

Metrics Based Project Governance

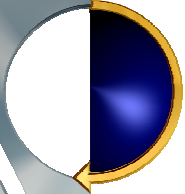
**Presented by : Pam Morris
TOTAL METRICS**

ACOSM 2003

*“Without objective data you are just
another person with an opinion”*



TOTAL METRICS



“harnessing the capabilities of your metrics team to minimise project risk”

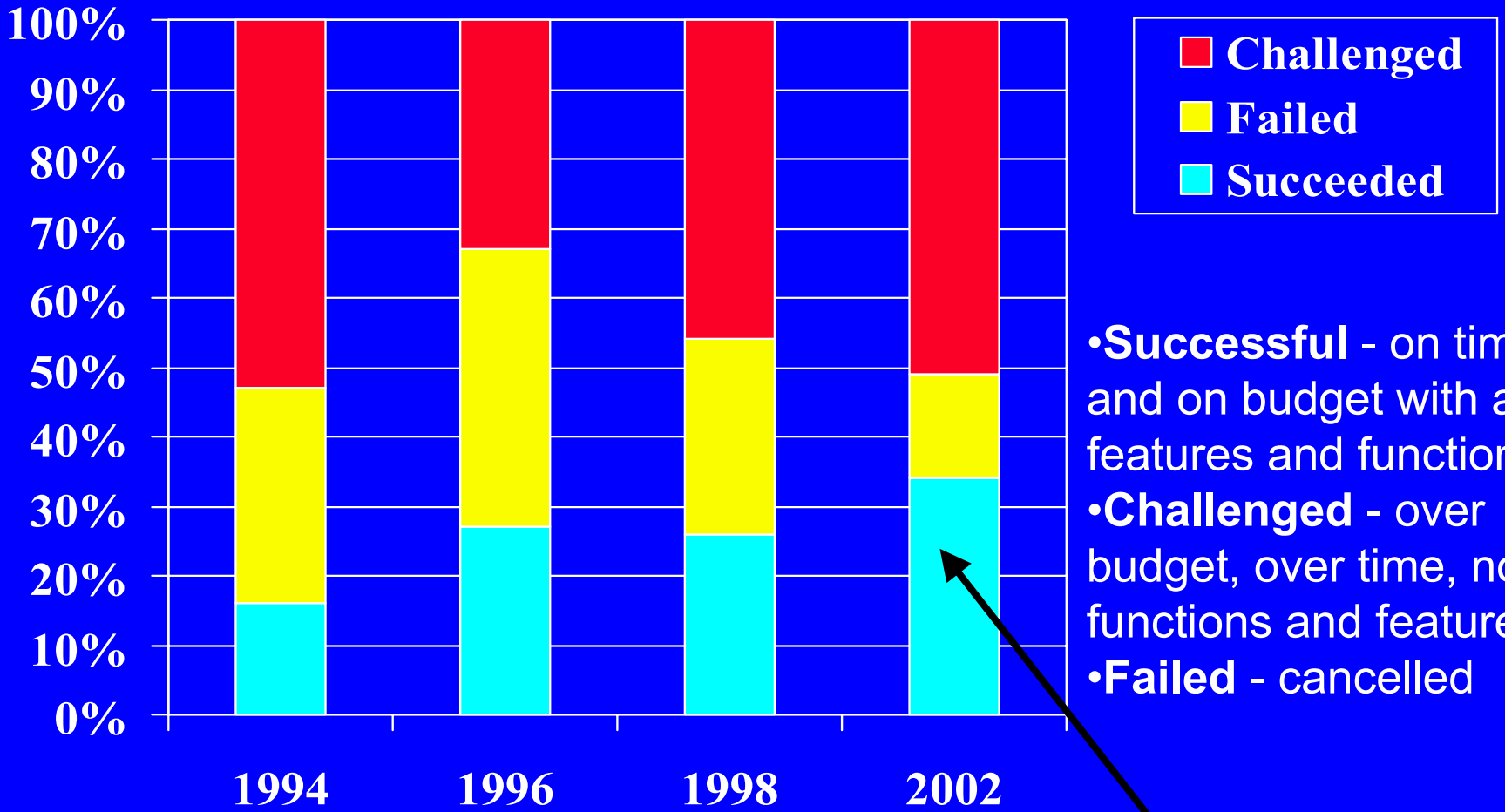


Summary Slide

Standish Group Chaos Report : 1994 -
2002

■ Governance – “balancing risk against opportunity”

