforce flexibility in Transport via Railways Sector** *

Flexible workforce represents a group of employees that understand how to perform a variety of different jobs and functions within a company. Many companies desire a more flexible workforce to avoid having the loss of any particular staff member damage its prospects for success, and so they might implement an extensive cross training program for employees. Select the appropriate options available below.
Mark only one oval.

- Increased
- Stable, but expected to increased
- Stable, but expected to decreased
- Decreased
- Don't Know

9. **Has the investment in human capital and life-long learning (in terms of efficiency and productivity)... ***

Tick appropriate options available
Mark only one oval.

- ◯ Increased
- ◯ Stable, but expected to increased
- ◯ Stable, but expected to decreased
- ◯ Decreased
- ◯ Don't Know

10. **In which ways, if any the composition of workforce competency level changed? ***

Competency represents a cluster of related abilities, commitments, knowledge, and skills that enable a person (or an organization) to act effectively in a job or situation.Competence indicates sufficiency of knowledge and skills that enable someone to act in a wide variety of situations. Select the appropriate options available below.
Mark only one oval per row.

	Increased	Decreased	Remain Unchanged	Don't Know
Non-skilled workers (Level 1-2)	◯	◯	◯	◯
Competent workers (Level 3)	◯	◯	◯	◯
Proficient workers (Level 4)	◯	◯	◯	◯
Expert workers (Level 5)	◯	◯	◯	◯

11. **Had there be experienced of shortages of skilled workers in Transport via Railways sector? ***

Tick appropriate options available
Mark only one oval per row.

	Yes Increasingly	Yes, but such shortages are expected to decrease	No, but we expect shortages to arise	No	Don't Know
Non-skilled workers (Level 1-2)	◯	◯	◯	◯	◯
Competent workers (Level 3)	◯	◯	◯	◯	◯
Proficient workers (Level 4)	◯	◯	◯	◯	◯
Expert workers (Level 5)	◯	◯	◯	◯	◯

12. **Currently, what is the importance of the following human resource strategy areas within your Business plan?** *

Tick appropriate options available
Mark only one oval per row.

	Not Important	Rather Important	Fairly Important	Extremely Important	Don't Know
Competence Development	◯	◯	◯	◯	◯
Company attractiveness to employees (i.e. economy and social incentive)	◯	◯	◯	◯	◯
Recruitment and selection strategies and practices	◯	◯	◯	◯	◯

13. **Have Rail industry investment in innovation (i.e. design, R&D, new product development, new processes) (in % of turnover) been…** *

Tick appropriate options available
Mark only one oval.

- ◯ Strongly increasing
- ◯ Slowly increasing
- ◯ Stable
- ◯ Decreasing
- ◯ Don't Know

14. **Following are the significant areas of transformation foreseen for Rail Sector in Malaysia. What would be your perspective and how would you rate them?** *

Mark only one oval per row.

	Not Significant	Rather Significant	Fairly Significant	Extremely Significant	Don't Know
CONTROL, COMMAND & COMMUNICATION - Real-time intelligent traffic management systems deliver a high-capacity, energy-efficient, on-time railway. In-cab signaling has largely displaced need for the lineside signaling infrastructure. Communication systems are optimised for operations and customer services.	◯	◯	◯	◯	◯
ENERGY - An extensively electrified network has reduced reliance on fossil fuels and nonrenewable resources. Asset specification drives energy efficiency. Sensors, energy storage technologies and smart grid technologies monitor and manage energy use for maximum efficiency.	◯	◯	◯	◯	◯
INFRASTRUCTURE - A resilient railway with world-class asset management which improves reliability, increases capacity and service levels and reduces delays. Trains and track equipment are specified through a whole-system approach to monitor each other and cause less damage. Intelligent maintenance provides accurate timely information for condition-based intervention.	◯	◯	◯	◯	◯
ROLLING STOCK - Reliable, energy-efficient, low whole-life					

cost rolling stock is based on modular designs to meet the evolving needs of rail customers. Rolling stock/infrastructures interfaces are optimised to minimise cost. Plug-and-play train fitments for sub-systems simplify replacements and upgrades without costly, time-consuming refits, improved, more efficient braking systems and bogie designs are deployed.					
INFORMATION - Integrated modular information system improve customer service, reduce operating costs and generate value through commercial exploitation. Data and information management, based on common architectures and open source technology, make information available in useable form when and where needed.					
CUSTOMER EXPERIENCE - Rail is the customers' mode of choice for reliability and ease-of-use, integrating with adjacent modes to create seamless door-to-door journeys. Passenger-friendly stations without queues or physical barriers feature revenue collection and security controls based on electronic systems.					
WHOLE-SYSTEM APPROACH - A whole-system approach features coordinated planning and operations, consistent and aligned asset management and the adoption of an industrywide framework to help the industry to					

implement change and improve reliability, availability, maintainability and safety (RAMS)					
INNOVATION - The rail sector has overcome inhibitors to innovation, including the misalignment of risk and reward, to become dynamic and attractive to entrepreneurial talent. Support for innovations includes identified priorities and test and trials facilities to simplify the introduction of novel technical solutions for operations and engineering applications.	⬭	⬭	⬭	⬭	⬭
PEOPLE - Skilled, committed, adaptable people are attracted to working in the customer-focused, efficient rail sector. The leadership and technical skills are supported by learning and development systems. Repetitive tasks have been automated. A reliable supply chain provides specialist people support.	⬭	⬭	⬭	⬭	⬭

SECTION II: SKILLS IN-DEMAND (OR SHORTAGES) IN TRANSPORT VIA RAILWAYS SECTOR

Please fill-in the following column. Kindly select the degree of seriousness of shortage encountered in your organization as follows:

Note: 1
A skills in demand or shortages exist where an employer finds it difficult to find a worker with the right skills for a particular job vacancy within the company. This is especially so when the demand for workers for a particular job position is greater than the supply of workers who are competent and qualified, available and willing to work under existing market conditions.

Note 2:
As a guide, the definition of seriousness is the percentage of vacancies for a particular job position not filled:

No shortages (or Not Applicable) - 0%
Not Serious - 1% ~ 5%
Fairly Serious - 6% ~ 10%
Serious - 11% ~ 15%

Very Serious - above 15%

Level 1 - 5 description are defined as below:

Level 1
Achievement at this level reflects the ability to use relevant knowledge, skills and procedures to complete routine
and predictable tasks that include responsibility for completing tasks and procedures subject to direction or guidance.

Level 2
Achievement at this level reflects the ability to select and use relevant knowledge, ideas, skills and procedures to complete well-defined tasks and address straightforward problem. It includes taking responsibility for completing tasks and procedures, and exercising autonomy and judgment subject to overall direction or guidance.

Level 3
Achievement at this level reflects the ability to identify and use relevant understanding, methods and skills to complete task and address problems that are well defined with a measure of complexity. It includes taking responsibility for initiating and completing tasks and procedures as well as exercising autonomy and judgments within limited parameter. It also reflects awareness of different perspectives or approaches within an area of study or work.

Level 4
Achievement at this level reflects the ability to identify and use relevant understanding, methods and skills to address problems that are well defined but complex and non-routine. It includes taking responsibility for overall courses of action as well as exercising autonomy and judgment within fairly broad parameters. It also reflects under-standing of different perspective or approaches within an area of study or work.

Level 5
Achievement at this level reflects the ability to identify and use relevant understanding, methods and skills to address broadly-defined, complex problems. It includes taking responsibility for planning and developing courses of action as well as exercising autonomy and judgment within broad parameters. It also reflects understanding of different perspectives, approaches or schools of thought and the reasoning behind them.

Levels Description Guide:

Level 1 - 2 shall represents Operation (Operators, Driver etc)
Level 3 shall represents Supervision (Supervisor, etc)
Level 4 shall represents Administration (Executive, Admin etc)
Level 5 shall represents Management (Manager, Engineer, etc)

15. **Job Area #1: Station Operation** *

Performs overall supervision of station operation resources (manpower, infrastructures, facilities, and equipments) are functional and performing at the optimum level to receive and serve customers' throughout Rail operating hours. Responsible in supervising and accountable for the establishment, supervision, direction and coordination of all activities in line with the department and company's objective and station operations SOP. Provide directions and advices to stations on the best practices to conduct sales activities, ensuring all company's products (Touch 'n Go, My Rapid etc.) are promoted and sold to guests and sales collections are collected, reconciled and reported.Station Operation is classified into two (2) Sub-Job Areas which is Manual Train Station Operation and Automatic Train Station Operation.

Mark only one oval per row.

	Very Serious	Serious	Fairly Serious	Not Serious	No Shortages
Manual Train Freight (L2)					
Manual Train Station Master (L3)					
Manual Train Operation Executive (L4)					
Automatic Train Customer Service Assistant (L2)					
Automatic Train Station Supervisor (L3)					
Automatic Train Station Manager/Automatic Train Station Superintendent (L4)					
Station General Worker (L1)					
Station Operation Manager (L5)					

16. **Job Area #2: Control Centre** *

Lead, strategize and control Control Centre Unit to ensure monitoring activities of rail and train operations are conducted as per Standard Operating Procedures to ensure safe and minimal service failure/disruption. Optimize the utilization of resources for a safe, reliable, efficient, delightful and cost effective train's service at all time.

Mark only one oval per row.

	Very Serious	Serious	Fairly Serious	Not Serious	No Shortages
Control Centre Operation Controller (L3)					
Control Centre Executive/Operation Control Supervisor/Control Assistant Manager (L4)					
Control Centre Manager (L5)					

17. **Job Area #3: Train Operation** *

Lead and control Train Operations Unit activities ensuring train operational targets are met efficiently and in the most cost effective manner. Ensure trains are manned by competent drivers, driving efficiently and safely to the destinations as per the set Train Operations Rules and Regulations, in meeting the operations target.
Mark only one oval per row.

	Very Serious	Serious	Fairly Serious	Not Serious	No Shortages
Assistant Train Driver (L1)					
Train Driver (L2)					
Train Supervisor (L3)					
Train Executive/Train Driver Superintendent (L4)					
Train Operation Manager (L5)					

18. **Job Area #4: Rolling Stock** *

To ensure all Trains and Equipments are well maintained and operated for safe train operations and as per schedule. Develop and implement Maintenance works for vehicle/rolling stocks regularly and periodically. Rolling stocks are categorised into two (2) Sub-Job Areas which is Mechanical and Electrical & Electronics.
Mark only one oval per row.

	Very Serious	Serious	Fairly Serious	Not Serious	No Shortages
Mechanical Fitter (L1)					
Mechanical Technician (L2)					
Mechanical Supervisor/Mechanical Inspector (L3)					
Mechanical Technical Assistant/Mechanical Technical Executive (L4)					
Mechanical Engineer/Mechanical Manager (L5)					
Electrical & Electronics Fitter (L1)					
Electrical & Electronics Technician (L2)					
Electrical & Electronics Supervisor/Electrical & Electronics Inspector (L3)					
Electrical & Electronics Technical Assistant/Electrical & Electronics Technical Executive (L4)					
Electrical & Electronics Engineer/Electrical & Electronics Manager					

19. **Job Area #5: Permanent Way** *

To ensure all Signaling, Communications and electrification related are well maintained as prescheduled and safe for operations. Develop and implement Maintenance works for guideway elements. Permanent Way are categorised into two (2) Sub-Job Areas which is Track and Maintenance Vehicles.

Mark only one oval per row.

	Very Serious	Serious	Fairly Serious	Not Serious	No Shortages
Track Fitter (L1)					
Track Technician (L2)					
Track Supervisor (L3)					
Track Technical Assistant/Track Technical Executive (L4)					
Track Engineer/Track Manager (L5)					
Maintenance Vehicle Machanise Operator (L1)					
Maintenance Vehicle Technician (L2)					
Maintenance Vehicle Supervisor (L3)					
Maintenance Vehicle Technical Assistant/Maintenance Vehicle Technical Executive (L4)					
Maintenance Vehicle Engineer/Maintenance Vehicle Manager (L5)					

20. **Job Area #6: Wayside, Electrical & Electronic System** *

Develop and implement Maintenance works for wayside, electronics, electrical systems. Wayside, Electrical & Electronics are categorised into three (3) Sub-Job Areas which is Signaling, Communication, and Electrification.

Mark only one oval per row.

	Very Serious	Serious	Fairly Serious	Not Serious	No Shortages
Signaling Fitter (L1)					
Signaling Technician (L2)					
Signaling Supervisor (L3)					
Signaling Technical Assistant/Signaling Technical Executive (L4)					
Signaling Engineer/Signaling Manager (L5)					
Communication Fitter (L1)					
Communication Technician (L2)					
Communication Supervisor (L3)					
Communication Technical Assistant/Communication Technical Executive (L4)					
Communication Engineer/Communication Manager (L5)					
Electrification Fitter (L1)					
Electrification Technician (L2)					
Electrification Supervisor (L3)					
Electrification Technical Assistant/Electrification Technical Executive (L4)					
Electrification Engineer/Electrification Manager (L5)					

21. **Job Area #7: AFC Operations** *

Ensure availability of float money to all stations at all times with sales and collection tallied.Ensure availability of tokens at TVM/PSM, notes are acceptable at BNV and AFC gates are ready to accept tokens at all times.

Mark only one oval per row.

	Very Serious	Serious	Fairly Serious	Not Serious	No Shortages
AFC Operation Technician (L2)					
AFC Operation Supervisor (L3)					
AFC Operation Executive (L4)					
AFC Operation Engineer/AFC Operation Manager (L5)					

22. **Job Area #8: AFC Software Maintenance** *

Plan, manage and control the implementation of AFC software and computer system operation and maintenance activities (preventive and corrective) ensuring compliance to Maintenance Plan and Budget, Standard Operating Procedures and meeting regulatory requirements.

Mark only one oval per row.

	Very Serious	Serious	Fairly Serious	Not Serious	No Shortages
Software Maintenance Technician (L2)					
Software Maintenance Supervisor (L3)					
Software Maintenance Executive (L4)					
Software Maintenance Engineer/Software Maintenance Manager (L5)					

23. **Job Area #9: AFC Field Maintenance** *

Plan, manage and control the implementation of AFC's systems and equipment maintenance activities (preventive and corrective) ensuring compliance to Maintenance.

Mark only one oval per row.

	Very Serious	Serious	Fairly Serious	Not Serious	No Shortages
Field Maintenance Technician (L2)					
Field Maintenance Supervisor (L3)					
Field Maintenance Executive (L4)					
Field Maintenance Engineer/Field Maintenance Manager (L5)					

24. **Job Area #10: QA Engineering** *

Manage the resources, activities and to ensure that the respective procedures, system and processes are being implemented. Responsible for monitoring of quality level such as giving analysis/assessment of raw data and recommendation of corrective action. Preparing documents based on the Inspection and Test Plan and Technical Specifications. Witness all testing activities.

Mark only one oval per row.

	Very Serious	Serious	Fairly Serious	Not Serious	No Shortages
QA Engineering Technician (L2)					
QA Engineering Supervisor (L3)					
QA Engineering Executive (L4)					
QA Engineering Engineer/QA Engineering Manager (L5)					

25. **Job Area #11: QA Technical Support** *

Support functions related to Technical aspects of Railway Sector.
Mark only one oval per row.

	Very Serious	Serious	Fairly Serious	Not Serious	No Shortages
QA Technical Support Technician (L2)					
QA Technical Support Supervisor (L3)					
QA Technical Support Executive (L4)					
QA Technical Support Engineer/QA Technical Support Manager (L5)					

26. **Job Area #12: QA Audit** *

To ensure that all processes in the company or department are executed according to the procedure and ISO 9001:2008 standard.
Mark only one oval per row.

	Very Serious	Serious	Fairly Serious	Not Serious	No Shortages
QA Audit Technician (L2)					
QA Audit Supervisor (L3)					
QA Audit Executive (L4)					
QA Audit Engineer/QA Audit Manager (L5)					

27. **Job Area #13: Operational Safety** *

To prepare and conduct safety and security training course for stations, new staffs and security staffs. Initiate investigation and preparing report for Dangerous Event Investigation when and as required. Supervised overall train operations safety in a routine basis to ensure compliance on safety standard. Carry out safety audit on train operations periodically.
Mark only one oval per row.

	Very Serious	Serious	Fairly Serious	Not Serious	No Shortages
Operational Safety Executive (L4)					
Safety, Health & Environmental Manager (L5)					

28. **Job Area #14: Operational Health** *

Assist in supporting the General Management for all safety & health related matters.Manage all safety & health inspection along ERL/CRS System. Assist HOD in conducting safety & health briefing and audit at workplace. Assist HOD in managing safety & health matters along ERL/CRS System.

Mark only one oval per row.

	Very Serious	Serious	Fairly Serious	Not Serious	No Shortages
Operational Health Supervisor (L3)					
Operational Health Executive (L4)					

29. **Job Area #15: Environmental** *

To ensure that all processes related to Environment Management are executed according to the procedure and ISO 14001:2004 standard.

Mark only one oval per row.

	Very Serious	Serious	Fairly Serious	Not Serious	No Shortages
Environmental Executive (L4)					

30. **Job Area #16: Electrical Maintenance** *

Perform preventive and corrective maintenance of electrical system.

Mark only one oval per row.

