Australian Government

Department of Education, Employment and Workplace Relations

ICADBS503A Create a data warehouse

Release: 1

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Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to design, develop and implement a data warehouse within an organisation.

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Application of the Unit

This unit applies to senior database staff who are required to provide data warehouse functionality for their organisation.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Identify required data and sources	1.1 Identify required organisational data according to enterprise knowledge management strategy 1.2 Identify subject areas according to business processes and required enterprise data 1.3 Explore the operational data and define warehouse sources and record outcomes 1.4 Develop warehouse source specifications according to existing data tables and files
2. Determine warehouse operational steps and processes	2.1 Develop warehouse targets according to business processes and required enterprise data 2.2 Identify warehouse agents according to ***system configuration*** 2.3 Identify and develop warehouse steps and processes
3. Design and develop warehouse features	3.1 Design and develop warehouse user interface according to principles of user interface design 3.2 Develop and implement warehouse security strategy according to enterprise ***security plan*** 3.3 Identify dimension tables and fact tables according to required enterprise data 3.4 Develop warehouse information catalogue according to the enterprise's knowledge management strategy
4. Test and implement data warehouse	4.1 Test data warehouse against business requirements to ensure that iterations meet business objectives 4.2 Recommend changes to business processes to ensure compatibility with data warehouse and knowledge management strategy 4.3 Implement the data warehouse 4.4 Establish an ongoing maintenance schedule to keep the ***system*** efficient 4.5 Benchmark and document the performance level of the data warehouse 4.6 Arrange for ***users*** to have ongoing training in the data warehouse 4.7 Validate results 4.8 Obtain sign-off of the data warehouse

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
  - analyse business requirements
  - analyse organisation's warehouse requirements and identify appropriate data
  - select the most appropriate data warehouse tool for the organisation's needs
- communication skills to:
  - conduct training
  - liaise with senior management
- literacy skills to:
  - develop policy and procedures
  - develop warehouse information catalogue
  - document performance level of data warehouse
  - produce warehouse documentation
- numeracy skills to conduct cost-benefit analyses of the data warehouse project
- planning and organisational skills to manage the data warehouse project, including deliverables, milestones and work breakdown structure
- problem-solving skills to handle unexpected problems in design, implementation or delivery of data warehouse
- research skills to:
  - be aware of the product range in data warehouses
  - keep informed of the latest activities in data warehouse design and use
- technical skills to:
  - design a suitable user interface
  - develop warehouse source specifications
  - gather and analyse data
  - model steps and processes
  - source data
  - use structured query language (SQL) where appropriate in the data warehousing activity.

Required knowledge

- functions and features of:
  - data warehousing and data mining
  - dimension tables and fact tables
  - steps and processes, including transformer steps, program steps, SQL steps and user-defined program steps
  - subject areas, warehouse sources and warehouse targets
  - warehouse agents and agent sites
- overview knowledge of:

- business operating systems related to data sources
- decision support systems related to knowledge management strategies.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • design a data warehouse model that reflects current and future business requirements and the business knowledge management strategy • implement the design.
Context of and specific resources for assessment	Assessment must ensure access to: • business requirements • computers configurable as information servers • enterprise knowledge management strategy • internet connectivity tools • local area network (LAN) with a relational database management system (DBMS) • proxy server software • specialised internet security software • appropriate learning and assessment support when required • modified equipment for people with special needs.

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:
	• evaluation of candidate's design of a data warehouse
	• review of candidate's warehouse documentation
	• verbal or written questioning to assess candidate's knowledge of:
	  • data sources
	  • data warehouses
	• direct observation of candidate conducting data warehouse training.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the

	work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

System configuration may include:	• configuration, such as:
	  • small memory model
	  • large memory model
	  • requests per second
	• database software, such as:
	  • DB2
	  • Informix
	  • Ingres
	  • Microsoft SQL (MS SQL) server
	  • Mini SQL (mSQL)
	  • MySQL
	  • Oracle
	  • Sybase
	• operating systems, such as:
	  • Linux
	  • Mac
	  • multi-user ability
	  • Novell NetWare 5 or above
	  • Windows 2000 or above.

Security plan may contain:	• alerts • audits • handling theft • privacy • standards, including archival, backup and network • viruses.
System may include:	• application service provider (ASP) • applications • databases • gateways • internet service provider (ISP) • operating systems • servers.

Users may include:	• department within the organisation • person within a department • third party.

Unit Sector(s)

Database