



Australian Government

Department of Education, Employment and Workplace Relations

ICAS4116B Undertake capacity planning

Release: 1

ICAS4116B Undertake capacity planning

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to monitor and assess the current and future capacity requirements of a system and to plan and install capacity enhancements. The following units are linked and form an appropriate cluster: • ICAI3021B Connect internal hardware components • ICAS4106B Action and complete change requests • ICAS4109B Evaluate system status No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.
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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	

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. Analyse existing system capacity	1.1. Review the existing system configuration information, both hardware and software, to determine capacity issues 1.2. Investigate the current workload of the system and analyse its effect on the capacity to perform 1.3. Examine the current service-level agreement to determine the agreed-upon capacity standards 1.4. Examine and analyse the fault logs for those caused by capacity problems 1.5. Discuss and review capacity issues with users 1.6. Document the information gathered about the existing system workload and capacity according to organisational guidelines
2. Determine future capacity requirements	2.1. Interview the user in order to gather data about future capacity requirements of the system 2.2. Organise and analyse the future requirements data and then evaluate to obtain a forecast workload for the system 2.3. Using the data and information gathered, compare the existing workload with the forecast workload and evaluate, to determine capacity problem areas 2.4. Estimate the resources and equipment required to resolve predicted capacity problems 2.5. Undertake a financial analysis of the estimated capacity requirements 2.6. Organise and document relevant information according to organisational guidelines 2.7. Evaluate documentation in order to create a report, detailing recommendations for capacity enhancements, for presentation to appropriate person
3. Develop plan for capacity enhancements	3.1. Develop a plan for implementing the recommended enhancements, with prioritised tasks and minimum disruption to users 3.2. Factor into the implementation plan the availability of finances, staff and other requirements 3.3. Submit the implementation plan to appropriate person for approval and revision
4. Install capacity enhancements	4.1. Install the capacity enhancements in accordance with installation procedures, organisational

ELEMENT	PERFORMANCE CRITERIA
	guidelines and implementation plan 4.2. Measure the increase in capacity and performance resulting from installed equipment in order to assess that capacity requirements have been met 4.3. Update documentation according to organisational guidelines to reflect the capacity enhancements
5. Monitor ongoing capacity requirements	5.1. Monitor and assess the impact of new technology and application development on capacity and performance 5.2. Implement and maintain a performance database 5.3. Review and assess benchmarks and performance regularly with work team, to enable timely capacity enhancements and updates of benchmarks

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Problem solving skills directed at problems involving the development of capacity planning initiatives
- Language, literacy and communication skills necessary to process and present written and verbal information
- Literacy skills for interpretation of technical manuals and forecasting data
- Interpersonal skills in relation to other team members, clients and vendors
- Project planning skills in relation to scope, time, cost, quality, communications, risk management and forecasting skills
- Report writing skills for business
- Analysis and evaluation of information in a defined range of areas
- Questioning and active listening at a range of user/vendor levels
- Ability to modify the current system to incorporate the planned changes by installing hardware and software elements

Required knowledge

- Broad knowledge of component performance management
- Broad knowledge of performance monitoring tools
- Broad knowledge of the role of stakeholders and the degree of stakeholder

REQUIRED SKILLS AND KNOWLEDGE

involvement

- Detailed knowledge of the system's current functionality
- Broad knowledge of quality assurance practices
- General knowledge of the client business domain
- Current industry-accepted hardware and software products, with broad knowledge of general features and capabilities and detailed knowledge in some areas
- Service-level agreements

Evidence Guide

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 following is essential:

- Assessment must confirm the ability to predict capacity requirements resulting from business growth, with forecasts being realistic and achievable; to monitor and accurately assess current and future capacity requirements of a system; to plan and install capacity enhancements; and to create and maintain required documentation.

To demonstrate competency in this unit the learner will require access to:

- A live system
- Service-level agreements
- Fault logs
- Users
- Hardware components for installation

Context of and specific resources for assessment

Capacity planning is the process of measuring a system's ability to carry out its intended function. For example, to serve content a web server provides web pages to its visitors at an acceptable speed. If visits were to double in one day, or multiply one thousand-fold, like some of the large news sites, how well-prepared would the organisation be in coping with this volume of traffic.

This unit also establishes the general concepts and methodology involved in performing capacity planning, so that one can adapt the testing to a business.

The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as

EVIDENCE GUIDE	
	contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	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. • 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:

- ICAI3021B Connect internal hardware components
- ICAS4106B Action and complete change requests
- ICAS4109B Evaluate system status

An individual demonstrating this competency would be able to:

- Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts
- Apply solutions to a defined range of unpredictable problems
- Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas
- Identify, analyse and evaluate information from a variety of sources
- Take responsibility for own outputs in relation to specified quality standards
- Take limited responsibility for the quantity and quality of the output of others
- Maintain knowledge of industry products and services

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.

System may include but is not limited to:

- hardware and software components that run a computer

Software may include but is not limited to:

- commercial, in-house, packaged or customised software

RANGE STATEMENT	
Hardware may include but is not limited to:	• workstations • personal computers • modems or other connectivity devices • networks • DSL modems • remote sites • servers
Service-level agreement	• May be specified for different infrastructure services, including communications carriers, ISPs, ASPs and for vendor products. • SLAs should consider business processes and requirements, clearly specify and quantify service levels, and identify evaluation or audit of service levels. May include workload and performance considerations, expectations regarding servicing, penalties, charge back to business units.
User may include:	• a person within a department • a department within the organisation • a third party
Equipment may include but is not limited to:	• workstations • personal computers • modems or other connectivity devices • printers • hard drives • DSL modems • monitors • switches • hubs • personal digital assistant (PDA) • other peripheral devices
Documentation may follow:	• ISO/IEC/AS standards • audit trails • naming standards • version control • project management templates • report writing principles
Organisational guidelines may include but are not limited to:	• personal use of emails and internet access • content of emails • downloading information and accessing

RANGE STATEMENT	
	- particular websites - opening mail with attachments - virus risk - dispute resolution - document procedures and templates - communication methods - financial control mechanisms
Requirements may be in reference to:	- business - system - application - network - people in the organisation
Problem may be in reference to:	- business - system - application - network - people in the organisation - there may be a business need or opportunity that must be addressed
Appropriate person may include:	- supervisor - teacher - authorised business representative - client
Forecast workload may be ascertained from:	- Trends in existing workload - Corporate business plans - User interviews - User questionnaires - Application development personnel - Outside influences (e.g. legal requirements) - Competitive pressures - Economic trends
Database may include but is not limited to:	- Oracle - Sybase - Microsoft SQL server - Ingres - DB2 - Informix - mSQL - MySQL

RANGE STATEMENT

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| | <ul style="list-style-type: none">• SQL server |
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Unit Sector(s)

Unit sector	Support
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Co-requisite units

Co-requisite units		

Competency field

Competency field	
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