ESKITP4074
Systems Design Level 4 Role

Overview

This sub-discipline is concerned with the competencies required to create, maintain and manage both logical and physical designs for an information technology solution based on the information defined in a range of deliverables produced by business, data, HCI and systems analysis activities. A systems design is effectively a blueprint or plan for how a proposed information technology system will operate in order to meet business needs. Design activities produce solutions to address the requirements specified through analysis activities, including, at a detailed level, functions and processing, interfaces, data handling and storage needs and how the system will be used by and interact with people, as appropriate.

Logical systems design typically describes the functions, processes and data handling needs of the information technology solution independent of any specific technologies, platforms or products that may be used in its actual development. One or more logical solutions may be proposed.

Physical design translates these logical design principles into a proposed physical design, where components such as application software products, file and database systems and infrastructure components are specified and the information contained in the logical design is converted into a design format that takes account of practical considerations such as location of physical assets and performance of the system.

In some organisations, typically those where rapid development approaches are used, systems design may be undertaken in parallel with data design and HCI design. Furthermore, in these organisations, an iterative process of systems analysis and systems design may also take place. Systems design commonly incorporates aspects of data design and HCI design in order to produce an holistic, ‘end to end’ view of the proposed information technology system’s design.

ESKITP4074

Systems Design Level 4 Role

Performance criteria

Prepare, under supervision, for system/solution/service design activities

You must be able to:

P1 Correctly follow standards relating to system/solution/service design activities

P2 Correctly source all relevant information from IT/technology architecture models in order to inform system/solution/service design activities

P3 Correctly source and collate the full range of design specifications, for example those relating to data and HCI, in order to produce an holistic, 'end to end' system/solution/service design for an IT/technology system, service and/or asset, under direction

P4 Objectively interpret the deliverables from all relevant analysis and related design activities so that they may be incorporated into system/solution/service design deliverables

Assist with the design of system/solution/service design

You must be able to:

P5 Develop, implement and maintain effective and comprehensive plans for the design of any element of a system/solution/service design, communicating them to all relevant individuals and groups, as directed by superiors

P6 Design effective models, prototypes and 'mock ups' of all/parts of the 'end to end' system, service and/or asset during system/solution/service design activities to assist with the clarification of design details

P7 Clearly identify and verify all business requirements and business rules when producing logical and physical system/solution/service design designs

P8 Clearly and persuasively present the design for any particular design element as part of the 'end to end' system/solution/service design to sponsors, stakeholders, superiors and other relevant individuals

Monitor the progress of system/solution/service design activities

You must be able to:

P9 Correctly identify and actively manage changes to business requirements during system/solution/service design activities, under the direction of superiors

P10 Assist others in identifying business requirements when producing logical and physical system/solution/service designs

P11 Effectively manage and regularly monitor the progress of any particular element of a system/solution/service design against plan, reporting progress and issues arising to superiors as appropriate

Review and document system/solution/service design deliverables

You must be able to:

P12 Proactively solicit feedback on system/solution/service designs, including feedback on models, prototypes and 'mock ups' of the 'end to end'

design, from sponsors, stakeholders and other individuals and bodies in order to verify the validity of the designs, under guidance

P13 Clearly document and critically analyse all relevant design options to meet the business needs developed during system/solution/service design activities in order to produce recommendations for review by sponsors, stakeholders and other individuals/bodies

P14 Accurately document the 'end to end' system/solution/service design deliverables, as directed

Knowledge and understanding

You need to know and understand:

Prepare, under supervision, for system/solution/service design activities

K1 Source and collate

K1.1 information from IT/technology architecture models in order to inform system/solution/service design activities and their deliverables

K1.2 the full range of design specifications, for example those relating to data and HCI, in order to produce an holistic, 'end to end' system/solution/service design for an IT/technology system, service and/or asset

K1.3 information during system/solution/service design activities in order to specify precisely how the IT/technology system, service and/or asset needs to function in order to meet business needs

K1.4 information about internal and external individuals and groups to whom particular design elements may be delegated

K2 Apply

K2.1 business requirements when producing logical and physical system/solution/service design designs

K2.2 business rules that need to be incorporated into system/solution/service designs

K2.3 standards relating to system/solution/service design activities and their deliverables

K2.4 the systems development lifecycle as appropriate to system/solution/service design activities

K2.5 information relating to analysis deliverables in order to inform system/solution/service design activities and their deliverables

K2.6 information relating to service and operational requirements in order that they may be incorporated within system/solution/service design deliverables

K2.7 models, prototypes and 'mock ups' of all/parts of the 'end to end' system, service and/or asset during system/solution/service design activities to assist with the clarification of design details

K3 Interpret

K3.1 the deliverables from all relevant analysis activities so that they may be incorporated into system/solution/service design deliverables

K3.2 the impact and implications of changes to business requirements

during system/solution/service design activities

K3.3 design options to meet the business needs developed during

K3.4 system/solution/service design activities in order to produce recommendations for review by sponsors, stakeholders and other individuals/bodies

K3.5 all relevant design deliverables in order to inform system/solution/service design activities

K3.6 architectures and roadmaps

K4 The systems development lifecycle as it relates to system/solution/service design activities

K5 What is involved in translating logical designs into physical designs

K6 What are the

K6.1 potential implications of system/solution/service design deliverables being incorrect, incomplete, inadequate or inappropriate

K6.2 potential implications of failings of integrity, confidentiality and information security during system/solution/service activities

K6.3 Professional and ethical standards relating to system/solution/service design work within an organisation strategy, policies.