Standish Group Chaos Report : 1994 - 2002



- **Successful** - on time and on budget with all features and functions
- **Challenged** - over budget, over time, not all functions and features
- **Failed** - cancelled

Only 34 % achieved Business Intent



Consequences of Failure

- Private / public embarrassment
- Missed business opportunities
- Disenchanted clients
- Legal repercussions
- De-moralised staff



August 1999 - *INCIS* - New Zealand Police System

*“NZ Finance Minister confirmed that *INCIS*' cost to the taxpayer so far was \$106 million. Others have estimated the cost at up to **\$130 million**, but in any case, costs have run well beyond the **\$98 million** police budgeted for the entire project in 1995”.*

Computerworld - 10th August 1999

*“the New Zealand police said to have made more than 900 variations to the original 10,000-page contract and IBM saying it had already **lost \$40 million** on the ill-fated application”*

The Age 24 June 2003

Feb 2001 - Citylink – Melbourne’s Tolling and Tunnel System

- *“Trouble is, it's been plagued with problems from the first sod - delays technical problems with computer tolling systems”* 7:30 Report 22nd Feb 2001
- *“Transurban claimed liquidated damages of **\$251.5** million from TOJV for the late completion of the Melbourne CityLink”.*

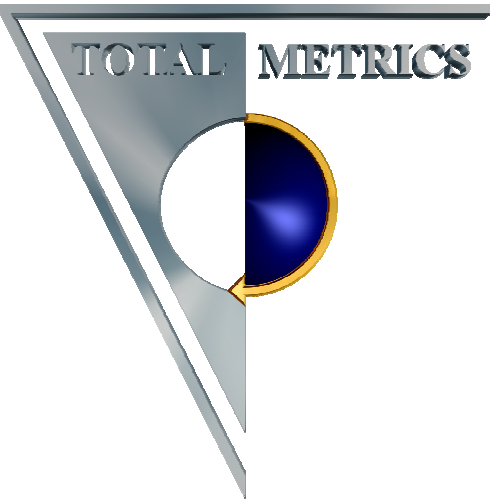
Citylink Media Release - 27th November 2001

Feb 2003 - Victorian Public Transport Ticketing System

- *“In February, the Victorian Government completed payment of a **\$65 million** settlement to ERG subsidiary OneLink after changes made to the project design at a late stage blew out the budget of OneLink's Melbourne public transport ticketing system rollout.”* The Age June 24th 2003
-

August 2003 - *RMIT - Academic Management System*

- *“The AMS project displayed a lack of essential rigour and a lack of effective risk management ”*
Victorian Auditor Generals Report 2003
- *“Original estimate was **\$12.6** million it is now anticipated to cost **\$47.3** million by the end of this Year”* The Australian – August 5th 2003



Attributes of “Scope Manager”

Excellent skills in:

- ✓ Business analysis
- ✓ Metrics and Function points
- ✓ Communication
- ✓ Management Reporting

Report to:

- ✓ Project Board / Project Sponsor

Paid by:

- ✓ Project Budget/client/supplier

Independence



Governance

Corporate Governance



IT Governance



Project Governance



Project Activities – Metrics Based Governance

Business Case

Feasibility Study

FPA Size “Estimate”

*Effort, Cost
and Duration
Estimate*

**ISBSG
Industry
Productivity
Data**

Budget allocation

Approval

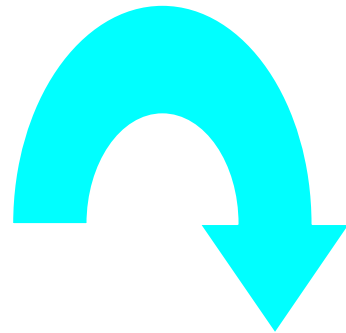
BENEFIT - Independent project estimates based Industry data from ‘best practice’ experience or reality check on client budget.

