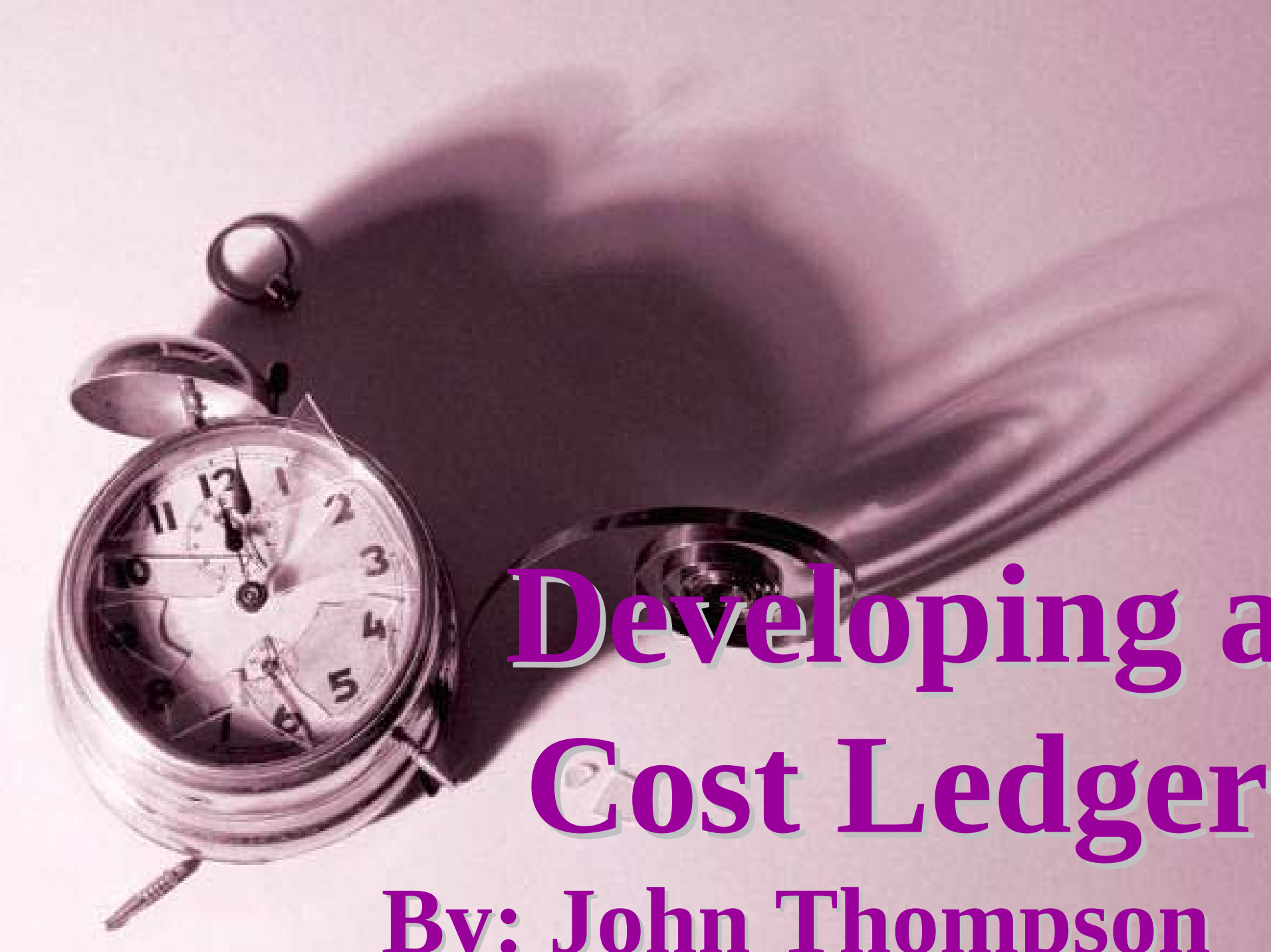
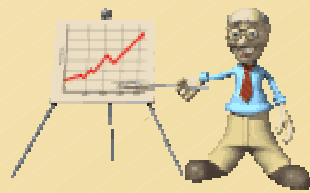


Developing a Cost Ledger

By: John Thompson

OBJECTIVE

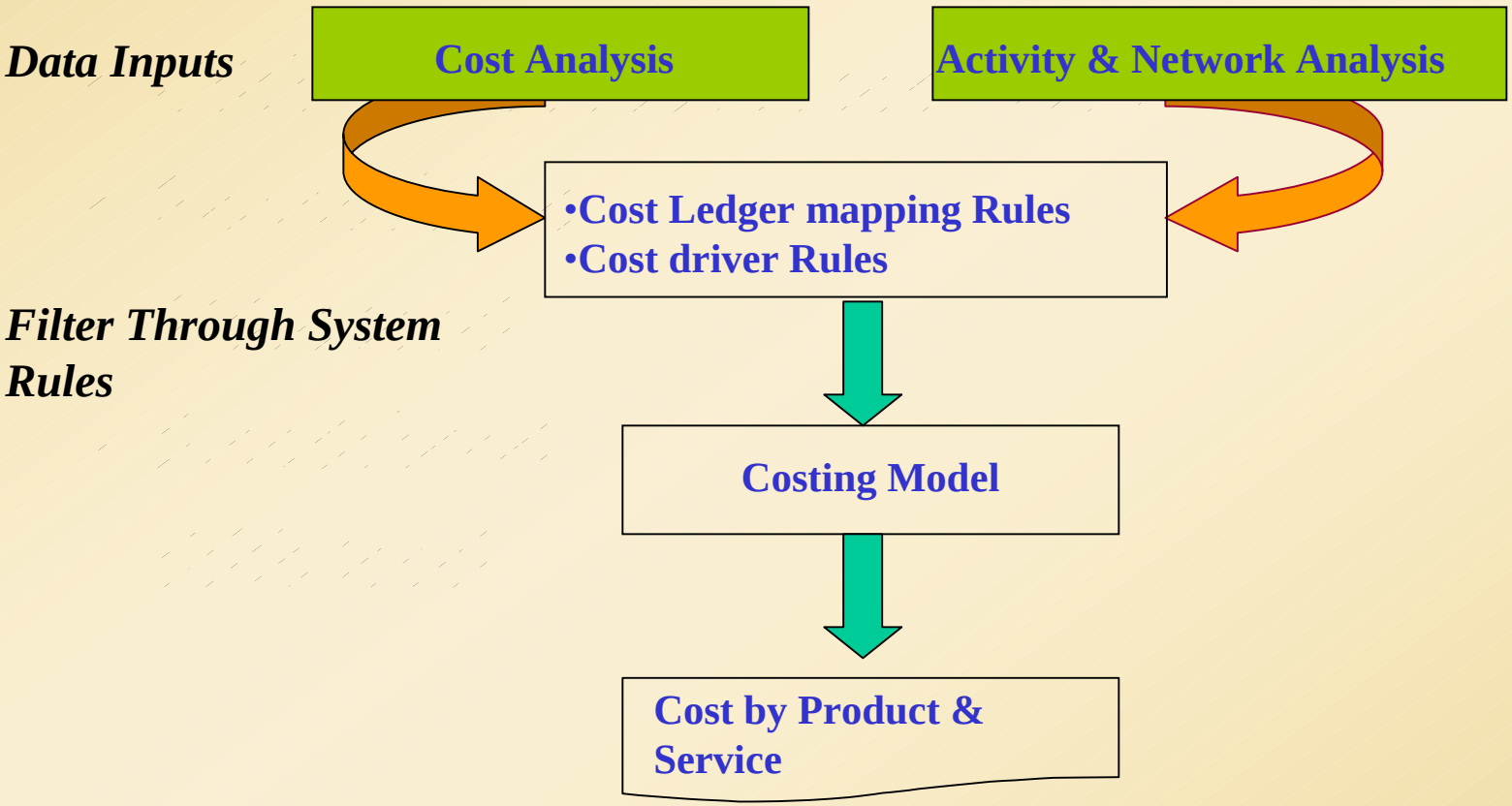
To prepare the trial balance of accounts, of a financial accounting general ledger, for use as input data, for a costing model.