K6.4 plans and standards relating to system/solution/service design activities and their deliverables

K6.5 potential implications of the need for IT/technology system/solution/service to span across organisational boundaries

K7 Why

K7.1 standards and naming conventions are used in system/solution/service design work

Assist with the design of system/solution/service design

You need to know and understand:

K8 Design and develop

K8.1 plans for the design of any element of system/solution/service design

K8.2 models, prototypes and ‘mock ups’ of all/parts of the ‘end to end’ system, service and/or asset during system/solution/service design activities to assist with the clarification of design details

K9 Verify

K9.1 business requirements when producing logical and physical system/solution/service design designs

K9.2 business rules that need to be incorporated into system/solution/service designs

K9.3 the acceptability of any ‘end to end’ system/solution/service design using a range of techniques such as models, prototypes and ‘mock ups’ with sponsors, stakeholders and other individuals

K10 Identify changes to business requirements agreed and authorised during system/solution/service design activities

K11 Implement and maintain plans for any element of

system/solution/service design

K12 The fact that

K12.1 data design and HCI design deliverables may also be incorporated within system/solution/service design activities and the 'end to end' system/solution/service design

K12.2 the design of any IT/technology system, service or asset needs to consider its efficiency, robustness, maintainability and ability to meet the needs of its users

K12.3 service management and operational needs must be incorporated within system/solution/service design activities

K12.4 processing and functional needs required by the business must be specified and defined within the logical and physical system/solution/service design

K12.5 physical system/solution/service design activities need to be informed and directed by knowledge of the technologies, products, services and items of equipment that are available and can be used by an IT/technology system, service and/or asset supporting the organisation

K13 Who

K13.1 are the sponsors of and stakeholders for any particular system/solution/service design assignment

K13.2 needs to use the deliverables produced by any particular system/solution/service design assignment

K13.3 needs to authorise/sign off the deliverables from any system/solution/service design assignment

Monitor the progress of system/solution/service design activities

You need to know and understand:

K14 Manage the progress of any particular element of a system/solution/service design against plan

K15 Monitor the progress of any particular element of a system/solution/service design against plan

K16 Report

K16.1 the progress of any particular element of a system/solution/service design against plan

K16.2 any issues arising from system/solution/service design activities

K16.3 discrepancies between system/solution/service design deliverables and other related design and IT/technology architecture deliverables

K16.4 discrepancies between system/solution/service design deliverables and analysis deliverables

K17 The need for monitoring

K17.1 the alignment of system/solution/service design activities and their deliverables with all relevant legislation, regulations and external standards

K17.2 the alignment of system/solution/service design work with other design

deliverables

K17.3 the alignment of system/solution/service design work with analysis activities and their deliverables

K17.4 the quality and effectiveness of system/solution/service design activities and their deliverables

K17.5 changes to business requirements through change control mechanisms during system/solution/service design activities

Review and document system/solution/service design deliverables

You need to know and understand:

K18 Document

K18.1 the progress of any particular system/solution/service design assignment

K18.2 design options to meet the business needs developed during system/solution/service design activities

K18.3 the ‘ end to end’ system/solution/service design deliverables accurately and clearly

K18.4 decisions made during system/solution/service design activities

K18.5 lessons learned from previous system/solution/service design assignments and/or from other contexts

K19 Present the design of any particular design element as part of the ‘end to end’ system/solution/service design

K20 Take action

K20.1 to manage changes to business requirements during system/solution/service design activities

K20.2 to solicit feedback on system/solution/service designs, including feedback on models, prototypes and ‘mock ups’ of the ‘end to end’ design, from sponsors, stakeholders and other individuals and bodies

K21 Liaise with individuals involved in the review of any ‘end to end’ system/solution/service design models, prototypes and ‘mock ups’

K22 The importance of

K22.1 system/solution/service design deliverables aligning with other design deliverables

K22.2 system/solution/service design deliverables aligning with the IT/technology architecture of an organisation

K22.3 managing changes to business requirements through change control mechanisms during system/solution/service design activities

K22.4 effective communication to a range of other individuals involved in and impacted by system/solution/service design activities

K22.5 development deliverables aligning with system/solution/service design deliverables

K22.6 designing effective and efficient system/solution/service designs that meet the business needs

K22.7 producing system/solution/service designs which can be maintained and operated using existing skills and expertise so as to optimise the

cost of ownership

K1.1 applying lessons learned from previous system/solution/service design assignments

K1.2 taking account of internal and external factors during system/solution/service design activities and their deliverables

K1.3 maintaining the privacy, integrity and confidentiality of information during system/solution/service design activities

K1.4 ensuring that sensitive information is not disclosed inappropriately during system/solution/service design activities

ESKITP4074

Systems Design Level 4 Role

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	4074
Relevant occupations	Business Analyst; Information and Communication Technology
Suite	IT and Telecoms
Key words	Logical design; Physical design; Requirements specification