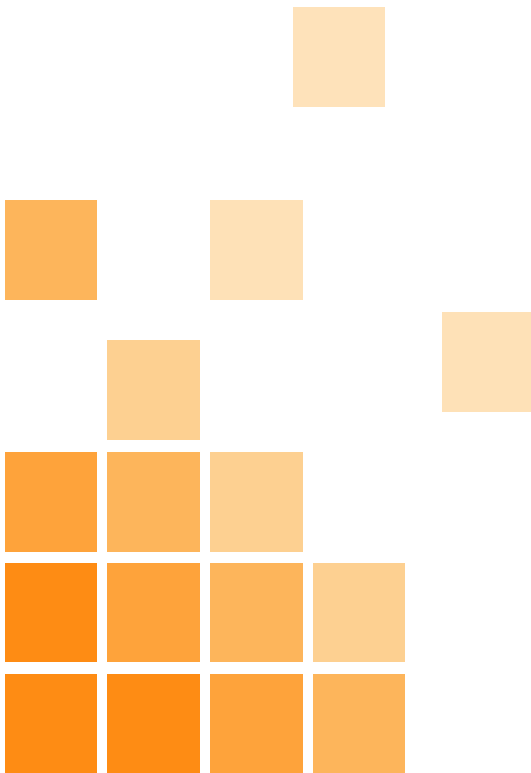


Financial modelling

Stephen Aldridge

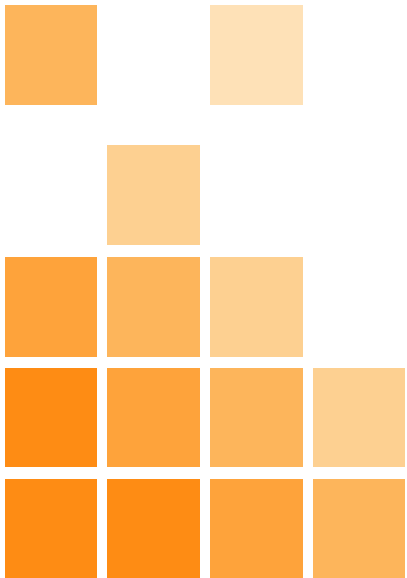
October 2007



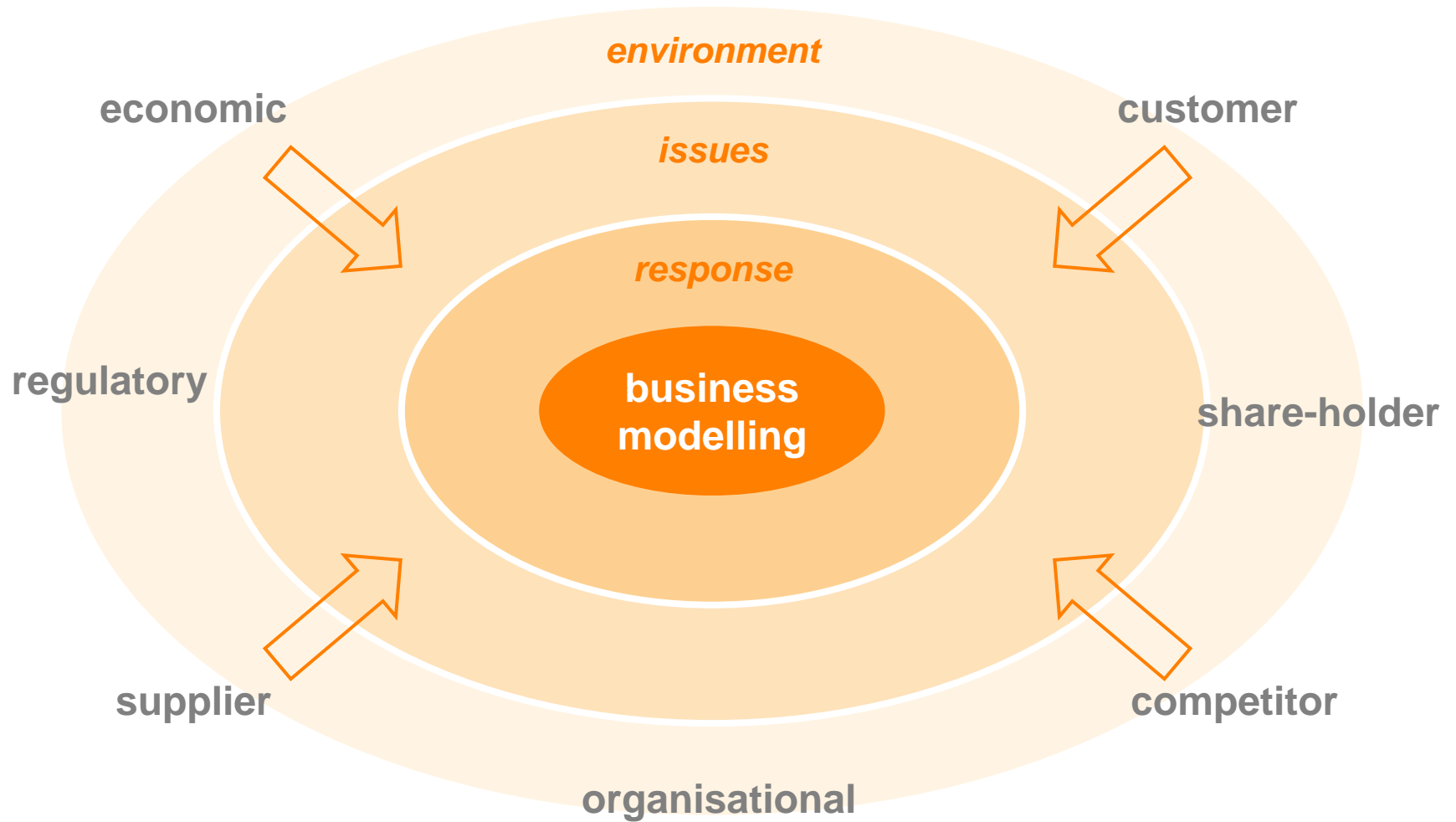
Financial modelling seminar

- 1** What is financial modelling
- 2** Insight from modelling
- 3** Why is good practice modelling important
- 4** Good practice basics

1 What is financial modelling



Business modelling in context



Aspects of Financial modelling

Clarity