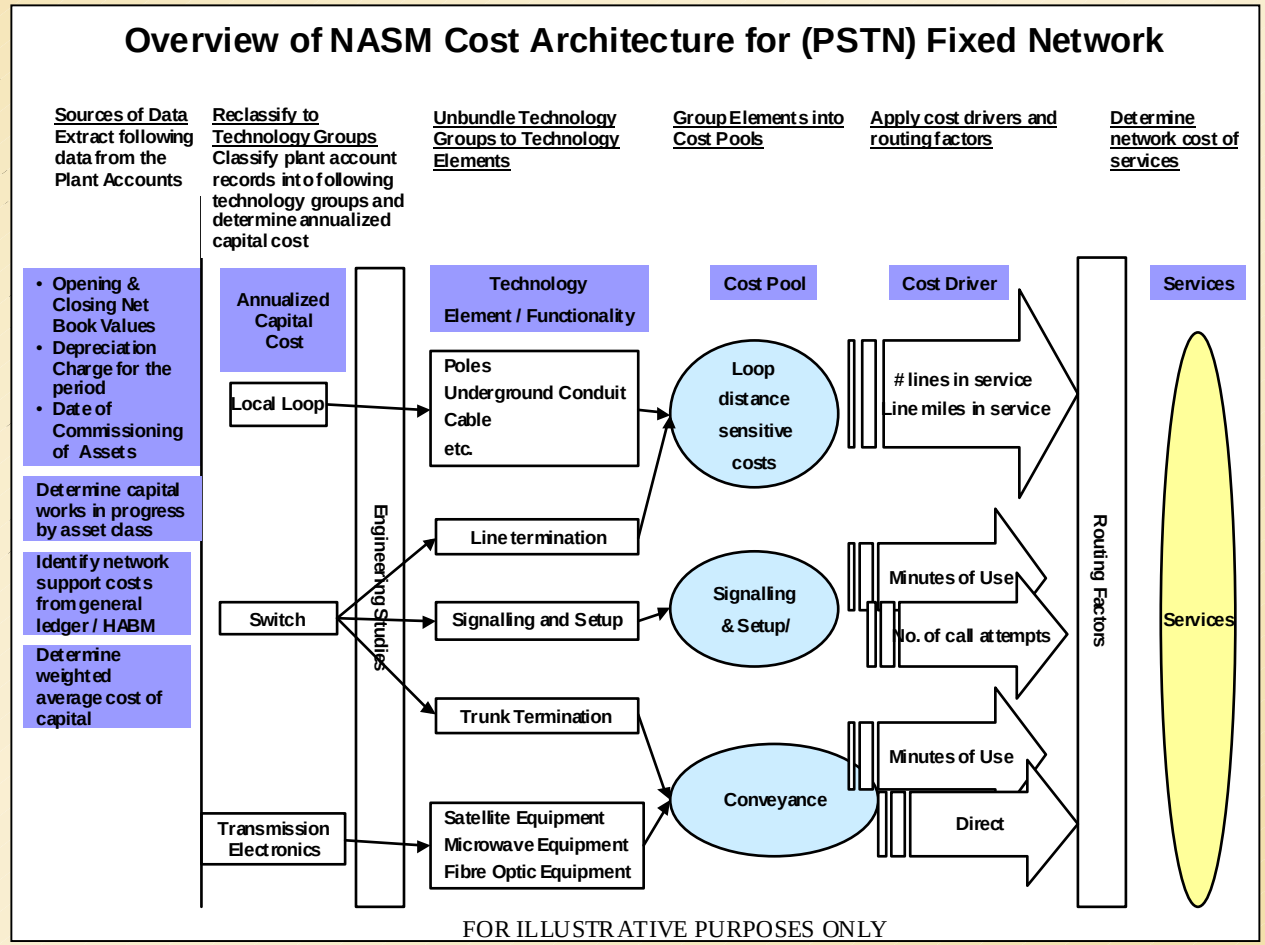
Defining the problem

- **WTO Agreement**
- **Principle of Agreement - cost based pricing**
- **Cost modeling prerequisite**
- **All telecom organizations faced with the problem of using data, from financial accounting sources, to input to cost models.**