	Very Serious	Serious	Fairly Serious	Not Serious	No Shortages
Electrical Facility Maintenance General Worker (L1)					
Electrical Facility Maintenance Technician (L2)					
Electrical Facility Maintenance Supervisor (L3)					
Electrical Facility Maintenance Executive (L4)					
Electrical Facility Maintenance Manager (L5)					

31. **Job Area #17: Mechanical Maintenance** *

Perform preventive and corrective maintenance of mechanical system.
Mark only one oval per row.

	Very Serious	Serious	Fairly Serious	Not Serious	No Shortages
Mechanical Facility Maintenance General Worker (L1)					
Mechanical Facility Maintenance Technician (L2)					
Mechanical Facility Maintenance Supervisor (L3)					
Mechanical Facility Maintenance Executive (L4)					
Mechanical Facility Maintenance Manager (L5)					

32. **Job Area #18: Building Maintenance** *

Preventive and corrective maintenance of Building infrastructure facilities.
Mark only one oval per row.

	Very Serious	Serious	Fairly Serious	Not Serious	No Shortages
Building Maintenance General Worker 9L1)					
Building Maintenance Technician (L2)					
Building Maintenance Supervisor (L3)					
Building Maintenance Executive (L4)					
Building Maintenance Manager (L5)					

Section 3: Respondent Demographic Profile

33. **Age Group** *

Select the most appropriate age group that fits you accurately at the present moment.
Mark only one oval.

- 21-30
- 31-40
- 41-50
- 51-60
- above 60

34. **Your Job Position in the Firm** *

Select the most appropriate position that fits you accurately at the present moment.
Mark only one oval.

- ◯ Chief Officers (CEO, CFO, COO, CIO etc)
- ◯ Senior Executives (MD, ED, President, Vice President, General Counsel, Non-Executive Director)
- ◯ Mid-level Executives (GM, Divisional Manager, Regional Manager etc)
- ◯ First-level Executives (Departmental Manager, Manager etc)
- ◯ Other: .....

35. **Please choose the areas of your profession involvement and main activities.** *

Select the most appropriate area of your profession that fits your involvement accurately at the present moment. You may choose more than one options.
Mark only one oval.

- ◯ Act/Policy Maker (Macro Policy, Contacting, Transport Economic etc.,)
- ◯ Regulatory (Compliance, regulatory, inspection etc.,)
- ◯ Research (Data Mgmt, continuous study)
- ◯ Planning (Modeling & Performance)
- ◯ Asset Management
- ◯ Design, Manufacturing & Assembly
- ◯ Rail Operators
- ◯ Maintenance, Repair & Overhaul (MRO)
- ◯ Support Services
- ◯ Education & Training
- ◯ Other: .....

36. **Years of Working Experience/Expertise** *

Select the most appropriate years of experience in the Industry/Sector that fits you accurately.
Mark only one oval.

- ◯ Less than 2 years
- ◯ 3-10 years
- ◯ 11-20 years
- ◯ 21-30 years
- ◯ Above 30 years

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ANNEX IV: SURVEY FORM

Note: 1
A skills in demand or shortages exist where an employer finds it difficult to find a worker with the right skills for a particular job vacancy within the company. This is especially so when the demand for workers for a particular job position is greater than the supply of workers who are competent and qualified, available and willing to work under existing market conditions.

Note: 2
As a guide, the definition of seriousness is the percentage of vacancies for a particular job position not filled:

No shortages (or Not Applicable)	**0%**	**Operation is highly efficient and effective**
Not Serious	**1% - 5%**	**Operation runs as per normal**
Fairly Serious	**6% - 10%**	**Manageable and does not disrupt operations**
Serious	**11% - 15%**	**Operations are abnormal and meeting customer satisfaction is a concern**
Very Serious	**above 15%**	**Operations may be halted**

No	Job Area	No	Sub Job Area	No	Job Title	Level	Level of Skills in-demand					Total Respondent
							Very Serious	Serious	Fairly Serious	Not Serious	No Shortages	
1	**Station Operation**	1	Manual Station Operation	1	Station General Worker	L1	1	4	7	26	9	47
				2	Manual Train Freight	L2	2	2	29	9	5	47
				3	Manual Train Station Master	L3	2	3	8	31	3	47
				4	Manual Train Operation Executive	L4	0	9	4	30	4	47
		2	Automatic Train Station Operation	5	Automatic Train Station Supervisor	L3	1	6	5	30	5	47
				6	Automatic Train Station Manager/Superintendent	L4	1	7	8	26	5	47
				7	Station Operation Manager	L5	3	7	5	27	5	47
2	**Control Centre**			8	Control Centre Operation Controller	L3	6	30	3	7	1	47
				9	Control Centre Executive/Operation Control Supervisor/Control Assistant Manager	L4	5	32	2	7	1	47
				10	Control Centre Manager	L5	4	29	1	8	5	47
3	**Train Operation**			11	Assistant Train Driver	L1	0	7	5	30	5	47
				12	Train Driver	L2	5	18	10	12	2	47
				13	Train Driver Supervisor	L3	2	8	8	28	1	47
				14	Train Driver Executive/Train Driver Superintendent	L4	1	10	4	29	3	47
				15	Train Operation Manager	L5	1	10	5	27	4	47
4	**Rolling Stock**	3	Mechanical	16	Mechanical Fitter	L1	3	5	7	26	6	47
				17	Mechanical Technician	L2	3	29	8	5	2	47
				18	Mechanical Supervisor/Mechanical Inspector	L3	2	32	6	5	2	47
				19	Mechanical Technical Assistant/Mechanical Technical Executive	L4	2	26	8	8	3	47
				20	Mechanical Engineer/Mechanical Manager	L5	3	25	10	5	4	47
		4	Electrical & Electronics	21	Electrical & Electronics Fitter	L1	3	23	8	7	6	47
				22	Electrical & Electronics Technician	L2	2	29	9	4	3	47
				23	Electrical & Electronics Supervisor/Electrical & Electronics Inspector	L3	2	31	8	4	2	47
				24	Electrical & Electronics Technical Assistant/Electrical & Electronics Technical Executive	L4	3	27	7	6	4	47
				25	Electrical & Electronics Engineer/Electrical Electronics Manager	L5	4	27	7	5	4	47
5	**Permanent Way**	5	Track	26	Track Fitter	L1	1	26	6	7	7	47
				27	Track Technician	L2	0	29	9	3	6	47
				28	Track Supervisor	L3	1	27	9	4	6	47
				29	Track Technical Assistant/Track Technical Executive	L4	1	9	26	5	6	47
				30	Track Engineer/Track Manager	L5	2	28	6	5	6	47
		6	Maintenance Vehicle	31	Maintenance Vehicle Mechanise Operator	L1	2	26	7	7	5	47
				32	Maintenance Vehicle Technician	L2	1	29	8	5	4	47
				33	Maintenance Vehicle Supervisor	L3	1	29	7	6	4	47
				34	Maintenance Vehicle Technical Assistant/Maintenance Vehicle Technical Executive	L4	1	27	8	5	6	47
				35	Maintenance Vehicle Engineer/Maintenance Vehicle Manager	L5	3	27	6	6	5	47

No	Job Area	No	Sub Job Area	No	Job Title	Level	Level of Skills in-demand					Total Respondent
							Very Serious	Serious	Fairly Serious	Not Serious	No Shortages	
6	**Wayside, Electrical & Electronic System**	7	Signaling	36	Signaling Fitter	L1	2	25	7	8	5	47
				37	Signaling Technician	L2	1	30	7	7	2	47
				38	Signaling Supervisor	L3	1	32	7	6	1	47
				39	Signaling Tehnical Assistant/Signaling Technical Executive	L4	3	26	9	5	4	47
				40	Signaling Engineer/Signaling Manager	L5	3	29	6	5	4	47
		8	Communications	41	Communication Fitter	L1	2	27	5	8	5	47
				42	Communication Technician	L2	1	31	7	5	3	47
				43	Communication Supervisor	L3	1	32	6	5	3	47
				44	Communication Tehnical Assistant/Communication Technical Executive	L4	3	26	9	5	4	47
				45	Communication Engineer/Communication Manager	L5	2	29	7	5	4	47
		9	Electrification	46	Electrification Fitter	L1	2	27	6	7	5	47
				47	Electrification Technician	L2	1	32	6	5	3	47
				48	Electrification Supervisor	L3	3	29	8	5	2	47
				49	Electrification Tehnical Assistant/Electrification Technical Executive	L4	4	8	26	5	4	47
				50	Electrification Engineer/Electrification Manager	L5	4	10	25	4	4	47
7	**AFC Operations**			51	AFC Operation Assistant	L2	1	5	27	9	5	47
				52	Associate AFC Operation	L4	0	6	26	10	5	47
				53	Head, AFC Operation	L5	2	5	27	8	5	47
8	**AFC Software Maintenance**			54	Software Maintenance Technician	L2	1	9	25	8	4	47
				55	Software Maintenance Supervisor	L3	0	9	27	8	3	47
				56	Associate Software Maintenance	L4	0	27	8	7	5	47
				57	Head, Software Maintenance	L5	1	7	29	5	5	47
9	**AFC Field Maintenance**			58	Field Maintenance Technician	L2	1	26	8	8	4	47
				59	Field Maintenance Supervisor	L3	0	29	8	7	3	47
				60	Field Maintenance Engineer	L4	0	7	28	7	5	47
				61	Head, Field Maintenance	L5	1	6	28	7	5	47
10	**Quality Assurance**	10	Quality Assurance	62	QATechnician	L2	1	26	8	7	5	47
				63	QA Supervisor	L3	0	29	7	7	4	47
				64	QA Enginee/Executive	L4	1	7	8	26	5	47
		11	QA Technical Support	65	QA Technical Support Technician	L2	1	28	6	7	5	47
				66	QA Technical Support Supervisor	L3	1	29	6	6	5	47
				67	QA Technical Support Engineer/Executive	L4	1	7	27	7	5	47
		12	QA Engineering	68	QA Engineering Technician	L2	1	27	7	7	5	47
				69	QA Engineering Supervisor	L3	0	29	6	7	5	47
				70	QA Engineering Engineer	L4	0	9	8	25	5	47
				71	Head, Quality Assurance	L5	2	9	6	26	4	47
11	**Safety, Health & Environmental**	13	Operational Safety	72	Operational Safety Executive	L4	3	28	3	7	6	47
		14	Operational Health	73	Operational Health Supervisor	L3	0	28	6	7	6	47
				74	Operational Health Executive	L4	2	7	24	8	6	47
		15	Environmental	75	Environmental Executive	L4	0	29	6	6	6	47
				76	Safety, Health & Environmental Manager	L5	3	26	6	7	5	47
12	**Facilities & Equipment Maintenance**	16	Electrical Maintenance	77	Electrical Facility Maintenance General Worker	L1	2	8	7	25	5	47
				78	Electrical Facility Maintenance Technician	L2	3	29	7	5	3	47
				79	Electrical Facility Maintenance Supervisor	L3	3	28	8	5	3	47
				80	Electrical Facility Maintenance Executive	L4	3	5	27	8	4	47
				81	Electrical Facility Maintenance Manager	L5	3	6	7	27	4	47
		17	Mechanical Maintenance	82	Mechanical Facility Maintenance General Worker	L1	1	9	7	26	4	47
				83	Mechanical Facility Maintenance Technician	L2	2	31	5	6	3	47
				84	Mechanical Facility Maintenance Supervisor	L3	2	29	6	8	2	47
				85	Mechanical Facility Maintenance Executive	L4	2	6	28	7	4	47
				86	Mechanical Facility Maintenance Manager	L5	2	7	27	7	4	47
		18	Building Maintenance	87	Building Maintenance General Worker	L1	1	20	7	12	7	47
				88	Building Maintenance Technician	L2	1	31	5	5	5	47
				89	Building Maintenance Supervisor	L3	2	27	9	5	4	47
				90	Building Maintenance Executive	L4	2	5	26	9	5	47
				91	Building Maintenance Manager	L5	1	7	25	9	5	47

ANNEX V
OCCUPATIONAL STRUCTURE

Sector	MSIC Section H (491) Transport via Railways			
Sub-Sector	**Operation**			
Job Area	**Station Operation**		**Control Centre**	**Train Operation**
	Manual Train Station Operation	**Automatic Train Station Operation**		
Level 5	Station Operation Manager		Control Centre Manager *	Train Operation Manager
Level 4	Manual Train Operation Executive	Automatic Train Station Manager Superintendent	Control Centre Executive/Operation Control Supervisor/Control Assistant Manager *	Train Operation Executive/Superintendent
Level 3	Manual Train Station Master	Automatic Train Station Supervisor	Control Centre Operation Controller *	Train Driver Supervisor
Level 2	Manual Train Freight	N/A	N/A	Train Driver *
Level 1	Station General Worker		N/A	Assistant Train Driver

Table 4.25: Transport Via Railways – Operation Sub Sector

*** Critical job title**

Sector	MSIC Section H (491) Transport via Railways			
Sub-Sector	Maintenance & Engineering			
Job Area	Rolling Stock		Permanent Way	
	Mechanical	Electrical & Electronics	Track	Maintenance Vehicle
Level 5	Mechanical Engineer/Mechanical Manager *	Electrical & Electronics Engineer/Manager *	Track Engineer/Manager *	Maintenance Vehicle Mechanise Engineer/Manager *
Level 4	Mechanical Technical Assistant/Technical Executive *	Electrical & Electronics Technical Assistant/Technical Executive *	Track Technical Assistant/Technical Executive	Maintenance Vehicle Mechanise Technical Assistant/Technical Executive *
Level 3	Mechanical Supervisor/Inspector *	Electrical & Electronics Supervisor/Inspector *	Track Supervisor *	Maintenance Vehicle Mechanise Supervisor *
Level 2	Mechanical Technician *	Electrical & Electronics Technician *	Track Technician *	Maintenance Vehicle Mechanise Technician *
Level 1	Mechanical Fitter	Electrical & Electronics Fitter *	Track Fitter *	Maintenance Vehicle Mechanise Operator *

Table 4.26: Transport Via Railways – Maintenance & Engineering Sub Sector

*** Critical job title**

Sector	MSIC Section H (491) Transport via Railways					
Sub-Sector	**Quality Assurance**			**Safety, Health & Environmental**		
Job Area	**QA Technician**	**QA Technical Support**	**QA Engineering**	**Operational Safety**	**Occupational Health**	**Environmental**
Level 5	Head, Quality Assurance			Safety, Health & Environmental Manager		
Level 4	QA Engineer/Executive	QA Technical Support Engineer/Executive	QA Engineering Engineer	Operational Safety Executive *	Occupational Health Executive	Environmental Executive *
Level 3	QA Supervisor *	QA Technical Support Supervisor *	QA Engineering Supervisor *	N/A	Occupational Health Supervisor *	N/A
Level 2	QA Technician *	QA Technical Support Technician *	QA Engineering Technician *	N/A	N/A	N/A
Level 1	N/A	N/A	N/A	N/A	N/A	N/A

Table 4.27: Transport Via Railways – Quality Assurance and Safety, Health & Environmental Sub Sector

*** Critical job title**

Sector	MSIC Section H (491) Transport via Railways		
Sub-Sector	**Facilities & Equipment Maintenance**		
Job Area	**Electrical facility Maintenance**	**Mechanical Facility Maintenance**	**Building Maintenance**
Level 5	Electrical Facility Maintenance Manager	Mechanical Facility Maintenance Manager	Building Maintenance Manager
Level 4	Electrical Facility Maintenance Executive	Mechanical Facility Maintenance Executive	Building Maintenance Executive
Level 3	Electrical Facility Maintenance Supervisor *	Mechanical Facility Maintenance Supervisor *	Building Maintenance Supervisor *
Level 2	Electrical Facility Maintenance Technician *	Mechanical Facility Maintenance Technician *	Building Maintenance Technician *
Level 1	Electrical Facility Maintenance General Worker	Mechanical Facility Maintenance General Worker	Building Maintenance General Worker *

Table 4.28: Transport Via Railways – Facilities & Equipment Maintenance Sub Sector

*** Critical job title**

ANNEX VI
JOB DESCRIPTIONS

SKILLS IN DEMAND/CRITICAL JOBS
TOTAL: 55

CONTROL CENTRE OPERATION CONTROLLER (LEVEL 3)

This role may also be called: Nil

A Control Centre Operation Controller is responsible to execute day to day control centre operational activities, responsible for train schedule implementation, handle system failure including service disruption, incident, accident, etc., communicate with relevant department and coordinate maintenance activities.

Responsibilities may include:

- Supervise and control the overall control centre function to ensure efficient services of trains according to the timetable and to act accordingly during degraded/emergency operations.
- Manage the network for safe and efficient train and station operations, and maintenance works according to available procedures, tools and system.
- Manage incident as per incident management procedure.
- Keep record of control centre operation personnel performance, leave applications, swap duties and to ensure important documents are kept safely.
- Update all journals, logs, records and relevant documentation and system.
- Adhere strictly to operational health and safety practices at all times.
- Assist station superior in administrative functions such as data collection, recording and preparing reports.
- Report irregularities or abnormalities immediately to immediate superior.
- Attend meetings and trainings specified by the department and company from time to time.

Knowledge, Skills, Attributes

Control Centre Operation Controller requirements:

- Understand business processes, standards and regulations.
- Good team player and able to work together with all levels of cross-functional team.
- Non-disclosure of company's confidential information.
- Possess relevant knowledge and skills.
- Critical and analytical in solving problems.
- High level of dedication and responsibility.
- Take ownership of company’s possessions and assets.
- Willing to learn and take instruction explicitly.
- Physically and mentally fit, healthy and alert at all times.
- Ideas for continuous improvement.
- Cost, Quality & Safety conscious.
- Supervisory skills.
- Communication skills.
- People management skills.

