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| **SKILLS FRAMEWORK FOR INFOCOMM TECHNOLOGY SKILLS MAP – SENIOR DATA ENGINEER** | | | | | | |
| **Sector** | Infocomm Technology | | | | | |
| **Track** | Data and Artificial Intelligence | | | | | |
| **Sub-track** | Data Engineering | | | | | |
| **Occupation** | Data Engineer | | | | | |
| **Job Role** | **Senior Data Engineer** | | | | | |
| **Job Role Description** | The Senior Data Engineer designs, implements and oversees maintenance of data flow channels and data processing systems that support the collection, storage, batch and real-time processing, and analysis of information from structured and unstructured sources in a scalable, repeatable and secure manner. He/She assists data scientists with the extraction of valuable insights from data sets to derive valuable and actionable insights and recommendations that support business requirements. He involves in rollouts, upgrades, implementation and release of data system changes as required for streamlining of internal practices.  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 Senior Data Engineer possesses natural inclination for understanding business processes and relevant data requirements. He easily builds rapport with others and is able to put forth his ideas and recommendations in a persuasive manner, to influence stakeholders and decisions. | | | | | |
| **Critical Work Functions, Key Tasks and Performance Expectations** | **Critical Work Functions** | **Key Tasks** | | | | **Performance Expectations** |
| **Identify business needs** | Assess the suitability of data structures to ensure availability, integrity, quality, scalability and accessibility of data | | | | In accordance with:     * Model AI Governance Framework |
| Translate business' data needs to technical system requirements | | | |
| Evaluate suitability of technologies and products in database and data processing for integration and storage | | | |
| **Build and maintain data pipeline** | Build data flow channels and processing systems to extract, transform, load and integrate data | | | |
| Validate data extraction, preparation and processing systems for accuracy of data and outputs | | | |
| Create data storage plans and solutions for information storage and extraction | | | |
| Lead project rollouts, upgrades, implementation and release of data system changes | | | |
| Analyse data system performance and develop solutions for improvements | | | |
| Build a metadata system to ensure documentation and cataloguing of all available data | | | |
| Formulate data backup and fail-safe plans as part of business continuity planning | | | |
| Ensure the security, privacy and anonymity of users accessing data systems | | | |
| **Optimise performance of solutions** | Evaluate existing technologies and technology practices | | | |
| Resolve data integrity, performance, and availability issues | | | |
| Identify opportunities for improvements and optimisation to systems and processes | | | |
| Automate processes focusing on repeatability and reliability | | | |
| **Skills and Competencies** | **Technical Skills and Competencies** | | | **Generic Skills and Competencies (Top 5)** | | |
| Business Needs Analysis | | Level 3 | Leadership | Advanced | |
| Change Management | | Level 4 | Developing People | Intermediate | |
| Computational Modelling | | Level 4 | Communication | Intermediate | |
| Configuration Tracking | | Level 3 | Transdisciplinary Thinking | Advanced | |
| Data Design | | Level 4 | Computational Thinking | Advanced | |
| Data Engineering | | Level 4 |  | | |
| Data Ethics | | Level 5 |
| Data Governance | | Level 5 |
| Data Migration | | Level 4 |
| Data Strategy | | Level 5 |
| Database Administration | | Level 4 |
| Emerging Technology Synthesis | | Level 5 |
| Learning and Development | | Level 4 |
| Manpower Planning | | Level 4 |
| People and Performance Management | | Level 3 |
| Project Management | | Level 5 |
| Quality Standards | | Level 4 |
| Security Architecture | | Level 3 |
| Stakeholder Management | | Level 4 |
| Strategy Implementation | | Level 4 |
| Strategy Planning | | Level 4 |
| System Integration | | Level 5 |
| **Programme Listing** | For a list of Training Programmes available for the ICT sector, please visit: www.skillsfuture.sg/skills-framework/ict | | | | | |
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| The information contained in this document serves as a guide. | | | | | | |