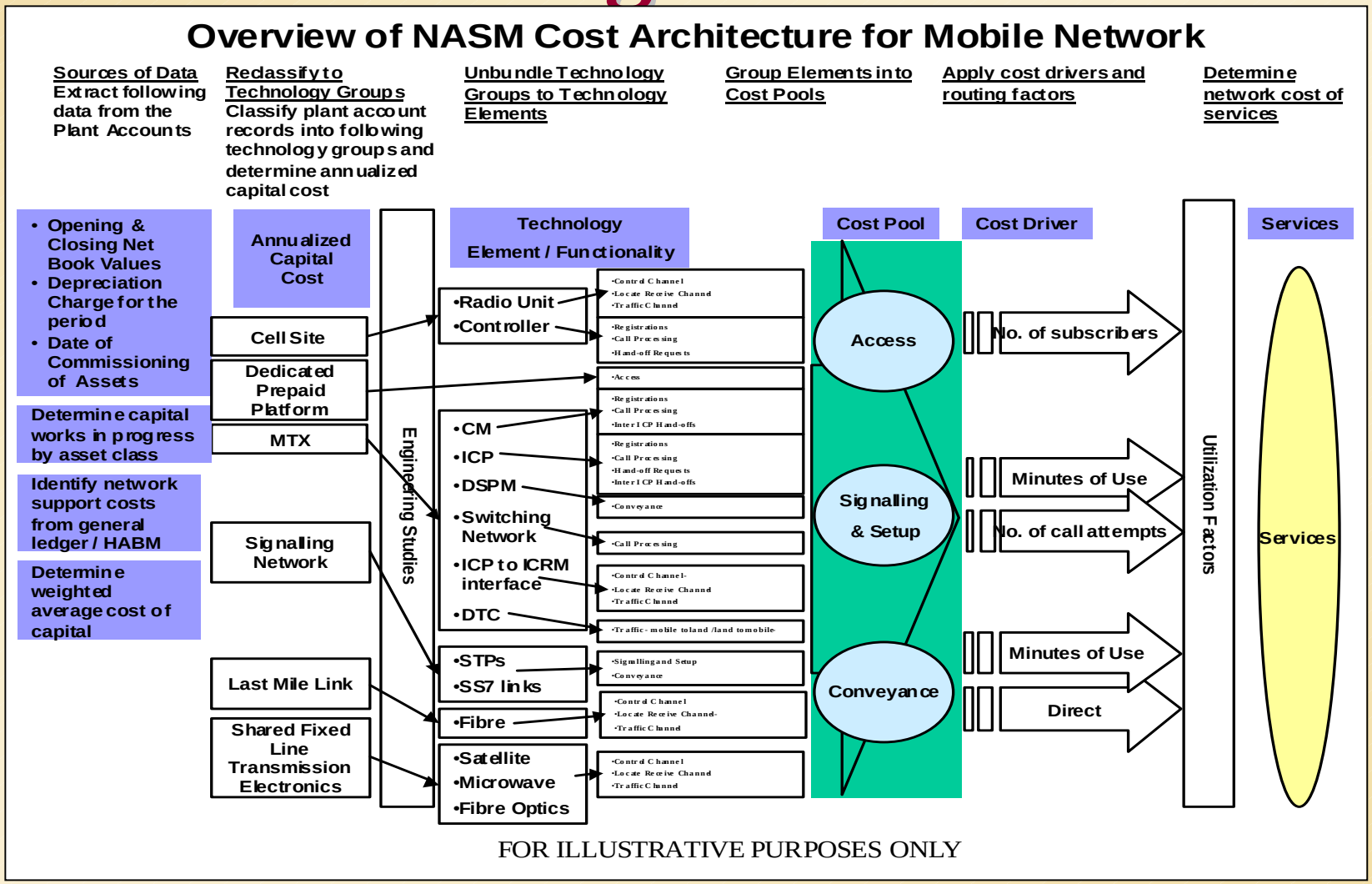
Standard Modeling Structure



Modeling the Network Costs - Using FA Data

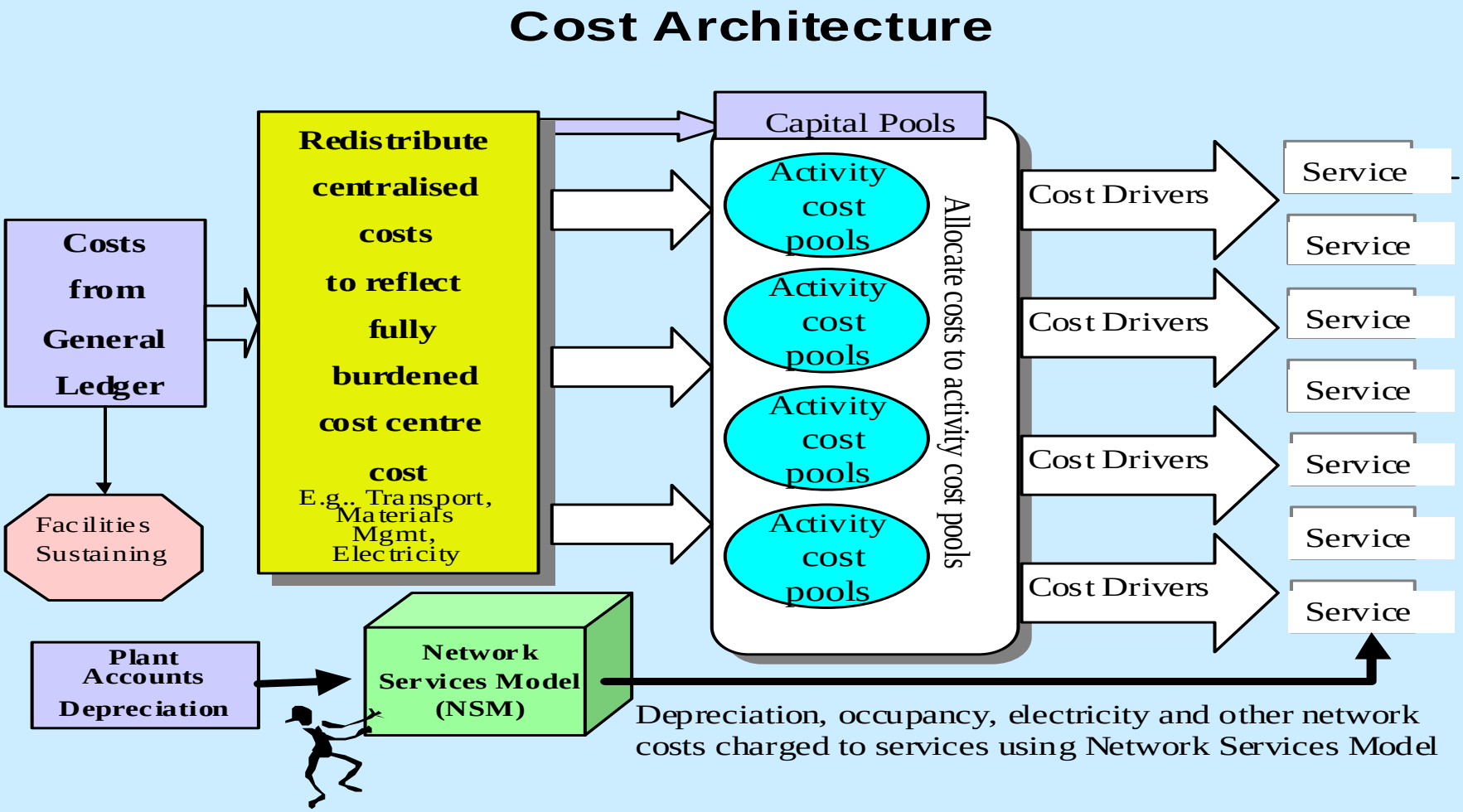


Modeling the Network Costs - Using FA Data



FOR ILLUSTRATIVE PURPOSES ONLY

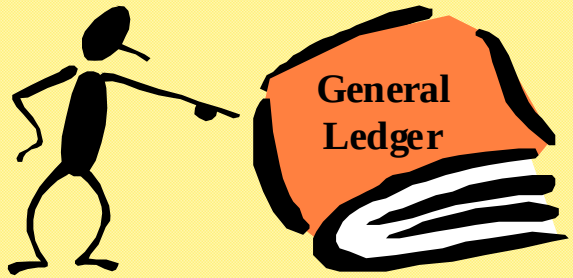
Modeling GL Recurrent Expenses - Using FA Data

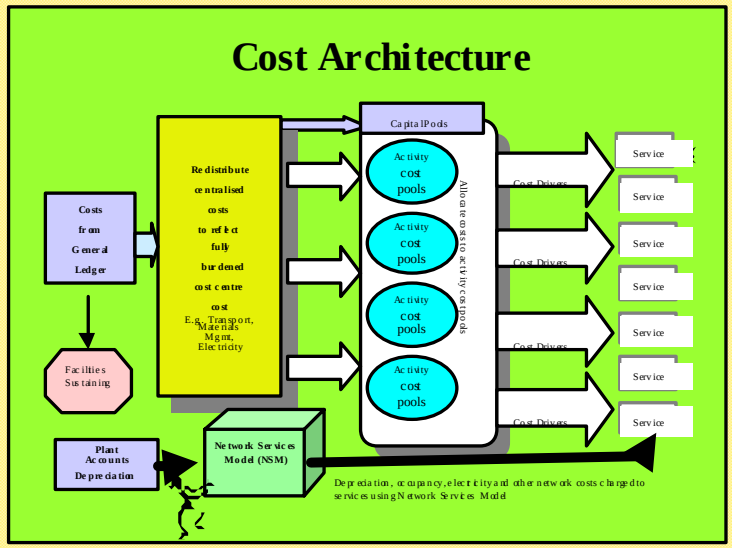


Analysis of General Ledger

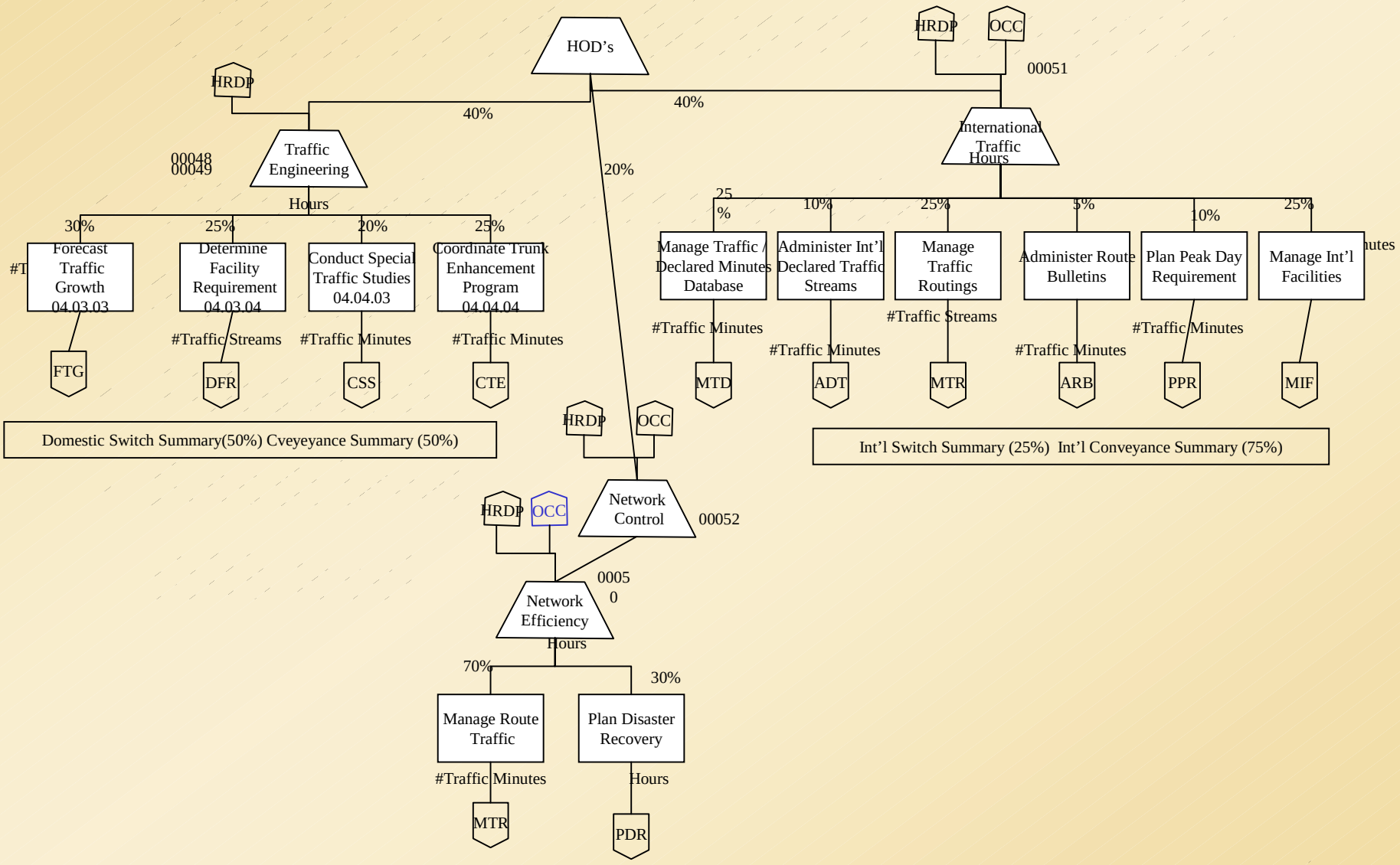
Analysis of General Ledger

- Effect analysis of general ledger costing structure and content as primary factor to costing system.
- Develop preliminary assumptions to:
  - identify centralized general ledger cost
  - allocate centralized costs to arrive at fully burdened cost center costs
- Develop allocations/costs assignment rules

