Australian Government

Department of Finance and Deregulation

Australian Government Information Management Office

ICT Benchmarking: Better Practice Roadmap Attachments

PART 2 | VERSION 1.0

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Contents

This document is Part 2 of ICT Benchmarking: Better Practice Roadmap. These attachments provide additional detail to assist agencies implement systems and processes for improved data preparation in line with the Capability Maturity Model described in Part 1.

Attachment A: CMM Methods of Achievement

Table 1 Methods of Achievement for ICT Benchmarking Capability Maturity Model

Maturity Level	Capability Attributes	Method of Achievement Preparation of Benchmarking Data	Method of Achievement Management of ICT Expenditure
Level 1 – Initial Process	Dependence on 'heroics' of key individuals Ad hoc processes not well defined – each year is a new process Inadequate capability to perform the work High cost and inefficient solution Low levels of data integrity Difficult to meet timeframes for external reporting	• Poorly coordinated and convoluted preparation process • High level of reliance on manual data entry/calculations without a well defined tool/system to calculate the costs and prepare the volume and FTE data (i.e. one-off process) • Unable to explain variances between years and benchmarking data • Driver data is not evidence based (e.g. mainly based on management estimates) or source data has a low level of integrity • Volume data is not well understood or used by management • Contractor FTE data is not readily available and has to be estimated • General ledger is not aligned to the input cost elements	• Basic level of understanding of variations between years and against benchmarking data • ICT Expenditure Review is regarded as an annual compliance process • Low level of understanding of ICT expenditure in terms of capacity required, workload drivers, cost pressures, changes in level of expenditure, and the reasons for any funding gaps • Management of ICT expenditure is largely based on the traditional view of managing budgets by cost centres and cost pools • ICT Expenditure Review is seen by management as a minimal compliance process and does not utilise cost and benchmarking data to assist with management of ICT expenditure • Low level of understanding of ICT functions, processes and cost structure

Maturity Level	Capability Attributes	Method of Achievement Preparation of Benchmarking Data	Method of Achievement Management of ICT Expenditure
Level 1 – Initial Process (cont.)		• Business rules not defined (e.g. attribution of input costs to Service Towers) • Standard terms and definitions are not well understood (e.g. Service Towers, and BAU and non-BAU) • Inconsistent use of data structures and definitions • High turnover of staff involved in the benchmarking process, including high reliance on external contractors and consultants with little or no handover or documentation of process	• Management of ICT expenditure is largely based on the traditional view of managing budgets by cost centres and cost pools
Level 2 – Repeatable Process	Established process which is repeated each year Common language Defined list of tasks Right people assigned Basic infrastructure in place Level of reliance on key individuals Level of inefficiency in preparation process Variable levels of data integrity	• Business rules are consistently applied by key individuals each year based on prior experience • High level of reliance on key individuals with limited knowledge of process and business rules across the ICT functions • Cost system and process and data collection of operational and FTE data is considered functional • Data collection is a one-off process each year • High level of reliance on management estimates for cost driver data	• Basic level of understanding of variations between years and against benchmarking data • Limited use of benchmarking data to improve performance • Low level of management awareness of standard benchmarking terms and definitions and have aligned internal processes and systems to the AGIMO standards

Maturity Level	Capability Attributes	Method of Achievement Preparation of Benchmarking Data	Method of Achievement Management of ICT Expenditure
Level 3 – Defined Process	Policies, processes and standards are well defined and uniformly applied Cost effective solution Data integrity is acceptable Able to meet timeframes for external reporting	• Business rules to attribute input costs to Service Towers are defined in a formal document and are well understood by management at all levels and encompass all aspects including complex issues such as capitalisation of expenditure, project expenditure, allocation of depreciation costs (based on asset register), contractor FTE (standard reporting process), and collection of decentralised data (standard reporting process) • Fully functioning costing system/process in place to calculate the benchmarking costs • Well defined data collection processes for collecting source data including: cost driver (e.g. staff effort) and operational volume (e.g. call volumes for the help desk), and FTE data • Capacity to drill down from benchmarking templates to underlying evidence with a minimal reliance on manual data entry into the template (i.e. integrated benchmarking template into internal preparation process) • Validation process to ensure correctness of benchmarking data • Appropriately skilled and experienced practitioner/s available to prepare the benchmarking data • Assign responsibility for each Service Tower to IT Managers	• Management is able to clearly explain any material variations between years and against benchmarking data • Management have a depth of understanding of the standard benchmarking terms and definitions and have aligned internal processes and systems to the AGIMO standards • Some use of benchmarking data to improve performance • Management is able to clearly define the BAU baseline level of resources

Maturity Level	Capability Attributes	Method of Achievement Preparation of Benchmarking Data	Method of Achievement Management of ICT Expenditure
Level 4 - Managed Process	Risks are defined and managed Extensive debate based on substantive evidence Rigorous measurement Efficient systems and processes Data integrity is high	• Direct data entry of supplier transaction data against Service Towers in the FMIS • Operational volume data is directly accessible from functioning business systems with a high level of data integrity and the data is regularly used by management • Contractor FTE data is readily available from an existing management process • Cost drivers are evidenced based (i.e. able to defend the data) • Minimal cost and effort in preparing benchmarking data (less than 15 person days)	• Up to date performance improvement strategy to achieve target levels of performance, apply better practice processes, and achieve operational efficiencies • Best practice processes are well defined and understood for each Service Tower • Share benchmarking data and better practices with peer agencies to improve performance • Management of ICT expenditure to ensure the best use of resources is a key result area for senior management who have a depth of understanding of the cost structure • Senior Manager appointed at the appropriate level of seniority with functional responsibility for managing resources and controlling ICT expenditure (effective 'front door' – no additional work until additional funding is provided) • Separate BAU and non-BAU budgets and a well defined resource management strategy that identifies the level of resources required to meet the expected workload and maintain service standards for BAU activities and complete non-BAU activities within the agreed timeframes and budget (i.e. capacity planning and demand management) • Centralised CIO organisation (i.e. minimal ICT expenditure managed directly by business areas)

Maturity Level	Capability Attributes	Method of Achievement Preparation of Benchmarking Data	Method of Achievement Management of ICT Expenditure
Level 5 – Optimised Process	Best in class processes Knowledge management Exploiting opportunities Source of competitive advantage	• Financial, personnel and operational data for the benchmarking process is available at the service tower level at any time during the year • Internal systems and processes have aligned the data structures to the benchmarking data formats (e.g. input cost elements, contribution areas, and Service Towers), and AGIMO ICT processes (i.e. plan, build, run, and management and governance) and job roles, and the whole of government ICT Chart of Accounts • Monthly attribution of APS staff and contractor costs to Service Towers based on staff effort data provided by a time recording system • Align asset classes with Service Towers to support the attribution of depreciation costs • Project ledger with Work Breakdown Structure (WBS) • Billing data from major suppliers identifies the split by Service Tower • Supplier expenditure recorded against Service Towers in Purchase Orders which are entered by a Centralised Procurement function (key control point)	• ICT benchmarking process is embedded in the management planning and reporting process and is recognised as a value added process by management at all levels (e.g. cost, operational volume, and FTE data by ICT processes, services and products, and benchmarking data by Service Tower) • Benchmarking data is integrated with effectiveness measures such as system performance and reliability (e.g. number of outages) • Use of Benchmark data is optimised to assist in informing an agencies sourcing strategy and is used to define categories for market testing activity, including volume and quantity data • Integrated solution where cost drivers are linked to changes in the ICT environment (Configuration management informing BAU resource requirements) and the allocation of ICT costs to agency programs/outcomes (activity based management) • BAU funding arrangements include a growth factor to account for 'flow on' costs due to the implementation of new applications and infrastructure, and increases in workload and cost pressures

Attachment B: Data Preparation Issues

This section provides a discussion on a number of specific areas of complexity in preparing the benchmarking data. The following sections provide advice on how to address these issues.

Volume Data

The key issue with preparing the volume data is that the required source data may not be readily available from operational systems, which were not initially set up to provide this information.

