Australian Government

Department of Education, Employment and Workplace Relations

ICASAS417A Undertake IT system capacity planning

Release: 1

INDUSTRY SKILLS COUNCILS
Creating Australia's Future

ICASAS417A Undertake IT system capacity planning

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 monitor and assess the current and future capacity requirements of an IT system, plan future enhancements and install the identified enhancements.

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

Application of the Unit

This unit applies to experienced technical support personnel, such as planners, IT support technicians, and user support specialists responsible for monitoring computing capacity to ensure continuity of service. They generally work under little supervision.

Licensing/Regulatory Information

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.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

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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. 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 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 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 according to installation procedures, organisational 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

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Required Skills and Knowledge

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

Required skills

- analytical skills to:
    - evaluate current practices
    - evaluate documentation to create a report, detailing recommendations for capacity enhancements
    - examine and analyse the fault logs for those caused by capacity problems
    - investigate the current workload of the system and its effect on the capacity to perform
    - review the existing system configuration information to determine capacity issues
- communication skills to deal with other team members, clients and vendors
- literacy skills to:
    - interpret technical manuals and forecasting data
    - process and present written and verbal information
- planning and organisational skills to:
    - allow for scheduled maintenance, budgeting and costing, and communications
    - develop new criteria and procedures for performing current practices
    - develop plans with prioritised tasks
    - make contingency arrangements
    - minimise disruption to client
    - prepare time lines
    - ensure quality assurance and risk management
- problem-solving skills to resolve problems through developing capacity planning initiatives
- technical skills to:
    - modify current system to incorporate the planned changes
    - oversee installation of hardware and software elements.

Required knowledge

- detailed knowledge of system's current functionality
- overview knowledge of:
    - component performance management
    - current industry-accepted hardware and software products, including their general features and capabilities
    - key features of financial analysis
    - client business domain
    - performance monitoring tools
    - quality assurance practices with regard to proposed IT capability enhancements
    - service level agreements relating to proposed IT capability enhancements
    - role of stakeholders and the degree of stakeholder involvement.

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: • monitor and accurately assess current and future capacity requirements of a system • predict capacity requirements resulting from business growth, with forecasts being realistic and achievable • plan and install capacity enhancements • create and maintain required documentation.
Context of and specific resources for assessment	Assessment must ensure access to: • live system • service level agreements • fault logs • users • hardware components for installation • 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:
	• review of:
	  • report detailing recommendations for capacity enhancements based on a financial analysis and resources and equipment required
	  • implementation plan for recommended enhancements, with prioritised tasks and minimum disruption to users
	• direct observation of:
	  • installing the capacity enhancements following installation procedures, organisational guidelines and implementation plan
	  • measuring the improved capacity and performance resulting from capacity enhancements
	• evaluation of performance database implemented and maintained
	• verbal or written questioning to assess knowledge of:
	  • industry products, services and practices

	• techniques of capacity planning.
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 may include:	- hardware components that run a computer - software components that run a computer.
Hardware may include:	- modems or other connectivity devices - networks - personal computers - remote sites - servers - workstations.
Software may include:	- application software: - database - internet browser - spreadsheet - word-processing - commercial - customised software - in-house - programming software: - assembler - compiler - development tools - system software: - computer security software - device drivers - operating system.

Service level agreement may include:	• application service providers (ASPs)
	• business processes and requirements
	• charge back to business units
	• communications carriers
	• expectations regarding:
	   • audit of service levels
	   • service levels
	• penalties
	• infrastructure services
	• internet service providers (ISPs)
	• vendor products
	• workload and performance considerations.

Problems may relate to:	• application • business • business need or opportunity that must be addressed • network • people in the organisation • system.
Users may include:	• departments within the organisation • persons within a department • third parties.
Organisational guidelines may include:	• communication methods • content of emails • dispute resolution • document procedures and templates • downloading information and accessing particular websites • financial control mechanisms • opening mail with attachments • personal use of emails and internet access • virus risk.
Requirements may relate to:	• application • business • network • people in the organisation • system.
Forecast workload may be determined from:	• application development personnel • competitive pressures • corporate business plans • economic trends • outside influences, such as legal requirements • trends in existing workload

	• user interviews • user questionnaires.
Equipment may include:	• hard drives • hubs • modems or other connectivity devices • monitors • other peripheral devices • personal computers • personal digital assistant (PDA) • printers • switches • workstations.
Documentation may follow:	• audit trails • International Organization for Standardization (ISO), International Electrotechnical Commission (IEC) and Australian Standards (AS) standards • naming standards • project management templates • report writing principles • version control.
Appropriate person may include:	• authorised business representative • client • project manager • supervisor.
Database may include:	• DB2 • Informix • Ingres • Microsoft Structured Query Language (MS SQL) server • Mini SQL (mSQL) • MySQL • Oracle • Sybase.

Unit Sector(s)

Systems administration and support