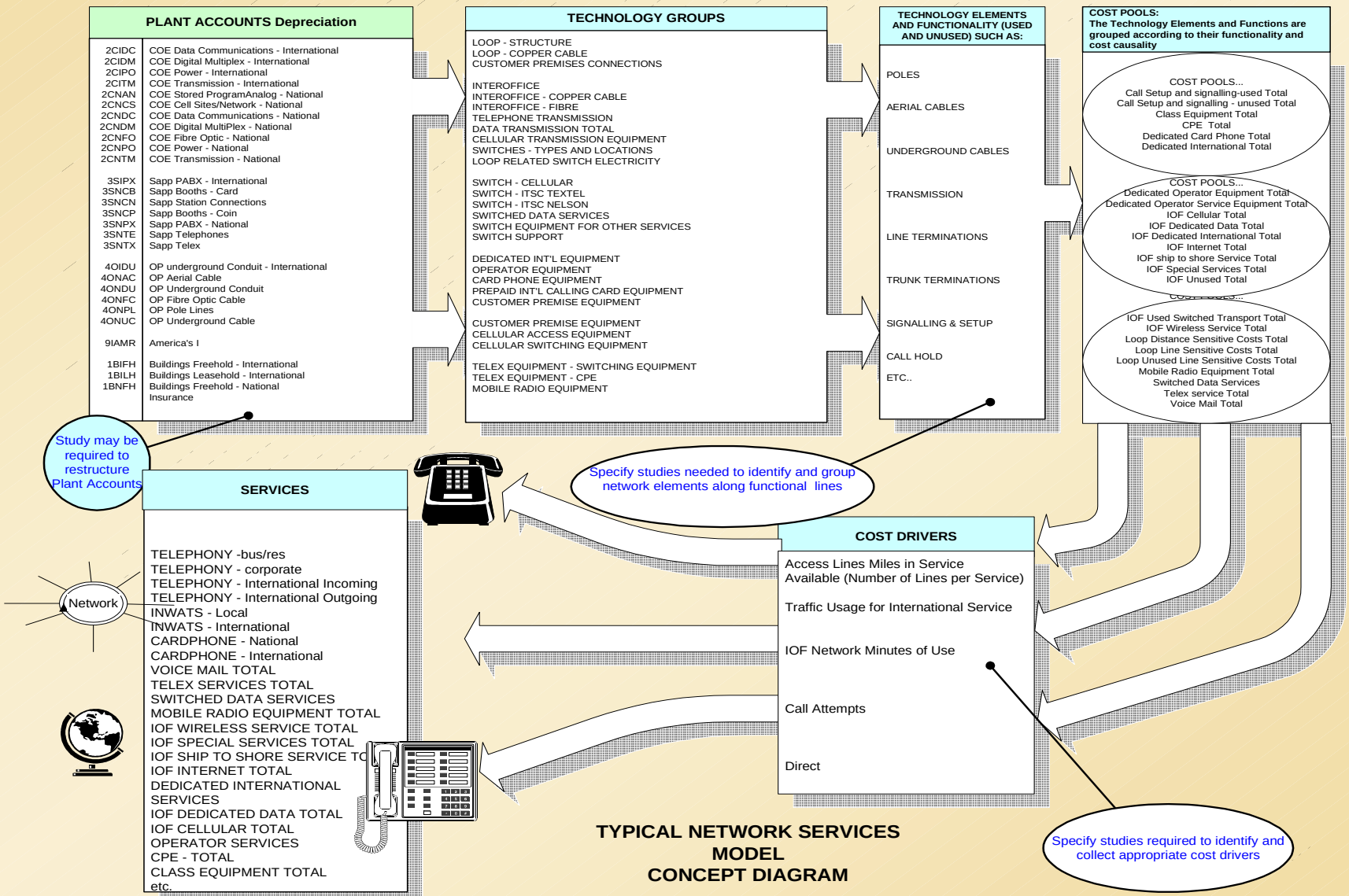




Modeling GL Expenses - Example



Network Costing model concept overview - Using FA Data



TYPICAL NETWORK SERVICES MODEL CONCEPT DIAGRAM

General Consensus

Financial accounting data is not readily compatible with the needs of cost models.

Alternative Solutions

- Develop a separate cost ledger posted from the same data source, in tandem with Financial Accounting.
- Start from the Financial Ledger and drive directly to services using ABC engine.
- Start with Financial ledger and convert to cost ledger format before driving to services.

Exploring Alternative 1 - Costing Ledger Approach

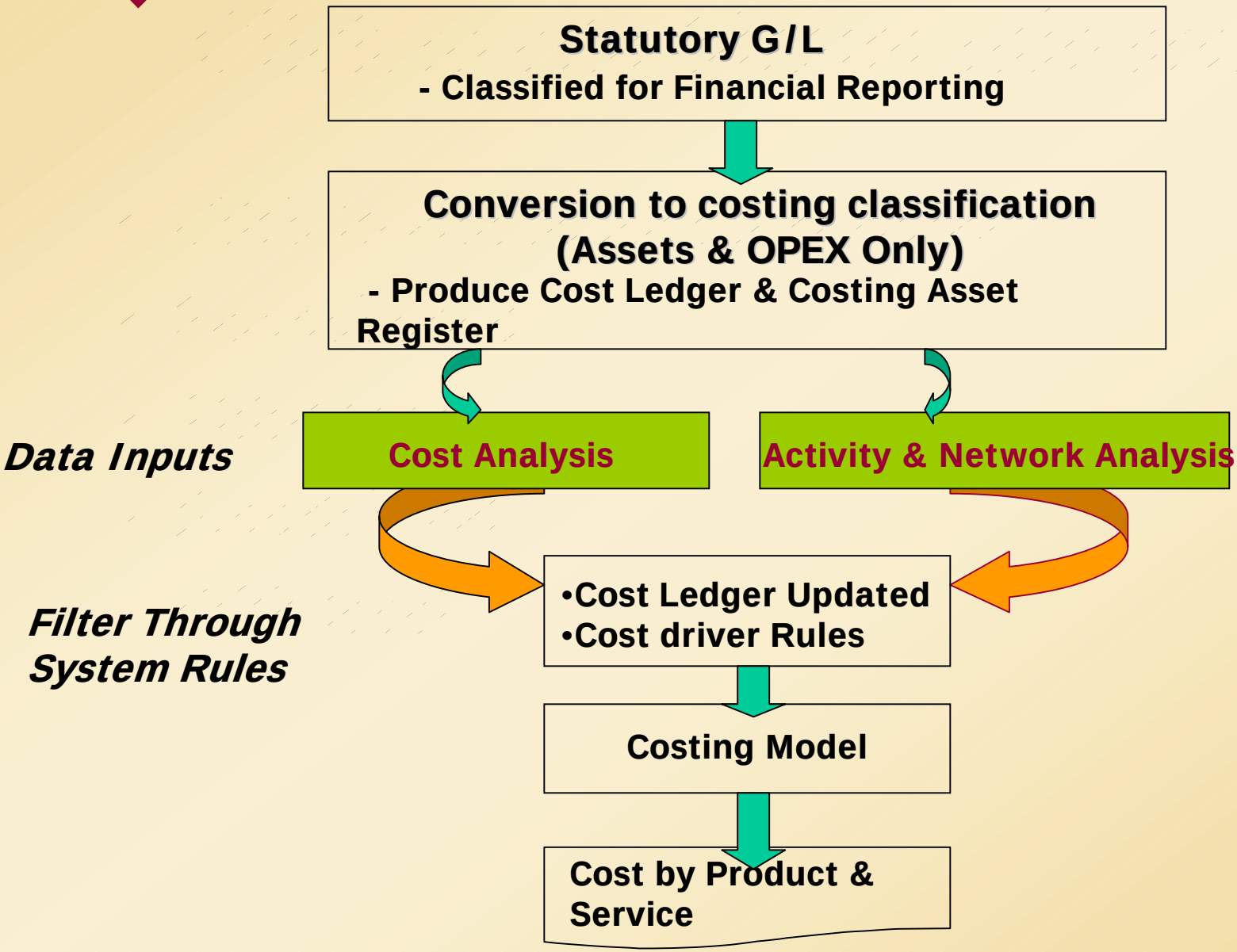
Alternative 1

Develop a separate cost ledger posted from the same data source, in tandem with Financial Accounting.