CONTROL CENTRE EXECUTIVE (LEVEL 4)

This role may also be called: Operation Control Supervisor or Control Assistant Manager

A Control Centre Executive is reponsible to plan, manage and monitor control centre operation‘s day to day activities in line with the department and company’s objectives and mission. Assist the superior in ensuring all approved policies and procedures are dissiminated in a proper and timely manner within the department and where applicable.

Responsibilities may include:

- Review the condition of the system and train to ensure it is serviceable for operation. Number of trains is available and sufficient, as well as the availability of station staff to operate the station inclusive of availability of the drivers and security personnel as per the train schedule.
- Implement train schedule as provided by superior while closely monitoring performance of all moving trains to ensure headway targets are met. Irregularities such as door obstruction, slow moving train, etc. are detected and reported and proactive measures taken to resolve the problem.
- Conduct first level trouble-shooting to identify potential failure and to provide immediate solutions. Implement appropriate contingency plan to minimize service disruption.
- Alert relevant heads upon detection of major failure involving major service disruption.
- Handle feedback/complaints on dissatisfaction service level from Customer Service Centre professionally.
- Coordinate and monitor that maintenance activities are conducted as scheduled.
- Report on control centre activities including daily events log, incident report as required by SOP.
- Plan, manage and execute cost optimisation and improvement activities. Review results consistently to ensure objectives are achieved.
- Develop and maintain good relationship with internal and external parties to facilitate efficient rail operations.

Knowledge, Skills, Attributes

Control Centre Executive requirements:

- Understand objectives, business processes, standards and regulations.
- Good team player and able to work together with all levels of cross-functional team.
- Non-disclosure of company's confidential information.
- Possess relevant knowledge and skills.
- Critical and analytical in solving problems.
- High level of dedication and responsibility.
- Take ownership of company’s possessions and assets.
- Willing to learn and take instruction explicitly.
- Physically and mentally fit, healthy and alert at all times.
- Ideas for continuous improvement
- Cost, Quality & Safety conscious

- Administrative skills
- Management Skills
- Communication and presentation skills
- Interpersonal skills
- Communication skills
- People management skills

CONTROL CENTRE MANAGER (LEVEL 5)

This role may also be called: Nil

A Control Centre Manager is responsible to lead, strategize and control the Control Centre unit. Monitor trail and train operations are operating as per SOP with minimal service failure/disruption. Synergize with relevant internal/external parties during service failure and recovery works. Optimise the utilization of resources for a safe, reliable, efficient, delightful and cost effective train's service at all time.

Responsibilities may include:

- Strategize, plan and ensure Control Centre activities are performed as per maintenance schedule and SOP while complying with safety standard to ensure trains availability. Also ensure station readiness and security are in place for safe and uninterrupted train journey throughout service period.
- Ensure train operation meets operation planning and logistics schedule, monitoring performance of all moving trains to ensure headway targets are met.
- Act as a focal person handling failure management, alerting responsible personnel (internal & external) for immediate response and recovery. Direct and ensure the implementation of Emergency Response Plan (ERP) to minimize/stabilize service disruption and ensure safety of staff, public and asset.
- Act as commander in chief in handling major failure leading to service disruption and alert relevant superior the progress of service delivery.
- Ensure maintenance performs restoration and repair works as scheduled for track, trains, systems, equipment and facilities.
- Review control centre planning and recommend first level budget proposal to Management for approval. Monitor and control the implementation plan, review its performance variance and initiate transformation initiatives such as cost saving for effective Control Centre Operations.
- Lead, manage and control the unit's manpower requirements and capability. Develop staff career development path, approved performance management appraisal and provide conducive-working environment for realizing higher productivity and operational target.
- Develop and maintain good relationship with internal and external parties.
- Provide leadership to unit's personnel in the effort to achieve safe and reliable service and create potential leaders to assume higher role in the unit or across the department.
- Create an empowered workplace to motivate all employees to engage and take ownership in the company's interest and to achieve company's goals and objectives
- Conduct employee appraisal in accordance to performance management system.
- Design, develop and implement Control Centre's capability and ensure continuous learning and improvement of personnel and enhancement of asset/system are conducted periodically.

Knowledge, Skills, Attributes

Control Centre Manager requirements:

- Understand mission, visions, objectives, business processes, standards and regulations.
- Good team player and able to work together with all levels of cross-functional team.
- Non-disclosure of company's confidential information.
- Possess relevant knowledge and skills.
- Critical and analytical in solving problems.
- High level of dedication and responsibility.
- Take ownership of company’s possession and assets.
- Willing to learn and take instruction explicitly.
- Physically and mentally fit, healthy and alert at all times.
- Ideas for continuous improvement
- Cost, Quality & Safety conscious
- Profit conscious
- Administrative skills
- Management Skills
- Communication and presentation skills
- Interpersonal skills
- Leadership skills
- People management skills
- Entrepreneurship skills

TRAIN DRIVER (LEVEL 2)

This role may also be called: Nil

A Train Driver is responsible to drive the train in accordance to the schedule and ensure train punctuality, safety, reliability and communication is maintained with the station at all times.

Responsibilities may include:

- Prepare trains for service by carrying out specified checks.
- Ensure safe and timely operations of trains.
- Ensure when trains are ready to depart safely from platforms.
- Drive train and shunting locomotive on mainline and depot safely.
- Report to superior of any occurrences, which may affect normal operations.
- Carry out operational procedures required for Degraded Operations and Emergency Operations.
- Provide a safe environment and show courtesy and prompt service to customers.
- Ensure no unauthorized personnel on board driver's cab
- Handle evacuation of passengers from the train during emergency.
- Attend all meetings and trainings specified by the department and company from time to time.
- Adhere strictly to operational health and safety practices at all times.
- Complete all documentation (logs, checklist, report etc.) of work done timely and accurately.
- Report irregularities or abnormalities immediately to immediate superior.

Knowledge, Skills, Attributes

Train Driver requirements:

- Understand business processes, standards and regulations.
- Good team player and able to work together with all levels of cross-functional team.
- Non-disclosure of company's confidential information.
- Possess train-driving license and other relevant certification.
- High level of dedication and responsibility.
- Take ownership of company's possession and assets.
- Willing to learn and take instruction explicitly.
- Physically and mentally fit, healthy and alert at all times.
- Ideas for continuous improvement

MECHANICAL TECHNICIAN (LEVEL 2)

This role may also be called: Nil

A Mechanical Technician is responsible to perform repairs, overhaul, corrective and preventive maintenance etc. in accordance to the planned schedule to ensure train system and sub-system are in good working condition for optimum operations.

Responsibilities may include:

- Responsible for the maintenance of mechanical equipments and facilities in accordance to specification or procedures of the company which shall include:
  - Preparation of any maintenance activities
  - Inspection on periodic or add-hoc basis
  - Troubleshooting, repair and/or replacement
  - Setting up equipment and reinstatement of equipment after the above activities
  - Cleaning up of equipment and its surrounding after maintenance activities
  - Preparation of Maintenance Report/work orders after any maintenance activities
  - To assist immediate superior in keeping track of the equipment performance by updating the equipment operation, maintenance log and materials and movement documentation.
  - Comply with requirements set by the SOP, maintenance manual, regulations and statutory to meet the standard quality management requirement
- Ensure tools are always clean, stored in designated areas and available for daily work and report to superior for shortages or missing tools.
- Understand the department and company's policies and procedures and implement the requirements in line with the job responsibilities.
- Identify other areas for improvement particularly scheduled and unscheduled maintenance activities as well as overall department activities.
- Suggest improvements which will benefit the department's/company's operations effectiveness and efficiencies.
- Adhere strictly to operational health and safety practices at all times.
- Complete all documentation (logs, checklist, report etc.) of work done timely and accurately.
- Report irregularities or abnormalities immediately to immediate superior.

Knowledge, Skills, Attributes

Mechanical Technician requirements:

- Understand business processes, standards and regulations.
- Good team player and able to work together with all levels of cross-functional team.
- Non-disclosure of company's confidential information.
- Possess relevant mechanical knowledge and skills.
- Understand mechanical diagrams and drawings
- Critical and analytical in solving problems.
- High level of dedication and responsibility.

- Take ownership of company's possession and assets.
- Willing to learn and take instruction explicitly.
- Physically and mentally fit, healthy and alert at all times.
- Ideas for continuous improvement

MECHANICAL SUPERVISOR (LEVEL 3)

This role may also be called: Mechanical Inspector

A Mechanical Supervisor is responsible to implement and monitor the preventive, corrective and major maintenance on mechanical to ensure the implementation is conducted as per business plan and budget, in compliance with the Standard Operating Procedures, safety and regulatory requirements to achieve operations availability and reliability targets, in supporting rail operations.

Responsibilities may include:

- Implement and monitor resource requirements and availability to undertake preventive/corrective/major maintenance work at the entire mainline based on Preventive/Corrective/Major Maintenance Plan and Schedule.
- Lead team members on the implementation of preventive/corrective/major maintenance work conducted by sub-ordinates and provides technical advice and coaching to ensure work done according to SOP and Preventive/Corrective/Major Maintenance Plan and Schedule.
- Compile and prepare daily preventive/corrective/major maintenance reports to ensure works done are as per preventive/corrective/major Maintenance Plan and Schedule, work within timeline and budget.
- Implement improvement recommendations from immediate superior against maintenance analyst reports on failure management such as re-engineering, modifications, rectification, change or re-design to minimize/reduce future service failures.
- Drive, enforce and ensure team members adhere to maintenance safety policies; procedures and guidelines are towards zero incidents/accidents.
- Report potential risks of systems failure to minimize system down time affecting rail operation activities and assist on the development on contingency plan to mitigate and to attend to failures.
- Implement Preventive/Corrective Maintenance Standard Operating Procedures and ensure all maintenance activities are in accordance with the SOP to accommodate changes in policies and technologies.
- Plan and manage the team's manpower requirements, ensuring personnel are sufficiently equipped with the right capability. Evaluate staff performance and manage staff career development.
- Coach team members on matters pertaining to maintenance competency, ensuring subordinates are able to conduct work efficiently and effectively.
- Adhere strictly to operational health and safety practices at all times.
- Assist station superior in administrative job such as data collections, recording and preparing reports.
- Report irregularities or abnormalities immediately to immediate superior.
- Attend meetings and trainings specified by the department and company from time to time.

Knowledge, Skills, Attributes

Mechanical Supervisor requirements:

- Understand business processes, standards and regulations.
- Good team player and able to work together with all levels of cross-functional team.
- Non-disclosure of company's confidential information.
- Possess relevant knowledge and skills.
- Critical and analytical in solving problems.
- High level of dedication and responsibility.
- Take ownership of company’s possession and assets.
- Willing to learn and take instruction explicitly.
- Physically and mentally fit, healthy and alert at all times.
- Ideas for continuous improvement
- Cost, quality & safety conscious
- Supervisory skills
- Communication skills
- People management skills

MECHANICAL TECHNICAL EXECUTIVE (LEVEL 4)
This role may also be called: Mechanical Technical Assistant

A Mechanical Technical Executive is responsible to manage and monitor the Preventive, Corrective and Major Maintenance to ensure the implementation is conducted as per Business Plan and Budget, in accordance with Standard Operating Procedures, safety and regulatory requirements to achieve mechanical system availability and reliability targets, in supporting rail operations.

Responsibilities may include:

- Assist superior to conduct internal assessment on the internal capabilities and resources for the development of preventive and corrective maintenance plan and ensure that all activities are aligned to the plan.
- Analyse and report on performance variance (Plan vs. Actual) and propose corrective action if falls target. Initiate transformation initiatives such as cost saving for effective maintenance operations.
- Plan, manage and execute resource requirements & availability (manpower, tools and equipment, parts, training) to undertake preventive/corrective/major maintenance work at the entire mainline based on Preventive/Corrective/Major Maintenance Plan and Schedule.
- Monitor the implementation of preventive/corrective/major maintenance work conducted by subordinates and provides technical advice and coaching to ensure work done according to SOP and Preventive/Corrective/Major Maintenance Plan and Schedule.
- Analyse monthly preventive/corrective/major maintenance reports to ensure works done are as per preventive/corrective/major Maintenance Plan and Schedule, work within timeline and budget.
- Conduct investigation and prepare accident/incident report, propose and recommend preventive/improvement to avoid recurrence and lessons learnt.
- Implement improvement recommendations from superior against maintenance analyst reports on failure management such as re-engineering, modifications, rectification, change or re-design to minimize/reduce future service failures.
- Drive, enforce and ensure maintenance safety policies, procedures and guidelines are adhered by all related parties towards zero incidents/accidents.
- Identify and prepare reports on the assets stocktaking to be used, replaced or disposed.
- Plan, manage and execute cost optimisation and improvement activities review results consistently to ensure objectives are achieved.
- Identify potential risks of systems failure to mitigate system down time affecting rail operations activities.
- Participate in the selection of system contractors via tenders exercise and review contractor's performance as per contract terms & conditions stipulated.
- Develop and maintain good relationship within rail division/section and external parties' to facilitate efficient rail maintenance's requirements.

Knowledge, Skills, Attributes

Mechanical Technical Executive/Assistant requirements:

- Understand objectives, business processes, standards and regulations.
- Good team player and able to work together with all levels of cross-functional team.
- Non-disclosure of company's confidential information.
- Possess relevant knowledge and skills.
- Critical and analytical in solving problems.
- High level of dedication and responsibility.
- Take ownership of company’s possession and assets.
- Willing to learn and take instruction explicitly.
- Physically and mentally fit, healthy and alert at all times.
- Ideas for continuous improvement
- Cost, Quality & Safety conscious
- Administrative skills
- Management Skills
- Communication and presentation skills
- Interpersonal skills
- Communication skills
- People management skills

MECHANICAL ENGINEER (LEVEL 5)

This role may also be called: Mechanical Manager

A Mechanical Engineer is responsible to strategize, plan and manage Preventive, Corrective and Major Maintenance to ensure the implementation is conducted as per business plan and budget, in accordance with Standard Operating Procedures, safety and regulatory requirements to achieve operations availability and reliability targets, in supporting rail operations.

Responsibilities may include:

- Plan and develop electrical preventive/corrective/major maintenance annual business plan, budget and key performance indicator.
- Strategize, plan and manage resources requirements & availability (manpower, tools and equipment, parts, training) to undertake preventive/corrective/major maintenance work at the entire mainline based on preventive/corrective/major maintenance plan and schedule.
- Control the implementation of preventive/corrective/major maintenance work conducted by subordinates and provide technical advice and coaching to ensure work done according to SOP and preventive/corrective/major maintenance plan and schedule.
- Conduct investigation and prepare accident/incident report, propose and recommend preventive/improvement to avoid recurrence and lessons learnt.
- Prepare maintenance scope of work, specifications, bill of materials etc. for tender purposes and participate in the technical evaluation tender exercise, factory acceptance and works implementation to ensure all technical requirements are fulfilled.
- Drive, enforce and ensure that maintenance safety policies, procedures and guidelines are adhered to by all related parties towards zero incidents/accidents.
- Review and approve reports on the assets stocktaking either to be used, replaced or disposed.
- Implement preventive and corrective maintenance incorporating cost optimisation initiatives in the effort to optimise cost in meeting the respective section budget on the procurement, maintenance utilization (equipment) and on resource management (e.g. manpower, capability).
- Drive and control cost optimisation and improvement activities. Review results consistently to ensure objectives are achieved.
- Identify potential risks of systems failure to mitigate system down time affecting rail operations activities.
- Review contractor's performance as per contract terms & conditions. Recommend contract extension and termination.
- Manage, propose and implement capability development in areas of maintenance competency, asset/system availability/reliability and to cater to technological

changes/enhancements in carrying out maintenance activities effectively and efficiently.

- Lead, drive and control the section's manpower requirements, ensuring personnel are sufficiently equipped with the right capability.
- Evaluate staff performance and manage staff career development. Provide conducive-working environment to ensure high productivity in meeting Rail Maintenance operational target.
- Provide technical advice to rail division and external parties on matters relating to maintenance, engineering design, technical specifications on train, equipment/machinery/tool/spare parts.
- Develop and maintain good relationship and liaison within rail division and external parties to facilitate efficient rail maintenance requirements.
- Create an empowered workplace to motivate all employees to engage and take ownership in the company's interest and to achieve company's goals and objectives
- Conduct employee appraisal in accordance to performance management system.
- Provide leadership to section's personnel by energizing, coaching and motivating personnel in the effort to achieve safe and reliable maintenance service. Create potential leaders to assume higher role in the unit or across rail division.

Knowledge, Skills, Attributes

Mechanical Engineer/Manager requirements:

- Understand mission, visions, objectives, business processes, standards and regulations.
- Good team player and able to work together with all levels of cross-functional team.
- Non-disclosure of company's confidential information.
- Possess relevant knowledge and skills.
- Critical and analytical in solving problems.
- High level of dedication and responsibility.
- Take ownership of company's possession and assets.
- Willing to learn and take instruction explicitly.
- Physically and mentally fit, healthy and alert at all times.
- Ideas for continuous improvement
- Cost, Quality & Safety conscious
- Profit conscious
- Administrative skills
- Management Skills
- Communication and presentation skills
- Interpersonal skills
- Leadership skills
- People management skills
- Entrepreneurship skills

ELECTRICAL & ELECTRONICS FITTER (LEVEL 1)
This role may also be called: Nil

An Electrical & Electronics Fitter is responsible to perform and improve the reliability of the asset utilization by performing routine maintenance as standard industry practice.

