ESKITP4084
IT/Technology Infrastructure Design and Planning Level 4 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

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.

ESKITP4084

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Performance criteria

Contribute to preparing for IT/technology infrastructure design and planning activities

You must be able to:

P1 Correctly implement and maintain the processes, tools and techniques to use for IT/technology infrastructure design and planning activities

P2 Accurately source any relevant IT/technology architecture, design and configuration principles and standards that apply to IT/technology infrastructure supporting an organisation, so that it may be used to inform any IT/technology infrastructure design and planning assignment conducted by self or others

P3 Accurately source all relevant information in order to estimate the effort, cost, complexity, risk and elapsed time for any IT/technology infrastructure decommissioning, replacement option(s) and prepare a business case, under direction

P4 Correctly identify what are the available IT/technology equipment, products and services that can be considered when designing and planning IT/technology infrastructure, under direction

Manage and implement, under supervision, IT/technology infrastructure design planning activities

You must be able to:

P5 Correctly identify any potential implications of business change, projects, programmes, organisational design and/or business process design, redesign activities on IT/technology infrastructure design and planning activities

P6 Correctly identify what information is required to assess the suitability of infrastructure components that is used in IT/technology infrastructure design and planning activities

P7 Correctly use current IT/technology architecture, design and configuration management deliverables in order to inform and guide IT/technology infrastructure design and planning activities

P8 Critically analyse all relevant information from service improvement and service quality plans and other related design activities that may affect IT/technology infrastructure design and planning activities

P9 Consider the available and suitable IT/technology equipment, products and services when designing and planning IT/technology infrastructure

Manage, under supervision, progression of the IT/technology infrastructure designs

You must be able to:

P10 Effectively manage the progress of any IT/technology infrastructure design and planning assignment, reporting progress to sponsors, stakeholders and superiors as required

P11 Effectively manage individuals and teams producing individual IT/technology infrastructure components or groups of components, under direction

P12 Ensure that all changes to replacements or refreshes of IT/technology infrastructure are supported by clearly defined benefits and a viable business case that contains accurately assed costs and complexity

P13 Ensure that IT/technology infrastructure designs support the business needs

P14 Clearly present, to sponsors, stakeholders and superiors, the designs and plans and a clearly defined benefits and business case which incorporates the total effort, elapsed time, risk, complexity and cost for any IT/technology infrastructure design and planning assignment

Knowledge and understanding

You need to know and understand:

Prepare, under supervision, for IT/technology infrastructure design and planning activities

K1 Source

K1.1 information regarding the progress of the design and planning of individual IT/technology infrastructure components

K1.2 IT/technology architecture, design and configuration principles and standards that apply to infrastructure supporting an organisation

K1.3 future service, capacity and availability needs that the IT/technology infrastructure needs to provide

K1.4 current architecture, design and configuration management deliverables for infrastructure products, services and equipment during IT/technology infrastructure design and planning activities

K1.5 information in order to estimate the effort, cost, complexity, risk and elapsed time for any IT/technology infrastructure decommissioning/replacement option(s)

K1.6 information to support the reporting of the performance of IT/technology infrastructure design and planning activities against its targets and/or metrics

K1.7 information to prepare clearly defined benefits and a business case for any changes to and/or replacements, refreshes of IT/technology infrastructure that are required

K1.8 best practice in IT/technology infrastructure design and planning activities

K1.9 lessons learned from prior IT/technology infrastructure design and planning activities

K2 Identify

K2.1 who has been allocated which individual IT/technology infrastructure components/groups of components to design and plan

K2.2 who are potential external providers of IT/technology infrastructure design and planning activities used by the organisation