Challenges

- **Requires participation from a wider cross section of the organization**
- **Data capture procedures must be continuous and need proper streamlining**

Modeling Structure



Statutory General Ledger & Cost Ledger - Comparison

Account Category	Statutory Ledger	Cost Ledger
Current Assets	Represented	Individual accounts not represented
Materials and Supplies	represented	Represented
Net Working Capital	Not represented as an individual account	Represented as a single account (net current assets – excluding materials and supplies, minus, net current liabilities
Fixed Assets	Represented	Represented
Amortisable-Assets (tangible and intangible)	Represented	Represented
Current Liabilities	Represented	Individual accounts not represented
Provisions and Deferrals	Represented	Represented
Long Term Liabilities	Represented	Not represented
Shareholders Equity	Represented	Not represented

Account Classifications - Financial & Costing

Account Category	Statutory Ledger	Cost Ledger
REVENUES	Represented	Not represented
OPERATING EXPENSES • Salaries & Allowances • Subsistence & Overtime • Pension • Maintenance & Repairs • Contracts • Rentals • Electricity • Insurance • Training & Foreign Travel • Stationary • Janitorial Services • Advertising	Represented	Represented but different classifications required

- **Account Classifications in Financial Ledger not conducive to required classifications for costing ledger**

- **This poses extremely difficult and time consuming task of conversion**

Financial -vs- Costing - Classifications

Financial Accounting Classification - By Type of Expense

Vs

Cost Accounting Classification - Functional

- Salaries and Allowances
- Subsistence and Overtime
- Pension
- Maintenance and Repairs
- Contract
- Rentals
- Electricity
- Insurance
- Training & Foreign Travel
- Stationary
- Janitorial Services
- Advertising
- Other operating expenses

- Plant specific Expenses
- Plant non-specific Expenses
- Access network expenses
- Marketing
- Corporate operating expenses
- Secondary services
- Retail related Services

Each of these can be further divided in sub accounts

Plant Specific Expenses - Further Broken down

Plant Specific Expenses

Related sub accounts

- **Network support expenses**
- **General Support expenses**
- **Central office switching expenses**
- **Operator systems expenses**
- **Central office transmission expenses**

Financial G/L Asset Categories - FAR

Asset Class	Category	Description
1BIFH	1ABLG	**Bldgs Freehold - Intl**
1BILH	1BBLG	**Bldgs Leasehold - Intl**
1BNFH	1DBLG	**Bldgs Freehold - Natl**
1BNLD	1EBLG	**Bldgs Leased - Natl**
1BNLH	1FBLG	**Bldgs Leasehold - Natl**
1BOLH	1GBLG	**Bldgs Leasehold - Natl/Intl**
1TITW	1HTWR	**Towers - Intl**
1TNTW	1ITWR	**Towers - Natl**
2CIDC	2ACOE	**Coe Data Comms - Intl**
2CIPO	2BCOE	**Coe Power - Intl**
2CNPO	2CCOE	**Coe Power - Natl**
2CITM	2DCOE	**Coe Transmission - Intl**
2CITM	2DCOE, 2BCOE, 1BBLG, 1ABLG	***Earth Station***
2CNDC	2FCOE	**Coe Data Comms - Natl**
2CNDM	2GCOE	**Coe Digital Mux - Natl**
2CNDM	2GCOE	***Internet***
2CNDM	2GCOE	***ISDN***
2CNDM	2GCOE	***1-800***
2CNFO	2HCOE	**Coe Fibre Optic - Natl**
2CNTM	2JCOE	**Coe Transmission - Natl**
2CNTM	2JCOE	***Wireless Local Loop***
2CNTM	2JCOE	***Microwave***
2CICB	2KCOE	**Coe Cross Bar - Intl**
2CIDM	2LCOE	**Coe Digital Multiplex - Intl**

Financial G/L Asset Categories - FAR

Asset Class	Category	Description
2CIDM	2LCOE	Coe Digital Multiplex - Intl
2CIDM	2LCOE	*International Switch*
2CNAN	2MCOE	Coe S/Prog Analog - Natl
2CNCS	2NCOE	Coe Cell Sites/Netwk - Natl
3SIPX	3ASAP	Sapp PABX - Intl
3SNCB	3BSAP	Sapp Booths - Card
3SNCP	3BSAP	Sapp Booths - Coin
3SNCN	3CSAP	Sapp Station Connections
3SNPX	3ESAP	Sapp PABX - Natl
3SNTE	3FSAP	Sapp Telephones
3SNTX	3GSAP	Sapp Telex
3SNCH	3SNCH	Sapp Cellualar Handsets
4ONAC	4AOSP	OP Aerial Cable
4ONDU	4BOSP	OP Underground Conduit
4ONPL	4COSP	OP Pole Lines
4ONUC	4DOSP	OP Underground Cable
4OIDU	4EOSP	OP U/ground Conduit - Intl
4ONFC	4FOSP	OP Fibre Optic Cable
5PITE	5BP&M	P.& M. Test Equipment
9IAMR	9AAMR	America's I
Total		
	2GCOE	Switch Special Services - Voice Mail Platform
	2GCOE	Switch Special Services - Tops Service/Ain
	2GCOE	Switch Special Services - Call Management Service
	2GCOE	Switch Special Services - Class Equipment Services

Fixed Asset Register - Costing Ledger Structure

Asset Category	Level 2	Level 3	Level 4
Cellular	Cellular -Switching		
	Cellular - Transmission		
	Cellular – Cell site		
	Cellular – Power		
	Cellular - Buildings		
	Cellular – Interconnect Equip.		
	Cellular - Land		
	Cellular - Towers		

- **Costing Ledger constructed along technologies and can undergo several levels of disaggregation based on elements, functionality and even services.**

- **Easier to drive costs to services based on how these services consume the various activities / functionalities performed by the network elements**

Fixed Asset Register - Costing Ledger Structure

Central Office Equipment Reclassification - Example

Asset Code	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
25	CENTRAL OFFICE EQPT.			
26		COE - Digital International Gateway		
27			International Gateway Switch - Nelson	
28			International Gateway Switch - Couva	
29				
30				
31				
32				
33				
34		COE - Digital Switching National		
35			Nelson 200 Total	
36			Nelson 100 Total	
116				
117				
118				
119				
120				
121				
122				
123				
124				
125				
126		Dedicated Interconnection Equipment		
127		COE - Power National		
128		COE - Power International		
129		COE - Intelligent Networks		
130		COE - ISDN		
131		Operator Systems		
132		Internet Systems		
133		Voicemail Platform		
134		Audiotext/Infozone		
135		Call Master Systems		
136		Signalling Systems		
137			Signalling - National	
138			Signalling - International	

Fixed Asset Register - Costing Ledger Structure

Data Equipment Reclassification - Example

Asset Code	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
139	**DATA**			
140		Data Communications National		
141			ATM Switching Nodes (36170s)	
142				ADSL
143				SDSL
144				Wireless Broadband
145				IP Service
146			Newbridge Equipment (3600s,3645s)	
147				Frame Relay
148				TDM Service
149				ISDN Longlining
150				HDSL
151				IP Service
152				ATM - ADSL
153			RAD Equipment	
154				Fractional - T1 Service
155			DPN 100	
156				X25 Service
157			DE4E Smart Channel Banks	
158				TDM Service
159				
160				
161				
162				
163				
164				
165				
166				
167				
168				
169				
170		Data Communications International		
171			Gateway Node (Passport Equipment)	
172				Frame Relay (GMDS)
173			DPN 100	
174				X75 Service
175				Frame Relay
176				
177				
178				
179				
180				