Cost Data

There are a number of areas of complexity with preparing the cost data:

Depreciation: agency asset registers data do not always clearly define the asset owner and it is sometimes difficult to determine if the asset class is IT related, which results in a level of difficulty in allocating depreciation costs to Service Towers;

Capital expenditure: asset transaction reports do not generally provide visibility of capital expenditure between contributing resources (i.e. internal and external personnel, and suppliers) resulting in complexities reporting against the ICT cost elements;

ICT cost elements: chart of accounts is generally not aligned to the AGIMO ICT Cost Elements, which requires general ledger codes to be manually mapped to the AGIMO framework;

Supplier expenditure: unable to access the required level of detail on the ICT expenditure from external providers for outsourced ICT infrastructure services;

Cost driver data: there is often limited volume data to assist in the attribution of input costs against the ICT benchmarking framework which places a heavy reliance on management estimates;

Staff effort data: it may be difficult to identify which BAU/non-BAU activities and Service Towers that internal and external personnel have performed;

Project Costs: a sound process for allocating internal and external personnel costs to projects may not be in place; and

Allocated internal costs: some ICT costs are allocated to business units as part of an internal charging regime (e.g. desktop services). It is important to exclude these journal charges from the source financial data (i.e. unallocated view).

Note - some agencies attempt to work at the transaction data level in the FMIS as part of an end of year allocation process. This approach represents a low level of maturity, as it consumes considerable time and effort and generally results in a low level of data integrity.

Personnel Data

There are a number of areas of complexity with preparing the personnel data:

External personnel: source data for IT contractors may be inadequate in terms of determining the average staffing level;

Staff Classification: agency staffing classifications are not always aligned to the AGIMO Staff Classifications (i.e. contribution areas) resulting in a manual mapping exercise; and Complexities also exist in determining whether non-APS resources should be classified as IT Contractors (External Personnel) or Consultants (Services outsourced to External Service Provider).

Other Issues

Decentralised ICT: A number of agencies have ICT activities performed outside of the CIO organisation (i.e. decentralised data). Identifying source data from business areas (i.e. operating and capital expenditure and personnel data) often requires a manual and time consuming data collection process. ICT divisions often perform business support functions (e.g. records management) and these functions need to be considered out of scope for ICT benchmarking (i.e. non-ICT activities).

Outsourced ICT: A number of agencies are primarily dependent on outsourcing environments. It is important that vendors align their offerings to the AGIMO metrics. This is best achieved during the initial sourcing activity and have the reporting arrangements written into the contracts (i.e. include the AGIMO taxonomy as part of the sourcing SOR). Where long term contracts are still in place, then a mapping activity needs to take place where existing billing data is mapped to Service Towers. The approach for cloud computing is expected to be based on the same method as for other outsourced environments. However, there may be limitations in obtaining the necessary detail regarding the underlying ICT infrastructure in some cloud arrangements.

Attachment C: Base Model

Phased Implementation

Figure 3 provides an overview of the design of the base model for the preparation of financial and personnel data for the ICT benchmarking process. It is designed as an end of year attribution process which provides a low cost solution for compliance.

Key control points include:

- Well defined and consistently applied business rules for financial and personnel data; and
- Maintain control totals at each stage of the cost attribution process.

The Base Model has three key phases:

Phase 1 – Prepare Source Data;

Phase 2 - Attribution Process; and

Phase 3 – Outputs.

Phase 1 – prepare source data:

1. Load centralised financial source data by cost centre and cost element from the General Ledger (GL).
2. Map GL cost elements to Benchmarking Cost Elements.
3. Load HR source data (HR Report) – FTE by Cost Centre.
4. Map agency staffing bands to APS Classifications (if necessary).
5. Load external personnel hours from the IT contractor register by individual by cost centre.

Phase 2 – attribution process:

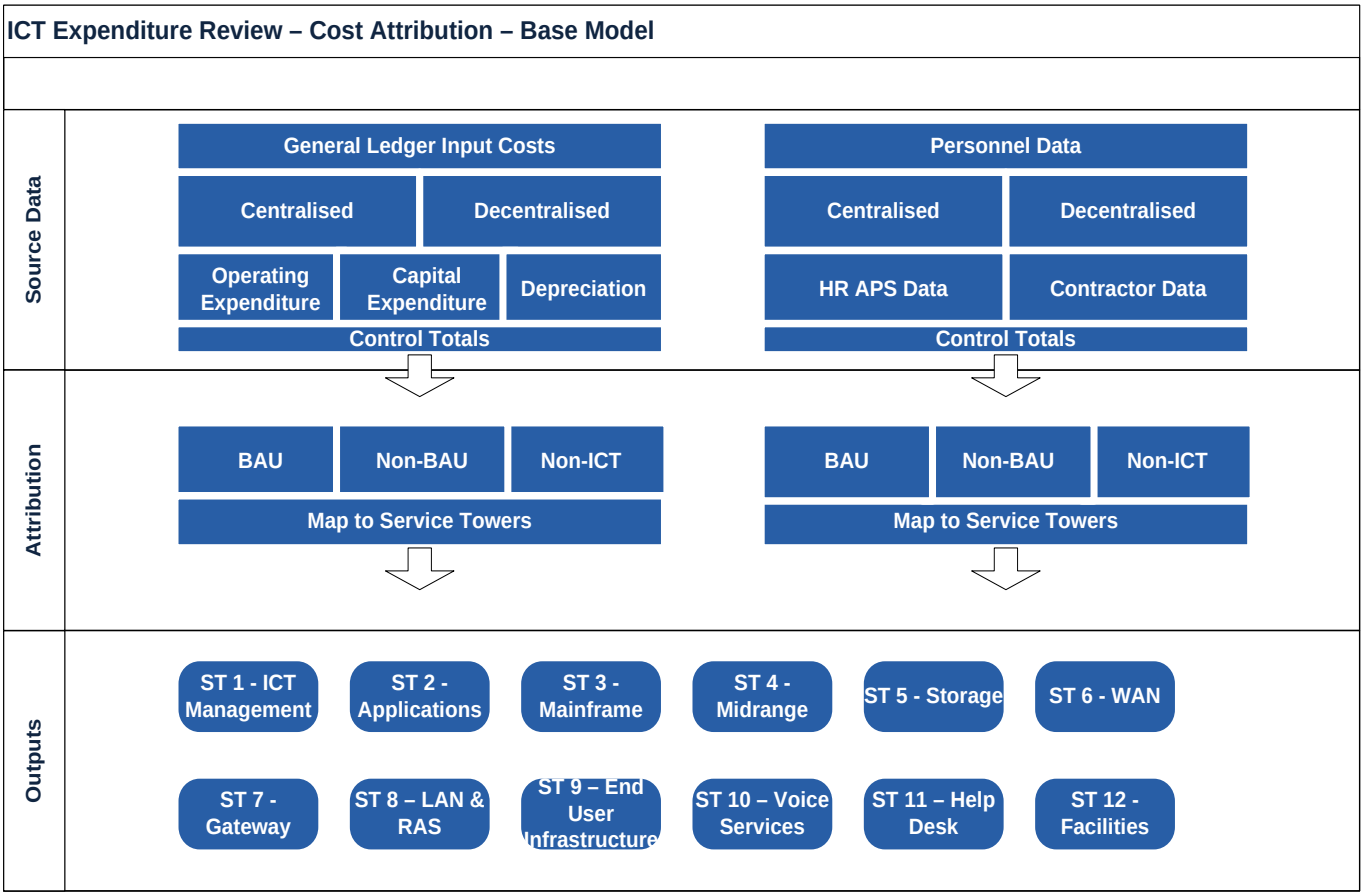
6. Develop collection of cost attribution business rules using the standard template process at the cost centre/cost element group level and individual APS and IT contractor positions to Service Tower, BAU/Non-BAU and contribution areas.
7. Load cost centre / cost element data for decentralised ICT expenditure (general ledger analysis).
8. Load depreciation data for ICT assets by Asset Class and apply cost attribution business rules.
9. Load capital expenditure data by project code (e.g. internal order) and apply cost attribution business rules.
10. Identify manual adjustments to ICT expenditure and staffing (e.g. ICT capital projects delivered external to the CIO organisation).
11. Detailed expenditure analysis of ICT projects by project code and identify the material ICT projects (i.e. 80/20 rule – 20% projects that make up 80% of expenditure) by total expenditure (operating and capital) and attribute expenditure and FTE to Service Towers.

12. Apply business rules to attribute costs to Service Towers (level 1) and Service Tower classifications (Level 2).

Phase 3 – outputs:

13. Refine and validate output costs with responsible IT managers.
14. QA all results and update supporting documentation.
15. Compare results with prior years and available benchmark data and explain any material variations.
16. Socialise the results with the Executive.

