JOB PROFILE FORM

1. JOB DETAILS

WAP (Admin ONLY):

Position Title: Data Scientist – Asset Analytics

Team: Strategic Asset Management

Division: Asset Lifecycle Planning

Unit: : Asset Lifecycle Planning

Group: Asset Services

Reports to (Name / Title): Manager Data Science and Modelling

2. WHAT DOES THIS JOB DO?

Job Purpose:

Use machine learning and advanced analytics to solve complex, real-world infrastructure challenges across the asset lifecycle — from design through to decommissioning. This role transforms operational, spatial, and customer data into actionable insights that inform risk-based investment decisions, improve asset reliability, and drive measurable improvements in service performance and cost efficiency.

Operating with a high degree of autonomy, the Data Scientist leads the development and deployment of predictive models that support proactive asset management, strategic planning, and operational optimisation. Working within the Asset Data Science and Modelling team, the role collaborates closely with engineers, planners, and analysts to embed data-driven decision-making across the organisation and uplift analytical maturity in the asset domain.

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Responsibilities:

Advanced Analytics & Predictive Modelling

- Design, develop, validate, and deploy predictive models (e.g. failure prediction, remaining useful life, degradation curves) to support proactive asset management.
- Quantify and clearly communicate model uncertainty and limitations to support risk-aware decision-making.
- Apply statistical and multivariate analysis techniques to identify key drivers of asset performance and service outcomes.

Decision Support & Communication

- Translate complex modelling outputs into clear, actionable recommendations to inform asset strategy, maintenance prioritisation, and investment planning.
- Develop and maintain interactive dashboards and visualisations (e.g. Power BI) to communicate insights to technical and non-technical stakeholders across the business.

Data Architecture & Governance

- Work closely with data engineers to design and maintain automated data pipelines, ensuring a trusted, analytics-ready environment.
- Contribute to data quality improvement efforts and the discoverability of key asset datasets, aligning with governance and metadata standards.

Stakeholder Engagement & Capability Uplift

- Collaborate with engineers, planners, and operational teams to co-design analytics solutions that align with business needs.
- Lead informal training, workshops, and "analytics clinics" to build data literacy and foster a culture of evidence-based decision-making.

Innovation & Continuous Improvement

- Monitor emerging analytics and AI/ML techniques (e.g. graph neural networks, AutoML) and assess their applicability to asset management use cases.
- Define, track, and communicate model performance metrics (e.g. forecast accuracy, reduction in reactive maintenance) and lead retraining cycles to ensure sustained value.

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3. WHAT ATTRIBUTES ARE REQUIRED TO UNDERTAKE THIS JOB?

3A. WHAT KEY SKILLS OR EXPERIENCES ARE REQUIRED TO COMPLETE THIS JOB?

Skill/ Experience	**Level of Skill/ Experience** i.e. Basic / intermediate/ Advanced	**Years of Experience** (optional)
Machine Learning & Predictive Modelling Proven ability to develop, validate, and apply machine learning models (e.g. regression, classification, survival analysis) using appropriate techniques such as cross-validation, hyperparameter tuning, and performance evaluation.	Advanced	
Programming and Data Preparation Extensive skills in Python (e.g. pandas, NumPy, scikit-learn) and experience preparing complex, multi-source datasets for analysis. Ability to work autonomously through the full modelling lifecycle.	Advanced	
Data Extraction and Querying Demonstrated experience using SQL to extract and transform data from enterprise systems and analytical platforms.	Intermediate	
Modern Data Platforms and Workflow Tools Familiarity with contemporary data and analytics platforms (e.g. Databricks), including experience working with version control, notebook environments, and ML lifecycle tools such as MLflow or Delta Live Tables.	Intermediate	
Data Visualisation and Communication Demonstrated ability to develop interactive dashboards and reports (e.g. Power BI), including use of DAX, to communicate findings to technical and non-technical stakeholders.	Intermediate	
Stakeholder Engagement and Communication Strong interpersonal and written communication skills, with the ability to translate complex analytical concepts into clear, actionable insights for a diverse range of stakeholders.	Intermediate	
Collaboration and Autonomy Demonstrated ability to work independently and as part of multidisciplinary teams, including engineers, planners, analysts, and IT staff, to co-design and deliver practical analytics solutions.	Intermediate	

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3B. WHAT DEVELOPMENT BUILDS THE CAPABILITY FOR THIS ROLE?

PEEPS will capture training or certifications that a person requires to undertake their job activities. When completing this section, do not only consider performance effectiveness, but also consider auditing and safety compliance requirements. When a person is associated with a job, but does not have the required skills, the manager and person will be notified.

	Mandatory/ Highly Desirable/ Suggested?	**Method of Training** (e.g. certificate, ticket, observation, on-the-job etc....)	**Renewal Required** (Y/N/Unsure)	**Renewal Frequency** (e.g. Never, 1 year, 5 years etc....)
Qualifications / Certificates				
Degree in Data Science, Computer Science, Mathematics, Engineering or related field	Mandatory	Formal degree (Bachelor)	No	N/A
Postgraduate degree (e.g. Masters in Data Science / Statistics, or PhD in Bioinformatics / Mathematics / Information Science)	Highly Desirable	Formal degree (Postgraduate)	No	N/A
Proficiency in programming languages (Python, SQL) and cloud-based data platforms (e.g. Databricks, Azure)	Mandatory	On-the-job experience, internal or external training, certifications (optional)	No	N/A
Knowledge of asset management standards and lifecycle planning frameworks (e.g. ISO 55000, risk-based decision-making)	Suggested	On-the-job learning, observation, internal workshops	No	N/A

3C. WHAT ARE THE CRITICAL PERSONAL ATTRIBUTES REQUIRED FOR THIS JOB?

Personal Attributes *i.e., such as resilience, emotional intelligence*	• Stakeholder engagement skills, able to bridge technical and non-technical domains. • Systems thinking and ability to build an understanding of how assets, data and decisions interact across the business. • Curiosity and creativity, with a desire to use data to improve value and customer outcomes.

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3D. WHAT ARE THE KEY PHYSICAL, OR ENVIRONMENTAL REQUIREMENTS OF THE ROLE?

Key requirements *i.e. required to lift heavy boxes* *Note: some field-based roles will need to complete additional requirements for the role (Complete this form here)*	Primarily desk-based work for extended periods, with appropriate breaks. Movement around office environments. Occasional site visits. Reasonable adjustments can be made available to support accessibility.
Key requirements *i.e. required to lift heavy boxes* *Note: some field-based roles will need to complete additional requirements for the role (Complete this form here)*	Hybrid working - meeting stakeholders, leaders and impacted teams at the Mitcham office and at other sites as directed (e.g. treatment plants or other external sites) to build a strong understanding of the YVW "business" and to develop effective relationships.

4. WHAT CAREER PATH IS POSSIBLE IN THIS ROLE

Role before (Name, Team, Division)	Data Scientist, Graduate Data Scientist, Data Analyst
Role after (Name, Team, Division)	Senior Data Scientist/ Senior Data Analyst