Will the software be delivered in time and be worth the Business Value?

✓ ***300 ~ 500 function points***

✓ ***Delivery ~ 7 to 9 months***

✓ ***Cost ~ \$390k to \$580k***

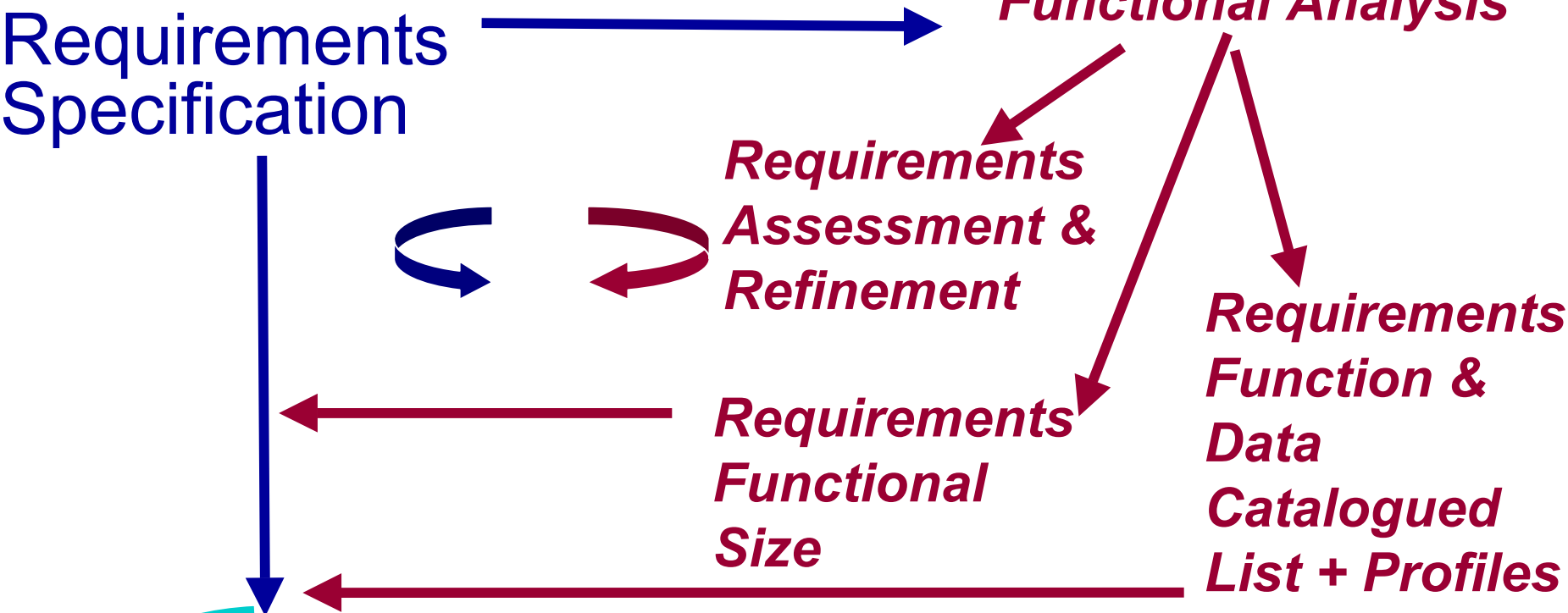


Budget Approval



Develop Requirements / RFT

Project Activities – Metrics Based Governance



BENEFIT – Independently reviewed, auditable, quantified, traceable list of requirements

Baseline List of Individual Requirements

SCOPE - Project Sizing Software - [Example2508.FPA]

File Edit Node Trees View Window Help

The screenshot displays the SCOPE software interface with a tree view of requirements. The left pane shows a hierarchical structure under 'Function - First Estimate', including 'Manage Orders', 'Maintain Orders', 'Report Orders', 'Manage Products', and 'Manage Receipts'. The right pane shows a detailed view of 'Attribute - First Estimate' with sub-attributes like 'Specification Completeness Label', 'Delivery Mechanism', 'Solution for Supplier X', and 'Priority for Implementation'. A red arrow points from the 'Attribute - First Estimate' node to the 'Update Template Details' node in the left pane.