Responsibilities may include:

- Inspect static inverter and battery charger system.
- Service static inverter and battery charger system.
- Repair electrical and electronic control.
- Inspect bogies and under frame structure.
- Repair bogies and under frame structure.
- Inspect propulsion system and dynamic brake.
- Examine pneumatic brake system.
- Repair pneumatic brake system.
- Inspect and repair car body structure.
- Inspect safety device and system.
- Inspect air conditioning and ventilation system
- Service air conditioning and ventilation system.
- Inspect pneumatic and hydraulic system.
- Service pneumatic and hydraulic system.
- Service and repair door system.
- Perform site cleanliness and housekeeping.
- Adhere strictly to operational health and safety practices at all time.
- Complete all daily report timely and accurately
- Report irregularities or abnormalities immediately to immediate superior.

Knowledge, Skills, Attributes
Electrical & Electronics Fitter requirements:

- Possess relevant education, knowledge and experiences.
- High level of dedication and responsibility
- Take ownership of company possessions and assets
- Invariable personality
- Non-disclosure of company's confidential information
- Ability to work in a team
- Willing to learn and take instructions explicitly
- Working at heights and confined spaces
- Physically and mentally fit, healthy and alert at all times.
- Ideas for continuous improvement

ELECTRICAL & ELECTRONICS TECHNICIAN (LEVEL 2)

This role may also be called: Nil

An Electrical & Electronics Technician is responsible to perform repairs, overhaul, corrective and preventive maintenance etc. in accordance with the maintenance schedule to ensure train system and sub-system are in good working condition for optimum operations.

Responsibilities may include:

- Responsible for the maintenance of electrical and electronics equipments and facilities in accordance with specifications or procedures of the company which shall include:
  - Preparation of any maintenance activities
  - Inspection on periodic or add-hoc basis
  - Troubleshooting, repair and/or replacement
  - Setting up equipment and reinstatement of equipment after the above activities
  - Cleaning up of equipment and its surrounding after maintenance activities
  - Preparation of Maintenance Report/work orders after any maintenance activities
  - To assist immediate superior in keeping track of the equipment performance by updating the equipment operation, maintenance log and materials and movement documentation.
  - Comply with requirements set by the SOP, maintenance manual, regulations and statutory to meet the standard quality management requirement.
- Ensure tools are always clean, stored in designated areas and available for daily work and report to superior for shortages or missing tools.
- Understand the department and company's policies and procedures and implement the requirements in line with the job responsibilities.
- Identify other areas for improvement particularly scheduled and unscheduled maintenance activities as well as overall department activities.
- Suggest improvements which will benefit the department's/company's operations effectiveness and efficiencies.
- Adhere strictly to operational health and safety practices at all time.
- Complete all documentation (logs, checklist, report etc.) of work done timely and accurately.
- Report irregularities or abnormalities immediately to immediate superior.

Knowledge, Skills, Attributes

Electrical & Electronics Technician requirements:

- Understand business processes, standards and regulations.
- Good team player and able to work together with all levels of cross-functional team.
- Non-disclosure of company's confidential information.
- Possess relevant electrical and electronics knowledge and skills.
- Understand electrical diagrams and drawings
- Critical and analytical in solving problems.
- High level of dedication and responsibility.

- Take ownership of company's possession and assets.
- Willing to learn and take instruction explicitly.
- Physically and mentally fit, healthy and alert at all times.
- Ideas for continuous improvement

ELECTRICAL & ELECTRONICS SUPERVISOR (LEVEL 3)
This role may also be called: Electrical & Electronic Inspector

An Electrical & Electronics Supervisor is responsible to implement and monitor the preventive, corrective and major maintenance on mechanical to ensure the implementation is conducted as per business plan and budget, in accordance with the Standard Operating Procedures, safety and regulatory requirements to achieve operations availability and reliability targets, in supporting rail operations.

Responsibilities may include:

- Implement and monitor resources requirements and availability to undertake preventive/corrective/major maintenance work at the entire mainline based on preventive/corrective/major maintenance plan and schedule.
- Lead the team member on the implementation of preventive/corrective/major maintenance work conducted by sub-ordinates and provides technical advice and coaching to ensure work done according to SOP and Preventive/Corrective/Major Maintenance Plan and Schedule.
- Compile and prepare daily preventive/corrective/major maintenance reports to ensure works done are as per preventive/corrective/major Maintenance Plan and Schedule, work within timeline and budget.
- Implement improvement recommendations from Engineer against maintenance analyst reports on failure management such as re-engineering, modifications, rectification, change or re-design to minimize/reduce future service failures.
- Drive, enforce and ensure team members adhere to maintenance safety policies; procedures and guidelines are towards zero incidents/accidents.
- Report potential risks of systems failure to minimize system down time affecting Rail operations activities and assist on the development on contingency plan to mitigate and to attend failures.
- Implement Preventive/Corrective Maintenance Standard Operating Procedures and ensure all maintenance activities are in accordance with the SOP to accommodate changes in policies and technologies.
- Plan and manage the team's manpower requirements, ensuring personnel are sufficiently equipped with the right capability. Evaluate staff performance and manage staff career development.
- Coach team members on matters pertaining to maintenance competency, ensuring subordinates able to conduct work efficiently and effectively.
- Adhere strictly to operational health and safety practices at all time
- Assist station superior in administrative job such as data collections, recording and preparing reports.
- Report irregularities or abnormalities immediately to immediate superior.
- Attend meetings and trainings specified by the department and company from time to time.

Knowledge, Skills, Attributes

Electrical & Electronics Supervisor/Inspector requirements:

- Understand business processes, standards and regulations.
- Good team player and able to work together with all levels of cross-functional team.
- Non-disclosure of company's confidential information.
- Possess relevant knowledge and skills.
- Critical and analytical in solving problems.
- High level of dedication and responsibility.
- Take ownership of company’s possession and assets.
- Willing to learn and take instruction explicitly.
- Physically and mentally fit, healthy and alert at all times.
- Ideas for continuous improvement
- Cost, Quality & Safety conscious
- Supervisory skills
- Communication skills
- People management skills

ELECTRICAL & ELECTRONICS TECHNICAL EXECUTIVE (LEVEL 4)
This role may also be called: Electrical & Electronic Technical Assistant

An Electrical & Electronics Technical Executive is responsible to manage and monitor the preventive, corrective and major maintenance to ensure the implementation is conducted as per business plan and budget, in accordance with Standard Operating Procedures, safety and regulatory requirements to achieve operations availability and reliability targets, in supporting rail operations.

Responsibilities may include:

- Assist superior to conduct internal assessment on the internal capabilities and resources for the development of preventive and corrective maintenance plan and ensure that all activities are aligned and adhered to the plan.
- Analyse and report on performance variance (Plan vs. Actual) and propose corrective action if falls target. Initiate transformation initiatives such as cost saving for effective maintenance operations.
- Plan, manage and execute resource requirements & availability (manpower, tools and equipment, parts, training) to undertake preventive/corrective/major maintenance work at the entire mainline based on Preventive/Corrective/Major Maintenance Plan and Schedule.
- Monitor the implementation of preventive/corrective/major maintenance work conducted by sub-ordinates and provides technical advice and coaching to ensure work done according to SOP and Preventive/Corrective/Major Maintenance Plan and Schedule.
- Analyse monthly preventive/corrective/major maintenance reports to ensure works done are as per preventive/corrective/major Maintenance Plan and Schedule, work within timeline and budget.
- Conduct investigation and prepare accidents/incidents report, propose and recommend preventive/improvement to avoid recurrence and lessons learnt.
- Implement improvement recommendations from superior against maintenance analyst reports on failure management such as re-engineering, modifications, rectification, change or re-design to minimize/reduce future service failures.
- Drive, enforce and ensure maintenance safety policies, procedures and guidelines are adhered by all related parties towards zero incidents/accidents.
- Identify and prepare reports on the assets stocktaking to be used, replaced or disposed.
- Plan, manage and execute cost optimisation and improvement activities review results consistently to ensure objectives are achieved.
- Identify potential risks of systems failure to mitigate system down time affecting Rail operations activities.
- Participate in the selection of system contractors via tenders exercise and review contractor's performance as per contract terms & conditions stipulated.
- Develop and maintain good relationship within Rail Division and external parties to facilitate efficient rail maintenance's requirements.

Knowledge, Skills, Attributes

Electrical & Electronics Technical Executive/Assistant requirements:

- Understand objectives, business processes, standards and regulations.
- Good team player and able to work together with all levels of cross-functional team.
- Non-disclosure of company's confidential information.
- Possess relevant knowledge and skills.
- Critical and analytical in solving problems.
- High level of dedication and responsibility.
- Take ownership of company’s possession and assets.
- Willing to learn and take instruction explicitly.
- Physically and mentally fit, healthy and alert at all times.
- Ideas for continuous improvement
- Cost, Quality & Safety conscious
- Administrative skills
- Management Skills
- Communication and presentation skills
- Interpersonal skills
- Communication skills
- People management skills

ELECTRICAL & ELECTRONICS ENGINEER (LEVEL 5)
This role may also be called: Electrical & Electronic Manager

An Electrical & Electronics Engineer is responsible to strategize, plan and manage the preventive, corrective and major maintenance to ensure the implementation is conducted as per business plan and budget, in accordance with Standard Operating Procedures, safety and regulatory requirements to achieve operations availability and reliability targets, in supporting rail operations.

Responsibilities may include:

- Plan and develop Electrical Preventive/Corrective/Major Maintenance annual Business Plan and Budget and Key Performance Indicator.
- Strategize, plan and manage resource requirements & availability (manpower, tools and equipment, parts, training) to undertake preventive/corrective/major maintenance work at the entire mainline based on Preventive/Corrective/Major Maintenance Plan and Schedule.
- Control the implementation of preventive/corrective/major maintenance work conducted by sub-ordinates and provides technical advice and coaching to ensure work done according to SOP and Preventive/Corrective/Major Maintenance Plan and Schedule.
- Conduct investigation and prepare accidents/incidents report, propose and recommend preventive/improvement to avoid recurrence and lessons learnt.
- Prepare maintenance scope of work, specifications, bill of materials etc. for tender purposes. Participate in the technical evaluation tender exercise, factory acceptance and works implementation to ensure all technical requirements are fulfilled.
- Prepare electrical and electronics maintenance scope of work, specifications, bill of materials etc., for tender purposes. Participate in the technical evaluation tender exercise, factory acceptance and works implementation to ensure all technical requirements are fulfilled.
- Drive, enforce and ensure maintenance safety policies, procedures and guidelines are adhered by all related parties towards zero incidents/accidents.
- Review and approve reports on the assets stocktaking either to be used, replaced or disposed.
- Implement preventive and corrective maintenance incorporating cost optimisation initiatives in the effort to optimise cost in meeting the respective section budget on the procurement, maintenance utilization (equipment) and on resource management (e.g. manpower, capability).
- Drive and control cost optimisation and improvement activities review results consistently to ensure objectives are achieved.
- Identify potential risks of systems failure to mitigate system down time affecting rail operations activities.
- Review contractor's performance as per contract terms & conditions. Recommend contract extension and termination.

- Manage, propose and implement capability development in areas of maintenance competency, asset/system availability/reliability and to cater for technological changes/enhancements in carrying out maintenance activities effectively and efficiently.
- Lead, drive and control the section's manpower requirements, ensuring personnel are sufficiently equipped with the right capability. Evaluate staff performance and manage staff career development. Provide conducive-working environment to ensure high productivity in meeting rail maintenance operational target.
- Provide technical advice to rail division and external parties on matters relating to maintenance, engineering design, technical specifications on train, equipment/machinery/tool/spare parts.
- Develop and maintain good relationship and liaison within rail division and external parties to facilitate efficient rail maintenance's requirements.
- Create an empowered workplace to motivate all employees to engage and take ownership in the company's interest and to achieve company's goals and objectives
- Conduct employee appraisal in accordance to performance management system.
- Provide leadership to section's personnel by energizing, coaching and motivating personnel in the effort to achieve safe and reliable maintenance service. Create potential leaders to assume higher role in the unit or across rail division.

Knowledge, Skills, Attributes

Electrical & Electronics Technical Engineer/Manager requirements:

- Understand mission, visions, objectives, business processes, standards and regulations.
- Good team player and able to work together with all levels of cross-functional team.
- Non-disclosure of company's confidential information.
- Possess relevant knowledge and skills.
- Critical and analytical in solving problems.
- High level of dedication and responsibility.
- Take ownership of company's possession and assets.
- Willing to learn and take instruction explicitly.
- Physically and mentally fit, healthy and alert at all times.
- Ideas for continuous improvement
- Cost, Quality & Safety conscious
- Profit conscious
- Administrative skills
- Management Skills
- Communication and presentation skills
- Interpersonal skills
- Leadership skills
- People management skills
- Entrepreneurship skills

TRACK FITTER (LEVEL 1)
This role may also be called: Nil

A Track Fitter is responsible to lay out, position, align and fit together fabricated parts of structural metals preparatory to welding or riveting of railway structural bridges, culverts and tunnels, spring and brake, block changes, general repairs for door locations and pre-use maintenance.

Responsibilities may include:

- Perform repair works on metal structural bridges, culverts and tunnels, spring and brake, block changes, general repairs for door locations and pre-use maintenance.
- Carry out temporary crib formation fabrication for temporary bridges and culverts.
- Perform welding and riveting works on steel bridges.
- Perform minor repair works on the substructure of the bridges.
- Perform minor repair works on the superstructure of the bridges.
- Perform painting and anti-corrosive treatment to steel bridges.
- Carry out minor repairs and rectification to railway culvert settlement and potholes.
- Carry out minor repairs to waterway scouring occurrence to the superstructure of bridges and culverts
- Perform site cleaning and housekeeping.
- Adhere strictly to operational health and safety practices at all time
- Complete all daily report timely and accurately
- Report irregularities or abnormalities immediately to immediate superior.

Knowledge, Skills, Attributes
Track Fitter requirements:

- Possess relevant education, knowledge and experiences.
- High level of dedication and responsibility
- Take ownership of company possessions and asset
- Non-disclosure of company's confidential information
- Ability to work as a team
- Willing to learn and take instruction explicitly
- Working at heights and confined spaces
- Physically and mentally fit, healthy and alert at all times.
- Ideas for continuous improvement

TRACK TECHNICIAN (LEVEL 2)

This role may also be called: Nil

A Track Technician is responsible to conduct maintenance activities based on the checklist, and perform maintenance at different stages to ensure sub-systems are in good working condition for achieving optimum operation.

Responsibilities may include:

- Responsible for the maintenance of track equipment and facilities in accordance with specifications or procedures of the company which shall include:
  - Preparation of any maintenance activities
  - Inspection on periodic or add-hoc basis
  - Troubleshooting, repair and/or replacement
  - Setting up equipment and reinstatement of equipment after the above activities
  - Cleaning up of equipment and its surrounding after maintenance activities
  - Preparation of Maintenance Report/work orders after any maintenance activities
  - To assist Supervisor and Senior Technicians in keeping track of the equipment performance by updating the equipment operation, maintenance log and materials and movement documentation.
  - Comply with requirements set by the SOP, maintenance manual, regulations and statutory to meet the standard quality management requirement.
- Ensure tools are always clean, stored in designated areas and available for daily work and report to superior for shortages or missing tools.
- Understand the department and company's policies and procedures and implement the requirements in line with the job responsibilities.
- Identify other areas for improvement particularly in scheduled and unscheduled maintenance activities as well as overall department activities.
- Suggest improvements which will benefit the department's/company's operations effectiveness and efficiency
- Adhere strictly to operational health and safety practices at all times.
- Complete all documentations of work done timely and accurately.
- Report irregularities or abnormalities immediately to immediate superior.

Knowledge, Skills, Attributes

Track Technician requirements:

- Understand business processes, standards and regulations.
- Good team player and able to work together with all levels of cross-functional team.
- Non-disclosure of company's confidential information.
- Possess relevant track related knowledge and skills.
- Critical and analytical in solving problems.
- High level of dedication and responsibility.
- Take ownership of company's possession and assets.
- Willing to learn and take instruction explicitly.
- Physically and mentally fit, healthy and alert at all times.
- Ideas for continuous improvement
-

TRACK SUPERVISOR (LEVEL 3)
This role may also be called: Nil

A Track Supervisor is responsible to supervise and manage the manpower, perform inspection on track condition, plan and implement routine track work and communicate with superior for any abnormalities.

Responsibilities may include:

- Supervise the subordinates employed within the track services as well as any temporary personnel within this section.
- Responsible for the technically correct condition as applicable to the track system
- Analyse maintenance history of track system (fault reporting and monitoring)
- Optimise maintenance task as result of on-going analysis
- Monitor and review of maintenance task reports
- Responsible for the speedy availability of suitable manpower, adequate tools and materials in case of incidents
- Perform day-to-day supervision and facilitate staff for optimum performance.
- Responsible for all tools including of special tools, equipment and machines commonly used in the track system
- Assist superior in ensuring all approved policies, procedures and procedures are disseminated in a proper and timely manner within the department and where applicable, throughout the department/company
- Ensure the timely preparation of all papers, reports and relevant documents for the department/company, statutory bodies and any others as and when required
- Provide solution and/or improvements towards the overall department's activities. Assist superior in the supervision of the implementation of improvements as directed by management and superior.
- Suggest improvements initiates that would benefits the company as well as the department's operations effectiveness and efficiency, and subsequently assist superior in the supervision and administering the implementation of the improvements.
- Adhere strictly to operational health and safety practices at all time
- Assist station superior in administrative job such as data collections, recording and preparing reports.
- Report irregularities or abnormalities immediately to immediate superior.
- Attend meetings and trainings specified by the department and company from time to time.

