
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.

Systems Design Level 3 Role

Performance criteria

Follow, under supervision, the organisation's procedures for informing systems design activities

You must be able to:

- P1 Correctly follow the processes, tools and techniques relating to system/solution/service design activities and their deliverables
- P2 Fully comply with all organisational strategy, policies and standards in system/solution/service design activities and their deliverables
- P3 Correctly gather all relevant information from analysis deliverables in order to inform system/solution/service design activities and their deliverables, under direction
- P4 Correctly source and precisely document all relevant service and operational requirements in order that they may be incorporated within system/solution/service design deliverables

Carry out, under supervision, specified systems design activities

You must be able to:

- P5 Effectively implement and maintain models, prototypes and 'mock ups' of all/parts of the 'end to end' system, service and/or asset during system/solution/service design activities and provide them to sponsors, stakeholders and other individuals to assist with the clarification of design details
- P6 Provide particular elements of any system/solution/service design to others so that they may be incorporated into any 'end to end' design
- P7 Communicate effectively and in a timely manner with other individuals involved in the design of other elements of an 'end to end' system/solution/service design
- P8 Be fully accountable for the quality and effectiveness of any particular design element of a system/solution/service design

Document, under supervision, specified information relating to system/solution/service designs

You must be able to:

- P9 Correctly use and accurately document all relevant standards and naming conventions as appropriate to system/solution/service design activities
- P10 Accurately document all changes to business requirements agreed and authorised during system/solution/service design activities, under direction
- P11 Clearly document all necessary business requirements and business rules when producing logical and physical system/solution/service designs
- P12 Develop and accurately document effective design elements of an 'end to end' system/solution/service design, under direction

Knowledge and understanding

Develop and implement the strategy for human interaction and interface (HCI) design activities

You need to know and understand:

- K1 Comply with all relevant legislation, regulations and external standards relating to system/solution/service design activities
- K2 Source and gather
 - K2.1 information from analysis deliverables in order to inform system/solution/service design activities and their deliverables
 - K2.2 service and operational requirements in order that they may be incorporated within system/solution/service design deliverables
- K3 Use
 - K3.1 the processes, tools and techniques relating to system/solution/service design activities and their deliverables
 - K3.2 standards and naming conventions as appropriate to system/solution/service design activities and their deliverables
- K4 Document service and operational requirements in order that they may be incorporated within system/solution/service design deliverables
- K5 Operate with
 - K5.1 reference to organisational strategy, policies and standards in system/solution/service design activities
 - K5.2 reference to professional and ethical standards in system/solution/service design activities
 - K5.3 integrity and confidentiality during system/solution/service design activities
 - K5.4 reference to the systems development lifecycle, as appropriate to system/solution/service design activities
 - K5.5 reference to all IT/technology architecture, design and analysis deliverables pertinent to any system/solution/service design
- K6 The relevance of system/solution/service design activities and their deliverables on the development activities associated with the production of IT/ technology systems, services and assets
- K7 The relationship between system/solution/service design, and any other particular design activities
- K8 The relationship between analysis activities and their deliverables and system/solution/service design activities
- K9 What is meant by
 - K9.1 system/solution/service design and the stages of activity that constitute it
 - K9.2 a logical design
 - K9.3 physical design
- K10 Why
 - K10.1 security requirements need to be included in the end to end design of any IT/technology system, service or asset

- K10.2 the deliverables of physical system/solution/service design activities must accurately define what is required from system/solution/service development work
- K10.3 models, prototypes and 'mock ups' of all/parts of the 'end to end' system, service and/or asset may be useful during system/solution/service design activities
- K11 Who
 - K11.1 are the target users of any particular IT/technology system, service and/or asset
 - K11.2 that is being designed
 - K11.3 are the individuals and organisations involved in other related analysis, design and
 - K11.4 development activities
- K12 The processes, tools and techniques which can be used to monitor the
 - K12.1 progress of any particular system/solution/service design assignment
 - K12.2 alignment of system/solution/service design deliverables with the business requirements

Carry out, under supervision, specified systems design activities

You need to know and understand:

- K13 Implement and maintain 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
- K14 Provide
 - K14.1 models, prototypes and 'mock ups' of all/parts of the 'end to end' system, service and/or asset to sponsors, stakeholders and other individuals during system/solution/service design activities to assist with the clarification of design details
 - K14.2 elements of any system/solution/service design to others so that it may be incorporated into any 'end to end' design
- K15 Communicate with other individuals involved in the design of other particular elements of an 'end to end' system/solution/service design
- K16 Develop design elements of an 'end to end' system/solution/service design
- K17 Be accountable for the quality and effectiveness of any particular design element of a system/solution/service design
- K18 The fact that
 - K18.1 the deliverables of physical system/solution/service design activities must accurately define what is required from system/solution/service development work
 - K18.2 system/solution/service design activities need to align with the deliverables from analysis activities
 - K18.3 security requirements need to be included in the 'end to end' design of

- any IT/technology system/solution/service
- K18.4 any 'end to end' system/solution/service design needs to ensure that all elements used in its delivery can operate together efficiently and effectively
- K18.5 individuals responsible for signing off and authorising system/solution/service design deliverables often find it difficult to visualise how the 'end to end' IT/technology system, service or asset will work
- K18.6 models, prototypes and 'mock ups' of all/parts of the 'end to end' system, service and/or asset may be used during system/solution/service design activities to assist with the clarification of design details
- K18.7 the delivery of any 'end to end' IT/technology system/solution/service design may be delegated out to internal and external individuals, groups and teams
- K19 The importance of
- K19.1 the systems development lifecycle as it relates to system, service and/or asset design activities
- K19.2 and relevance of system/solution/service design activities on the full life cycle of information within an organisation
- K19.3 system/solution/service activities and their deliverables being guided by and supporting the business needs
- K19.4 system/solution/service design deliverables aligning with analysis deliverables
- K19.5 gathering information during system/solution/service design activities in order to specify precisely how the IT/technology solution needs to function in order to meet business needs
- K19.6 getting sign off to any system/solution/service design deliverables
- K20 The need for monitoring
- K20.1 the progress of any particular system/solution/service design assignment
- K20.2 the consistency, integrity and alignment of all elements of an 'end to end' system/solution/service design
- K20.3 the accuracy, currency, completeness and appropriateness of any end to end system/solution/service design deliverables

Document, under supervision, specified information relating to system/solution/service designs

You need to know and understand:

- K21 Document
- K21.1 elements of any system/solution/service design
- K21.2 standards and naming conventions as appropriate to system/solution/service design activities and their deliverables
- K21.3 changes to business requirements agreed and authorised during system/solution/service design activities

- K21.4 business requirements when producing logical and physical system/solution/service designs
- K21.5 business rules that need to be incorporated into system/solution/service designs
- K22 What are the
 - K22.1 inputs to any system/solution/service design activities and the expected deliverables from them
 - K22.2 standards and naming conventions that are used in system/solution/service design work
- K23 The importance of
 - K23.1 verifying the accuracy, currency, completeness and relevance of information created, collected, used and documented during system/solution/service design activities
 - K23.2 clearly documenting system/solution/service design deliverables so that they are easily understandable by a range of individuals, including those involved in development, implementation and deployment activities

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Systems Design Level 3 Role

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