- Function - First Estimate
 - Manage Orders
 - Maintain Orders
 - Create New Order
 - Maintain Template
 - Update Template Details
 - View Order Template Details
 - Report Orders
 - List Order History
 - View Past Order
 - Print/Transmit Order
 - Print Order Summary Rept
 - Manage Products
 - Maintain Products
 - Add New Product
 - Change Product Details
 - Delete Product
 - Report Products
 - List Product Information
 - Report Product Update
 - Manage Receipts
 - Maintain Receipts
 - Record Receipt of Goods

- Attribute - First Estimate
 - Specification Completeness Label
 - Delivery Mechanism
 - Solution for Supplier X
 - Priority for Implementation
 - Core Functionality
 - Extended Functionality
 - Future

Profile and Quantify Requirements

The screenshot displays the SCOPE software interface for a project named "Example2508.FPA". The interface is divided into two main panes. The left pane shows a hierarchical tree structure of functions under the "Function - First Estimate" node. The right pane shows a list of attributes under the "Attribute - First Estimate" node. A blue arrow points from the "Update Template Details" function in the left pane to the "Core Functionality" attribute in the right pane. The "Core Functionality" attribute is checked, indicating it is selected.

Function - First Estimate

- Manage Orders
 - Maintain Orders
 - Create New Order**
 - Maintain Template
 - Update Template Details**
 - View Order Template Details**
 - Report Orders
 - List Order History**
 - View Past Order**
 - Print/Transmit Order**
 - Print Order Summary Rept**
- Manage Products
 - Maintain Products
 - Add New Product
 - Change Product Details
 - Delete Product
 - Report Products
 - List Product Information
 - Report Product Update
- Manage Receipts
 - Maintain Receipts
 - Record Receipt of Goods**

Attribute - First Estimate

- Specification Completeness Label
- Delivery Mechanism
- Solution for Supplier X
- Priority for Implementation
- Core Functionality
- Extended Functionality
- Future

Core Functions selectively identified and selectively sized = 300fps of total of 450 fps

Re-Estimate – Java , J2EE

	Minimum	Maximum
Function Points	400	550
PDR hrs/fp	17	21
Effort hours	5,442	7,197
Duration months	9.0	11.4
Cost	\$642,108	\$849,255
Cost \$/fp	\$1,167	\$2,123

Project Activities– Metrics Based Governance

Tender Response Evaluation

%Match against RFT Function & Data Catalogue Lists

Suppliers Functional Solution

Compare against Initial Effort, Cost and Duration Estimate

Suppliers Price Dollars per FP

Estimates Reality Check

Suppliers total cost and schedule

Select Supplier

BENEFIT – Independent evaluation suppliers price and schedule estimates. Quantitative match of supplier functional proposal

Suppliers Solution Mapped to Requirements

The screenshot displays the SCOPE - Project Sizing Software interface for a project named 'Example2508.FPA'. The left pane shows a hierarchical tree of function requirements under 'Function - First Estimate'. The right pane shows a corresponding tree of attributes under 'Attribute - First Estimate'. Two blue arrows point from the 'Attribute' tree to the 'Function' tree, indicating a mapping: one from 'Specification Completeness Label' to 'Create New Order', and another from 'Fully Satisfied' to 'List Order History'. A red arrow points from the top right towards the 'Attribute' tree.

Function - First Estimate

- Manage Orders
 - Maintain Orders
 - Create New Order**
 - Maintain Template
 - Update Template Details**
 - View Order Template Details**
 - Report Orders
 - List Order History**
 - View Past Order**
 - Print/Transmit Order**
 - Print Order Summary Rept**
- Manage Products
 - Maintain Products
 - Add New Product
 - Change Product Details
 - Delete Product
 - Report Products
 - List Product Information
 - Report Product Update
- Manage Receipts
 - Maintain Receipts
 - Record Receipt of Goods**
 - Modify a Receipt**