Fixed Asset Register - Costing Ledger Structure

Transmission Equipment Reclassification - Example

Asset Code	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
183	**TRANSMISSION**			
184		Transmission National		
185			Fibre Optic Systems	
186				FOTS Cabling
187				FOTS Terminal Equip.
188				Multiplexing Equipment
189			Radio Systems	
190				Radio Terminal Equip.
191				Multiplexing Equipment
192			Cable Carriers	
193				Cable
194				Terminal Equipment
195		Transmission International		
196		Transmission Submarine Cable Sys.		
197			Americas 1	
198			Eastern Caribbean Fibre Optic System	
199			Americas 2	
200		Transmission Earth Station & Satellite Sys.		
201		Ship to Shore Eqpt.		
202		VSAT Services Eqpt.		
203				
204				
205				
206				

Fixed Asset Register
Costing Ledger Structure

Outside Plant Equipment Reclassification - Example

Asset Code	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
208	**OUTSIDE PLANT**			
209		Outside Plant - Interoffice		
210			OP Aerial Fibre Cable	
211			OP Underground Fibre	
212			OP Underground Conduit - National	
213			OP Underground Conduit - International	
214			OP Pole System	
215		Outside Plant - Local Loop Feeder		
216			OP Aerial Cable Metal	
217			OP Aerial Fibre Optic Cable	
218			OP Underground Cable Metal - Ducted	
219			OP Underground Cable Metal - Direct Buried	
220			OP Underground Fibre Cable - Ducted	
221			OP Underground Fibre Cable - Direct Buried	
222			OP Underground Conduit System	
223		Outside Plant - Local Loop Distribution		
224			OP Aerial Cable Metal	
225			OP Aerial Fibre Optic Cable	
226			OP Underground Cable Metal - Ducted	
227			OP Underground Cable Metal - Direct Buried	
228			OP Underground Fibre Cable - Ducted	
229			OP Underground Fibre Cable - Direct Buried	
230			OP Underground Conduit System	
231			OP Pole System	
232		Access Network - Wireless Local Loop		
233		Access Network - Pair Gain Systems		
234		Access Network - FTTC		
235		Access Network - Subscriber Radio Systems		
236				

Alternative 2

Start with Financial ledger and convert to cost ledger format before driving to services.

Challenges

- **Finding an appropriate methodology**
- **Reclassification from one to the other can be difficult to set up and carry out**
- **Process could be time consuming**
- **Not Flexible**

Challenges - Options 3

Start from the Financial Ledger and drive directly to services using ABC engine.

Challenges

- **determining/collecting relevant drivers from company databases**
- **Account structure/ and the classification of the expenses require further disaggregation in order to apply appropriate/single drivers**
- **Development of ABC is time consuming- Activity and cost driver analysis, GL mapping rules**

Adopting Option 1 - Costing Ledger Approach

Prerequisite to Network Cost Modeling

- Network asset numbering scheme
- Physical verification of assets, and, comparison with their entry in the Asset Register, with respect to: description, classification and asset life
- Reconciling and adjusting asset costs as per Asset Register with asset costs as per General Ledger, considering asset class and accumulated depreciation

Reconciling Physical count with Asset Register

- Update and amend Asset register with the results of a physical verification exercise. Complete Asset identification labeling and numbering.

- Assets found in the field that are not traceable to the asset register should be, noted for examination.

- Conversely, assets in the Register not found in the field must also be noted for examination.

- Having satisfied examination of the above assets decisions must be made as to their final treatment.

Reconciling Asset Register with GL Asset Accounts

- All decisions must be supported by any available and verifiable documentary evidence, or, by management statements as to their agreed dispensation.

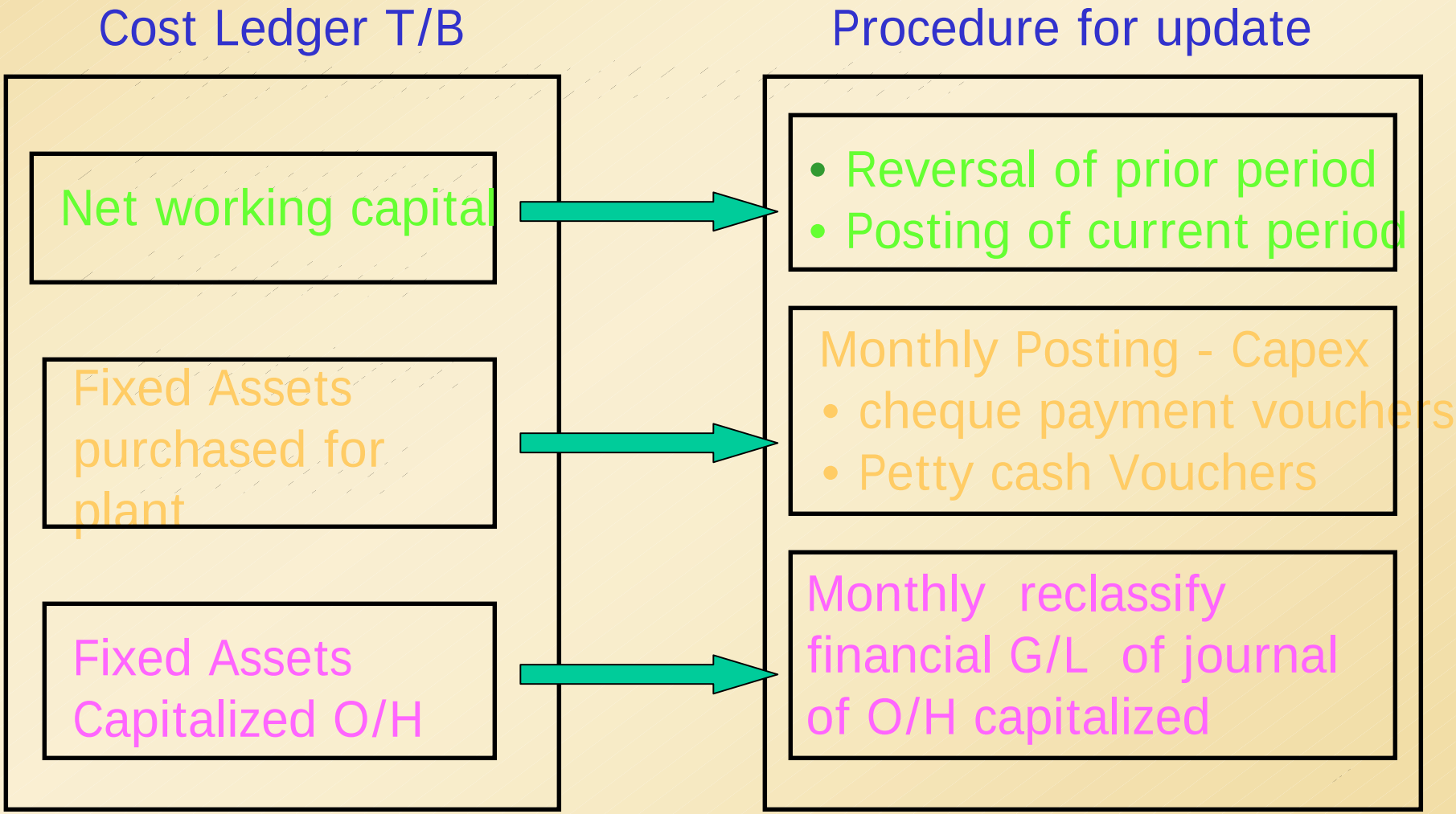
- Dovetail asset costs as per G/L with the asset costs as per Asset Register, by category – at this stage all fully depreciated assets not still in use should be disposed using the formal accounting treatment for disposal of assets.

- Any excess of deficit resulting from the comparison of assets in the Register to assets in the field must, be treated from an accounting perspective – write off excess or conversely, include the deficit to the value - that brings the physically verified assets cost equal to that of the G/L asset account balances.