Figure 1 – Base Model Cost Attribution Design



Development of the Base Model

The estimated effort for developing the base model is approximately 20 days of a suitably skilled practitioner, for a large agency, depending on the size and complexity of the CIO organisation (applies to ICT Expenditure up to $100m). The base model can be developed within several weeks, including the benchmarking return for the current year and documentation of the business rules. The base model includes a cost model which can be developed using standard spreadsheet technology.

PHASE 1 - SOURCE DATA

Financial Data

The source financial data is obtained from the General Ledger (GL). This provides the actual expenditure for a full financial year and encompasses centralised ICT expenditure from the CIO organisation and decentralised ICT expenditure from other business areas. The centralised financial data is obtained from selecting the relevant cost centres from the CIO organisation. The decentralised financial data can be obtained from filtering the total expenditure by the ICT expense codes and selecting the cost centres for any devolved ICT functions (i.e. not performed in the CIO organisation).

The financial data is classified into three expenditure categories:

- Operating expenditure (captured by cost centre and GL expense code);
- Capital expenditure (captured by project and GL expense code [1]); and
- Depreciation on ICT Assets (captured by asset class).

The source financial data needs to be converted into suitable format prior to attributing costs to Service Towers. GL expense codes, depreciation line items, and capital projects are mapped to the standard ICT cost elements.

Table 2 ICT Cost Elements

Hardware	Internal personnel
Software	External personnel
Services outsourced to external provider	Carriage
Services outsourced to FMA Act agencies	Others

Capital expenditure projects need to exclude any non-ICT expenditure, which may require a detailed review of the project budget with the Project Manager supported by the Project Management Office (PMO). Note - capital projects that are managed outside the CIO organisation may represent more of a challenge due to the difficulty in obtaining input into the data collection process.

Control totals are established at an early point in the benchmarking process for all elements to ensure a high level of data integrity in the attributed costs for each Service Tower. The control totals should be reconciled to the audited accounts where possible and reviewed at each stage of the attribution process to ensure all costs have been considered. Note – manual adjustments may also be required to account for all of the decentralised expenditure. Table 3 provides a simple format.

Table 3 – Control Totals

ICT Expenditure	Centralised	Decentralised	Total
Operating Expenditure	$'M	$'M	$'M
Capital Expenditure	$'M	$'M	$'M
Depreciation	$'M	$'M	$'M
Total	$'M	$'M	$'M

[1] GL expense data may not be available as you may only be able to access the asset view of the capitalised cost (i.e. benchmark data is prepared in September).

Personnel Data

There are two types of personnel data collected for centralised and decentralised ICT functions:

- Internal Personnel (i.e. APS staff); and
- External Personnel (i.e. IT contractors).

The APS staffing data is sourced from the HR System by classification level each month and converted into an Full Time Equivalent (FTE) for the financial year. IT contractor data may be available from a contractor register (i.e. start/end dates, hourly rates, and FTE) or is calculated from the GL cost data (i.e. total contractor expenditure for each cost centre divided by average hourly rate).

PHASE 2 - COST ATTRIBUTION

Financial Data

The financial data at the cost centre/cost element intersection (Table 4), depreciation by asset class (Table 5), and individual capital projects (Table 6) is classified as BAU, non-BAU or non-ICT using direct mapping or management estimate. Non-ICT costs may include business functions such as records management which has been structured into the information management function. The financial data is then classified by Service Tower using direct mapping (e.g. cost centre, depreciation item or project is aligned to a Service Tower) or management estimates to determine the attribution. Note – the preferred approach is to use operational or staff effort data, where available, to at least inform the management estimates.

Management estimates may be informed by detailed analysis of individual positions or line items. Where possible, the assumptions or cost driver data underpinning the management estimates should be explained in a supporting explanatory note. The collection of the management estimates is best completed by a face to face facilitated process with the responsible manager for each IT function and the facilitator. An expert team is then available to refine and validate the estimates. Responsible managers are required to sign off on the management estimates.

Table 4 – Cost Centre/Cost Element

Cost Centre Name	Cost Pool	Amount	BAU	Non-BAU	Non-ICT Total	Total	ST1 - ICT Management	ST2 - Applications	ST3 - Mainframe	ST4 - Midrange	ST5 - Storage	ST6 WAN	ST7 - Gateway	ST8 LAN and RAS	ST9 - End user Infrastructure	ST10 - Voice Services	ST11 - Helpdesk	ST12 - Facilities	Notes
ICT Security	Carriage		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
ICT Security	External personnel		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
ICT Security			0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
ICT Security			0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
ICT Security			0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
ICT Security			0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	

Table 5 provides the standard template for allocating depreciation costs to BAU/non-BAU, cost pools and Service Towers.

Table 5 – Depreciation/Asset Class

Cost Centre	Asset Description	Asset Class	FY Depn	BAU/Non-BAU/Non-IT	ICT Cost Pool	Tower	Notes
				BAU	Hardware	End user infrastructure	
				BAU	Hardware	End user infrastructure	
				BAU	Hardware	End user infrastructure	
				BAU	Hardware	End user infrastructure	
				BAU	Hardware	End user infrastructure	
				BAU	Hardware	End user infrastructure	
				BAU	Hardware	End user infrastructure	

Table 6 provides the standard template for allocating capital project costs to BAU/non-BAU, cost pools and Service Towers.

Table 6 – Capital Project/Cost Pool

Business Area	Project ID	Title	Internal Order XX - NPI Funded XX - Internally Funded	Actual 10-11 YTD Spend Jun 10	Proportion of Capital spend ICT related	Amount to Allocate	BAU/Non-BAU/Non-IT	ICT Cost Pool	Service Tower	Notes
		Project 1			0%		Non-BAU	Hardware	LAN and RAS	
		Project 2			0%		Non-BAU	Hardware	LAN and RAS	
		Project 3			0%		Non-BAU	Hardware	Midrange	
		Project 4			0%		Non-BAU	Hardware	Storage	
		Project 5			0%		Non-BAU	Hardware	LAN and RAS	
		Project 6			0%		Non-BAU	Hardware	WAN	
		Project 7			0%		Non-BAU	Hardware	Voice services	

Table 7 provides an illustration of the process to provide a further break down by classification of the Service Tower costs using management estimates.

Table 7 – Service Tower Costs by Classification

Midrange						
Totals to allocate				**Opex**	**Capex**	**Depreciation**
				$	**$**	**$**
By classification (input %)						
Wintel systems						
Production	0%	0%	0%	$ -	$ -	$ -
Non-production (eg. Development, testing)	0%	0%	0%	$ -	$ -	$ -
Dedicated disaster recovery	0%	0%	0%	$ -	$ -	$ -
Others	0%	0%	0%	$ -	$ -	$ -
***nix systems**						
Production	0%	0%	0%	$ -	$ -	$ -
Non-production (eg. Development, testing)	0%	0%	0%	$ -	$ -	$ -
Dedicated disaster recovery	0%	0%	0%	$ -	$ -	$ -
Others	0%	0%	0%	$ -	$ -	$ -

Notes:

Table 8 provides an indicative mapping of ICT functions to BAU/non-BAU and Service Towers. Note – detailed business rules are unique to the organisational and cost structures of each agency and require specific analysis and interpretation in accordance with the standard definitions. The completion of all of the tables in this section will provide the details to support the documentation of the business rules.

