SKILLS FRAMEWORK FOR INFOCOMM TECHNOLOGY
SKILLS MAP – DATA ENGINEER

Sector	Infocomm Technology
Track	Data and Artificial Intelligence
Sub-Track	Data Engineering
Occupation	Data Engineer
Job Role	**Data Engineer**
Job Role Description	The Data Engineer supports the design, implementation and maintenance of data flow channels and data processing systems that support the collection, storage, batch and real-time processing, and analysis of information in a scalable, repeatable and secure manner. He/She focuses on defining optimal solutions to data collection, processing and warehousing. He designs, codes and tests data systems and works on implementing those into the internal infrastructure. He focuses on collecting, parsing, managing, analysing and visualising large sets of data to turn information into insights accessible through multiple platforms. He is proficient in database systems, scripting and programming languages required by the organisation. He is also familiar with the relevant software platforms on which the solution is deployed on. The Data Engineer is passionate about numbers and works with large data sets. He has a keenness for understanding business processes and resolving challenges in order to provide solutions with the help of clean and interlinked databases and architectures.

	Critical Work Functions	**Key Tasks**
Critical Work Functions and Key Tasks	**Identify business needs**	Identify suitable data structures based on business needs to ensure availability and accessibility of data
		Determine technical system requirements based on data needs
		Keep abreast of latest technologies and products in database and data processing software, and technologies
	Build and maintain data pipeline	Assist in building scalable data pipelines to extract, transform, load and integrate data
		Develop codes and scripts to process structured and unstructured data in real-time from a variety of data sources
		Test data pipelines for scalability and reliability to process high data volume, variety and velocity
		Consolidate and create data storage solutions for storage and retrieval of information
		Develop prototypes and Proof-of-Concepts for data solutions
		Monitor data system performance
		Support the handling and logging of errors
		Develop backup data archiving systems to ensure system continuity
		Implement and monitor data security and privacy measures on existing data solutions
	Optimise solution performance	Assist in the integration of data systems with existing infrastructure
		Develop tools to improve data flows between internal and/or external systems and the data warehouse
		Automate the data collection and analysis processes, data releasing and reporting tools
		Test data system configurations to increase efficiency

	Technical Skills and Competencies		**Generic Skills and Competencies**	
Skills and Competencies	Business Needs Analysis	Level 2	Leadership	Intermediate
	Change Management	Level 3	Developing People	Intermediate
	Computational Modelling	Level 3	Communication	Intermediate
	Configuration Tracking	Level 1, Level 2	Transdisciplinary Thinking	Intermediate

	Data Design	Level 3	Computational Thinking	Intermediate
	Data Engineering	Level 3		
	Data Ethics	Level 4		
	Data Governance	Level 4		
	Data Migration	Level 3		
	Database Administration	Level 3		
	Emerging Technology Synthesis	Level 4		
	Project Management	Level 4		
	Quality Standards	Level 4		
	Security Architecture	Level 3		
	Stakeholder Management	Level 3		
	Strategy Implementation	Level 3		
	System Integration	Level 4		
Programme Listing	For a list of Training Programmes available for the ICT sector, please visit: www.skillsfuture.sg/skills-framework/ict			

The information contained in this document serves as a guide.