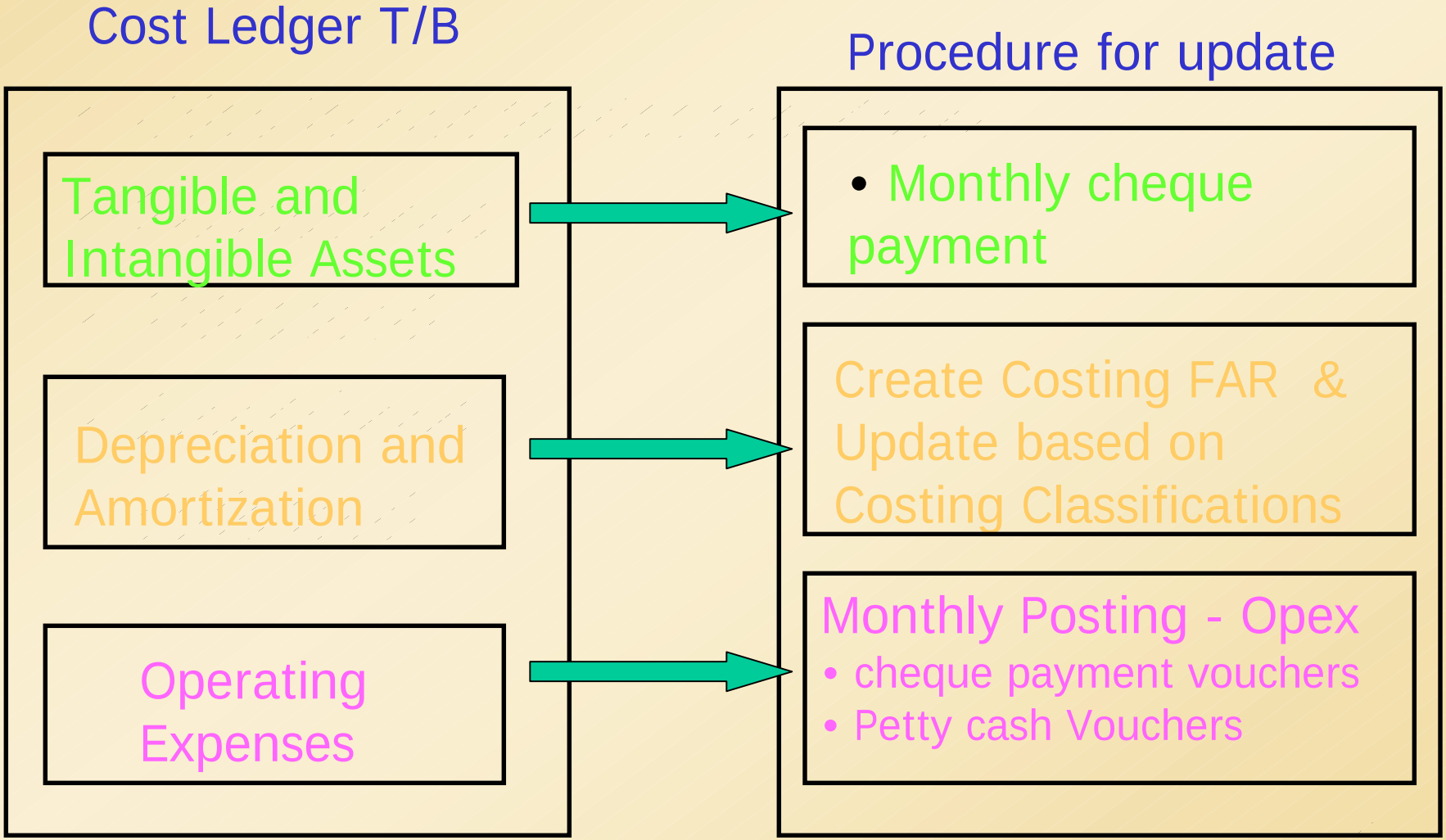
Way Forward - Costing Ledger Approach

- Cost ledger Trial Balance reconcile to Financial G/L Trial Balance
- Cost ledger T/B accounts named, coded and all balances posted to computerized cost ledger
- Develop posting procedures for ongoing update of cost ledger
- Posting from source document:
    - cheque payment voucher - capital and operating expenses
    - Petty cash vouchers

Monthly Maintenance of Cost Ledger - continuous update

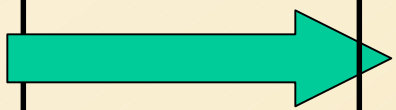


Monthly Maintenance of Cost Ledger - continuous update



Monthly Maintenance of Cost Ledger - continuous update

- Long Term Liability
- Shareholder Equity
- Retained Earnings
- Revenues



Not required for cost ledger

Monthly Maintenance of Cost Ledger - continuous update

Monthly reconciliation to Financial G/L

For the posted accounts ensure balances in cost ledger agrees with financial ledger for:

- Fixed Assets
- Tangible & Intangible Assets
- Depreciation & Amortization
- Operating expenses

Monthly Maintenance of Cost Ledger - continuous update

Construction of cost Ledger to agree in total with financial ledger Plug in omitted balances for categories not represented in cost ledger

Cost Benefits of Continuous Updates - cost ledger

- Balance kept in periodic agreement with financial G/L, attesting to its accuracy
- Up to date costing data input, for cost model allows calculation of service cost at any point in time
- Up to date service cost supports flexible pricing strategies
    - This is advantageous in competitive markets where cost based pricing is mandatory
- Favorable impression on regulators, competitors, and stockholders knowing verifiable and up to date costs are available on hand.

Establishing Cost Ledger

Costs

- Cost of hardware and software for maintaining up to date cost ledger
- More posting required - additional staff cost
- Requires realignment of source documents to cater for cost ledger disaggregated format
- Introduction of new procedures to accommodate posting of source data to cost ledger, on a continuous basis

Example - Realignment of Source data documents

Financial Acct Code	Cost Account Code	Description	Amount	Cost Allocation
FA 1160		Payment to Nortel re switch purchase	$1,000	
	CA1160			$500
	CA 1162			$250
	CA1165			$250
Totals				

Authorised By ..... **Checked By** .....

Cost Ledger Preparation Tool

Program Input Screen Content

Screen #1 - Enter Statutory General Ledger - Trial Balance of Accounts

Field Name	Field Type	Field Size	Characteristics
Account Name	Alpha	Sixty five	
Account Number	Alpha/numeric	Twelve	
Account Balance	Numeric	Fifteen	Positive / negative
Account Category	Alpha/numeric	Twenty five	Balance sheet classification, P&L Classification
Technology type code	Numeric	Four	
Network Category	Alpha/numeric	Twenty five	Functionality Group
Cost Category	Numeric	four	Asset, expense, direct, indirect