Attribute - First Estimate

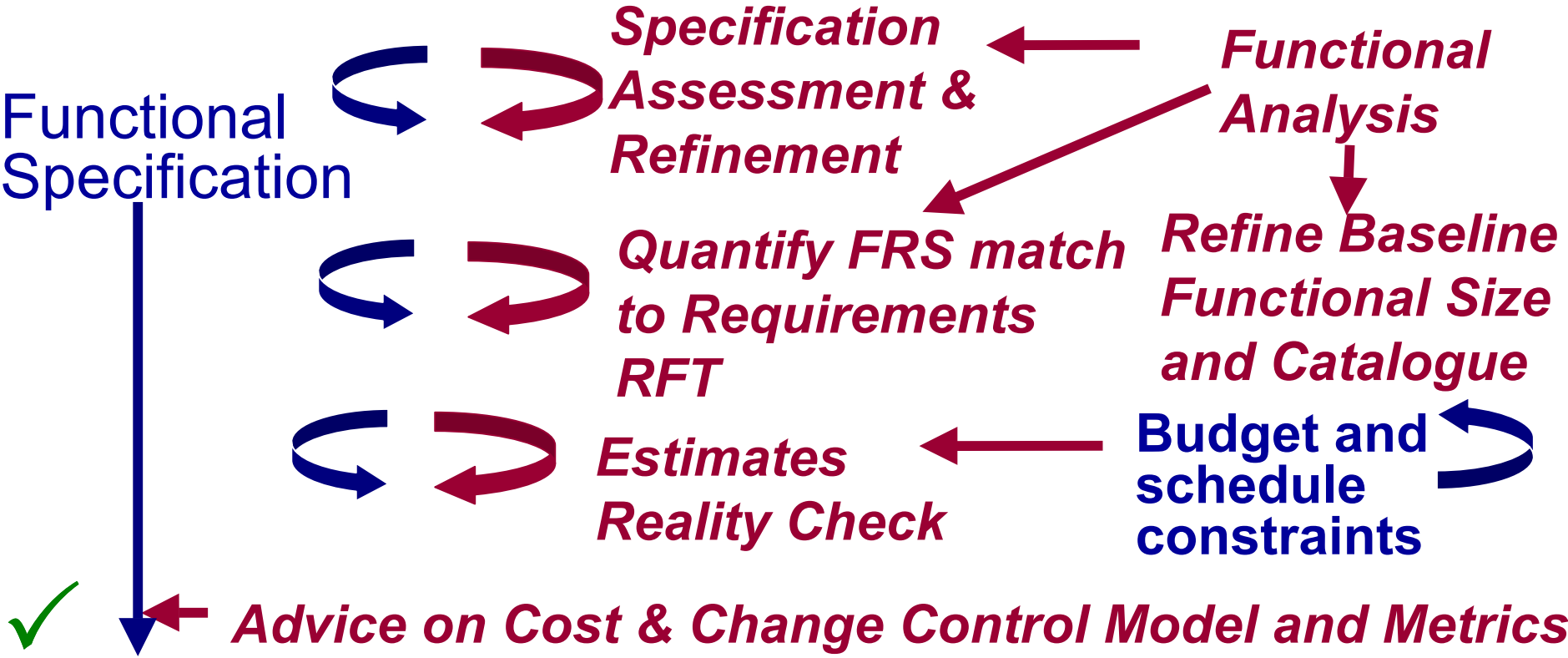
- Specification Completeness Label
- Delivery Mechanism
 - Package - unchanged
 - Customised - tables
 - Developed
- Solution for Supplier X
 - Fully Satisfied**
 - Partially Satisfied
 - Not Satisfied
- Priority for Implementation

Quantify % Match = 205 out of core 300 function points can be delivered without change by the Suppliers Package Solution

Evaluate Suppliers Responses for Reasonableness

Estimates	Minimum	Maximum
Duration months	9.0	11.4
Cost \$/fp	\$1,167	\$2,123
Supplies Bids	Cost \$/fp	Duration
Supplier A ✓	\$1,892	12
Supplier B ✓	\$1,563	10
Supplier C <input checked="" type="checkbox"/>	\$987	6

Project Activities – Metrics Based Governance

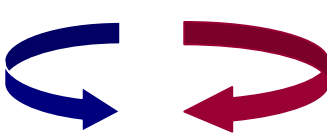


Build

BENEFIT – Independent assessment of completeness of Functional Requirements. Quantify different functional solutions to fit budget / schedule. Expert advice on Pricing & Change Control Model and Project Metrics.

