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| **SKILLS FRAMEWORK FOR INFOCOMM TECHNOLOGY SKILLS MAP – HEAD OF SOFTWARE ENGINEERING** | | | | | | |
| **Sector** | Infocomm Technology | | | | | |
| **Track** | Product Development | | | | | |
| **Sub-track** | Software Development | | | | | |
| **Occupation** | Software Engineer | | | | | |
| **Job Role** | **Head of Software Engineering** | | | | | |
| **Job Role Description** | The Head of Software Engineering defines the software development vision and strategy. He/She also ensures alignment with the organisation’s architecture. He anticipates the impact of external technological developments on the organisation's software architecture and strategy, ensuring that the software development strategy and processes keep pace with the latest data protection and cyber security practices and guidelines. He maintains oversight on the organisation’s software deployment strategy, facilitates the seamless implementation and integration of software, and oversees the translation of business requirements to software development initiatives and projects. He also evaluates the viability of recommended changes in software development methodologies, processes and standards for implementation.  He works in a team setting and is proficient in programming languages required by the organisation. He is familiar with the relevant platforms and embedded systems on which the software solution is deployed on. He is also knowledgeable of microprocessor and microcontroller-based hardware components.  The Head of Software Engineering liaises and negotiates with external suppliers and sets operating policies. He displays a forward-looking perspective, inspirational and decisive in envisioning the future of software and applications. He is an influential leader who communicates his ideas persuasively and engages with his team members and other stakeholders. | | | | | |
| **Critical Work Functions and Key Tasks** | **Critical Work Functions** | **Key Tasks** | | | | |
| **Develop software development strategy** | Define software development vision and strategy in alignment with the organisation’s architecture | | | | |
| Oversee the organisation’s investments in software development | | | | |
| Ensure that the software development strategy and processes keep pace with the latest data protection and cyber security practices and guidelines | | | | |
| Anticipate the impact of external technological developments on the organisation's software architecture and strategy | | | | |
| Define the organisation’s DevOps strategy, guidelines and standards | | | | |
| **Oversee software development** | Explore new methodologies in software development | | | | |
| Facilitate the seamless implementation and integration of software | | | | |
| Evaluate processes and design methodologies to be used in software design | | | | |
| Act as a subject matter expert in software design, development, and deployment | | | | |
| Maintain oversight on the organisation’s software deployment strategy | | | | |
| Forecast new and emerging software requirements and changes to software based on evolving business requirements | | | | |
| Oversee the translation of business requirements to software development initiatives and projects | | | | |
| Direct commercial discussions and negotiations with partners and vendors involved in the development of software products | | | | |
| Drive the adoption of new and novel methodologies in software design and development | | | | |
| **Establish standards and governance for software engineering** | Formulate the organisation’s software development governance framework and processes | | | | |
| Establish Key Performance Indicators (KPIs) and Service Level Agreements (SLAs) for the implementation and monitoring of software | | | | |
| Evaluate the suitability of best practices in software development for implementation in the organisation | | | | |
| Evaluate the viability of recommended changes in software development methodologies, processes and standards for implementation | | | | |
| **Manage people and organisation** | Review operational strategies, policies and targets across teams and projects | | | | |
| Develop strategies for resource planning and utilisation | | | | |
| Review the utilisation of resources | | | | |
| Oversee the development of learning roadmaps for teams and functions | | | | |
| Establish performance indicators to benchmark effectiveness of learning and development programmes against best practices | | | | |
| Implement succession planning initiatives for key management positions | | | | |
| Advise stakeholders toward reaching compromises and agreeing on expectations | | | | |
| **Skills and Competencies** | **Technical Skills and Competencies** | | | **Critical Core Skills** | | |
| Agile Coaching\* | | Level 5 | Communication | | Advanced |
| Agile Software Development\* | | Level 6 | Decision Making | | Advanced |
| Applications Development\* | | Level 5 | Developing People | | Advanced |
| Applications Integration\* | | Level 5 | Problem Solving | | Advanced |
| Budgeting\* | | Level 5 | Transdisciplinary Thinking | | Advanced |
| Continuous Integration and Continuous Deployment\* | | Level 5 |  | | |
| Enterprise Architecture\* | | Level 4, Level 5 |
| Infrastructure Design\* | | Level 5 |
| IT Strategy\* | | Level 5 |
| Learning and Development\* | | Level 5, Level 6 |
| Manpower Planning\* | | Level 4, Level 5 |
| Networking\* | | Level 5 |
| Partnership Management\* | | Level 5 |
| People and Performance Management\* | | Level 4, Level 5 |
| Performance Management\* | | Level 5 |
| Quality Standards\* | | Level 5, Level 6 |
| Software Design\* | | Level 6 |
| Stakeholder Management\* | | Level 5 |
| Strategy Planning\* | | Level 5 |
| System Integration\* | | Level 6 |
| Business Environment Analysis | | Level 4 |
| Business Innovation | | Level 6 |
| Business Needs Analysis | | Level 5 |
| Business Negotiation | | Level 5 |
| Business Performance Management | | Level 5 |
| Business Requirements Mapping | | Level 5 |
| Change Management | | Level 5 |
| Emerging Technology Synthesis | | Level 5 |
| Organisational Analysis | | Level 5 |
| Product Management | | Level 6 |
| Project Management | | Level 6 |
| Service Level Management | | Level 6 |
| Software Testing | | Level 4 |
| Solution Architecture | | Level 5 |
| Strategy Implementation | | Level 4 |
| Test Planning | | 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. | | | | | | |

\*Note: Technical Skills and Competencies (TSCs) with an asterisk (\*) refer to Priority Skills (i.e., TSCs to be prioritised for this role).