- Structuring the 'problem'
- Develop and examine the Assumptions
- Manage the complexity

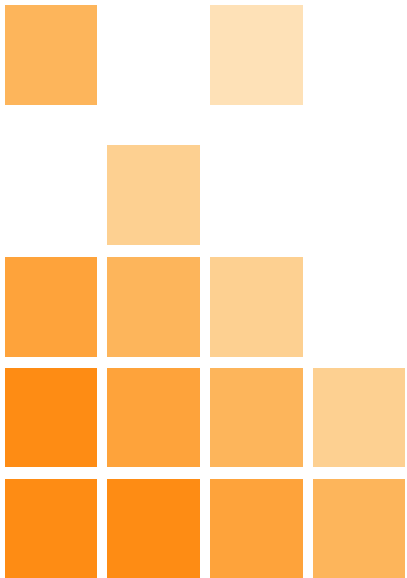
Precision

- Robust calculating engine
- Integrated financial statements
- In built checks
- Using Microsoft Excel spreadsheets

Insight

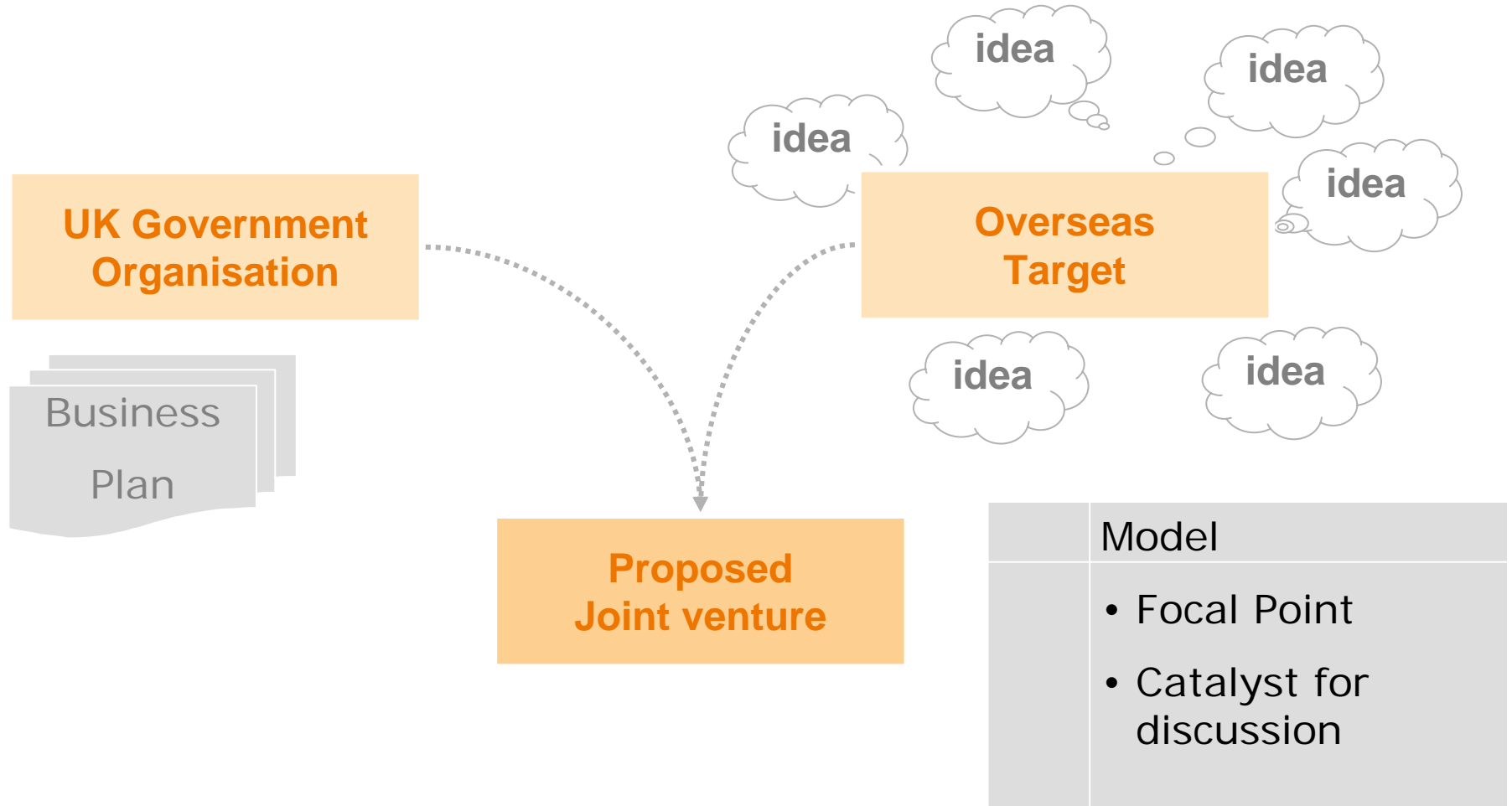
- Provides a safe environment to evaluate decisions
- Enables potential forecasting of future outcomes to be tested
- Establishes confidence for major decisions