Project Activities – Metrics Based Governance

Functional Changes



Specification Assessment & Refinement



Functional Analysis



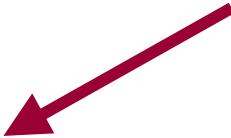
Quantify size of Change for Pricing



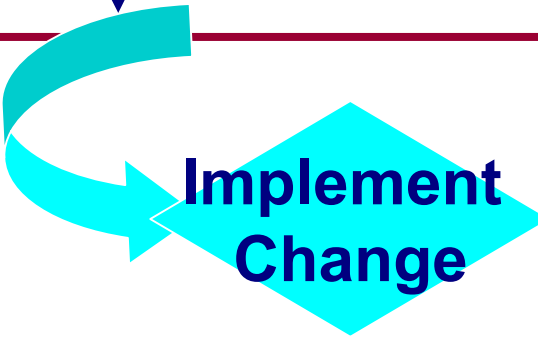
Update Baseline Functional Size



Estimates Reality Check



Budget and schedule constraints



BENEFIT – Independent objective assessment of the extent of change and assistance with pricing. Quantify impact on planned schedules and budgets.

Quantified Traceable Changes Against Requirements

The screenshot displays the SCOPE - Project Sizing Software interface. The left pane shows a tree view of functions, with 'Create New Order' selected under 'Maintain Orders'. The main pane shows the configuration for this function, including its name, description, process type, result source, and complexity matrix. The complexity matrix shows 22 DETs and 3 FTRs. The function points are calculated as 6 (Multiplier: 1, Function Points: 6, Multiplied FP: 6). The session impact table shows the function's impact on the session.

Name: Create New Order

Description: Functional Specification - Add Delivery address to the Order

Process Type: Input, Output, Inquiry, Undefined

Result Source: Range, Assessment, Enter Value, Default

Complexity Matrix:

DET: 1-4, 5-15, >=16

FTR: 0-1, 2, >=3

Complexity: Low, Average, High

DET: 22, FTR: 3

Multiplier: 1, Function Points: 6, Multiplied FP: 6

Session Impact:

Session	Impact
First Estimate	Add
After Functional Specification	Change

Project Activities – Metrics Based Governance

Project Progress Reporting

Earned Value - FPs delivered versus planned schedule.

ISBSG Industry Project Activity Profile



Map User Acceptance Testing Test Cases against Functional Catalogue



Identify and quantify Test Case coverage, hot spots for defects



Revise Strategy

BENEFIT – Independent assessment of project status by quantifying percent delivered.

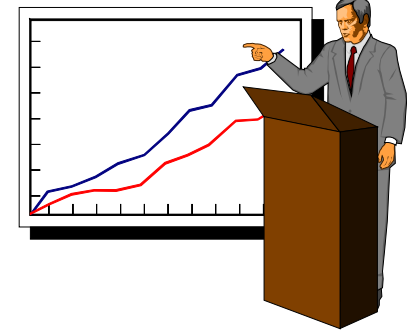
Independent Progress Recording

Project Team record Actual time against function

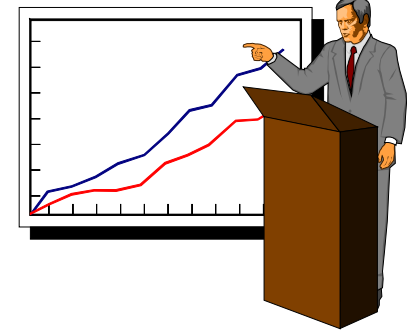
Completed % Status of Function predicts Effort Consumed

