



Australian Government

Department of Education, Employment and Workplace Relations

ICAB5164B Create a data warehouse

Release: 1

ICAB5164B Create a data warehouse

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	<p>This unit defines the competency required to design, develop and implement a data warehouse within an organisation.</p> <p>The following units are linked and form an appropriate cluster:</p> <ul style="list-style-type: none"> • ICAA5139B Design a database • ICAA5147B Determine suitability of database functionality and scalability • ICAA5151B Gather data to identify business requirements • ICAA5153B Model data objects • ICAA5154B Model data processes • ICAB4170B Build a database <p>No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.</p>
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Application of the Unit

Application of the unit	
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Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAB4170B	Build a database

Employability Skills Information

Employability skills	This unit contains employability skills.
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Elements and Performance Criteria Pre-Content

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.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Identify required data and sources	1.1. Identify required organisational data with reference to enterprise knowledge management strategy 1.2. Identify subject areas with reference 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 with reference to existing data tables and files
2. Determine warehouse operational steps and processes	2.1. Develop warehouse targets with reference to business processes and required enterprise data 2.2. Identify warehouse agents according to <i>system configuration</i> 2.3. Identify and develop warehouse steps and processes
3. Design and develop warehouse features	3.1. Design and develop warehouse user interface with reference to principles of user interface design 3.2. Develop and implement warehouse security strategy in accordance with enterprise <i>security plan</i> 3.3. Identify dimension tables and fact tables with reference to required enterprise data 3.4. Develop warehouse information catalogue with reference 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 <i>system</i> efficient 4.5. Benchmark and document the performance level of the data warehouse 4.6. Arrange for <i>users</i> 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

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Use of SQL
- Cost-benefit analysis
- Data gathering and analysis skills
- Project management
- Business analysis
- User interface design
- Modelling of steps and processes
- Development of warehouse source specifications

Required knowledge

- Business operating systems in relation to data sources
- Decision support systems in relation to knowledge management strategies
- Functions and features of data warehousing and data mining
- Functions and features of subject areas, warehouse sources, warehouse targets
- Functions and features of warehouse agents and agent sites
- Functions and features of steps and processes, including transformer steps, program steps, SQL steps and user-defined program steps
- Functions and features of dimension tables and fact tables

Evidence Guide

EVIDENCE GUIDE	
<p>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.</p>	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	<p>Evidence of the following is essential:</p> <ul style="list-style-type: none"> • Assessment must confirm the ability to successfully undertake all activities from proposal to implementation stage for a data warehouse model that reflects current and future business requirements and the business knowledge management strategy. <p>To demonstrate competency in this unit the person will require access to:</p> <ul style="list-style-type: none"> • LAN with a relational database management system • Internet connectivity tools • Computers configurable as information servers • Proxy server software • Specialised internet security software • Business requirements • Enterprise knowledge management strategy
Context of and specific resources for assessment	<p>Data and data mining are essential for a variety of operations related to government needs and business requirements. Extrapolating the right data for a scenario can allow for targeted resources to meet determined needs.</p> <p>Creating a data warehouse requires depth and complexity involving analysis and planning across a broad range of technical and management functions.</p> <p>The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic.</p>

EVIDENCE GUIDE	
	<p>Assessment must ensure:</p> <ul style="list-style-type: none"> • The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. • Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	<p>The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1.</p> <ul style="list-style-type: none"> • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.

EVIDENCE GUIDE**Guidance information for assessment**

Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example:

- ICAA5139B Design a database
- ICAA5147B Determine suitability of database functionality and scalability
- ICAA5151B Gather data to identify business requirements
- ICAA5153B Model data objects
- ICAA5154B Model data processes
- ICAB4170B Build a database

An individual demonstrating this competency would be able to:

- Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas
- Analyse and plan approaches to technical problems or management requirements
- Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations
- Evaluate information, using it to forecast for planning or research purposes
- Take responsibility for own outputs in relation to broad quantity and quality parameters
- Take some responsibility for the achievement of group outcomes
- Maintain knowledge of industry products and services

Additionally, an individual demonstrating this competency would be able to:

- Demonstrate an understanding of data warehousing concepts, with depth in some areas
- Diagnose and design appropriate data warehousing solutions
- Demonstrate accountability for outputs

Range Statement

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.

<p><i>System configuration</i> may include:</p>	<ul style="list-style-type: none"> • Operating system: Novell NetWare 5 or above or operating system that has multi-user ability; Linux, Mac OS, Windows 2000 or above • Database software: Oracle, Sybase, Microsoft SQL Server, Ingres, DB2, Informix, mSQL, MySQL, SQL server • Configuration: small memory model, large memory model, requests per second
<p><i>Security plan</i> may contain strategies for:</p>	<ul style="list-style-type: none"> • handling theft • viruses • standards (including archival, back-up, network) • privacy • audits • alerts • usually relates directly to the security objectives of the organisation
<p><i>System</i> may include but is not limited to:</p>	<ul style="list-style-type: none"> • databases • applications • servers • operating systems • gateways • application service provider • ISP
<p><i>Users</i> may include:</p>	<ul style="list-style-type: none"> • a person within a department • a department within the organisation • a third party

Unit Sector(s)

Unit sector	Build
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Co-requisite units

Co-requisite units		

Competency field

Competency field	
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