# a. Data Analytics and Management

Data forms the backbone of I4.0 and a robust data governance and management framework is required for any organization, including land transport industry. Data analytics helps businesses in optimizing performance and allow for better decision making leading to productivity improvements and cost savings. Data is also an enabler for other core technologies such as Artificial Intelligence and predictive maintenance which relies heavily on data as foundation for its learning algorithms.

In the land transport industry, data-driven work such as providing inputs for collecting the right type of data, modelling, developing algorithms, synthesizing, and interpreting data with the assistance of visualization tools will be required as manual inspection works are expected to reduce with the use of robots and software. Mobilized manhours will shift from labour intensive tasks to value-added work such as process improvement and preventive maintenance.

Hence, an emerging role from this area, would be a Data Analyst/ Data Engineer with the following persona for illustration.

## EMERGING JOB ROLES IN INDUSTRY 4.0 - DATA ANALYTICS AND MANAGEMENT

# Data Analyst / Data Engineer

#### JOB DESCRIPTION

The Data Analyst / Data Engineer integrates data from various sources, sanitizes data and performs analysis to support business functions. He/ she designs, implements and maintains data flows and data processing systems.

#### KEY RESPONSIBILITIES

- Utilize development tools to generate reports, dashboards, sanitize and prepare data to suit business needs.
- Contribute as part of the project team and coordinates with internal teams to develop projections of outcomes for implementing business strategies.
- Assist in data collection, processing, data warehousing, parsing, analysing and visualising large sets of data.
- Identify key information needed for decisionmaking, recommend types of data and sources needed to obtain the information and propose solutions and recommendations.

Source(s): SSG Skills Framework, Company careers portals, KPMG Analysis

#### SKILLS AND REQUIREMENTS

- . Business innovation Identify and evaluate digitalization and innovative business opportunities.
- Business needs analysis Identify and scope business requirements through data gathering and analysis.
- . Data analytics Implement data synthesis to generate business insights and intelligence.
- Data engineering Implement efficient processes to collect, store, extract, transform and integrate data.
- Data visualization Utilize tools such as Tableau, Power BI, JavaScript to design interactive illustrative and graphics.
- Design thinking Apply methodologies to solve specific challenges of the organization.

The Data Analyst / Data Engineer supports multiple business functions from operations and maintenance of rail systems to corporate services such as finance and CT and is needed in organizations such as rail operators and OEMs. He/ she is mobilized to provide expertise in data management techniques in specific business functions and work with core teams who are technical experts in their respective domains.

#### EXAMPLE OF HIRING COMPANIES

Figure 13 Data Analyst/ Data Engineer Persona

- LTA
- SMRT
- MTR Hong Kong
- Transport for NSW
- · Deutsche Bahn
- Siemens
- CloudMoyo

## **EDUCATION AND EXPERIENCE**

- Bachelor Degree in Statistics, Data Science, Computer Science or equivalent
- 0-3 years of relevant working experience
- Proficiency with fundamental front end languages
- Experienced in User Experience (UX) design and data analytics



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