Knowledge, Skills, Attributes
Track Supervisor requirements:

- Understand business processes, standards and regulations.
- Good team player and able to work together with all levels of cross-functional team.
- Non-disclosure of company's confidential information.
- Possess relevant knowledge and skills.

- Critical and analytical in solving problems.
- High level of dedication and responsibility.
- Take ownership of company's possession and assets.
- Willing to learn and take instruction explicitly.
- Physically and mentally fit, healthy and alert at all times.
- Ideas for continuous improvement
- Cost, Quality & Safety conscious
- Supervisory skills
- Communication skills
- People management skills

TRACK ENGINEER (LEVEL 5)
This role may also be called: Track Manager

A Track Engineer/Manager is responsible to strategize, plan and manage budget and activities, review and approve annual maintenance plan, follow up and monitor progress and performance of the maintenance and construction activities, maintenance records, review daily report and project progress report for achieving optimum track performance.

Responsibilities may include:

- Recommend materials and equipment as per specification.
- Ensure proper documentation is maintained for construction and maintenance of bridges, viaduct, culverts and tunnels.
- Approve and verify the execution of the planned maintenance and construction program of bridges, culverts, viaducts, and tunnels and ensure they are within approved specification.
- Prepare annual budgetary requirements to meet company objectives and goals.
- Manage and control budget and expenditures.
- Plan and manage manpower requirements and resources.
- Review monthly and annual maintenance schedule.
- Liaise with other departments and third party to ensure all plan are executed effectively.
- Prepare material stock requisition for annual maintenance program.
- Lead and manage employee requirements, expertise and capabilities. This includes acquisition of training, appointment and development.
- Ensure an effective forecast of spare parts and material requirements.
- Perform continuous improvement initiatives for present and future development for improved availability and utilization of assets and resources.
- Create an empowered workplace to motivate all employees to engage and take ownership in the company's interest and to achieve company's goals and objectives
- Conduct performance evaluation for confirmation, increment and promotion, etc.

Knowledge, Skills, Attributes
Track Engineer/Manager requirements:

- Understand mission, visions, objectives, business processes, standards and regulations.
- Good team player and able to work together with all levels of cross-functional team.
- Non-disclosure of company's confidential information.
- Possess relevant knowledge and skills.
- Critical and analytical in solving problems.
- High level of dedication and responsibility.
- Take ownership of company's possession and assets.

- Willing to learn and take instruction explicitly.
- Physically and mentally fit, healthy and alert at all times.
- Ideas for continuous improvement
- Cost, Quality & Safety conscious
- Profit conscious
- Administrative skills
- Management Skills
- Communication and presentation skills
- Interpersonal skills
- Leadership skills
- People management skills
- Entrepreneurship skills

MAINTENANCE VEHICLE MECHANISED OPERATOR (LEVEL 1)
This role may also be called: Nil

A Maintenance Vehicle Mechanised Operator is responsible to perform operating activities of mechanised machine.

Responsibilities may include:

- Comply with company rules and regulations.
- Operate mechanised machine according to operation manuals.
- Perform inspection of mechanised machine as per the checklist.
- Prepare reports of mechanised machine components failure.
- Carry out daily maintenance of mechanised machine.
- Ensure cleanliness of mechanised machine.
- Perform site cleaning and housekeeping.
- Adhere strictly to operational health and safety practices at all times.
- Complete all daily report timely and accurately
- Report irregularities or abnormalities immediately to immediate superior.

Knowledge, Skills, Attributes
Maintenance Vehicle Mechanised Operator requirements:

- Possess relevant education, knowledge and experiences.
- High level of dedication and responsibility
- Take ownership of company possessions and asset
- Non-disclosure of company's confidential information
- Ability to work in a team
- Willing to learn and take instruction explicitly
- Working at heights and confined spaces
- Physically and mentally fit, healthy and alert at all times.
- Ideas for continuous improvement

MAINTENANCE VEHICLE MECHANISED TECHNICIAN (LEVEL 2)
This role may also be called: Nil

A Maintenance Vehicle Mechanised Technician is responsible to perform mechanised track maintenance activities, records and storage, requisition of spare parts and follow-up work orders.

Responsibilities may include:

- Carry out periodic inspection of mechanised machine.
- Prepare reports on condition of mechanised machine.
- Order requisition of spare parts and components of mechanised machine.
- Organize maintenance and repair works of mechanised machine.
- Check work order according to work schedule.
- Upkeep records of all mechanised machine.
- Keep of all mechanised machine register for Maintenance, Repair and Overhaul (MRO)
- Collect and analyse track geometry data for track rectification.
- Execute mechanise operation in track rectification.
- Collect and analyse track information of track rectification.
- Liaise with other unit for track works according to program.
- Upkeep records and submit returns to supervisor.
- Adhere strictly to operational health and safety practices at all time.
- Complete all documentation (logs, checklist, report etc.) of work done timely and accurately.
- Report irregularities or abnormalities immediately to immediate superior.

Knowledge, Skills, Attributes
Maintenance Vehicle Mechanised Technician requirements:

- Understand business processes, standards and regulations.
- Good team player and able to work together with all levels of cross-functional team.
- Non-disclosure of company's confidential information.
- Possess relevant maintenance vehicle mechanise knowledge and skills.
- Critical and analytical in solving problems.
- High level of dedication and responsibility.
- Take ownership of company’s possession and assets.
- Willing to learn and take instruction explicitly.
- Physically and mentally fit, healthy and alert at all times.
- Ideas for continuous improvement

MAINTENANCE VEHICLE MECHANISED SUPERVISOR (LEVEL 3)
This role may also be called: Mechanised Maintenance Vehicle Inspector

A Maintenance Vehicle Mechanised Supervisor is responsible to perform activities to inspect or verify, monitor, conduct mechanised maintenance program, follow-up week work program and verify budget expenditures.

Responsibilities may include:

- Verify track vehicles failure reports.
- Verify annual maintenance track vehicles work program.
- Follow-up and monitor weekly work program.
- Verify work process as per Standard Operating Procedure (SOP).
- Prepare budget and expenditure.
- Carry out spare part and component stock taking.
- Conduct periodic inspection of mechanised machines.
- Certify mechanise operation activities as per technical specification.
- Prepare and conduct continuous training program for mechanised machines operators.
- Liaise with other departments for line possession.
- Adhere strictly to operational health and safety practices at all time
- Assist station superior in administrative job such as data collections, recording and preparing reports.
- Report irregularities or abnormalities immediately to immediate superior.
- Attend meetings and trainings specified by the department and company from time to time.

Knowledge, Skills, Attributes

Maintenance Vehicle Mechanised Supervisor requirements:

- Understand business processes, standards and regulations.
- Good team player and able to work together with all levels of cross-functional team.
- Non-disclosure of company's confidential information.
- Possess relevant knowledge and skills.
- Critical and analytical in solving problems.
- High level of dedication and responsibility.
- Take ownership of company’s possession and assets.
- Willing to learn and take instruction explicitly.
- Physically and mentally fit, healthy and alert at all times.
- Ideas for continuous improvement
- Cost, Quality & Safety conscious
- Supervisory skills
- Communication skills
- People management skills

MAINTENANCE VEHICLE MECHANISED TECHNICAL ASSISTANT (LEVEL 4)
This role may also be called: Maintenance Vehicle Technical Executive

A Maintenance Vehicle Mechanised Technical Assistant is responsible to perform activities to manage mechanised operation, monitor, verify, organize and evaluate mechanise operation.

Responsibilities may include:

- Manage the activities of track recording data analysis.
- Monitor track defects of track recording data.
- Evaluate track mechanised operation standards.
- Re-evaluate annual calendar work program.
- Verify monthly work program.
- Monitor weekly work schedule.
- Plan, manage and execute cost optimisation and improvement activities. Review results consistently to ensure objectives are achieved.
- Organize periodic inspections on mechanised operation activities
- Verify work process.
- Prepare budget and expenditure.
- Organize continuous training programs for improvement of mechanise unit.

Knowledge, Skills, Attributes
Mechanised Maintenance Vehicle Technical Assistant requirements:

- Understand objectives, business processes, standards and regulations.
- Good team player and able to work together with all levels of cross-functional team.
- Non-disclosure of company's confidential information.
- Possess relevant knowledge and skills.
- Critical and analytical in solving problems.
- High level of dedication and responsibility.
- Take ownership of company’s possession and assets.
- Willing to learn and take instruction explicitly.
- Physically and mentally fit, healthy and alert at all times.
- Ideas for continuous improvement
- Cost, Quality & Safety conscious
- Administrative skills
- Management Skills
- Communication and presentation skills
- Interpersonal skills
- Communication skills
- People management skills

MAINTENANCE VEHICLE MECHANISED ENGINEER (LEVEL 5)
This role may also be called: Maintenance Vehicle Manager

A Maintenance Vehicle Mechanised Engineer is responsible to strategize, manage and control activities to suit organizational needs, monitor and review monthly and annual work program, review work process, prepare budget and expenditures, re-evaluate track standard and benchmark, material stock acquisition and perform monitoring of organization activities.

Responsibilities may include:

- Manage and control the activities of track recording data analysis.
- Monitor track defect rectification through mechanised maintenance.
- Re-evaluate track standards to comply with specification of quality and safety standards.
- Prepare annual budgetary requirements to suit effective annual programs.
- Manage and control budget and expenditure.
- Plan and manage manpower and resources effectively.
- Review monthly and annual work schedule.
- Liaise with other departments and third party for work programs.
- Prepare material stock requisition for annual works program.
- Lead and manage department employee i.e. acquisition of training, appointment and development.
- Ensure an effective forecast of spare parts and material requirements.
- Plan effective continuous activities for present and future development to reduce failure.
- Monitor and approve financial allocation of subordinates.
- Evaluate mechanised track machine performance according to operating manual.
- Create an empowered workplace to motivate all employees to engage and take ownership in the company's interest and to achieve company's goals and objectives
- Conduct employee appraisal in accordance to performance management system.

Knowledge, Skills, Attributes
Mechanised Maintenance Vehicle Engineer requirements:

- Understand mission, visions, objectives, business processes, standards and regulations.
- Good team player and able to work together with all levels of cross-functional team.
- Non-disclosure of company's confidential information.
- Possess relevant knowledge and skills.
- Critical and analytical in solving problems.
- High level of dedication and responsibility.
- Take ownership of company's possession and assets.
- Willing to learn and take instruction explicitly.

- Physically and mentally fit, healthy and alert at all times.
- Ideas for continuous improvement
- Cost, Quality & Safety conscious
- Profit conscious
- Administrative skills
- Management Skills
- Communication and presentation skills
- Interpersonal skills
- Leadership skills
- People management skills
- Entrepreneurship skills

SIGNALLING FITTER (LEVEL 1)
This role may also be called: Nil

A Signalling Fitter is responsible to perform periodic maintenance of signalling equipment, assist in carrying out troubleshooting activities, carry out survey on signalling fittings requirements and ensure all signalling equipment are working well for meeting optimum operation performance.

Responsibilities may include:

- Perform periodic maintenance of signalling equipment.
- Assist in carrying out troubleshooting activities.
- Carry out survey on signalling fittings requirement.
- Carry out service on level crossing signalling equipment.
- Perform motor-point equipment in turnout service.
- Perform site cleaning and housekeeping.
- Carry out mobilization of equipment and material.
- Adhere strictly to operational health and safety practices at all time
- Complete all daily report timely and accurately
- Report irregularities or abnormalities immediately to immediate superior.

Knowledge, Skills, Attributes
Signalling Fitter requirements:

- Possess relevant education, knowledge and experiences.
- High level of dedication and responsibility
- Take ownership of company possessions and asset
- Invariable personality and always be at the best level
- Non-disclosure of company's confidential information
- Ability to work as a team
- Willing to learn and take instruction explicitly
- Working at heights and confined space
- Physically and mentally fit, healthy and alert at all times.
- Ideas for continuous improvement

SIGNALLING TECHNICIAN (LEVEL 2)
This role may also be called: Nil

A Signalling Technician is responsible to record and update signalling equipment inventories, inspect corrective and preventive maintenance activities, perform and coordinate troubleshooting activities, prepare and update failure reports and ensure all works are in compliance with the Standard Operating Procedure (SOP).

Responsibilities may include:

- Responsible for the maintenance of signaling equipments and facilities in accordance to specification or procedures of the company which shall include:
  - Preparation of any maintenance activities
  - Inspection on periodic or add-hoc basis
  - Troubleshooting, repair and/or replacement
  - Setting up equipment and reinstatement of equipment after the above activities
  - Cleaning up of equipment and its surrounding after maintenance activities
  - Preparation of Maintenance Report/work orders after any maintenance activities
  - To assist Supervisor and Senior Technicians in keeping track of the equipment performance by updating the equipment operation, maintenance log and materials and movement documentation.
  - Comply with requirements set by the SOP, maintenance manual, regulations and statutory to meet the standard quality management requirement.
- Ensure tools are always clean, stored in designated areas and available for daily work and report to superior for shortages or missing tools.
- Understand the department and company's policies and procedures and implement the requirements in line with the job responsibilities.
- Identify other areas for improvement particularly in scheduled and unscheduled maintenance activities as well as overall department activities.
- Suggest improvements which will benefit the department's/company's operations effectiveness and efficiencies.
- Adhere strictly to operational health and safety practices at all time.
- Complete all documentation (logs, checklist, report etc.) of work done timely and accurately.
- Report irregularities or abnormalities immediately to immediate superior.

Knowledge, Skills, Attributes
Signalling Technician requirements:

- Understand business processes, standards and regulations.
- Good team player and able to work together with all levels of cross-functional team.
- Non-disclosure of company's confidential information.
- Possess relevant signalling knowledge and skills.
- Critical and analytical in solving problems.
- High level of dedication and responsibility.
- Take ownership of company's possession and assets.

- Willing to learn and take instruction explicitly.
- Physically and mentally fit, healthy and alert at all times.
- Ideas for continuous improvement

SIGNALLING SUPERVISOR (LEVEL 3)
This role may also be called: Nil

A Signalling Supervisor is responsible supervise the manpower, perform inspection of signalling, plan and implement routine signalling maintenance work and communicate with superior for any abnormalities and ensure all activities are performed in accordance with the SOP.

Responsibilities may include:

- Supervise periodic maintenance of power supply equipment.
- Oversee centralize traffic system management failure.
- Verify transmission system failure, automatic train protection system failure, interlocking equipment failure and power supply equipment failure.
- Prepare job schedule.
- Conduct in-house training and development program.
- Liaison with other internal and external parties.
- Adhere strictly to operational health and safety practices at all time
- Assist station superior in administrative job such as data collections, recording and preparing reports.
- Report irregularities or abnormalities immediately to immediate superior.
- Attend meetings and trainings specified by the department and company from time to time.

Knowledge, Skills, Attributes
Signalling Supervisor requirements:

- Understand business processes, standards and regulations.
- Good team player and able to work together with all levels of cross-functional team.
- Non-disclosure of company's confidential information.
- Possess relevant knowledge and skills.
- Critical and analytical in solving problems.
- High level of dedication and responsibility.
- Take ownership of company’s possession and assets.
- Willing to learn and take instruction explicitly.
- Physically and mentally fit, healthy and alert at all times.
- Ideas for continuous improvement
- Cost, Quality & Safety conscious
- Supervisory skills
- Communication skills
- People management skills

SIGNALLING TECHNICAL ASSISTANT (LEVEL 4)
This role may also be called: Signalling Technical Executive

A Signalling Technical Assistant/Executive is responsible to plan and manage the maintenance signalling activities in accordance to SOP, engineering standards, meeting safety and regulatory requirement, develop maintenance plan, develop staff development plan, conduct analysis etc.

Responsibilities may include:

- Plan and manage periodic maintenance of power supply equipment.
- Organize rectification of centralized traffic management system failure.
- Organize rectification of transmission system failure.
- Organize rectification of automatic train protection system failure.
- Organize rectification of interlocking equipment failure.
- Organize rectification of signalling power supply equipment failure.
- Verify and monitor job schedule.
- Conduct in-house training.
- Prepare tools and spare parts requisition.
- Coordinate work with other departments.
- Prepare and approve financial allocation for works requirement.

Knowledge, Skills, Attributes
Signalling Technical Assistant requirements:

- Understand objectives, business processes, standards and regulations.
- Good team player and able to work together with all levels of cross-functional team.
- Non-disclosure of company's confidential information.
- Possess relevant knowledge and skills.
- Critical and analytical in solving problems.
- High level of dedication and responsibility.
- Take ownership of company’s possession and assets.
- Willing to learn and take instruction explicitly.
- Physically and mentality fit, healthy and alert at all times.
- Ideas for continuous improvement
- Cost, Quality & Safety conscious
- Administrative skills
- Management Skills
- Communication and presentation skills
- Interpersonal skills
- Communication skills
- People management skills

SIGNALLING ENGINEER (LEVEL 5)
This role may also be called: Signalling Manager

A Signalling Engineer/Manager is responsible to strategize, plan and manage budget and activities, review and approve annual maintenance plan, follow up and monitor progress and performance of the maintenance to realize optimum performance.