Table 8 – Mapping of ICT Functions

ICT Function	BAU/ Non-BAU	Service Tower	Analysis
IT Security	BAU	ICT Management	As defined in Service Tower Exclude non-ICT security processes (e.g. general security policy)
Office of the CIO	BAU	ICT Management	CIO and support staff
IT Business Support	BAU	ICT Management	All business support functions including planning, governance, finance, HR, procurement, and contract management
Senior/Branch Managers	BAU	ICT Management	All SES level managers and support functions (not directly engaged on projects)
Enterprise Architecture	BAU	ICT Management	As defined in Service Tower
Project	BAU	ICT Management	As defined in Service Tower

Management Office			
Business Process Analysis	Both	Applications	Relates to both maintenance and development activities
Test and QA	Both	Applications	Relates to both maintenance and development activities
Applications Support	BAU	Applications	As defined in Service Tower
Applications Development	Non-BAU	Applications	As defined in Service Tower
Network Services	BAU	LAN/RAS WAN Gateway Voice	May contribute to capital projects where new or improved technology is implemented as part of a project, then that component is considered non-BAU
Service Desk	BAU	Help Desk	First point of contact, including Incident Management and 1st level support
Desktop Services	BAU	End User Infrastructure Help Desk	May contribute to capital projects where new or improved technology is implemented as part of a project, then that component is considered non-BAU
Other ICT Operations	BAU	Mainframe Midrange Facilities Storage	May contribute to capital projects where new or improved technology is implemented as part of a project, then that component is considered non-BAU

PHASE 3 – OUTPUTS

The Base Model provides a multi-dimensional view of the ICT expenditure data including:

- Total ICT expenditure: operating and capital expenditure and depreciation by Service Tower and Cost Pool;
- BAU: as above;
- Non-BAU: as above; and
- Service Towers: each individual Service Tower by cost pool, operating and capital expenditure and depreciation, and by classification.

It also provides a multi-dimensional view of the total personnel data, by internal and external FTE, including:

- Total personnel:
- BAU;
- Non-BAU;
- Service Tower;
- Contribution Area; and
- APS Classification (internal personnel only).

Note - the Base Model can be developed to automatically populate the ICT Expenditure Review benchmarking templates. This needs to be reviewed each year to accommodate any structural changes to the AGIMO template.

The CIO and Senior Management Team and the CFO should review the suite of output reports to ensure that the numbers are reasonable and that they are able to understand any material movements in the BAU resource levels between years.

Attachment D: Extended Model

Source Data

The Extended Model provides better quality source data for attributing costs to Service Towers and a more robust costing tool than the spreadsheet used for the Base Model. It requires the implementation of a time sheet recording tool and a dedicated costing tool from within the FMIS suite of applications [2], and set up of standard templates for collecting decentralised ICT expenditure and FTE data for external personnel.

Source data is accessed through more effective processes and systems with consistent data structures to capture the data including:

- Evidence based cost driver data using staff effort data sourced from a time recording system for internal and external personnel (i.e. replace management estimates where appropriate) and attributed to activities and projects;
- Standard process to maintain FTE data for external personnel (i.e. hourly rates, start/end dates, cost centre and contribution areas);
- Standard process to capture decentralised ICT cost and personnel data;
- Depreciation costs are captured by asset class in the asset register and mapped to Service Towers; and
- Billing data from major suppliers identifies the split of costs by Service Tower.

Timesheet Recording

Payroll costs are sourced either from an integrated HR/Payroll solution within the FMIS or interfaced from a separate payroll system. Best practice is for an employee to be linked to a base cost centre, based on the organisational structure reflecting management control (e.g. leave approval and supervisory functions).

The most accurate method for the allocation of employee costs for internal and external personnel is through the use of a time sheet system that is able to capture time against the Service Tower cost objects. The timesheet system can capture staff effort for each individual internal and external personnel by section against a defined list of activities/projects that are mapped to Service Towers. The time sheet data should be validated by the responsible manager of each section.

External Personnel

Many agencies have difficulty in tracking the number of IT contractors as part of a standard HR management process, which presents a level of difficulty in providing the benchmarking personnel

[2] The costing tool could also be a stand-alone activity based costing application.

data. Without a standard process for maintaining this data agencies are often required to calculate the FTE using an average rate for each section and dividing the total cost of contractors.

Table 9 provides an illustrative standard template for tracking external personnel for BAU activities. This process would need to be updated on an ongoing basis to account for changes in contract details and resource allocation.

Table 9 – BAU Contract Details

Name	Section	Contribution Area	Service Tower	Activity	Start Date	End Date	Daily Rate	Duration (days)	July	August
Contractor 1	Infrastructure Services	Infrastructure and Facilities	Midrange	Run - Application Analysis	1/07/2008	28/02/2010	800	608	1	1
Contractor 2	Applications Development	Systems Analysis and Design	Applications	Run - Application Support	1/07/2008	31/08/2009	1000	427	1	1

Decentralised Costs and Personnel

The centralisation of ICT functions in the CIO organisation is regarded by many analysts as best practice. However, many agencies have decentralised ICT functions in business areas. It is generally a complex under taking to estimate the ICT costs and personnel employed in business areas. The recommended approach is to develop a standard process to collect the source data and estimate the cost and personnel data including:

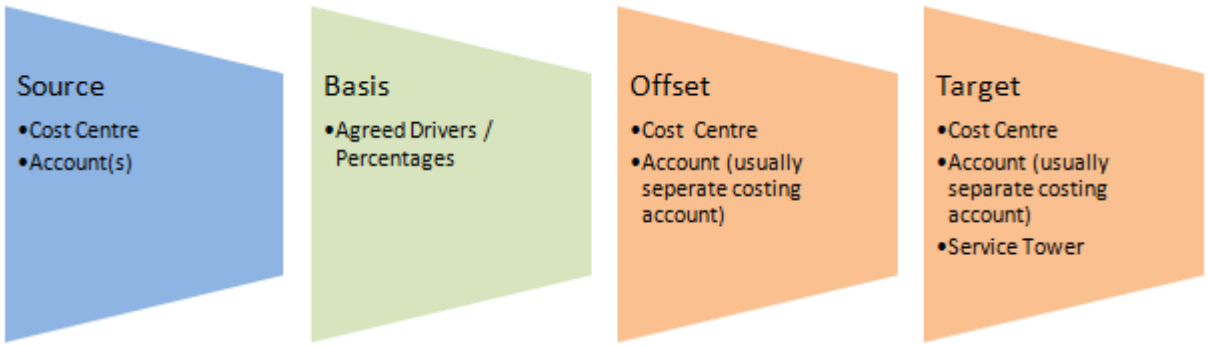
- An extract of ICT cost elements by cost centre from the General Ledger for all other cost centres excluding the CIO organisation;
- Identification of ICT business functions performed in business areas and consultation with managers to identify ICT personnel and costs; and
- Identification of ICT projects managed by business areas and/or business projects with a material ICT component, and consultation with Project Managers to estimate the level of ICT expenditure and personnel.

FMIS Costing Tool

Payroll and supplier costs are captured based on the chart structure established within the FMIS. The costs not captured directly to ICT Service Towers must be attributed based on the defined and agreed percentages or other cost drivers. The costing module within the FMIS needs to be established to undertake this allocation.

Cost allocation functionality varies between FMIS systems but in broad principal the rules presented in Figure 2 apply.

Figure 2 – FMIS Costing Tool



It is generally recommended to use a separate account to post the offset and target entries so that reporting can still be undertaken on the source account. This is especially prudent where multiple GL accounts are collated in the one allocation rule. In addition, by using separate accounts, it is easier to trace costs and report on the before / post allocation rules. In many FMIS applications, the separate costing accounts are defined as secondary cost elements and by definition the balance of these accounts must always be zero. If the Service Towers are defined within the reporting tool only, this attribution process must be performed externally to the FMIS.

Implementation Strategy

The Extended Model requires the implementation of a time recording system, FMIS cost model, IT contractor register, and standard process for capturing decentralised cost and personnel data. The first step in implementing a time recording system is to define the data structure for recording the staff effort data (i.e. hierarchy of activities and map to Service Towers). The technical configuration of the time recording system is considered a relatively straight forward process using suitably skilled practitioners. However, the change management process represents a more significant challenge to ensure a high level of acceptance by managers and staff which will provide an adequate level of data completeness and the timeliness of data collection. Another key issue is maintaining the data structure and updating the staffing profile for internal and external personnel.

The Costing Tool is also considered a relatively straight forward process to configure using suitably skilled practitioners. The real challenge is defining and maintaining the cost attribution rules and ensuring a high level of data integrity of the cost driver data (i.e. staff effort from the time recording system).

The standard processes for collecting decentralised personnel and cost data and the contract register for IT contractors are also considered to be relatively straight forward technical processes. The challenge for the decentralised data is setting up defined processes in advance, socialising these with business areas, and obtaining a level of support. The challenge for the contract register is updating the data and ensuring ownership by the relevant managers.

Attachment E: Advanced Model Overview

The Advanced Model is based on configuring the FMIS and supporting operational systems and processes to fully support the ICT benchmarking process; including aligning the data structures with the ICT benchmarking process.