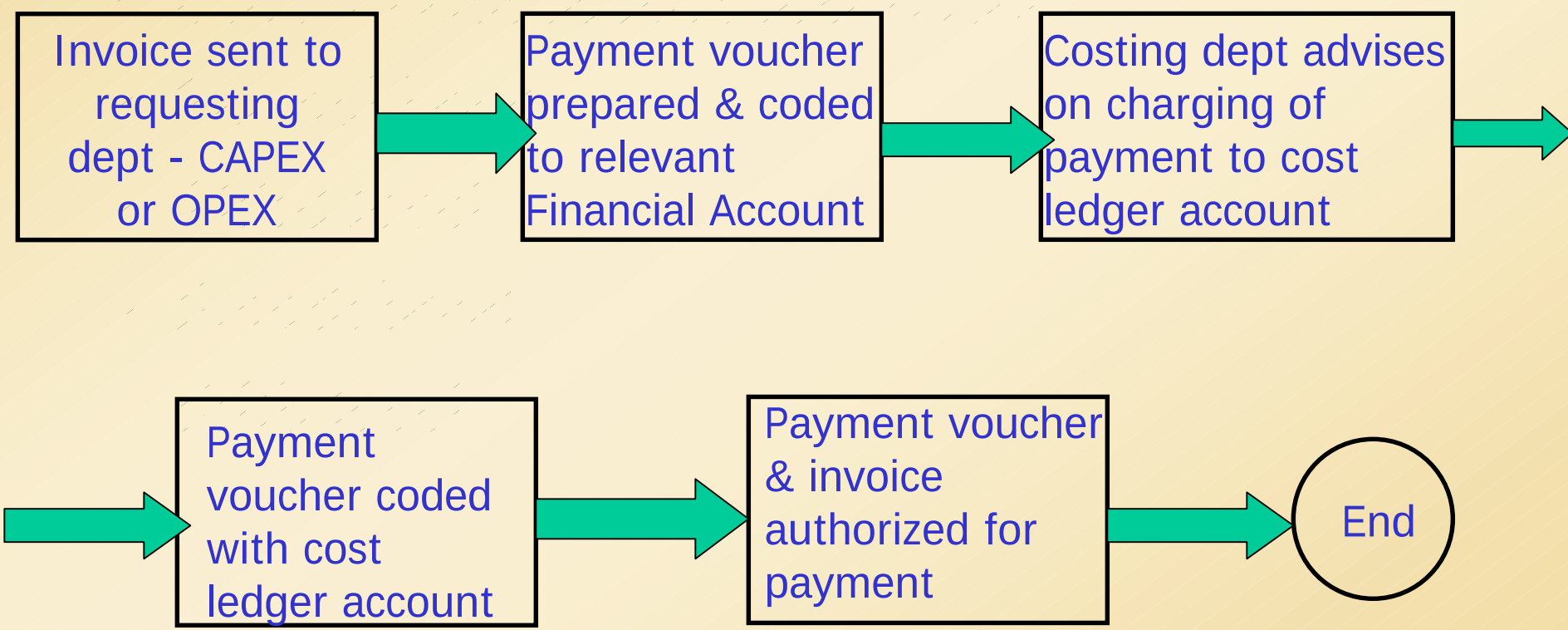
Cost Ledger Preparation Tool Program

Input Screen Content

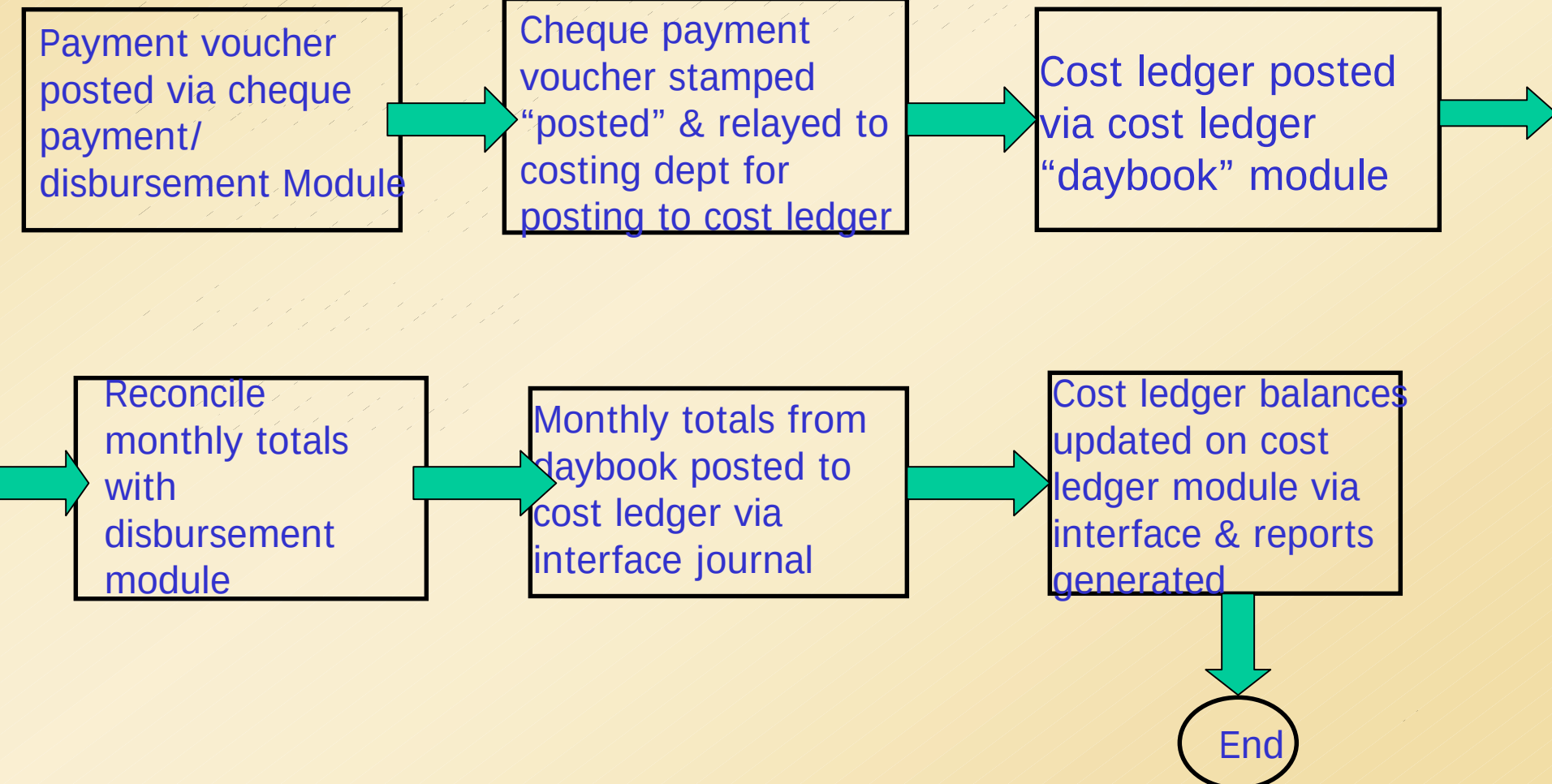
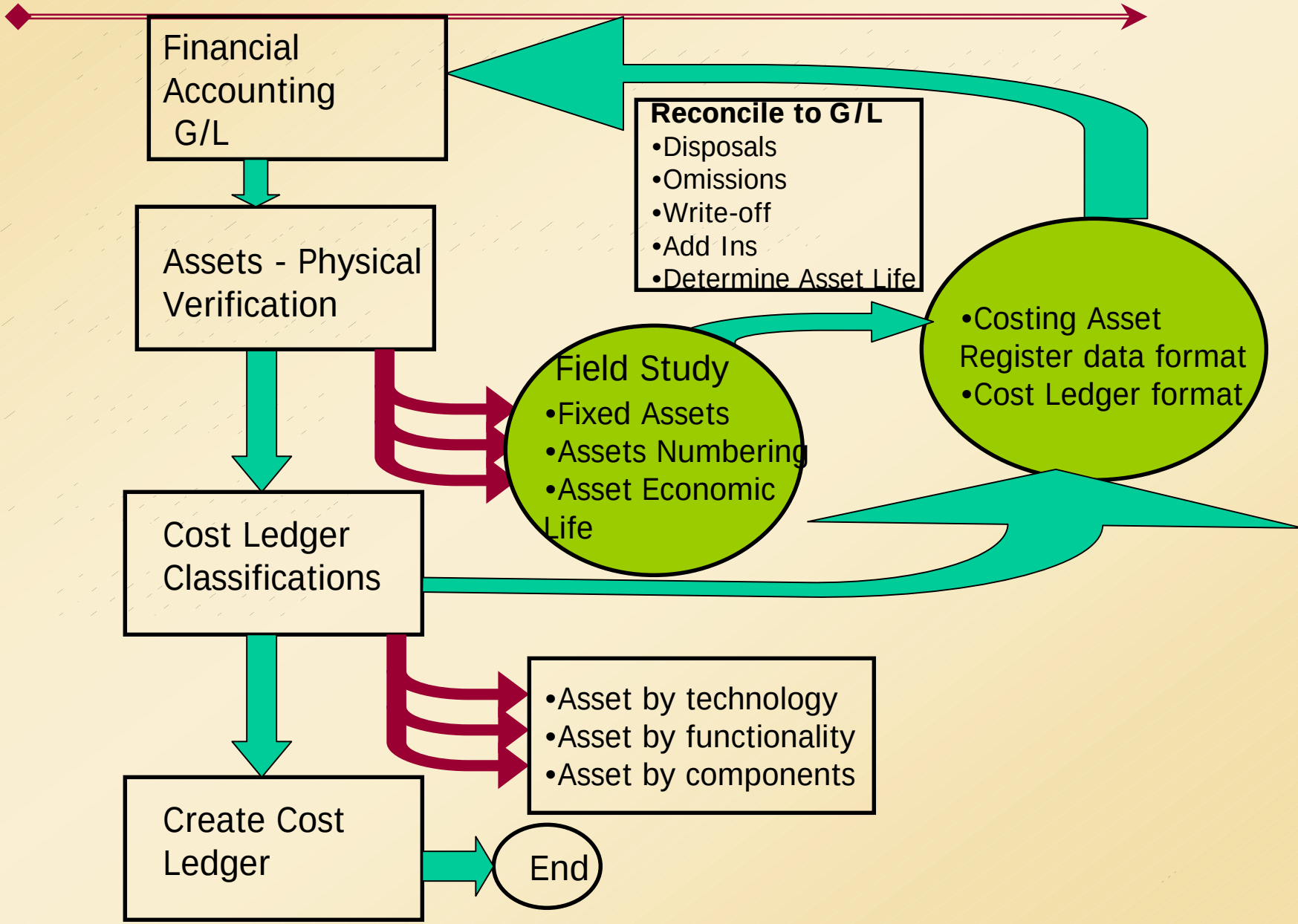
Screen # 2 - Maintain Asset Technology grouping Reference Table

Field Name	Field Type	Field Size	Comments
Description of technology type	Alpha/numeric	200 characters	
Date	numeric	DD/mm/yyyy	
Technology type code	numeric	Four	

Developing New Procedures



Developing New Procedures



Process Summary