Today's Week #	25-Apr-02 8	Predicted PDR (hrs/tp)	Completed Stage	Current Completion %	Function Points	Predicted Total Hours	Actual Hours Consumed	FP Predicted Hours Consumed	Actual Hours Remaining
	BFCs								
	Create Assignment								
1.1		2.4	Specified	26%	6	14.4	3.0	3.7	11.4
1.2	Modify Assignment View / Print	2.4	Specified	26%	6	14.4	5.0	3.7	9.4
1.3	Assignment Detail	2.4	Specified	26%	3	7.2	5.0	1.9	2.2
1.4.1	Assign Contractor to Assignmnt	2.4	Specified	26%	4	9.6	4.0	2.5	5.6
1.4.2	Remove Contractor Assignmnt	2.4	Specified	26%	3	7.2	7.0	1.9	0.2
1.4.3	List Assignment Contractors	2.4	Specified	26%	4	9.6	4.0	2.5	5.6
1.5	Quotation Success	2.4	Built	74%	4	9.6	6.0	7.1	3.6
1.6	List Assignments Date Range	2.4	Built	74%	3	7.2	1.5	5.3	5.7
2.1	Create Assignment Type	2.4	Built	74%	4	9.6	6.5	7.1	3.1
2.2	Modify Assignment Type	2.4	Built	74%	4	9.6	5.5	7.1	4.1
2.3	Delete Assignment Type	2.4	Specified	26%	3	7.2	1.5	1.9	5.7
2.4	View Assignment Type	2.4	Specified	26%	3	7.2	1.5	1.9	5.7
2.5	List /Print Assignment Type	2.4	Tested	91%	3	7.2	4.7	6.6	2.5
	etc.....	etc.....							
				TOTAL	119	285.6	105.9	139.5	178.2

Progress Reporting



start	01-Mar-02	Week Number	8	Actual Value Calculation based on:
today	25-Apr-02	Actual	Original Plan	
PDR	1.8	2.4	<i>Hours consumed for FPs delivered</i>	
Function Points Delivered	58.1	46.5	<i>FPs by Percentage completion</i>	
Effort Hours Consumed	105.9	132.8	<i>Recorded by team for work against a function</i>	
Effort Hours Remaining	178.2	161.8	<i>Total hours predicted minus hours consumed</i>	
Weeks Remaining	10.5	9.6	<i>Relationship between Effort and Duration</i>	
Due Completion Date	07-Jul-02	01-Jul-02	<i>Predicted by Remaining hours</i>	

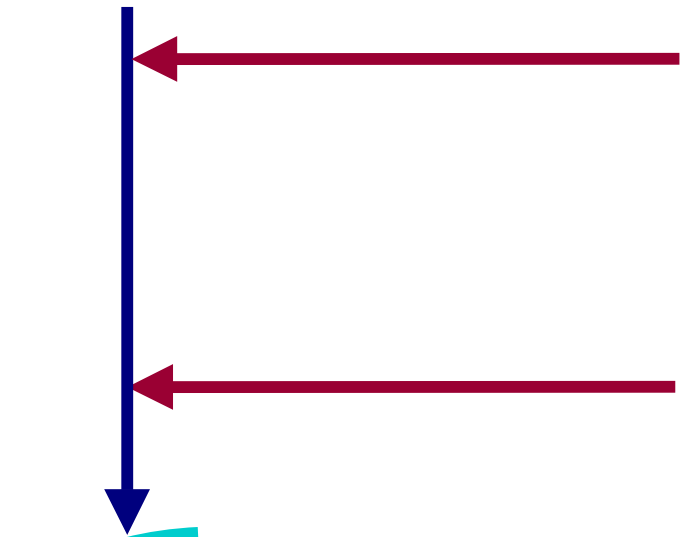


Progress Reporting

start	01-Mar-02	Week Number	8	Calculation based on:
today	25-Apr-02	Actual	Original Plan	
% Product Delivered	48.9% ✓	39.1%	<i>%FPs Delivered of total compared to that predicted to be delivered for effort consumed</i>	
% Effort Consumed	40.2% ✓	48.9%	<i>%Effort Consumed of total compared to Effort predicted to be consumed for FPs delivered</i>	
%Schedule Consumed	45.1% ✗	36.0%	<i>%Schedule Consumed of total compared to predicted to be consumed for the effort expended</i>	