Business Rules

The Advanced Model is based on a number of business rules including:

- All ICT transactions are captured at the transaction data entry point with a centralised CIO organisation and centralised procurement process for all ICT expenditure, and supplier transactions are processed using purchase orders (i.e. key control point – transaction data entry is a controlled process);
- Multiple level hierarchy in the Work Breakdown Structure (WBS) in the project ledger which encompasses all BAU and non-BAU activities and Service Towers (ST) are defined at level 1 in the WBS hierarchy using an attribute [3];
- Transaction data is entered at the lowest level in the WBS (e.g. payroll costs are posted to the relevant cost centre in the general ledger and then attributed to activities and projects in the project ledger using timesheet data);
- All financial modules include the WBS field for transaction data entry (i.e. purchasing, assets, payables, project, time recording and planning);
- Actual and budget transaction data are entered on the same basis;
- Single cost centre budget which is split into BAU and non-BAU using the WBS attribute;
- WBS element master data has been enhanced to allow for the assignment of a single WBS attribute for each Service Tower;
- Budget is built from the bottom up resource planning process which defines the activities (WBS) performed by each resource, using the Planning module;
- Cost elements are based on the ICT Cost Elements as defined by AGIMO;
- Depreciation costs are captured by asset classes which are mapped to the WBS;
- Payroll costs are captured in a single cost centre for each ICT business unit;

[3] The Project Ledger, WBS and timesheet recording are considered to be critical success factors to support the implementation of this solution.

- All ICT internal and external personnel record effort against the defined activities in the WBS in time sheets to attribute payroll costs to BAU activities and projects, from the CIO downwards;
- Reporting tool provides a multi-dimensional view of the ICT expenditure (i.e. cost centre, cost element, project, cost type, project type, funding source, employee classification/pay scale, WBS and Service Tower, and lower level activities);
- ICT benchmarking framework is integrated with the internal management reporting process (includes monthly updates of expenditure by Service Tower) and the benchmarking data informs the formulation of performance improvement strategies. Non-ICT business units are able to view notional ICT costs by Service Tower (e.g. cost per end user based on the number of workstations); and
- Weekly batch process settles all WBS attributed costs back to cost centres using secondary cost elements.

Work Breakdown Structure

Table 10 provides a high level summary of a multiple level hierarchy set up in the WBS. The design of this data structure is a critical success factor in implementing the solution. Note - there is a high level of ongoing maintenance involved with ensuring the WBS data structure is kept up to date.

Table 10 – WBS Hierarchy

Level	Description
Level 1	Total ICT expenditure by Project Structure (BAU, Asset, and Capital), and Cost Type (Operating and Capital)
Level 2	Service Tower (e.g. ICT Management or Applications)
Level 3	Sub-element of Service Tower (e.g. ICT Management: governance and procurement or Applications: agency specific business system)
Level 4	BAU and non-BAU activities or projects

End to End Process

Figure 3 provides a high level end to end process model from budgeting to accounting to reporting. Note – all supplier, employee and contractor costs, and depreciation costs charged to WBS codes are settled back to cost centres or Assets under Construction (AUC) using secondary cost elements. This allows for accurate reporting against WBS and cost centres and separation of capital and operating expenditure.

Figure 3 – End to End Process

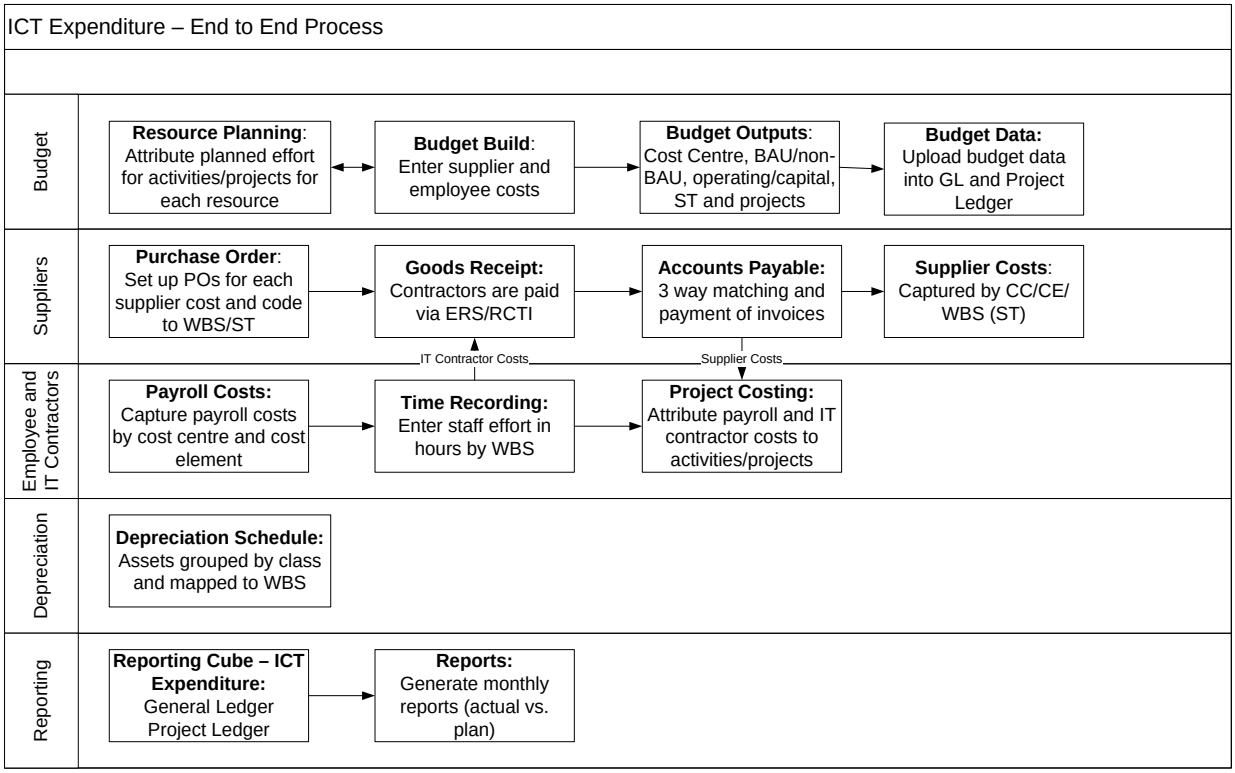
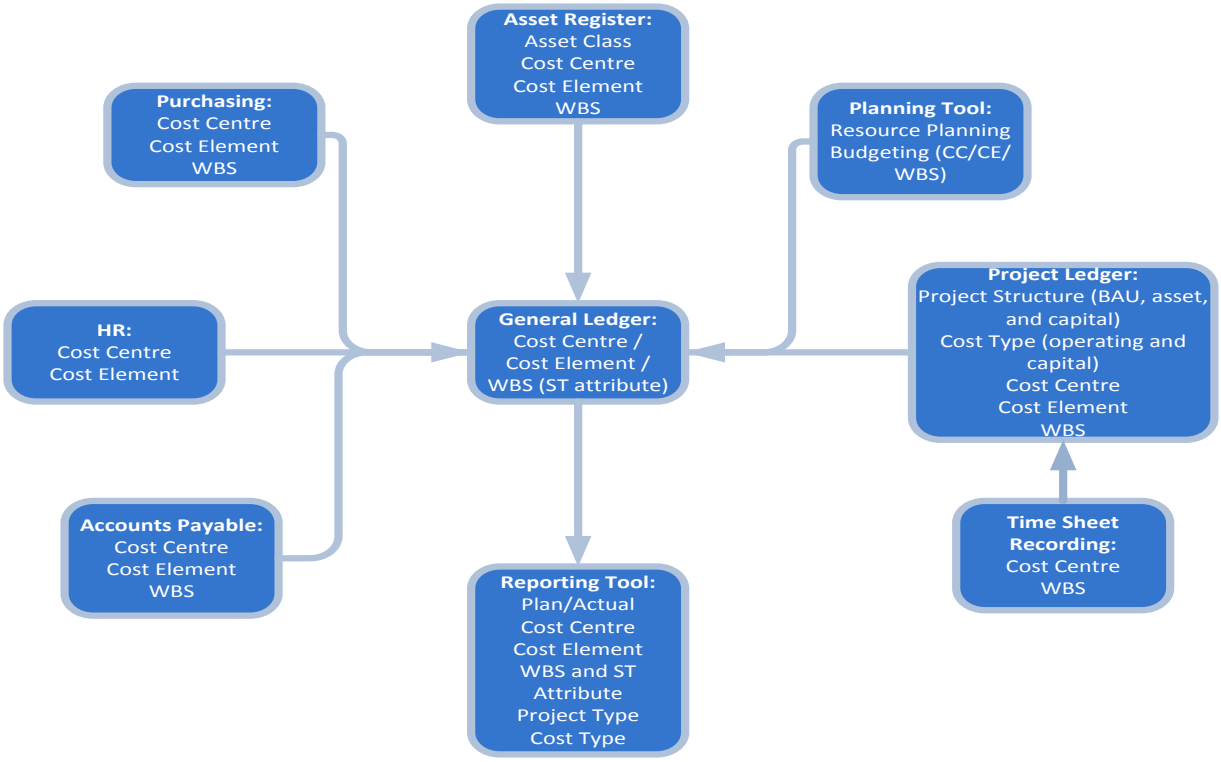


Figure 4 provides a high level overview of the integrated FMIS solution which has been configured to support the Advanced Model. An important consideration is that the configuration of each module is based on the standard processes with minimal customisation. Practitioner level detail on the FMIS solution is provided in a separate paper.

