ESKITP4085
IT/Technology Infrastructure Design and Planning Level 5 Role

Overview

This sub-discipline is part of overall service design. It concerns the design of, and planning for, resilient IT/ technology infrastructure and environments.

This sub-discipline is about the competencies required to design and plan for the implementation of, the hardware, network and software infrastructure supporting the IT/technology application services, systems, services and assets used to support an organisation. IT/ hardware technology hardware, software and network infrastructure may exist both within a single organisation and also be shared/span across multiple organisations. Infrastructure hardware, software and networks are usually implemented as a result of business demands which indirectly require changes to the infrastructure. IT/technology infrastructure design and planning may also be a proactive activity in terms of trying to improve the availability of systems, services and assets to support service objectives.

Hardware infrastructure may include:

- Processors
- Storage devices
- Mobile devices
- Input and output devices
- Any other items of hardware required for the provision of IT/technology systems, services and systems assets for an organisation

Software infrastructure may include:

- Systems management software such as operating system software
- Database management software
- Software tools
- Storage management software
- Middleware for connecting applications and other components
- Web services
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Network infrastructure includes network specific network and hardware comprises and all of the components necessary for any type of network, whether hard wired or wireless, which support the provision of IT services, systems and assets for an organisation.

This sub-discipline requires not only technical understanding of individual hardware, software or network products and services (or any combination of these) but also the architectural principles, standards and protocols that must be applied within the design of the infrastructure.
Individuals working within this area may have competencies relating solely to hardware, software or networks or a combination of these elements of the IT/technology infrastructure.

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Performance criteria

Prepare for IT/technology infrastructure design and planning activities

You must be able to:

P1 Correctly identify the implications of current and future business and customer needs on IT/technology infrastructure design and planning activities

P2 Correctly identify any potential implications of designing IT/technology infrastructure that makes use of external infrastructure products, services, and equipment either wholly or partially

P3 Correctly identify where design work associated with IT/technology infrastructure design and planning activities for individual components or groups of components can be allocated to appropriate individuals of teams

P4 Verify the accuracy, currency, completeness and relevance of all information used during IT/technology infrastructure design and planning activities

P5 Verify the reliability of information about the capabilities and availability of IT/technology products, services and items of equipment

Implement IT/technology infrastructure design and planning activities

You must be able to:

P6 Correctly identify and effectively implement strategy, policies, processes, tools and techniques to use for IT/technology infrastructure design and planning activities

P7 Effectively manage the alignment of IT/technology infrastructure design and planning deliverables with the business requirements, IT/technology architecture and other analysis deliverables and any relevant legislation, regulations and external standards, in line with organisational strategy, policies and standards

P8 Source any appropriate technical expertise required to inform and guide IT/technology infrastructure design and planning activities

P9 Critically analyse all relevant business and customer needs so that they can direct and inform any IT/technology infrastructure design and planning activities

P10 Critically analyse current IT/technology architecture, design and configuration management deliverables for infrastructure products, services and equipment so that they may direct and guide IT/technology infrastructure design and planning activities

P11 Effectively allocate the design of individual IT/technology infrastructure components or groups of components to appropriate individuals or teams and coordinate and manage their design efforts, as directed

Maintain effective IT/technology infrastructure design and planning deliverables

You must be able to:

P12 Routinely monitor the cost and complexity of new IT/technology

infrastructure designs and the quality and effectiveness of all IT/technology infrastructure design and planning activities, reporting any issues and findings to superiors

P13 Provide effective and timely advice and guidance to other individuals on the total effort, elapsed time, risk, complexity and cost that may be required to develop, test and implement new designs for IT/technology infrastructure products, services and equipment

P14 Develop accurate and viable business cases and proposals for any changes to, replacements or refreshes of, IT/technology infrastructure ensuring that the designs and plans fall within approved cost guidelines, under direction

P15 Critically review the designs, plans and any benefits and business case including the total effort, elapsed time, risk, complexity and cost for any IT/technology infrastructure design and planning assignment managed by other individuals