K2.3	information contained within any service improvement and service quality plans that is relevant to IT/technology infrastructure design and planning
K2.4	what information is required to assess the suitability of infrastructure components
K2.5	which infrastructure products/services and/or equipment will be provided externally and which internally
K2.6	any issues involved in the external hosting of infrastructure services
K2.7	what are the available IT/technology equipment/products and services that can be considered when designing and planning IT/technology infrastructure
K2.8	information from other design activities that may affect IT/technology infrastructure design and planning activities
K2.9	potential implications of business change, organisational design and/or business process design/redesign activities on IT/technology infrastructure design and planning activities
K2.10	potential implications of projects and programmes on IT/technology infrastructure design and planning activities
K2.11	potential implications of IT/technology infrastructure design and planning activities and their deliverables being incorrect, incomplete, inadequate and/or inappropriate
K2.12	the objectives of IT/technology infrastructure design and planning
K2.13	operational information relating to incidents, problems, changes, events and service availability in order to inform and guide IT/technology infrastructure design and planning activities
K2.14	information data and knowledge about the capabilities and availability of IT/technology products/services and equipment in order to make well reasoned decisions on whether they can be incorporated into designs for IT/technology infrastructure
K2.15	how effective IT/technology infrastructure designs and plans can improve the efficiency and effectiveness of IT/technology services, systems and assets
K2.16	who needs to be contacted internally and externally to provide information to be used for IT/technology infrastructure design and planning activities
K2.17	who needs to authorise designs and plans for new/enhanced IT/technology infrastructure
K3	Verify where appropriate, the accuracy, currency, completeness and relevance of any information relating to known errors or problems with existing IT/technology infrastructure components
K4	The role of IT/technology infrastructure design and planning in supporting business operations and the service strategy
K5	The relationship between IT/Technology infrastructure design and planning and their deliverables and all other architecture, analysis and

		design activities
	K6	The processes, tools and techniques that can be used to monitor the
	K6.1	alignment of IT/technology infrastructure designs and plans with business needs, service operation objectives and service strategy
	K6.2	quality and effectiveness of IT/technology infrastructure design and planning activities and their deliverables
	K6.3	alignment of IT/technology infrastructure design and planning activities and their deliverables with any relevant legislation, regulations and external standards
	K7	What
	K7.1	is the range of issues associated with IT/technology infrastructure design and planning activities and their deliverables
	K7.2	is best practice in IT/technology infrastructure design and planning activities
	K7.3	is the range of internal and external factors that could result in issues arising with the current/existing infrastructure
	K8	The importance of
	K8.1	ensuring confidentiality, integrity and security during IT/technology infrastructure design and planning activities
	K8.2	ensuring that sensitive business information is not disclosed inappropriately during IT/technology infrastructure design and planning activities
	K8.3	metrics to measure the performance of IT/technology infrastructure design and planning activities
	K8.4	proactive IT/infrastructure design and planning in trying to improve the availability of systems, services and assets to support service objectives and the service strategy
	Manage and implement, under supervision, IT/technology infrastructure design planning activities	
You need to know and understand:	K9	Use
	K9.1	future service, capacity and availability needs that the IT/technology infrastructure needs to provide
	K9.2	current IT/technology architecture, design and configuration management deliverables for infrastructure products/services and/or equipment during IT/technology infrastructure design and planning activities
	K9.3	version control, where appropriate, during IT/technology infrastructure design and planning activities
	K9.4	information data and knowledge about the capabilities and availability of IT/technology products/services and equipment in order to make well reasoned decisions on whether they can be incorporated into designs for IT/technology infrastructure
	K9.5	standards relating to IT/technology infrastructure design and planning

activities

K9.6 best practice in IT/technology infrastructure design and planning activities

K9.7 lessons learned from prior IT/technology infrastructure design and planning activities

K10 Document

K10.1 clearly defined benefits and a business case for any changes to and/or replacements/refreshes of IT/technology infrastructure

K10.2 designs and plans for infrastructure products/services and/or equipment

K10.3 the processes, procedures, methods, 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

K10.4 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

K10.5 standards relating to infrastructure design and planning activities and their deliverables

K10.6 best practice in infrastructure design and planning assignments

K10.7 lessons learned from infrastructure design and planning assignments

K11 Analyse

K11.1 future service, capacity and availability needs that the IT/technology infrastructure needs to provide

K11.2 information contained within any service improvement and service quality plans that is relevant to IT/technology infrastructure design and planning

K11.3 information from other design activities that may affect IT/technology infrastructure design and planning activities