Figure 4 – Integrated FMIS



Implementation Strategy

The critical success factors of the Advanced Model include:

- Strong leadership and support at CIO organisation SES levels to drive substantial cultural change;
- Financial and Human Resources modules tightly integrated and fully mature business processes;
- Mandatory adoption of Work Effort timesheet recording for all ICT staff and contractors;
- Central maintenance of WBS master data and structures;
- Ability to budget at the same level as actual expenditure;
- Ongoing review and improvement of supporting processes;
- Emphasis on developing the financial management skills of all ICT Executive Level 2 and above; and
- Transparency of cost structures and where resources are being used, allowing for continual reassignment of resources to the highest priority work.

As with most FMIS implementations the preferred go live date is the 1st of July. The implementation timeframe would depend on which FMIS modules are already being used and whether additional modules need to be implemented. The project involves configuring the core financial applications,

defining the business rules, data structures and business processes. The reporting cubes and reports to support this model also need to be configured.

The current configuration of each agency's FMIS will impact on the design of the ICT Expenditure FMIS Solution.

Attachment F: Advanced Model – FMIS

FMIS Solution for ICT Benchmarking

The core components of an FMIS solution include:

- Chart of Accounts;
- General Ledger with integrated sub-modules;
- Payroll Costing and Time Sheet Recording;
- Project Ledger;
- Effective Planning / Budgeting Tool; and
- Reporting Tool.

The Chart of Accounts design must be structured to be able to effectively capture and report on ICT costs. The defined General Ledger accounts must be structured to capture costs at an appropriate level for internal management purposes and be able to be classified in accordance with AGIMO Input Cost Pools. Hierarchies (or groupings of accounts) can facilitate the classification into the required cost pools.

Within the chart structure, a segment is reserved for cost centres which generally reflect the organisational view. A cost centre represents a low level unit of managerial cost accountability. It represents a clearly defined management unit where costs can be incurred. Expenses captured against cost centres reflect the 'input' accountability of those costs – responsibility for the expenditure. For ICT expenditure these should reflect the defined units within ICT so the costs can be attributed based on time capturing techniques or defined approved estimates for each responsibility area.

Service Towers reflect the output view of the ICT costs and another cost object in the FMIS other than cost centre must be available for the capture of these costs. Having an alternate field in the FMIS available provides the flexibility where supplier costs can be posted directly to a Service Tower at the transaction data entry point, in addition to cost centre and account.

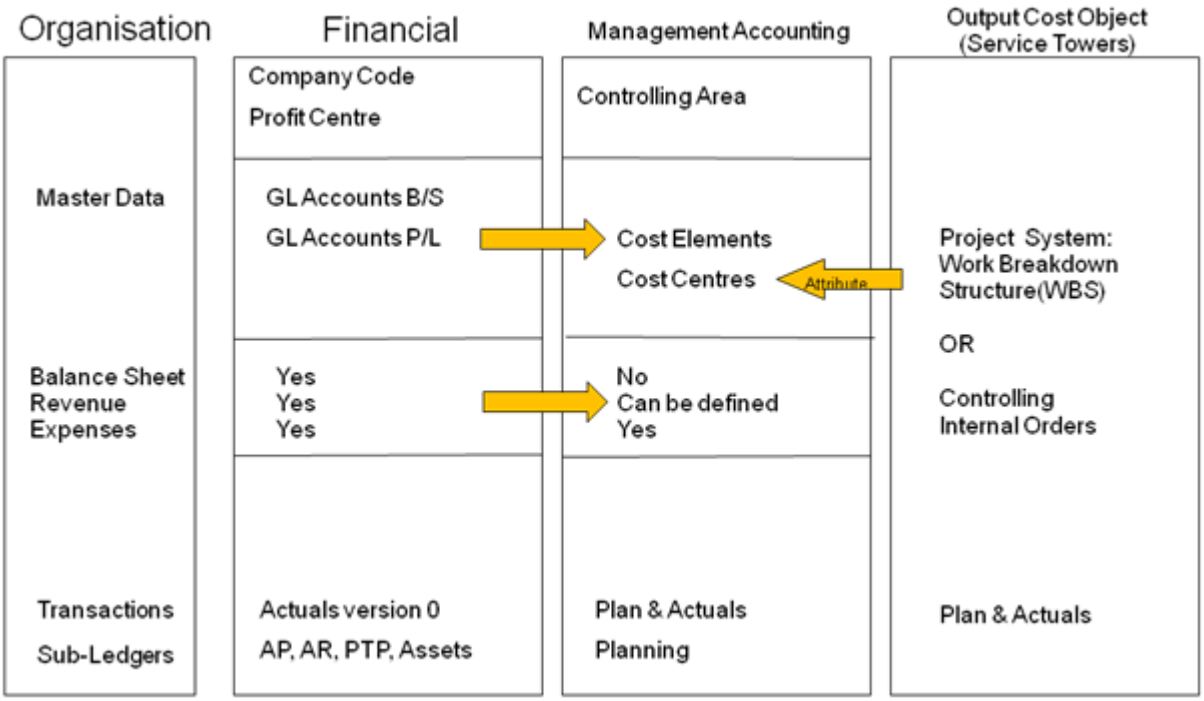
An alternate method is for the Service Towers to be defined in an online analytical processing (OLAP) reporting tool and attributions are undertaken within the OLAP tool. This has the disadvantage that direct costs cannot be posted directly to Service Towers when known at source of transaction input for greater accuracy in cost collation.

The Service Tower is ideally defined within the Project Ledger as a WBS element. WBS elements link to projects and can be structured in a hierarchy linking to a project thus the project cost can be dissected into components.

FMIS Core Components

Figure 5 illustrates the architecture of a Tier 1 FMIS and the relationship with the chart of accounts object.

Figure 5 - FMIS architecture



The FMIS architecture is split into three core components:

1. Financial
2. Management Accounting
3. Project Accounting

Financial

The General Ledger is the foundation of the financial system that captures costs from source documents and is the repository for all financial transactions. With most modern FMIS systems, there is integration of the General Ledger through defined control accounts with the sub-modules including:

- Purchasing (Logistics);
- Accounts Payable;
- Accounts Receivable; and
- Asset Management.

Each of these modules must be able to capture costs to a level that is known and identifiable at the time of transaction data input for these direct costs to be captured within the financial system. The asset management module should calculate and post depreciation costs for ICT expenditure to the cost centre where the budgetary responsibility is held. Any financial data posted to the FMIS by

interfaces from other systems relating to ICT costs should be established to be able to post information to the required level of detail.

The financial component also defines the company code (reporting entity) and the master data:

- Profit Centre: can be defined as a 1:1 with cost centre or at defined groupings or defined where balance sheet information is required (e.g. assets, debtors, creditors); and
- GL Account.

Given an FMIS is an integrated system, all master data is available for data entry which updates the respective modules. When a posting is made to the financial module, it generates (where applicable) a separate document for the controlling module.

Management Accounting

The management accounting module provides the ability to view costs from an internal management perspective and provide a view of profitability beyond that of basic financial reporting. The master data that is defined within controlling includes:

- Cost Elements: only cost and/or revenue accounts (no balance sheet);
- Cost Centres; and
- Internal Orders.