Responsibilities may include:
- Approve periodic maintenance plan of power supply equipment.
- Verify and monitor rectification of signalling equipment failures.
- Approve and verify job schedule.
- Organize training and development programs.
- Approve tools and spare parts requisition.
- Coordinate work with other department.
- Prepare regional signalling maintenance budget.
- Comply with signalling standard operating procedure.
- Evaluate and verify technical specifications and procedures.
- Plan and manage resources effectively.
- Lead and manage approved maintenance budget prudently.
- Plan effective improvement activities for present and future developments.
- Ensure an effective forecast of signal failures with sufficient spare parts.
- Standby at any time to respond to emergency requirements.
- Create an empowered workplace to motivate all employees to engage and take ownership in the company's interest and to achieve company's goals and objectives
- Conduct employee appraisal in accordance to performance management system.

Knowledge, Skills, Attributes
Signalling Engineer/Manager requirements:
- Understand mission, visions, objectives, business processes, standards and regulations.
- Good team player and able to work together with all levels of cross-functional team.
- Non-disclosure of company's confidential information.
- Possess relevant knowledge and skills.
- Critical and analytical in solving problems.
- High level of dedication and responsibility.
- Take ownership of company's possession and assets.
- Willing to learn and take instruction explicitly.
- Physically and mentally fit, healthy and alert at all times.
- Ideas for continuous improvement
- Cost, Quality & Safety conscious
- Profit conscious
- Administrative skills
- Management Skills

- Communication and presentation skills
- Interpersonal skills
- Leadership skills
- People management skills
- Entrepreneurship skills

COMMUNICATION FITTER (LEVEL 1)
This role may also be called: Nil

A Communication Fitter is responsible to perform cable inspection; minor repairs, servicing, etc. to ensure all communication equipment (PA system, CCTV, PIS, Radio, etc.) is working well.

Responsibilities may include:

- Perform periodic maintenance of communication equipment.
- Assist in carrying out troubleshooting activities.
- Carry out survey on communication fitting requirements.
- Carry out mobilization of equipment and material.
- Perform site cleanliness and housekeeping.
- Adhere strictly to operational health and safety practices at all time
- Complete all daily report timely and accurately
- Report irregularities or abnormalities immediately to immediate superior.

Knowledge, Skills, Attributes
Communication Fitter requirements:

- Possess relevant education, knowledge and experiences.
- High level of dedication and responsibility
- Take ownership of company possessions and asset
- Non-disclosure of company's confidential information
- Ability to work in a team
- Willing to learn and take instruction explicitly
- Working at heights and confined spaces
- Physically and mentally fit, healthy and alert at all times.
- Ideas for continuous improvement

COMMUNICATION TECHNICIAN (LEVEL 2)
This role may also be called: Nil

A Communication Technician is responsible to conduct maintenance activities based on the maintenance checklist to ensure all systems are in good working condition for operation.

Responsibilities may include:

- Responsible for the maintenance of communication equipments and facilities in accordance with specification or procedures of the company which shall include:
  - Preparation of any maintenance activities
  - Inspection on periodic or add-hoc basis
  - Troubleshooting, repair and/or replacement
  - Setting up equipment and reinstatement of equipment after the above activities
  - Cleaning up of equipment and its surrounding after maintenance activities
  - Preparation of Maintenance Report/work orders after any maintenance activities
  - Assist Supervisor and Senior Technicians in keeping track of the equipment performance by updating the equipment operation, maintenance log and materials and movement documentation.
  - Comply with requirements set by the SOP, maintenance manual, regulations and statutory to meet the standard quality management requirement.
- Ensure tools are always clean, stored in designated areas and available for daily work and report to superior for shortages or missing tools.
- Understand the department and company's policies and procedures and implement the requirements in line with the job responsibilities.
- Identify other areas for improvement particularly in scheduled and unscheduled maintenance activities as well as overall department activities.
- Suggest improvements which will benefit the department's/company's operations effectiveness and efficiencies.
- Adhere strictly to operational health and safety practices at all time.
- Complete all documentation (logs, checklist, report etc.) of work done timely and accurately.
- Report irregularities or abnormalities immediately to immediate superior.

Knowledge, Skills, Attributes
Communication Technician requirements:

- Understand business processes, standards and regulations.
- Good team player and able to work together with all levels of cross-functional team.
- Non-disclosure of company's confidential information.
- Possess relevant communication equipment knowledge and skills.
- Critical and analytical in solving problems.
- High level of dedication and responsibility.
- Take ownership of company's possession and assets.
- Willing to learn and take instruction explicitly.
- Physically and mentally fit, healthy and alert at all times.

COMMUNICATION SUPERVISOR (LEVEL 3)
This role may also be called: Nil

A Communication Supervisor is responsible to supervise the manpower, perform inspection of communication equipment, plan and implement routine communication equipment maintenance work and communicate with superior for any abnormalities.

Responsibilities may include:

- Rectify communication system failure.
- Rectify Information and Entertainment system failure.
- Rectify radio system failure.
- Rectify SCADA system failure.
- Prepare job schedule.
- Organize utilization of manpower.
- Evaluate work performance.
- Conduct in-house training.
- Coordinate work with other department.
- Adhere strictly to operational health and safety practices at all time
- Assist station superior in administrative job such as data collections, recording and preparing reports.
- Report irregularities or abnormalities immediately to immediate superior.
- Attend meetings and trainings specified by the department and company from time to time.

Knowledge, Skills, Attributes
Communication Supervisor requirements:

- Understand business processes, standards and regulations.
- Good team player and able to work together with all levels of cross-functional team.
- Non-disclosure of company's confidential information.
- Possess relevant knowledge and skills.
- Critical and analytical in solving problems.
- High level of dedication and responsibility.
- Take ownership of company’s possession and assets.
- Willing to learn and take instruction explicitly.
- Physically and mentally fit, healthy and alert at all times.
- Ideas for continuous improvement
- Cost, Quality & Safety conscious
- Supervisory skills
- Communication skills
- People management skills

COMMUNICATION TECHNICAL ASSISTANT (LEVEL 4)
This role may also be called: Communication Technical Executive

A Communication Technical Assistant is responsible to plan and manage the maintenance communication equipment activities in accordance with the SOP, engineering standards, meeting safety and regulatory requirement, develop maintenance plan, develop staff development plan and conduct analysis.

Responsibilities may include:

- Plan and manage periodic maintenance of communication equipment.
- Organize the rectification of information and entertainment system failure.
- Organize rectification radio system failure.
- Organize rectification SCADA system failure.
- Verify and Monitor job schedule.
- Conduct in-house training.
- Prepare tools and spare parts requisition.
- Coordinate work with other department.
- Prepare and approve financial allocation of works requirement.

Knowledge, Skills, Attributes
Communication Technical Assistant requirements:

- Understand objectives, business processes, standards and regulations.
- Good team player and able to work together with all levels of cross-functional team.
- Non-disclosure of company's confidential information.
- Possess relevant knowledge and skills.
- Critical and analytical in solving problems.
- High level of dedication and responsibility.
- Take ownership of company’s possession and assets.
- Willing to learn and take instruction explicitly.
- Physically and mentally fit, healthy and alert at all times.
- Ideas for continuous improvement
- Cost, Quality & Safety conscious
- Administrative skills
- Management Skills
- Communication and presentation skills
- Interpersonal skills
- Communication skills
- People management skills

COMMUNICATION ENGINEER (LEVEL 5)
This role may also be called: Communication Manager

A Communication Engineer is responsible to strategize, plan and manage budget and activities, review and approve annual maintenance plan, follow up and monitor progress and performance of the maintenance activities, review maintenance report, etc.

Responsibilities may include:

- Approve periodic maintenance plan of communication equipment.
- Verify and monitor rectification of communication equipment failures.
- Organize training programs.
- Approve tools and spare parts requisition.
- Prepare regional communication maintenance budget.
- Comply with communication standard operating procedure.
- Evaluate and verify technical specifications and procedures.
- Lead and manage approved maintenance budget prudently.
- Plan effective improvement activities for present and future developments.
- Ensure an effective forecast of communication failures with sufficient spare parts.
- Standby to respond to emergency requirements.
- Create an empowered workplace to motivate all employees to engage and take ownership in the company's interest and to achieve company's goals and objectives
- Conduct employee appraisal in accordance to performance management system.

Knowledge, Skills, Attributes
Communication Engineer/Manager requirements:

- Understand mission, visions, objectives, business processes, standards and regulations.
- Good team player and able to work together with all levels of cross-functional team.
- Non-disclosure of company's confidential information.
- Possess relevant knowledge and skills.
- Critical and analytical in solving problems.
- High level of dedication and responsibility.
- Take ownership of company's possession and assets.
- Willing to learn and take instruction explicitly.
- Physically and mentally fit, healthy and alert at all times.
- Ideas for continuous improvement
- Cost, Quality & Safety conscious
- Profit conscious
- Administrative skills
- Management Skills

- Communication and presentation skills
- Interpersonal skills
- Leadership skills
- People management skills
- Entrepreneurship skills

ELECTRIFICATION FITTER (LEVEL 1)
This role may also be called: Nil

A Electrification Fitter is responsible to assist technician in carrying out switching works for isolation activity for electrification system, to operate manual isolator/switches (AP) in live, install and remove local earths on during isolation activity, test live line tester during isolation process, carry out height and stagger measurement and to carry out tripping patrol in electrification system to identify/investigate tripping cause and assist technician in identifying the fault.

Responsibilities may include:

- Assist technician in carry out switching works for isolation activity in electrification system.
- Assist technician to operate manual isolators/switches in live, install and remove local earths during isolation activity.
- Assist technician to test live line tester to prove the line is live or dead during isolation process.
- Carry out height and stagger measurement with height & stagger gauge.
- Carry out tripping patrol in electrification system to identify/investigate tripping cause and assist technician in finding the fault.
- Perform site cleaning and housekeeping.
- Adhere strictly to operational health and safety practices at all times.
- Complete all daily report timely and accurately
- Report irregularities or abnormalities immediately to immediate superior.

Knowledge, Skills, Attributes
Electrification Fitter requirements:

- Possess relevant education, knowledge and experiences.
- High level of dedication and responsibility
- Take ownership of company possessions and asset
- Non-disclosure of company's confidential information
- Ability to work as a team
- Willing to learn and take instruction explicitly
- Working at heights and confined space
- Physically and mentally fit, healthy and alert at all times.
- Ideas for continuous improvement

ELECTRIFICATION TECHNICIAN (LEVEL 2)
This role may also be called: Nil

A Electrification Technician is responsible to perform switching isolation, issuing permit to work, conduct periodic inspection, prepare report, order requisition of spare parts, organise maintenance and repair work, upkeep record for all carriage structure, ensure installations are according to specifications and perform supervisory functions.

Responsibilities may include:

- Carry out switching for isolation activity in electrification system, issuing permit to work or high voltage permit for contractors to work on, close to or adjacent to the railway electrification system.
- Responsible to lead a group of isolation team.
- Operate manual isolator/switches (AP) in live.
- Install and remove local earths during isolation activity.
- Responsible to test electrification system with live line tester to prove the line is live or dead during isolation process.
- Responsible to organise, plan and supervise electrification facilities routine or corrective and preventive maintenance carried out by maintenance contractor during maintenance activity.
- Responsible to lead and carry out tripping patrol in electrification system to identify/investigate tripping cause, prepare tripping report and advise/assist superior.
- Responsible to lead electrification maintenance team to carry out height and stagger measurement with height & stagger gauge.
- Assist immediate supervisor in keeping track of the equipment performance by updating the equipment operation, maintenance log and materials and movement documentation.
- Comply with requirements set by the SOP, maintenance manual, regulations and statutory to meet the standard quality management requirement.
- Ensure tools are always clean, stored in designated areas and available for daily work and report to superior for shortages or missing tools.
- Understand the department and company's policies and procedures and implement the requirements in line with the job responsibilities.
- Identify other areas for improvement particularly in scheduled and unscheduled maintenance activities as well as overall department activities.
- Suggest improvements which will benefit the department's/company's operations effectiveness and efficiencies.
- Adhere strictly to operational health and safety practices at all time
- Complete all documentation (logs, checklist, report etc.) of work done timely and accurately.
- Report irregularities or abnormalities immediately to immediate superior.

Knowledge, Skills, Attributes

Electrification Technician requirements:

- Understand business processes, standards and regulations.
- Good team player and able to work together with all levels of cross-functional team.
- Non-disclosure of company's confidential information.
- Possess relevant electrification qualification, knowledge and skills.
- Understand electrical diagrams and drawings
- Critical and analytical in solving problems.
- High level of dedication and responsibility.
- Take ownership of company’s possession and assets.
- Willing to learn and take instruction explicitly.
- Physically and mentally fit, healthy and alert at all times.
- Ideas for continuous improvement

ELECTRIFICATION SUPERVISOR (LEVEL 3)
This role may also be called: Nil

A Electrification Supervisor is responsible to perform and preserve reliability of the asset by performing routine maintenance as indicated in the maintenance schedule, ensure all safety procedures are strictly adhered to by all staff while working on, close to or adjacent to equipment in the railways electrification system and attend to any incident on site, assist and advice the engineers in investigation of equipment failure or incident and suggest or implement procedure/station re-occurrence.

Responsibilities may include:

- Organize, supervise and monitor electrification system maintenance activity including routine or corrective and preventive maintenance.
- Ensure maintenance being done according to technical specification & requirements.
- Organize and perform the switching and isolation work in order to provide safe working environment for the staff as well as other contractors to work on, closed to or adjacent to the railway electrification system.
- Recommend alterations/implementation on maintenance schedule or procedures to improve the reliability of the equipment and systems.
- Ensure that all staff strictly follow all safety procedures, close to or adjacent to overhead line equipment in the railway electrification system.
- Attend any electrification system incident on site, assist and advice engineer on investigating of equipment failure and suggest or implement procedure/solution to prevent re-occurrence.
- Ensure all tools and equipment being used for switching & isolation activity and high voltage equipment's are tested and meets the safety requirements.
- Responsible for monitoring and update key performance indicator (i.e. tripping analysis), compile records, summarize and produce monthly tripping report for electrification department.
- Adhere strictly to operational health and safety practices at all time
- Assist station superior in administrative job such as data collections, recording and preparing reports.
- Report irregularities or abnormalities immediately to immediate superior.
- Attend meetings and trainings specified by the department and company from time to time.

Knowledge, Skills, Attributes
Electrification Supervisor requirements:

- Understand business processes, standards and regulations.
- Good team player and able to work together with all levels of cross-functional team.
- Non-disclosure of company's confidential information.
- Possess relevant knowledge and skills.
- Critical and analytical in solving problems.
- High level of dedication and responsibility.

- Take ownership of company's possession and assets.
- Willing to learn and take instruction explicitly.
- Physically and mentally fit, healthy and alert at all times.
- Ideas for continuous improvement
- Cost, Quality & Safety conscious
- Supervisory skills
- Communication skills
- People management skills

ASSOCIATE, SOFTWARE MAINTENANCE (LEVEL 4)

This role may also be called: Nil

An Associate, Software Maintenance is responsible to manage and monitor preventive, corrective and major maintenance to ensure the implementation is conducted as per business plan and budget, in accordance with Standard Operating Procedures, safety and regulatory requirements to achieve AFC system availability and reliability targets, in supporting rail operations.

Responsibilities may include:

- Assist superior to conduct internal assessment on the internal capabilities and resources for the development of preventive and corrective annual maintenance plan and budget and ensure that all activities are aligned to the plan.
- Analyze and reports on performance variance (Plan vs. Actual) and propose corrective actions. Initiate transformation initiatives such as cost saving for effective maintenance operations.
- Plan, manage and execute resources requirements and availability (manpower, tools and equipment, parts, training) to undertake preventive/corrective/major maintenance work at the entire mainline based on Preventive/Corrective/Major Maintenance Plan and Schedule.
- Monitor and analyze the implementation of preventive/corrective/major maintenance work conducted by sub-ordinates and provide technical advice and coaching to ensure work is done according to SOP and meets the allocated budget.
- Conduct investigation and prepare accidents/incidents report, propose and recommend preventive/improvement to avoid recurrence and lessons learnt.
- Implement improvement recommendations from superior against maintenance analyst reports on failure management such as re-engineering, modifications, rectification, change or re-design to minimize/reduce future service failures.
- Drive, enforce and ensure maintenance safety policies, procedures and guidelines are adhered by all related parties towards zero incidents/accidents.
- Identify and prepare reports on the assets stocktaking either to be used, replaced or disposed.
- Plan, manage and execute cost optimisation and improvement activities. Review results consistently to ensure objectives are achieved.
- Identify potential risks of systems failure to mitigate system down time affecting rail operations activities.
- Participate in the selection of system contractors via tenders exercise and review contractor’s performance as per contract terms and conditions stipulated.

Knowledge, Skills, Attributes

Associate Software Maintenance requirements:

- Understand objectives, business processes, standards and regulations.
- Good team player and able to work together with all levels of cross-functional team.
- Non-disclosure of company's confidential information.
- Possess relevant knowledge and skills.
- Critical and analytical in solving problems.