P16 Act decisively and promptly in the event of the deliverables of IT/technology infrastructure design and planning activities not supporting the business needs and IT/technology architecture and analysis deliverables and/or being inadequate, inaccurate, insufficient and/or inappropriate

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Knowledge and understanding

Prepare for IT/technology infrastructure design and planning activities

You need to know and understand:

K1 Identify

K1.1 where design work associated with IT/technology infrastructure design and planning activities for individual components/groups of components can be allocated to appropriate individuals/teams

K1.2 the strategy, policies, processes, tools and techniques to use for IT/technology infrastructure design and planning activities and their deliverables

K1.3 the processes, tools and techniques to monitor the alignment of IT/technology infrastructure design and planning activities and their deliverables with all relevant legislation, regulations and external standards

K1.4 the processes, tools and techniques to monitor the quality and effectiveness of IT/technology infrastructure design and planning activities and their deliverables

K1.5 lessons learned from previous IT/technology infrastructure design and planning activities and experiences

K1.6 when and how to source, use and apply best practice in IT/technology infrastructure design and planning

K1.7 internal and external factors that could impact on IT/technology infrastructure design and planning activities and their deliverables

K1.8 who are the sponsors of and stakeholders for IT/technology infrastructure design and planning activities

K1.9 any legislation, regulations and external standards that may apply to IT/technology infrastructure design and planning activities

K1.10 the implications of business and customer needs on IT/technology infrastructure design and planning activities

K1.11 any issues that may impact on IT/technology design and planning activities and their deliverables

K1.12 clearly defined benefits and a business case for any changes to and/or replacements/refreshes of IT/technology infrastructure that are required

K1.1 internal and external factors affecting IT/technology design and planning activities and their deliverables

K1.2 future service, capacity and availability needs that the IT/technology infrastructure needs to provide

K1.3 technical standards for infrastructure products/services and/or equipment during IT/technology infrastructure design and planning activities

K1.4 the interdependency and functionality of any infrastructure products/services and/or equipment during IT/technology infrastructure design and planning activities

K1.5	benefits and disadvantages of using external providers of IT/technology infrastructure design and planning services
K1.6	implications of internal and external factors on IT/technology infrastructure design and planning activities and their deliverables
K1.7	architecture, design and configuration principles and standards that apply to infrastructure supporting an organisation
K1.8	implications of failings in integrity, confidentiality and information security during IT/technology infrastructure design and planning activities
K1.9	implications of any legislation, regulations and external standards on IT/technology infrastructure design and planning activities and their deliverables
K1.10	the potential implications of poor quality IT/technology infrastructure designs and plans on the operation of an organisation
K1.11	potential implications of designing IT/technology infrastructure that makes use of external infrastructure products/services, and/or equipment either wholly or partially
K1.12	advantages and disadvantages of using particular individual IT/technology components and brands within IT/technology infrastructures
K1.13	current IT/technology architecture, design and configuration management deliverables for infrastructure products/services and/or equipment during IT/technology infrastructure design and planning activities
K1.14	any further business requirements that are identified so that they can be reflected in infrastructure design and planning activities
K1.15	issues involved in the external hosting of infrastructure
K2	Verify
K2.1	the accuracy, currency, completeness and relevance of information used during IT/technology infrastructure design and planning activities
K2.2	the reliability of information data and knowledge about the capabilities and availability of IT/technology products/services and/or items equipment
K2.3	the total effort, elapsed time, risk, complexity and cost that may be required to develop, test and implement new designs for infrastructure products/services and/or equipment
K3	What
K3.1	legislation, regulations and external standards may apply to IT/technology infrastructure design and planning activities and their deliverables
K3.2	is best practice in IT/Technology Infrastructure design and planning activities
K3.3	is the range of internal and external factors that could result in issues arising with infrastructure design and planning activities