K11.4 operational information relating to incidents, problems, changes, events and service availability in order to inform and guide IT/technology infrastructure design and planning activities

K11.5 information data and knowledge about the capabilities and availability of IT/technology products/services and equipment in order to make well reasoned decisions on whether they can be incorporated into designs for IT/technology infrastructure

K12 Present

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 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 What are the

K13.1 objectives of IT/technology infrastructure design and planning

K13.2 potential implications of business change, organisational design and/or business process design/redesign activities on IT/technology infrastructure design and planning activities

K13.3 potential implications of projects and programmes on IT/technology infrastructure design and planning activities

K13.4 potential implications of IT/technology infrastructure design and planning activities and their deliverables being incorrect, incomplete, inadequate and/or inappropriate

K13.5 benefits and disadvantages of using external providers of IT/technology infrastructure design and planning services

K13.6 implications of internal and external factors on IT/technology infrastructure design and planning activities and their deliverables

K13.7 issues involved in the outsourcing of IT/technology infrastructure design and planning and external hosting of infrastructure

K13.8 potential implications of failings in integrity, confidentiality and information security during IT/technology infrastructure design and planning activities

K13.9 implications of any legislation, regulations and external standards on IT/technology infrastructure design and planning activities and their deliverables

K13.10 implications for an organisation's operational effectiveness, brand and reputation that may result from IT/technology infrastructure design and planning activities

Manage, under supervision, progression of the IT/technology infrastructure designs

You need to know and understand:

K14 Manage

K14.1 the progress of any IT/technology infrastructure design and planning assignment

K14.2 changes to business requirements through change control mechanisms during IT/technology infrastructure design and planning assignments

K14.3 individuals and/or teams producing individual IT/technology infrastructure components or groups of components

K15 Take action

K15.1 to align IT/technology infrastructure design and planning deliverables with other design deliverables
K15.2 to ensure that there is sufficient reliable information data and knowledge about the capabilities and availability of IT/technology products/services and equipment in order to make well reasoned decisions on whether they can be incorporated into designs for IT/technology infrastructure
K15.3 that IT/technology infrastructure designs support the business needs
K15.4 all changes to and/or replacements/refreshes of IT/technology infrastructure are supported by clearly defined benefits and a business case
K15.5 that accurate assessment of the cost and complexity of new IT/technology infrastructure designs takes place
K16 Report the progress of the design and planning of individual IT/technology infrastructure components
K17 Provide information concerning IT/technology infrastructure design and planning to external individuals and bodies as requested
K18 Communicate with
K18.1 external providers of IT/technology infrastructure design and planning services
K18.2 a range of individuals both internally and externally during IT/technology infrastructure design and planning activities
K19 Why
K19.1 the quality and effectiveness of IT/technology infrastructure design and planning activities and their deliverables need to be monitored
K19.2 the alignment of IT/technology infrastructure design and planning activities and their deliverables with any relevant legislation, regulations and external standards needs to be monitored
K19.3 the quality and effectiveness of any externally hosted/shared IT/technology infrastructure products/services and/or equipment services needs to be monitored
K20 Who
K20.1 needs to authorise designs and plans for new/enhanced IT/technology infrastructure
K20.2 are the sponsors of and stakeholders for IT/technology infrastructure design and planning activities
K21 The need for monitoring
K21.1 the alignment of IT/technology infrastructure design and planning activities and their deliverables with business needs, service operation objectives and service strategy
K21.2 the alignment of IT/technology infrastructure design and planning activities and their deliverables with any relevant legislation, regulations and external standards
K21.3 the alignment of IT/technology infrastructure design and planning

	activities and their deliverables with other related design activities
K21.4	the alignment of IT/technology infrastructure design and planning activities and their deliverables with IT/technology architecture and configuration requirements

ESKITP4084

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Developed by	e-skills UK
Version number	1
Date approved	September 2009
Indicative review date	March 2014
Validity	Current
Status	Original
Originating organisation	e-skills UK
Original URN	4084
Relevant occupations	Information and Communication Technology; Software Development
Suite	IT and Telecoms
Key words	Network design; Network planning