- High level of dedication and responsibility.
- Take ownership of company's possession and assets.
- Willing to learn and take instruction explicitly.
- Physically and mentally fit, healthy and alert at all times.
- Ideas for continuous improvement
- Cost, Quality & Safety conscious
- Administrative skills
- Management Skills
- Communication and presentation skills
- Interpersonal skills
- Communication skills
- People management skills

FIELD MAINTENANCE TECHNICIAN (LEVEL 2)
This role may also be called: Nil

A Field Maintenance Technician is designated to conduct and perform maintenance activities (preventive and corrective) on AFC systems and equipment.

Responsibilities may include:

- Conduct and perform maintenance preventive and corrective activities as per AFC Maintenance Plan and Budget, ensuring AFC systems and equipment are well maintained.
- Perform trouble-shooting and repair of Automatic Fare Collection (AFC) systems/ equipment.
- Assist superior in determining the right corrective actions to be taken.
- Provide technical support by conducting installation, testing and commissioning of AFC system and equipment at site.
- Comply and observe AFC Maintenance Standard Operating Procedures while conducting maintenance activities.
- Attend to breakdown calls and rectify faults of equipment.
- Close work orders for the preventive and corrective maintenance work.
- Prepare and update failure reports and submitted to superior for review and further action.
- Ensure sufficient tools and equipment for maintenance activities.
- Ensure the safety procedures are adhered.
- Ensure all work comply with Standard Operating Procedure (SOP).

Knowledge, Skills, Attributes
Field Maintenance Technician requirements:

- Understand business processes, standards and regulations.
- Good team player and able to work together with all levels of cross-functional team.
- Non-disclosure of company's confidential information.
- Possess relevant qualification, knowledge and skills.
- Critical and analytical in solving problems.
- High level of dedication and responsibility.
- Take ownership of company’s possession and assets.
- Willing to learn and take instruction explicitly.
- Physically and mentally fit, healthy and alert at all times.
- Ideas for continuous improvement

FIELD MAINTENANCE SUPERVISOR (LEVEL 3)
This role may also be called: Nil

A Field Maintenance Supervisor is designated to ensure preventive and corrective maintenance activities are performed accordingly.

Responsibilities may include:

- Plan, manage and assign sufficient manpower requirements to conduct maintenance activities at stations.
- Monitor the preventive and corrective maintenance of Automatic Fare Collection (AFC) equipment and completion of all work orders.
- Ensure proper closing of work orders and all failures recorded and entered into the appropriate maintenance system to ensure proper recording of the failures to enable further analysis.
- Prepare the shift schedules of staff and maintenance activities for smooth implementations of Automatic Fare Collection (AFC) activities.
- Monitor staff activities at stations to ensure compliance to policies and procedures for proper maintenance works are carried out and downtime of equipment is reduced.
- Carry out the relevant maintenance system operations with regard to the Automatic Fare Collection (AFC) maintenance.
- Monitor the consumables, materials, tools and equipment required by the technicians to carry out works and feedback for maintenance analysis.
- Be on standby throughout the operational hours for major Automatic Fare Collection (AFC) failures downtime.
- Adhere strictly to operational health and safety practices at all times
- Assist station superior in administrative job such as data collections, recording and preparing reports.
- Report irregularities or abnormalities immediately to immediate superior.
- Attend meetings and trainings specified by the department and company from time to time.

Knowledge, Skills, Attributes
Field Maintenance Supervisor requirements:

- Understand business processes, standards and regulations.
- Good team player and able to work together with all levels of cross-functional team.
- Non-disclosure of company's confidential information.
- Possess relevant knowledge and skills.
- Critical and analytical in solving problems.
- High level of dedication and responsibility.
- Take ownership of company’s possession and assets.
- Willing to learn and take instruction explicitly.
- Physically and mentally fit, healthy and alert at all times.
- Ideas for continuous improvement
- Cost, Quality & Safety conscious

- Supervisory skills
- Communication skills
- People management skills

QUALITY ASSURANCE TECHNICIAN (LEVEL 2)
This role may also be called: Nil

A QA Technician is responsible to implement Quality Assurance plan on Rail Division to ensure compliance with ISO requirements, Standard Operating Procedures (SOP), safety policy and guidelines, rule book and authorities' rules and regulations.

Responsibilities may include:

- Perform QA Audit regularly and periodically accordingly to the audit plan and milestone.
- Provide technical assistance to the unit on matters relating to quality assurance, calibration and noise and vibration measurement.
- Undertake testing and commissioning activities on any systems or equipment prior to operation (new/train and system under quarantine) to ensure it meets the required specifications.
- Identify tools and equipment to be calibrated as per OEM requirements (based on time and frequency of usage).
- Calibrate tools and equipment in house to the required level of specification to ensure it fits the purpose.
- Undertake EIA (Environment Impact Assessment) along the railway alignment using the appropriate measuring equipment to measure noise and vibration level caused by the train movement which may impact publics' comfort and convenient.
- Generate EIA report on noise and vibration pollution due to wear and tear of the system and equipment for supervisor review.

Knowledge, Skills, Attributes
A QA Technician needs:

- Understand business processes, standards and regulations.
- Good team player and able to work together with all levels of cross-functional team.
- Non-disclosure of company's confidential information.
- Possess relevant qualification, knowledge and skills in testing and troubleshooting equipment.
- Critical and analytical in solving problems.
- High level of dedication and responsibility.
- Take ownership of company's possession and assets.
- Willing to learn and take instruction explicitly.
- Physically and mentally fit, healthy and alert at all times.
- Ideas for continuous improvement
- Understand electrical/mechanical diagrams and drawings

QUALITY ASSURANCE SUPERVISOR (LEVEL 3)
This role may also be called: Nil

A QA Supervisor is responsible to supervise, control and monitor Quality Assurance plan on Rail Division to ensure compliance with ISO requirements, Standard Operating Procedures (SOP), safety policy and guidelines, rule book and authorities' rules and regulations.

Responsibilities may include:

- Conduct quality audit to ensure rail division staff adhere to the quality management system requirements.
- Supervise quality audit plan implementation to ensure rail division's departments comply with ISO requirements, SOP, safety policy and guidelines, rule book and rules & regulations stipulated by authorities.
- Perform testing and commissioning activities on any system or equipment prior to operation to ensure it meets the required specifications.
- Supervise and monitor third parties activities to minimize risk of accidents and incidences occurrence resulting from operation disruptions that may lead to loss to life, asset and environment.
- Provide technical assistance to rail division and external parties on matters relating to quality management system, calibration, noise & vibration measurement for Rail Division's existing projects or future projects.
- Provide reports to justify performance achievement.
- Adhere strictly to operational health and safety practices at all times.
- Assist superior in administrative job such as data collections, recording and preparing reports.
- Report irregularities or abnormalities immediately to immediate superior.
- Attend meetings and trainings specified by the department and company from time to time.

Knowledge, Skills, Attributes
A QA Supervisor needs:

- Understand business processes, standards and regulations.
- Good team player and able to work together with all levels of cross-functional team.
- Non-disclosure of company's confidential information.
- Possess relevant knowledge and skills.
- Critical and analytical in solving problems.
- High level of dedication and responsibility.
- Take ownership of company's possession and assets.
- Willing to learn and take instruction explicitly.
- Physically and mentally fit, healthy and alert at all times.
- Ideas for continuous improvement
- Cost, Quality & Safety conscious
- Supervisory skills

- Communication skills
- People management skills

QA TECHNICAL SUPPORT TECHNICIAN (LEVEL 2)
This role may also be called: Nil

A QA Technical Support Technician is responsible to implement Technical Support activities at site in the areas of project coordination, third party coordination and licensing renewal.

Responsibilities may include:

- Undertake inspection of incoming equipment, tools and spare parts to ensure it meet the right specifications and functionality.
- Conduct incoming inspection for all equipment, tools and spare parts procured to determine it's operational before storing at warehouse.
- Attend and monitor projects implementation at site (Line Extension, Train Refurbishment, Fleet Expansion etc.).
- Prepare status report on project progression and ensure activities do not disrupt rail operation at rail division's right of way.
- Monitor third party works at the railway protection zone.
- Prepare progress report and highlight issues/concerns that have impact on current and future rail operations.
- Undertake testing and commissioning activities on any systems or equipment prior to operation (new/train and system under quarantine) to ensure it meets the required specifications
- Provide technical assistance to the unit on matters relating to project coordination and incoming inspection.

Knowledge, Skills, Attributes
A QA Technical Support Technician needs:

- Understand business processes, standards and regulations.
- Good team player and able to work together with all levels of cross-functional team.
- Non-disclosure of company's confidential information.
- Possess relevant qualification, knowledge and skills in testing and troubleshooting equipment.
- Critical and analytical in solving problems.
- High level of dedication and responsibility.
- Take ownership of company's possession and assets.
- Willing to learn and take instruction explicitly.
- Physically and mentally fit, healthy and alert at all times.
- Ideas for continuous improvement
- Understand electrical/mechanical diagrams and drawings

QA TECHNICAL SUPPORT SUPERVISOR (LEVEL 3)
This role may also be called: Nil

A QA Technical Support Supervisor is responsible to supervise, control and guide the implementation of Quality Assurance plan for Rail Division to ensure compliance with ISO requirements, standard operating procedures (SOP), safety policy and guidelines, Rule Book and authorities' rules & regulations.

Coordinate and implement technical support activities to support rail division's operation in the areas of project coordination, third party coordination, licensing renewal and incoming inspection of inventory items.

Responsibilities may include:

- Supervise and monitor the tools and equipment calibration level of specification to ensure it fits the purpose.
- Guide in EIA (Environment Impact Assessment) along the railway alignment using the appropriate measuring equipment to measure noise and vibration level caused by the train movement which may impact publics' comfort and convenience.
- Assist subordinate to perform EIA report on noise and vibration pollution due to wear and tear of the system and equipment for supervisor review.
- Provide support to undertake testing and commissioning activities on any systems or equipment prior to operation (new/train and system under quarantine) to ensure it meets the required specifications.
- Render technical assistance to the unit on matters relating to quality assurance, calibration and noise and vibration measurement.
- Provide training to subordinate with matters concerning QA technical support.
- Adhere strictly to operational health and safety practices at all time.
- Assist superior in administrative job such as data collections, recording and preparing reports.
- Report irregularities or abnormalities immediately to immediate superior.
- Attend meetings and trainings specified by the department and company from time to time.

Knowledge, Skills, Attributes
A QA Technical Support Supervisor needs:

- Understand business processes, standards and regulations.
- Good team player and able to work together with all levels of cross-functional team.
- Non-disclosure of company's confidential information.
- Possess relevant knowledge and skills.
- Critical and analytical in solving problems.
- High level of dedication and responsibility.
- Take ownership of company's possession and assets.
- Willing to learn and take instruction explicitly.
- Physically and mentally fit, healthy and alert at all times.

- Ideas for continuous improvement
- Cost, Quality & Safety conscious
- Supervisory skills
- Communication skills
- People management skills

QA ENGINEERING TECHNICIAN (LEVEL 2)
This role may also be called: Nil

QA Engineering Technician is responsible to undertake technical work at site (depot and mainline) to do fabrication, wiring, testing and commissioning works of major maintenance failures, implementing the approved solution plans.

Responsibilities may include:

- Undertake technical work at site (depot and mainline) to do fabrication, wiring, testing and commissioning works of major maintenance failures, implementing the approved solution plans.
- Test and commission all systems or equipment that required to be tested and commissioned prior to operation (new/train and system under quarantine).
- Prepare test and commissioning report on system or equipment that do not meet the required specifications.
- Conduct site inspection on all equipment, tools and spare parts procured for acceptance and to determine its operational function-ability before storing at warehouse.
- Conduct measurement on certain tools and equipment system to ensure its conformance to the required standards.
- Provide technical assistance to the unit on matters relating to fabrication, wiring, testing and technical drawing.

Knowledge, Skills, Attributes
A QA Engineering Technician needs:

- Understand business processes, standards and regulations.
- Good team player and able to work together with all levels of cross-functional team.
- Non-disclosure of company's confidential information.
- Possess relevant qualification, knowledge and skills in testing and troubleshooting equipment.
- Critical and analytical in solving problems.
- High level of dedication and responsibility.
- Take ownership of company’s possession and assets.
- Willing to learn and take instruction explicitly.
- Physically and mentally fit, healthy and alert at all times.
- Ideas for continuous improvement
- Understand electrical/mechanical diagrams and drawings

QA ENGINEERING SUPERVISOR (LEVEL 3)

This role may also be called: Nil

QA Engineering Supervisor is responsible to supervise technical work at site (depot and mainline) to do fabrication, wiring, testing and commissioning works of major maintenance failures.

Responsibilities may include:

- Supervise technical work at site (depot and mainline) performed by technicians including fabrication, wiring, testing and commissioning works according to the approved plans.
- Test and commission all systems or equipment that required to be tested and commissioned prior to operation (new/train and system under quarantine).
- Prepare test and commissioning report on system or equipment that do not meet the required specifications.
- Conduct site inspection on all equipment, tools and spare parts procured for acceptance and to determine its operational function-ability before storing at warehouse.
- Conduct measurement on certain tools and equipment system to ensure its conformance to the required standards.
- Provide technical assistance to the unit on matters relating to fabrication, wiring, testing and technical drawing.
- Adhere strictly to operational health and safety practices at all time
- Assist superior in administrative job such as data collections, recording and preparing reports.
- Report irregularities or abnormalities immediately to immediate superior.
- Attend meetings and trainings specified by the department and company from time to time.

Knowledge, Skills, Attributes

A QA Engineering Supervisor needs:

- Understand business processes, standards and regulations.
- Good team player and able to work together with all levels of cross-functional team.
- Non-disclosure of company's confidential information.
- Possess relevant knowledge and skills.
- Critical and analytical in solving problems.
- High level of dedication and responsibility.
- Take ownership of company’s possession and assets.
- Willing to learn and take instruction explicitly.
- Physically and mentally fit, healthy and alert at all times.
- Ideas for continuous improvement
- Cost, Quality & Safety conscious
- Supervisory skills
- Communication skills
- People management skills

OPERATIONAL SAFETY EXECUTIVE (LEVEL 4)
This role may also be called: Nil

An Operational Safety Executive is responsible in supervising and coordinating all safety and security related activities in line with the department and company objective and mission.

Responsibilities may include:

- Responsible in supervising and coordinating all Safety & Security Department activities in line with the department and company's objective and mission.
- Assist the superior in ensuring all approved policies, procedures and procedures are dissiminated in a proper and timely manner within the department and where applicable, throughout the department/company.
- Ensure the timely preparation of all papers, reports and relevant documents for the department/company, statutory bodies and any others as and when required.
- Provide solution and/or improvements towards the overall department's activities. Assist superior in the supervision of the implementation of improvements as directed by management and superior.
- Suggest improvements which will benefit the company as well as the department's operations effectiveness and efficiency, and subsequently assist superior in the supervision and administering the implementation of the improvements.
- Undertake all other assignments and duties as instructed by the superior and management.
- Ensure all legal requirements are met accordingly.
- Assist in supporting the General Management for all safety & health related matters.
- Manage all safety & health inspection along all the company system.
- Assist superior in conducting safety & health briefing and audit at workplace.
- Assist superior in ensuring department's target is achieved.
- Assist superior in managing safety & health matters.

Knowledge, Skills, Attributes
Operational Safety Executive requirements:

- Understand objectives, business processes, standards and regulations.
- Good team player and able to work together with all levels of cross-functional team.
- Non-disclosure of company's confidential information.
- Possess relevant knowledge and skills.
- Critical and analytical in solving problems.
- High level of dedication and responsibility.
- Take ownership of company's possession and assets.
- Willing to learn and take instruction explicitly.

- Physically and mentally fit, healthy and alert at all times.
- Ideas for continuous improvement
- Cost, Quality & Safety conscious
- Administrative skills
- Management Skills
- Communication and presentation skills
- Interpersonal skills
- Communication skills
- People management skills

OPERATIONAL HEALTH SUPERVISOR (LEVEL 3)
This role may also be called: Nil

An Operational Health Supervisor is responsible in supervising and coordinating all operational health related activities in line with the department and company's objective and mission.

Responsibilities may include:

- Assist in implementation and supervising policy and procedures for operational health.
- Ensure department's target on operational health aspect is achieved.
- Respond to the emergency calls and report to Operation Control Centre.
- Report any incident and accident to Operation Control Centre.
- Liase with the police, medical services and the Fire and Rescue Department in case of an emergency.
- Make proposal in improvement of operational health aspects.
- Prepare and conduct operational health training course for stations and both contact and non-contractual employees.
- Prepare reports of operational health standards and conditions.
- Follow up on operational health issues identified during committee meeting and monitor that they are being resolved or corrected.
- Initiate investigation and preparing report for severe health relatd issues when and as required.
- Supervise overall train operational health on a routine basis to ensure compliance on health standard.
- Carry out operational health audit on train operations periodically.

Knowledge, Skills, Attributes
Operational Health Supervisor requirements:

- Understand business processes, standards and regulations.
- Good team player and able to work together with all levels of cross-functional team.
- Non-disclosure of company's confidential information.
- Possess relevant knowledge and skills.
- Critical and analytical in solving problems.
- High level of dedication and responsibility.
- Take ownership of company's possession and assets.
- Willing to learn and take instruction explicitly.
- Physically and mentally fit, healthy and alert at all times.
- Ideas for continuous improvement
- Cost, Quality & Safety conscious
- Supervisory skills
- Communication skills
- People management skills

ENVIRONMENTAL EXECUTIVE (LEVEL 4)
This role may also be called: Nil

An Environmental Executive is responsible to manage the overall Quality, Environment Management System (QEMS). Ensure that the processes needed for QEMS are put in place and improved periodically, related documents are established, periodical audits are planned, follow-up and non-conformance actions are identified. He/She also plans, promote and organise QEMS awareness training and activities for increased awareness among employees.

