
Overview

This sub-discipline is concerned with the competencies required to create, maintain and manage logical and physical data designs for information technology solutions to support the specific business needs represented in a Requirements Specification or Business Specification document, supported, where appropriate with the interrogation, use and application of information contained within conceptual data models or domain models produced by data analysis activities.

Data design includes identifying the data required by an information technology solution, confirming and enhancing information relating to data types and attributes, dealing with duplication and redundancy of data, ensuring data integrity by using business rules and other processing steps. As design activities progress through logical design through to physical design, the level and type of information recorded about items of data is enhanced and increased, with a view to supporting the practical data handling, security, privacy and integrity needs required within an IT/technology system.

Logical design involves the graphical organisation of data required by the IT/technology solution into a logical data model, a set of groups of data items which remain independent of their physical organisation and structure.

Physical data design involves the representation of this logical data model into a physical model and then further development into specific or organisational forms such as files, data base tables, object orientated and XML structures. These will be organised in a way which ensures integrity and efficiency of operation and enables them to interact with programs to perform specific functions required to meet a specific business purpose. Information relating to the data contained in the physical design of a database, including descriptions of the data, may be contained within a Data Dictionary.

In some organisations, typically those where rapid development approaches are used, data design may be undertaken in parallel with HCI design and systems design. Furthermore, in these organisations, an iterative process of data analysis and data design may also take place.

Data Design Level 6 Role

Performance criteria

Plan the strategy for data design activities

You must be able to:

- P1 Design, develop, implement and maintain effective standards relating to data design activities
- P2 Correctly identify all of the rules and controls required to ensure the integrity, privacy and security of data held within the data design
- P3 Design effective rules and controls required to ensure the integrity, privacy and security of data held within the data design
- P4 Make well reasoned decisions on when and how to use external providers of data design services, selecting the preferred organisations and negotiating/contracting with them accordingly on behalf of the organisation

Direct the management of data design activities and their deliverables

You must be able to:

- P5 Correctly identify any data reuse requirements in data design activities
- P6 Verify the accuracy and completeness of any translation from logical to physical designs and that appropriate file and data organisation structures have been designed to meet business, service and operational needs
- P7 Identify and manage, appropriate actions to be taken in the event of data design activities and their deliverables not supporting the business requirements
- P8 Provide timely and objective advice and guidance to others on all aspects of data design activities and their deliverables, including best practice
- P9 Critically review the quality and effectiveness of data design activities and their deliverables, including those data design services provided by external providers

Data Design Level 6 Role

Knowledge and understanding

Plan the strategy for data design activities

You need to know and understand:

- K1 Design and develop
 - K1.1 standards relating to data design activities and their deliverables
 - K1.2 the rules and controls required to ensure the integrity, privacy and security of data held within the data design
 - K1.3 strategy and policies to ensure the alignment of data design activities and their deliverables with all relevant legislation, regulations and external standards,
 - K1.4 the processes, procedures, methods, tools and techniques to monitor the alignment of data design activities and their deliverables with all relevant
 - K1.5 legislation, regulations and external standards,
- K2 Identify
 - K2.1 who are the most appropriate individuals to undertake data design activities
 - K2.2 when and how to use external providers of data design services
 - K2.3 what actions may be taken in the event of data design activities not meeting the business needs
 - K2.4 what actions may be taken in the event of data design activities not meeting the service and operational performance needs
 - K2.5 data reuse requirements in any data design activities
 - K2.6 the rules and controls required to ensure the integrity, privacy and security of data held within the data design
- K3 Implement and maintain
 - K3.1 standards relating to data design activities and their deliverables
 - K3.2 strategy and policies to ensure the alignment of data design activities and their deliverables with all relevant legislation, regulations and external standards, in line with organisational strategy, policies and standards
- K4 Make decisions on when and how to use external providers of data design services
- K5 Negotiate with external providers of data design services
- K6 Authorise, agree and contract
 - K6.1 actions
 - K6.2 approaches
 - K6.3 strategy, policies, plans, procedures, standards, methods, tools and techniques
 - K6.4 contractual arrangements with external providers of data design services
 - K6.5 decisions

Data Design Level 6 Role

- K7 The fact that physical data design activities need to be informed by knowledge of the range of possible data organisation structures that may be employed for the management of data and the appropriateness of each type to meet the business needs
- K8 Who are the potential external providers of data design services

Direct the management of data design activities and their deliverables

You need to know and understand:

- K9 Verify
 - K9.1 that appropriate file and data organisation structures have been designed
 - K9.2 the accuracy and completeness of any translation from logical to physical designs
- K10 Manage
 - K10.1 actions to be taken in the event of data design activities and their deliverables not supporting the business requirements
- K11 Take action
 - K11.1 in the event of external providers not providing the appropriate quality of data design services
 - K11.2 in the event of physical data design activities not supporting the business needs
 - K11.3 to ensure that data design assignments are carried out by appropriately skilled individuals, groups and/or bodies
- K12 Review
 - K12.1 the quality and effectiveness of data design activities and their deliverables
 - K12.2 the quality and effectiveness of external providers of data design services
- K13 Advise and guide others on
 - K13.1 best practice in data design activities
 - K13.2 all aspects of data design activities and their deliverables
 - K13.3 when and how to use external providers of data design services

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Data Design Level 6 Role

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