The management accounting module also covers attribution and assessment cycles (i.e. cost allocation).

Project Accounting

The project ledger manages the master data - WBS elements. WBS elements are sub levels within a project that organises project tasks into a hierarchy and provide the following functions:

- Provides cost pools;
- Provide the functional basis for further planning steps in a project, (e.g. cost planning, and budgeting); and
- It represents the work involved in a project.

WBS elements do not have to be solely used for capital projects and can be used for recurrent projects and activities. The merits of using Projects / WBS elements can be summarised as:

Advantages:

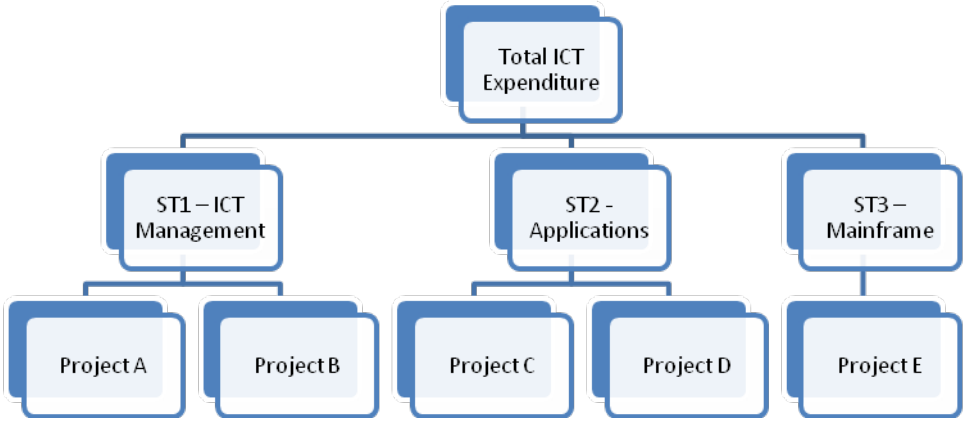
- Project structure can be used to report on the financial performance of different elements within a project;
- More attributes are available to be captured and reported upon (e.g. location, region, and program/sub program);
- Revenue posted on the WBS element through a sales order is also posted to the responsible cost centre entered against the WBS element, which allows analysis of revenue at the cost centre (teaching section) level; and
- Automatic calculation of earned revenue based on percentage complete which is typically carried out on major projects which significantly impact on the organisations financial performance.

Disadvantages:

- Setting up of projects could be complex and once created, the project can be used as a template to create other projects.

Figure 6 provides an extract of this hierarchy.

Figure 6 – WBS hierarchy



An alternate cost object that could be used in the FMIS, if the Project Ledger was not available, is Internal Orders. Internal Orders are designed to provide a level of granularity of reporting at a level below cost centres. Internal Orders are able to be costed directly to or costs attributed (as long as they are not defined as statistical) based on defined business drivers. Internal orders may be more suitable for smaller organisations with less complex projects and structures.

The merit of using Internal Orders can be summarised as follows:

Advantages:

- Simple and easy to use as compared to using project structures; and
- Forms have been provided for maintenance of internal order master data along with an approval process.

Disadvantages:

- As internal orders are one dimensional, hierarchical structure and reporting on internal orders is not possible and an additional maintenance of groups is required to achieve hierarchical reporting; and
- Limited number of additional fields available to report on internal orders as compared to projects.

Table 11 provides a summary of the different processes and a comparison between using projects and internal orders for the respective processes.

Table 11 – Internal Orders

Processes	Internal Orders	Projects
Master data maintenance	Simple and easy to use.	More Complex to maintain.
Planning / Budgeting	Planning can be carried out on internal orders by versions, by year, by month and by cost element.	Planning can be carried out on WBS elements by versions, by year, by month and by cost element.
Sales order processing	Possible to link sales orders and therefore revenue to internal orders.	Possible to link sales orders and therefore revenue to WBS elements.
Month end Processing	This is not required for internal orders	Month end processing is required to calculate and post work in progress.
Reporting	Reporting based on internal order or internal order groups	Report based on project structures.

Payroll Costing and Time Sheet Recording

Payroll costs are sourced either from an integrated HR/Payroll solution within the FMIS or interfaced from a separate payroll system. Best practice is for an employee to be linked to a base cost centre, based on the organisational structure reflecting management control (e.g. leave approval and supervisory functions).

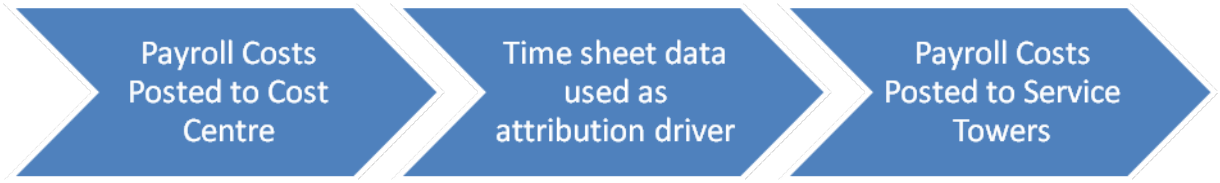
The employee salary and on-costs would normally be allocated to that cost centre based on the defined position within that cost centre or alternatively split to multiple cost centres if on a shared arrangement. The cost split should be based on the budgetary responsibility of the positions that the employee is assigned to.

Figure 7 provides an illustration of the options to records payroll costs against Service Towers. If there is a clear and direct relationship between the position and a particular Service Tower, then subject to the functionality and configuration of the FMIS the employee costs should be directly costed to the Service Tower. Tier 1 HR systems have the functionality to cost employee directly to either WBS elements or Internal Orders.

For non direct service tower employee costs these will be required to be posted to the cost centre and attributed to Service Tower by either:

a) Timesheet recording system: for employees (and contractors) the use of a time sheet system that is able to capture time against the Service Type cost objects is the most accurate method for the allocation of employee costs. As an example, the timesheet system can capture effort against either WBS elements or Internal Orders.
b) Agreed drivers using a costing tool.

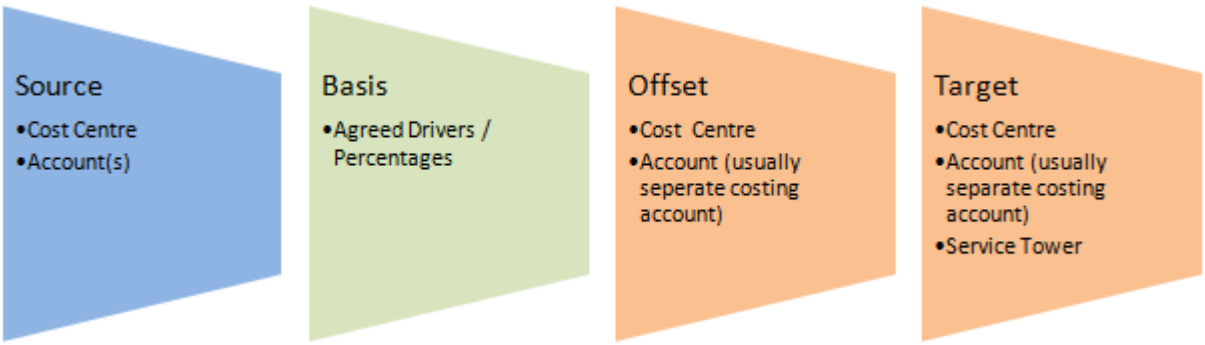
Figure 7 – Payroll Costs to Service Towers



Payroll and supplier costs are captured based on the chart structure established within the FMIS. The costs not captured directly to ICT Service Towers must be attributed based on the defined and agreed percentages or other cost drivers. The costing module within the FMIS needs to be able to be established to undertake this allocation.

Cost allocation functionality varies between FMIS systems but in broad principal the rules presented in Figure 8 apply.

Figure 8 – FMIS Costing Tool



It is generally recommended to use a separate account to post the offset and target entries so that reporting can still be undertaken on the source account. This is especially prudent where multiple GL accounts are collated in the one allocation rule. In addition, by using separate accounts, it is easier to trace costs and report on the before / post allocation rules. In many FMIS applications, the separate costing accounts are defined as secondary cost elements and by definition the balance of these accounts must always be zero. If the Service Towers are defined within the reporting tool only, this attribution process must be performed externally to the FMIS.