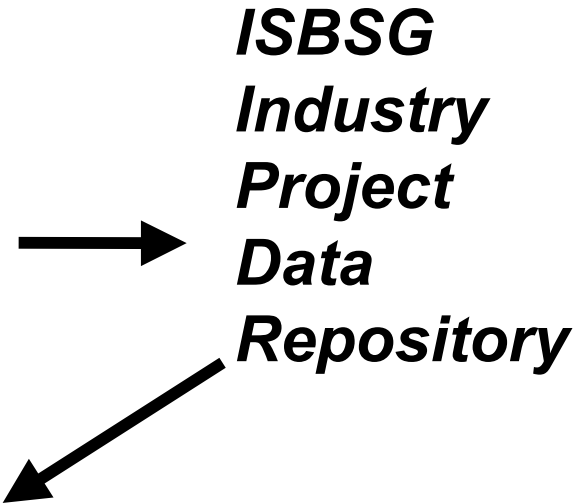
Project Activities – Metrics Based Governance

Project Implementation

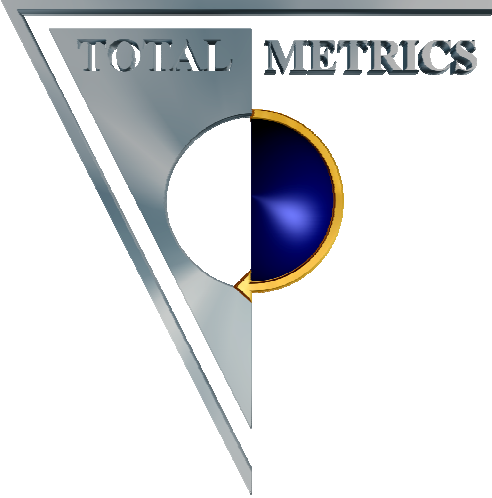


Validation, collation, analysis and submission of Project Metrics.

Project Productivity and Quality Assessment Report



BENEFIT – Independent assessment project productivity and process. Expert to assist in the collation of data for submission to the ISBSG Repository and interpretation of results.



■ Case Studies

Case 1- Win / Win

- ✓ Complete functional requirements
- ✓ Successful implementation, on time, on budget and all requirements
- ✓ Good Productivity rates
- ✓ Ongoing good relationship



Case Studies

Case 2 – Conflictive

- Supplier estimates unrealistic
✓ *Early warning of potential over runs*

- Supplier status reporting not reflective true situation
✓ *Quantitative assessment of functionality delivered to UAT*

- Requirements not all implemented
✓ *Quantitative assessment of functionality omitted for price negotiations*





Which Projects Need Governance?

- ✓ **High risk**
- ✓ **New / inexperienced project management**
- ✓ **High profile**

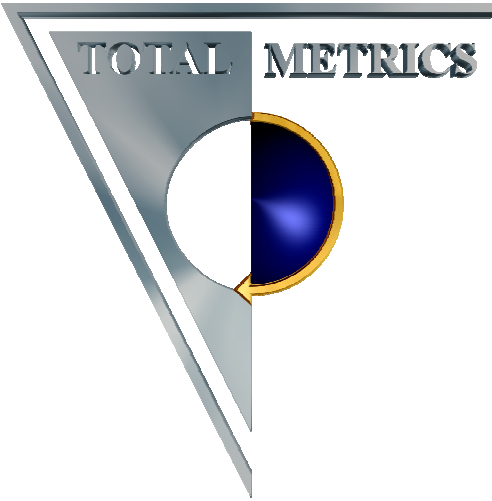


Cost / Benefit Analysis

- ✓ Cost ? = 1 – 3 % of software cost
 - depending on :
 - level of activities
 - Size of project
 - Internal or external consultant

- ✗ Cost of not having it ?
 - 0 – >100% of project cost



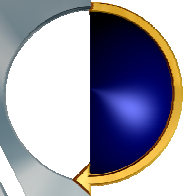


Key Success Factors?

- ✓ FPA is a standardised, structured method to identify, classify and quantify functionality to be delivered
- ✓ Independence of Scope Manager
- ✓ Certification of Scope Manager
- ✓ Reporting at Project Board Level
- ✓ Commitment both Client and Supplier
- ✓ Customisation of method to suit Project
- ✓ Transparency of the process
- ✓ Availability of relevant ISBSG data



TOTAL METRICS



Thank You

Total Metrics

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