Responsibilities may include:

- Ensure that process needed for the QEMS are established, implemented, maintained and continuallu improved.
- Responsible to establish, implement, maintain document and continuously improve safety policy and adhere to all reporting compliance.
- Responsible in supervising and coordinating Quality and Enviromental Management System activities in line with the company's objective and mission.
- Plan Quality and Environmental yearly schedule, internal audit and devising audit checks.
- Ensure that the processess needed for QEMS are established, implemented , documented, maintained and continually improved.
- Ensure proper implementation of the Quality and Enviromental Management System (QEMS), follow-up on non-conformance or opportunity for improvement and actions identified during Quality and Enviromental Management System audits (internal or external).
- Plan, promote and organise Quality and Enviromental Management System awareness training and its activity.
- Ensure proper planing,maintained the training records for QEMS.
- Ensure all documentation related to QEMS are up-to-date and maintained.
- Assist superior to manage and co-ordinate QEMS meeting.

Knowledge, Skills, Attributes
Environmental Executive requirements:

- Understand objectives, business processes, standards and regulations.
- Good team player and able to work together with all levels of cross-functional team.
- Non-disclosure of company's confidential information.
- Possess relevant knowledge and skills.
- Critical and analytical in solving problems.
- High level of dedication and responsibility.
- Take ownership of company's possession and assets.
- Willing to learn and take instruction explicitly.

- Physically and mentally fit, healthy and alert at all times.
- Ideas for continuous improvement
- Cost, Quality & Safety conscious
- Administrative skills
- Management Skills
- Communication and presentation skills
- Interpersonal skills
- Communication skills
- People management skills

SAFETY, HEALTH & ENVIRONMENTAL MANAGER (LEVEL 5)
This role may also be called: Nil

A Safety Health & Environmental Manager is responsible to manage the overall Safety, Health and Environmental (SHE) governance and requirements of the company. Ensure that the processes needed for SHE is put in place and improved periodically, related documents are established, periodical audits are planned, follow-up and non-conformance actions are identified. He/She also plans, promote and organise SHE awareness training and activities for increased awareness among employees.

Responsibilities may include:

- Ensure that process and governance needed for the SHE are established, implemented, maintained and continually improved.
- Responsible to establish, implement, maintain document and continuously improve safety policy and adhere to all reporting compliance.
- Responsible in supervising and coordinating Quality and Enviromental Management System activities in line with the company's objective and mission.
- Plan for Quality and Environmental yearly schedule, internal audit and devising audit checks.
- Ensure that the processess needed for SHE are established, implemented , documented, maintained and continually improved.
- Ensure proper implementation of the SHE, follow-up on non-conformerce or opportunity for improvement and actions identified during Quality and Enviromental Management System audits (internal or external).
- Plan, promote and organise SHE awareness training and its activity.
- Ensure proper planing,maintained the training records for SHE.
- Ensure all documentation related to SHE are up-to-date and maintained.
- Assist superior to manage and co-ordinate SHE meeting.
- Create an empowered workplace to motivate all employees to engage and take ownership in the company's interest and to achieve company's goals and objectives
- Conduct performance evaluation for confirmation, increment and promotion, etc.

Knowledge, Skills, Attributes
Safety Health & Environmental Manager requirements:

- Understand mission, visions, objectives, business processes, standards and regulations.
- Good team player and able to work together with all levels of cross-functional team.
- Non-disclosure of company's confidential information.
- Possess relevant knowledge and skills.

- Critical and analytical in solving problems.
- High level of dedication and responsibility.
- Take ownership of company's possession and assets.
- Willing to learn and take instruction explicitly.
- Physically and mentally fit, healthy and alert at all times.
- Ideas for continuous improvement
- Cost, Quality & Safety conscious
- Profit conscious
- Administrative skills
- Management Skills
- Communication and presentation skills
- Interpersonal skills
- Leadership skills
- People management skills
- Entrepreneurship skills

ELECTRICAL FACILITY MAINTENANCE TECHNICIAN (LEVEL 2)
This role may also be called: Nil

An Electrical Facility Maintenance Technician is responsible to perform scheduled and unscheduled maintenance activities on workshop equipment, vehicle and depot building according to the O&M manuals and procedures as assigned in accordance with SOP to meet company's objective and mission.

Responsibilities may include:

- Ensure all the scheduled and uncsheduled maintenance done in accordance with O&M manuals and comply with the safety regulation.
- Ensure the workplace is maintained in a clean, tidy and safe condition at all times.
- Ensure all tools, machines and equipment used are in a safe and legal condition
- Ensure the maintenance record and checklist are properly updated and compliance with the manual and procedures
- Ensure defective/repairable parts removed/replaced are properly recorded & labelled.
- Assist supervisor to monitor and delegate scheduled and unscheduled maintenance activities on workshop equipment, vehicle and depot building according to the O&M manuals and procedures as assigned.
- Check and certify by signature that work is completed to a satisfactory and safe standard prior to returning the trains & equipment to service.
- Monitor system status as assigned.
- Manage allocated staff under the assigned shift.
- Update the trains & equipment, maintenance & operation records
- Plan and arrange train movement in & out as required.
- Be on standby as required for accidents, incidents or emergencies
- Assist superior in monitoring and supervising in order to comply with Quality Management and to assist the department in maintaining ISO standard.

Knowledge, Skills, Attributes
Electrical Facility Maintenance Technician requirements:

- Understand business processes, standards and regulations.
- Good team player and able to work together with all levels of cross-functional team.
- Non-disclosure of company's confidential information.
- Possess relevant electrical facility knowledge and skills.
- Understand electrical diagrams and drawings
- Critical and analytical in solving problems.

- High level of dedication and responsibility.
- Take ownership of company's possession and assets.
- Willing to learn and take instruction explicitly.
- Physically and mentally fit, healthy and alert at all times.
- Ideas for continuous improvement

ELECTRICAL FACILITY MAINTENANCE SUPERVISOR (LEVEL 3)
This role may also be called: Nil

An Electrical Facility Maintenance Supervisor is responsible to assign, monitor and control scheduled and unscheduled maintenance activities on workshop equipment, vehicle and depot building according to the O&M manuals and procedures as assigned in accordance with SOP to meet company's objective and mission.

Responsibilities may include:

- Ensure all scheduled and uncsheduled maintenance are done in accordance with O&M manuals and comply with the safety regulation.
- Ensure the workplace is maintained in a clean, tidy and safe condition at all times.
- Ensure all tools, machines and equipment used are in a safe and legal condition
- Ensure the maintenance record and checklist are properly updated and compliance with the manual and procedures
- Ensure defective/repairable parts removed/replaced are properly recorded & labelled.
- Supervise, monitor and delegate scheduled and unscheduled maintenance activities on workshop equipment, vehicle and depot building according to the O&M manuals and procedures as assigned.
- Check and certify by signature that work is completed to a satisfactory and safe standard prior to returning the trains & equipment to service.
- Monitor system status as assigned.
- Manage allocated staff under the assigned shift.
- Update the trains & equipment maintenance & operation records
- Plan and arrange train movement in & out as required.
- Be on standby as required for accidents, incidents or emergencies.
- Identify training needs, prepare and conduct trainings.
- Assist superior in monitoring and supervising in order to comply with Quality Management and to assist the department in maintaining ISO standard.
- Adhere strictly to operational health and safety practices at all times
- Assist superior in administrative job such as data collection, recording and preparing reports.
- Report irregularities or abnormalities immediately to immediate superior.
- Attend meetings and trainings specified by the department and company from time to time.

Knowledge, Skills, Attributes

Electrical Facility Maintenance Supervisor requirements:

- Understand business processes, standards and regulations.
- Good team player and able to work together with all levels of cross-functional team.
- Non-disclosure of company's confidential information.
- Possess relevant knowledge and skills.
- Critical and analytical in solving problems.

- High level of dedication and responsibility.
- Take ownership of company's possession and assets.
- Willing to learn and take instruction explicitly.
- Physically and mentally fit, healthy and alert at all times.
- Ideas for continuous improvement
- Cost, Quality & Safety conscious
- Supervisory skills
- Communication skills
- People management skills

MECHANICAL FACILITY MAINTENANCE TECHNICIAN (LEVEL 2)
This role may also be called: Nil

A Mechanical Facility Maintenance Technician is responsible to perform scheduled and unscheduled maintenance activities on workshop equipment, vehicle and depot building according to the O&M manuals and procedures as assigned in accordance with SOP to meet company's objective and mission.

Responsibilities may include:

- Ensure all scheduled and uncsheduled maintenance done in accordance with O&M manuals and comply with the safety regulation.
- Ensure the workplace is maintained in a clean, tidy and safe condition at all times
- Ensure all tools, machines and equipment used are in a safe and legal condition
- Ensure the maintenance record and checklist are properly updated and compliance with the manual and procedures
- Ensure defective/repairable parts removed/replaced are properly recorded & labelled.
- Assist supervisor to monitor and delegate scheduled and unscheduled maintenance activities on workshop equipment, vehicle and depot building according to the O&M manuals and procedures as assigned.
- Check and certify by signature that work is completed to a satisfactory and safe standard prior to returning the trains & equipment to service.
- Monitor system status as assigned.
- Manage allocated staff under the assigned shift.
- Update the trains & equipments, maintenance & operation records
- Plan and arrange train movement in & out as required.
- Be on standby as required for accidents, incidents or emergencies.
- Assist superior in monitoring and supervising in order to comply with Quality Management and to assist the department in maintaining ISO standard.

Knowledge, Skills, Attributes
Mechanical Facility Maintenance Technician requirements:

- Understand business processes, standards and regulations.
- Good team player and able to work together with all levels of cross-functional team.
- Non-disclosure of company's confidential information.
- Possess relevant mechanical facility knowledge and skills.
- Understand mechanical diagrams and drawings
- Critical and analytical in solving problems.
- High level of dedication and responsibility.

- Take ownership of company's possession and assets.
- Willing to learn and take instruction explicitly.
- Physically and mentally fit, healthy and alert at all times.
- Ideas for continuous improvement

MECHANICAL FACILITY MAINTENANCE SUPERVISOR (LEVEL 3)
This role may also be called: Nil

A Mechanical Facility Maintenance Supervisor is responsible to assign, monitor and control scheduled and unscheduled maintenance activities on workshop equipment, vehicle and depot building according to the O&M manuals and procedures as assigned in accordance with SOP to meet company's objective and mission.

Responsibilities may include:

- Ensure all scheduled and unsheduled maintenance done in accordance with O&M manuals and comply with the safety regulation.
- Ensure the workplace is maintained in a clean, tidy and safe condition at all times.
- Ensure all tools, machines and equipment used are in a safe and legal condition.
- Ensure the maintenance record and checklist are properly updated and compliance with the manual and procedures.
- Ensure defective/repairable parts removed/replaced are properly recorded & labelled.
- Supervise, monitor and delegate scheduled and unscheduled maintenance activities on workshop equipment, vehicle and depot building according to the O&M manuals and procedures as assigned.
- Check and certify by signature that work is completed to a satisfactory and safe standard prior to returning the trains & equipment to service.
- Monitor system status as assigned.
- Manage allocated staff under the assigned shift.
- Update the trains & equipments, maintenance & operation records
- Plan and arrange train movement in & out as required.
- Be on standby as required for accidents, incidents or emergencies.
- Identify training needs, prepare and conduct trainings.
- Assist superior in monitoring and supervising in order to comply with Quality Management and to assist the department in maintaining ISO standard.
- Adhere strictly to operational health and safety practices at all times.
- Assist superior in administrative job such as data collection, recording and preparing reports.
- Report irregularities or abnormalities immediately to immediate superior.
- Attend meetings and trainings specified by the department and company from time to time.

Knowledge, Skills, Attributes

Mechanical Facility Maintenance Supervisor requirements:

- Understand business processes, standards and regulations.
- Good team player and able to work together with all levels of cross-functional team.
- Non-disclosure of company's confidential information.
- Possess relevant knowledge and skills.
- Critical and analytical in solving problems.

- High level of dedication and responsibility.
- Take ownership of company's possession and assets.
- Willing to learn and take instruction explicitly.
- Physically and mentally fit, healthy and alert at all times.
- Ideas for continuous improvement
- Cost, Quality & Safety conscious
- Supervisory skills
- Communication skills
- People management skills

BUILDING MAINTENANCE GENERAL WORKER (LEVEL 1)
This role may also be called: Nil

A Building Maintenance General Worker is responsible to perform and improve the reliability of asset utilization by performing routine building maintenance, cleaning, preventive maintenance work, etc. in accordance with standard industry practices and instructions specified by superior.

Responsibilities may include:

- Perform periodic maintenance of building facilities.
- Assists in carrying out troubleshooting activities.
- Conduct survey on building maintenance requirements.
- Perform site cleaning and housekeeping.
- Perform mobilization of equipment and material for building maintenance.
- Carry out ground inspection of building periodically.
- Adhere strictly to operational health and safety practices at all times.
- Complete all daily report timely and accurately.
- Report irregularities or abnormalities immediately to immediate superior.

Knowledge, Skills, Attributes
Building Maintenance General Worker requirements:

- Possess relevant education, knowledge and experiences.
- High level of dedication and responsibility
- Take ownership of company possessions and asset
- Non-disclosure of company's confidential information
- Ability to work as a team
- Willing to learn and take instruction explicitly
- Working at heights and confined space
- Physically and mentally fit, healthy and alert at all times.
- Ideas for continuous improvement

BUILDING MAINTENANCE TECHNICIAN (LEVEL 2)
This role may also be called: Nil

A Building Maintenance Technician is responsible to perform scheduled and unscheduled maintenance activities for the building according to the O&M manuals and procedures as assigned in accordance to SOP to meet company's objective and mission.

Responsibilities may include:

- Ensure all scheduled and uncsheduled maintenance done in accordance with O&M manuals and comply with the safety regulation.
- Ensure the workplace is maintained in a clean, tidy and safe condition at all times.
- Ensure all tools, machines and equipment used are in a safe and legal condition.
- Ensure the maintenance record and checklist are properly updated and compliance with the manual and procedures.
- Ensure defective/repairable parts removed/replaced are properly recorded & labelled.
- Assist supervisor to monitor and delegate scheduled and unscheduled building maintenance activities in accordance to the O&M manuals and procedures.
- Monitor system status as assigned.
- Manage allocated staff under the assigned shift.
- Update daily builsing maintenance records and logs.
- Be on standby as required for accidents, incidents or emergencies.
- Assist HOD in monitoring and supervising in order to comply with Quality Management and to assist the department in maintaining ISO standard.

Knowledge, Skills, Attributes
Building Maintenance Technician requirements:

- Understand business processes, standards and regulations.
- Good team player and able to work together with all levels of cross-functional team.
- Non-disclosure of company's confidential information.
- Possess relevant building and facility maintenance knowledge and skills.
- Critical and analytical in solving problems.
- High level of dedication and responsibility.
- Take ownership of company's possession and assets.
- Willing to learn and take instruction explicitly.
- Physically and mentally fit, healthy and alert at all times.
- Ideas for continuous improvement

BUILDING MAINTENANCE SUPERVISOR (LEVEL 3)
This role may also be called: Nil

A Building Maintenance Supervisor is responsible to assign, monitor and control scheduled and unscheduled maintenance activities for the building according to the O&M manuals and procedures as assigned in accordance with the SOP to meet company's objective and mission.

Responsibilities may include:

- Ensure all the scheduled and uncsheduled maintenance done in accordance with O&M manuals and comply with the safety regulation.
- Ensure the workplace is maintained in a clean, tidy and safe condition at all times.
- Ensure all tools, machines and equipment used are in a safe and legal condition.
- Ensure the maintenance record and checklist are properly updated and compliance with the manual and procedures
- Ensure defective/repairable parts removed/replaced are properly recorded & labelled.
- Supervise, monitor and delegate scheduled and unscheduled building maintenance activities in accordance with the O&M manuals and procedures as assigned.
- Check and certify by signature that work is completed to a satisfactory and safe standard prior to returning tools and equipment.
- Monitor system status as assigned.
- Manage allocated staff under the assigned shift.
- Update daily records and logs and ensure all information is accurately filled up by subordinates.
- Be on standby as required for accidents, incidents or emergencies.
- Identify training needs, prepare and conduct trainings.
- Assist superior in monitoring and supervising in order to comply with Quality Management and to assist the department in maintaining ISO standard.
- Adhere strictly to operational health and safety practices at all times.
- Assist superior in administrative job such as data collections, recording and preparing reports.
- Report irregularities or abnormalities immediately to immediate superior.
- Attend meetings and trainings specified by the department and company from time to time.

Knowledge, Skills, Attributes
Building Maintenance Supervisor requirements:

- Understand business processes, standards and regulations.
- Good team player and able to work together with all levels of cross-functional team.
- Non-disclosure of company's confidential information.
- Possess relevant knowledge and skills.
- Critical and analytical in solving problems.
- High level of dedication and responsibility.

- Take ownership of company's possession and assets.
- Willing to learn and take instruction explicitly.
- Physically and mentally fit, healthy and alert at all times.
- Ideas for continuous improvement
- Cost, Quality & Safety conscious
- Supervisory skills
- Communication skills
- People management skills