Implement IT/technology infrastructure design and planning activities

You need to know and understand:

K4	Source appropriate technical expertise during IT/technology infrastructure design and planning activities
K5	Design business cases and proposals for any changes to or replacements, refreshes of IT/technology infrastructure
K6	Analyse
K6.1	lessons learned from previous IT/technology infrastructure design and planning activities and experiences
K6.2	business and customer needs
K6.3	future service, capacity and availability needs that the IT/technology infrastructure needs to provide
K6.4	technical standards for IT/technology infrastructure products, services and equipment during IT/technology infrastructure design and planning activities
K6.5	the interdependency and functionality of any IT/technology infrastructure products, services and equipment during IT/technology infrastructure design and planning activities
K6.6	current IT/technology architecture, design and configuration management deliverables for IT/technology infrastructure products, services and equipment during IT/technology infrastructure design and planning activities
K6.7	any further business requirements that are identified so that they can be reflected in IT/technology infrastructure design and planning activities
K7	Apply
K7.1	the processes, tools and techniques to monitor the alignment of IT/technology infrastructure design and planning activities and their deliverables with all relevant legislation, regulations and external standards
K7.2	the processes, tools and techniques to monitor the quality and effectiveness of IT/technology infrastructure design and planning activities and their deliverables
K7.3	the processes, tools, techniques and plans to monitor the alignment of IT/technology infrastructure design and planning activities and their deliverables with any relevant legislation, regulations and external standards
K7.4	strategy and policies to ensure the alignment of IT/technology infrastructure design and planning activities and their deliverables with all relevant legislation, regulations and external standards
K7.5	the processes, tools and techniques to monitor the alignment of IT/technology infrastructure design and planning activities and their deliverables with business needs, service delivery/operation objectives

and the service strategy

K7.6 information to support reporting of the performance of IT/technology infrastructure design and planning activities against targets/metrics

K7.7 the most appropriate approaches that may be taken to IT/technology infrastructure design and planning activities in a range of business and organisational contexts

K7.8 information relating to the capabilities and performance of existing or potential external providers of IT/technology infrastructure design and planning services

K8 Document

K8.1 all of the deliverables from infrastructure design and planning activities

K8.2 recommendations as a result of infrastructure design and planning assignments

K9 Implement and maintain

K9.1 metrics to measure the performance of IT/technology infrastructure design and planning activities

K9.2 standards relating to IT/technology infrastructure design and planning activities

K9.3 the processes, tools and techniques to use for IT/technology infrastructure design and planning activities and their deliverables

K9.4 the processes, tools and techniques to monitor the quality and effectiveness of IT/technology infrastructure design and planning activities and their deliverables

K9.5 strategy and policies to ensure the alignment of IT/technology infrastructure design and planning activities and their deliverables with all relevant legislation, regulations and external standards

K9.6 the processes, tools and techniques to monitor the alignment of IT/technology infrastructure design and planning activities and their deliverables with business needs, service delivery, operation objectives and the service strategy

K9.7 the processes, tools and techniques to monitor the alignment of IT/technology infrastructure design and planning activities and their deliverables with IT/technology architecture, analysis and design activities

K9.8 the processes, tools and techniques to monitor the alignment of IT/technology infrastructure design and planning activities and their deliverables with any relevant legislation, regulations and external standards

K9.9 the processes, tools and techniques to monitor the quality and effectiveness of external providers of IT/technology infrastructure design and planning services

Maintain effective IT/technology infrastructure design and planning deliverables

You need to know and understand:

K10	Manage
K10.1	the design efforts of groups and individuals to enable the production of holistic designs for IT/technology infrastructure products/services and/or equipment
K10.2	relationships with external providers of IT/technology infrastructure design and planning services
K10.3	issues arising as a result of internal or external factors in IT/technology infrastructure design and planning activities
K10.4	actions in the event of the deliverables from IT/technology infrastructure design and planning activities being inadequate, incomplete, inaccurate and/or inappropriate
K10.5	any issues arising from a particular IT/technology infrastructure design and planning assignment
K10.6	the impact of any internal and external factors on a particular IT/technology infrastructure design and planning assignment
K10.7	the accuracy, currency and completeness of any IT/technology infrastructure design and planning deliverables
K10.8	the alignment of IT/technology infrastructure design and planning deliverables with the business requirements
K10.9	the alignment of IT/technology infrastructure design and planning activities with IT/technology architecture and other analysis deliverables
K10.10	the alignment of IT/technology infrastructure design and planning activities and their deliverables with any relevant legislation, regulations and external standards, in line with organisational strategy, policies and standards
K10.11	relationships with external providers of IT/technology infrastructure design and planning services
K10.12	relationships with sponsors of and stakeholders for IT/technology infrastructure design and planning activities
K11	Monitor
K11.1	the cost and complexity of new IT/technology infrastructure designs
K11.2	the quality and effectiveness of IT/technology infrastructure design and planning activities
K11.3	the alignment of IT/technology infrastructure design and planning activities and their deliverables with any relevant legislation, regulations and external standards
K11.4	the alignment of IT/technology infrastructure design and planning activities and their deliverables with IT/technology architecture, analysis and design activities
K12	Review

K12.1	clearly defined benefits and a business case for any changes to and/or replacements/refreshes of IT/technology infrastructure
K12.2	IT/technology infrastructure designs and plans
K12.3	the total effort, elapsed time, risk, complexity and cost that may be required to develop, test and implement new designs for infrastructure products/services and/or equipment
K12.4	how effective IT/technology infrastructure designs and plans can improve the efficiency and effectiveness of IT/technology services, systems and assets
K13	Take action/measures
K13.1	to allocate the design or individual IT/technology infrastructure components or groups of components to appropriate individuals/teams
K13.2	to co-ordinate the design efforts of groups and individuals to produce holistic designs for IT/technology infrastructure products/services and/or equipment
K13.3	to minimise the total effort, elapsed time, risk, complexity and cost that may be required to develop, test and implement new designs for infrastructure products, services and equipment
K13.4	to integrate IT/technology infrastructure design and planning activities and their deliverables, where appropriate, into projects and programmes, where appropriate
K13.5	to establish effective relationships with external providers of IT/technology infrastructure design and planning services
K13.6	in the event of the deliverables of IT/technology infrastructure design and planning activities being inadequate, inaccurate, insufficient and/or inappropriate
K13.7	to take account of any internal or external factors affecting IT/technology infrastructure design and planning activities or their deliverables
K13.8	in the event of IT/technology infrastructure design and planning activities not supporting the business needs and IT/technology architecture and analysis deliverables
K13.9	in the event of external providers not providing the appropriate quality of IT/technology infrastructure design and planning service
K13.10	to ensure IT/technology infrastructure designs and plans fall within approved cost guidelines
K13.11	that sensitive business information is not disclosed inappropriately during IT/technology infrastructure design and planning activities
K13.12	IT/technology infrastructure designs enable other design work to be fulfilled
K14	Report
K14.1	the results from monitoring the alignment of IT/technology infrastructure design and planning activities and their deliverables with any relevant legislation, regulations and external standards

K14.2	the results from monitoring the alignment of IT/technology infrastructure design and planning activities and their deliverables with IT/technology architecture, analysis and design activities
K14.3	any issues arising from IT/technology infrastructure design and planning activities
K14.4	findings from monitoring the quality and effectiveness of IT/technology infrastructure design and planning activities and their deliverables
K15	Advise and guide others on the total effort, elapsed time, risk, complexity and cost that may be required to develop, test and implement new designs for IT/technology infrastructure products, services and equipment
K16	The need for monitoring the quality and effectiveness of external providers of IT/technology infrastructure design and planning services
K17	The processes, tools and techniques that can be used to monitor the quality and effectiveness of external providers of IT/technology infrastructure design and planning services

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