Planning and Budgeting Tool

An integrated budgeting/planning tool is essential for fiscal management and control. While budget data is able to be entered into core financial systems, generally these have basic functionality when it comes to setting a budget. As an example, payroll costs should be rule based using budgeted FTE (by classification) rather than entering a dollar budget for salaries and related on-costs.

Budgeting tools should have the functionality to generate budgets based on underlying drivers / assumptions. While budgets are able to be entered in the FMIS, the functionality is limited. Specialist budget models deliver greater functionality.

The budgeting tools needs to link to the source cost objects and hierarchies within the financial system so budgets can be compiled at the required responsibility levels. Budgeting against Service Tower costs would most likely be best based on 'budgeted allocation percentages' of costs from source cost centres to the Service Towers. This would provide a basis for comparison of actual results and variance analysis would be able to be dissected between cost and driver variations.

Reporting Tool

The FMIS should be the source (where possible) of all master data and reporting hierarchies / attributes. While FMIS systems have various levels of functionality when it comes to reporting, aside from transactional reporting and basic management reports, an OLAP reporting system which integrates data from both financial (including any budget system) and HR so not only financial reports can be generated but integrated financial and HR reports (and any other relevant data) can be generated.

Attachment G: Volume Data

The following information provides further detail on collection of volume data for each Service Tower.

Applications

Volume data is not sought for the Applications Service Tower in the ICT Benchmarking Framework.

Mainframe

For outsourced environments, vendors will usually provide mainframe capacity and utilisation and environment information (e.g. capacity, environment and MIPS utilisation or production, development, testing and DR) as part of required regular reporting. For in house environments and where vendors do not provide this information, this information is provided by Mainframe management systems.

Utilisation rates provide an indicator of the appropriateness and efficiency of the installed infrastructure. Tracking utilisation over time and achieving the right balance between capacity and achieving required levels of service informs decision on the optimum investment in the mainframe environment.

Achieving the appropriate mix of resources allocated to the different mainframe environments provides statistical data that can be compared to peer agencies. A risk based approach should be utilised in determining this allocation. While there is a natural tendency to allocate the greatest resource and investment to Production, the business continuity and disaster recovery requirements of the agency must be considered.

Midrange

Midrange volumes, operating system instances, physical servers, central processing units and average utilisation data can usually be provided the Configuration Management Database (CMDB) and possibly the existing asset management capability, such as asset management systems and network monitoring tools. The first stage is to establish a 'baseline' and then have the controls and tools in place to manage and automate that process. An important aspect to the success of maintaining and managing these systems is to ensure that the appropriate ICT service management processes are implemented, including Configuration Management and Change Management.

Vendor management capability in FMIS or enterprise resource planning solution captures 'service tower' by vendor contract, being careful to ensure this can be accommodated using configuration (not customisation).

Midrange volume data, CPU and average utilisation are important metrics for tracking over time within an agency to provide indicators of ongoing improvements in efficiency. These metric can be used as measures to gauge performance against targets (e.g. improved server utilisation and consolidation of applications onto fewer servers - virtualisation technologies). Proliferation of OS instances may require greater resourcing effort to sustain and should be measured.

Disaster Recovery metrics are linked to overall business continuity planning and risk profile of the agency.

Storage

For outsourced environments, vendors will usually provide storage capacity and user information as part of required regular reporting. For in house environments and where vendors do not provide this information, this information is provided by storage management systems.

The number of vendors providing goods and services can be sourced from the vendor management capability in FMIS or ERP solution capture 'service tower' by vendor contract, being careful to ensure this can be accommodated using configuration (not customisation). Utilisation rates provide an indicator of the appropriateness and efficiency of the installed infrastructure. Tracking utilisation over time and achieving the right balance between capacity and achieving required levels of service informs decision on the optimum investment in the storage environment.

Total storage capacity is an indicator of how the mix of storage is being allocated to end users for file and print services versus being allocated to application and management services. When viewed in conjunction with total storage consumption, user volumes and costs, it can provide further information to inform where major growth areas are and potential impacts on future costs.

Wide Area Network (WAN)

For outsourced environments, vendors will usually provide WAN link capacity information as part of required regular reporting. For in house environments and where vendors do not provide this information, this information is provided by network management systems. Intra Government Communication Network (ICON) Link Listing report can provide details on the total link capacity (Mbps).

When tracked over time, link capacity provides information on cost drivers. For example where there are more offices set up, there will be a growth in wide area network infrastructure requirements. These often have a high fixed cost component, so when used for ratio or benchmark purposes, it may provide unfavourable statistics, and needs to be viewed in light of the actual cost driver (i.e. new office set up).

Gateways

For outsourced environments, vendors will usually provide upload and download volume information as part of required regular reporting. For in house environments and where vendors do not provide this information, this information is provided by management systems.

Local Area Network and Remote Access Service

For outsourced environments, vendors will usually provide the number of active and used LAN ports information as part of required regular reporting. For in house environments and where vendors do not provide this information, this information is provided by management systems. This can be used to compare the percentage of Used versus Active ports, as well as to headcount and FTE volumes.

The Port replacement time can be obtained from Asset and Capital management plans. For in-sourced services, these assets will be on the FMIS asset register with replacement timeframes corresponding with depreciable life of assets. For outsourced services, asset replacement cycles will be in vendor contract and should be provided as regular monthly reporting of assets.

End User Infrastructure

The number of SOEs and the number of users of end user infrastructure can be sourced from CMDB reports, monitoring tools, and vendor contracts. Proliferation of OS instances may require greater resourcing effort to sustain and should be measured. The number of user provides a metric that can be used to compare to device and FTE volumes.

Ideally the number of desktops, laptops, and printers etc will be provided from a set of CMDB reports. For in-sourced services, these assets will be on the FMIS asset register with replacement timeframes corresponding with depreciable life of assets. For outsourced services, asset replacement cycles will be in vendor contract and should be provided as regular monthly reporting of assets. End User Infrastructure is the service tower that is most easily able to be benchmarked and compared to other agencies, due to the more similar nature of the ICT services provided. This service tower typically represents over 10%, and in many cases over 20%, of total ICT spend.

The average time (years) to replace desktops, laptops, and printers etc can be obtained from asset and capital management plans. This information can be useful to compare to other agencies, and ensure that the asset life is optimised to support business continuity, and to be compatible with the enterprise architecture to ensure provision of service levels.

Voice Services

Ideally the number of devices (e.g. fixed phones, mobiles, and other handheld devices etc) will be provided from a set of CMDB reports. For in-sourced services, these assets will be on the FMIS asset register with replacement timeframes corresponding with depreciable life of assets. For outsourced services, asset replacement cycles will be in vendor contract and should be provided as regular monthly reporting of assets.

Device to user ratios are a useful statistic to measure and track for trending and provides an indicator of cost driver efficiency. It can be difficult to compare to other agencies, as having high multiple and mobile device volumes/ratios may be as a result of the nature of the business of the agency.

The number of services (e.g. 1800/1300 numbers, number of local calls and call minutes – outbound, and number of PSTNs and ISDNs etc) can be obtained from vendors. For in-sourced services, this information can be sourced from telephony monitoring and measurement systems. This data can be useful to understand cost drivers within the agency.

Helpdesk

For outsourced services, the number of help desk calls and users and number of incidents can be sourced from vendors. For in-sourced services this information is available from service desk management systems.

Helpdesk volumes are useful when viewed by month over time. This information can provide indicators for the health of the ICT organisation, as well as track an organisations compliance with service levels and adherence to business continuity policy. For example, where there is an increase in incidents over time, it may indicate that aspects of the ICT environment are failing. By combining with problem management, root cause analysis can assist in ensuring incident volumes are minimised.

Facilities

The volume of facilities (sqm) can be sourced from facilities management reporting. The total power utilised (megawatt hour) by the data centre can be sourced from vendor consumption reports (usually part of invoicing details). This information can be useful when viewed in conjunction with Australian Government ICT Sustainability Plan 2010-2015.

Future management planning for the data centre and power requirements can usually be sourced from infrastructure management planning. This information can be used as a trigger for future ICT strategy and planning.

Number of Vendors

The number of vendors providing goods/services in each service tower can be provided by a vendor management capability in the FMIS or ERP solution capture 'service tower' by vendor contract, being careful to ensure this can be accommodated using configuration (not customisation).