



Australian Government

Department of Education, Employment and Workplace Relations

ICTNPL4151A Plan the telecommunications access network for an estate

Release: 1

ICTNPL4151A Plan the telecommunications access network for an estate

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to plan access networks delivering voice, data and video services to customers. It involves collation and evaluation of data relating to network shortfalls and projected usage, leading to the development of solutions and ultimately network plans for an estate. 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.
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Application of the Unit

Application of the unit	Technical officers from private and public organisations apply the skills and knowledge in this unit to perform the role of a network planner. They combine technical design and planning skills with organisational, economic and regulation skills to plan the access network for an estate or green field site. Technical officers may be responsible for small projects or parts of larger projects, and for the operations and engineering of the enterprise and telecommunications network in general.
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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. Gather data on network usage for planning activity	1.1. Determine the type of access network by accessing and using network information sources 1.2. Collect planning data using network information sources to determine network trends 1.3. Evaluate new and emerging technologies to determine availability and compatibility with existing network equipment 1.4. Access relevant legislation and associated regulatory and operational codes
2. Evaluate need for network growth	2.1. Evaluate capacity of the existing network to absorb planned growth 2.2. Identify need and likely timing of necessary network increments 2.3. Assess new or alternate technologies to rectify network shortfall 2.4. Identify barriers relating to planned network extensions that impact on planning the network realisation 2.5. Assess the impact of not meeting network shortfall needs and the long term ramifications on the business
3. Develop solution and network plan to address network shortfall	3.1. Review overall planning parameters prior to commencement of the planning process to produce forecasts for specific network area and cost-benefit analysis 3.2. Establish the optimum solution to address network shortfall with justification for the proposal 3.3. Determine project details and ascertain preliminary costing and resource requirements 3.4. Determine the availability of required technology or technology features within the specified timeframe 3.5. Produce a specific network plan with solution and recommendations for anticipated projects for approval according to enterprise procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- analytical skills to identify details relating to the project from the approved network plan
- communication skills to discuss project brief with the customer
- learning skills to:
 - develop and study planning options, considering present and future needs
 - identify barriers to plan realisation
- literacy skills to write project briefs
- numerical skills to:
 - analyse site survey data
 - cost estimates and operating budgets according to enterprise policy
 - undertake cost-benefit studies to inform the decision making process
- planning skills to review current and new technology, facilities and features when developing options
- problem solving skills to:
 - address and analyse specific customer requirements
 - assess current Access Network conditions
- research skills to:
 - analyse impact on planning processes
 - obtain and study information relating to new technology or technology features
 - obtain geographical information
 - study relevant legislation and associated operational codes
- technical skills to apply the three phases of project management to the project brief

Required knowledge

- awareness of relevant legislation
- detailed knowledge of:
 - cost estimates and operating budgets according to enterprise policy
 - telecommunications industry in Australia
 - theory of project management and associated databases and project management software programs
- overview knowledge of:
 - economic and political influences upon public and commercial enterprises
 - financial authorities and delegations
 - influence of the local and international economic conditions on the telecommunications industry
 - typical challenges and limits facing technology today and the consideration of

REQUIRED SKILLS AND KNOWLEDGE

future needs

- specific knowledge of collating and writing project briefs, reports and project charters

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 ability to:

- implement planning processes including associated monitoring and control mechanisms
- develop solutions to address Access Network shortfalls that satisfy customer and enterprise needs
- merge technological development and product implementation into network development plans
- produce forecasts for a specific network including cost-benefit analysis.

Context of and specific resources for assessment

Assessment must ensure:

- a network planning area, systems and deployment rules and standards
- relevant databases, licensing requirements and other site related procedures.

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:

- direct observation of the candidate undertaking an assessment of an access network
- review of documented network development plan, within specification and within specified timeframes completed by the candidate for differing project briefs
- review of solutions developed by the candidate that address network shortfalls
- oral or written questioning to assess knowledge of planning the access network.

Guidance information for assessment

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

- ICTNPL4108A Plan the deployment of access network architectures
- ICTNPL4109A Evaluate the capability of access

EVIDENCE GUIDE

	networks. Aboriginal people and other people from a non-English speaking background may have second language issues. Access must be provided to appropriate learning and assessment support when required. Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed. In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. Where applicable, physical resources should include equipment modified for people with special needs.
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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.

Access network may refer to:

- copper:
 - coaxial
 - hybrid fibre coaxial (HFC)
 - twisted pair
- broadband:

RANGE STATEMENT	
	• wireless fidelity (WiFi) • world interoperability for microwave access (WiMAX) • digital services: • asymmetrical digital subscriber line (ADSL) • digital subscriber line (DSL) • internet protocol (IP) network: • computer • IP private branch exchange (IP PBX) • Internet protocol TV (IPTV) • Voice over internet protocol (VoIP) • optical: • fibre to the x (FTTx) • fibre to the premises (FTTP) • fibre to the node (FTTN) • HFC • point-to-point network • point-to-multipoint network • wireless networks: • cellular • microwave • radio • satellite.
Network information sources may include:	• network management databases for: • capacity assessment data • network performance data • traffic dimensioning data • network management tools.
Planning data may relate to:	• current and proposed network growth • demographic growth • traffic quantity and flow.
Network trends may include:	• current network capacity • demographic trends • forecasts service demand • forecasts traffic demand • projected network capacity.
New and emerging technologies	• digital subscriber lines:

RANGE STATEMENT	
may include:	• ADSL • DSL • IP broadband converging technologies: • IPTV • VoIP • WiFi • WiMAX • optical transmission systems: • dense wavelength division multiplexing (DWDM) systems • wavelength division multiplexing (WDM) systems • mobile radio.
Relevant legislation may include:	• Australian Communications and Media Authority (ACMA) standards TS 14 • Australian standards applying to radiation hazards • heritage legislation • industrial awards and conditions • International Standards ISO 9000 9001 • International Telecommunications Union (ITU) recommendations • National Parks Act • OHS • Privacy Act • State/Territory and Federal Environment Acts • Telecommunications Act and relevant codes.
Existing network may include:	• boundaries between: • access and inter-exchange networks • Access Network technology and exchange switching and transmission systems.
Barriers relating to planned network extensions may include:	• building availability • environmental considerations • financial constraints • government policy • heritage legislation restrictions • land acquisition problems • material availability • planning approvals • technology availability.

RANGE STATEMENT	
<i>Planning parameters</i> may relate to:	• network criteria: • cover sites, buildings and structures • network change • network growth • network reduction • organisational policies, procedures and guidelines • planning priorities driven by: • customer demand • legislative requirements • marketing initiatives • network conditions • revenue projections • planning processes: • documented within enterprise process manuals • enterprise specific.
<i>Resource requirements</i> may refer to:	• external to the enterprise • internal to the enterprise.
<i>Network plan</i> may include:	• activities • finance • labour • material.

Unit Sector(s)

Unit sector	Telecommunications
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Co-requisite units

Co-requisite units		

Competency field

Competency field	Network planning
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