2 Insight from modelling



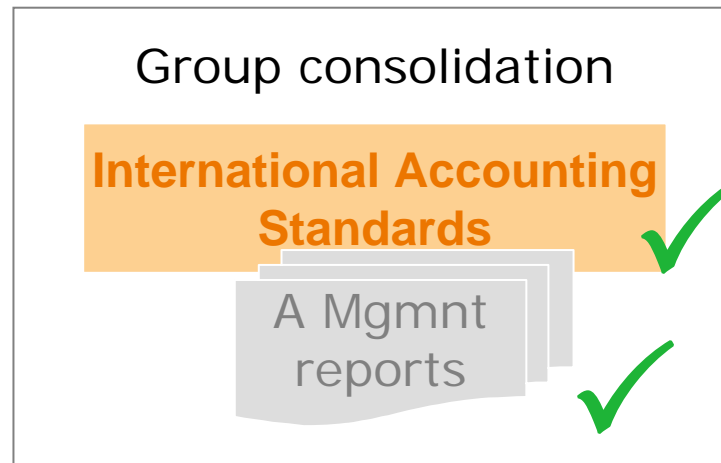
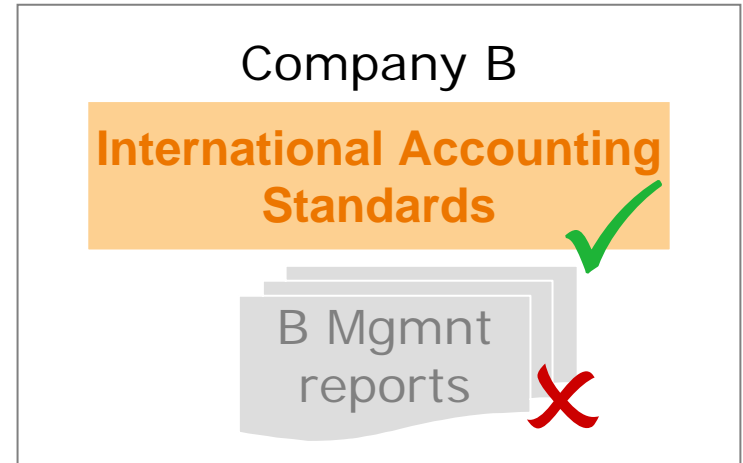
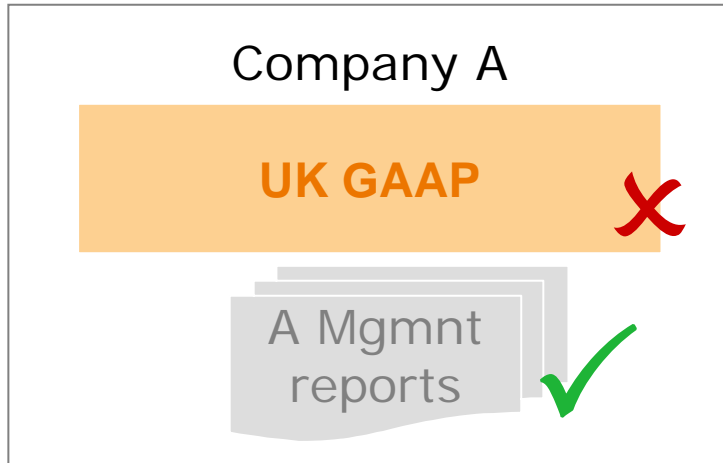
Modelling for strategic planning

Entrepreneurial software house



Modelling for integration

Pharmaceutical merger



Modelling for construction

Deep water port facility

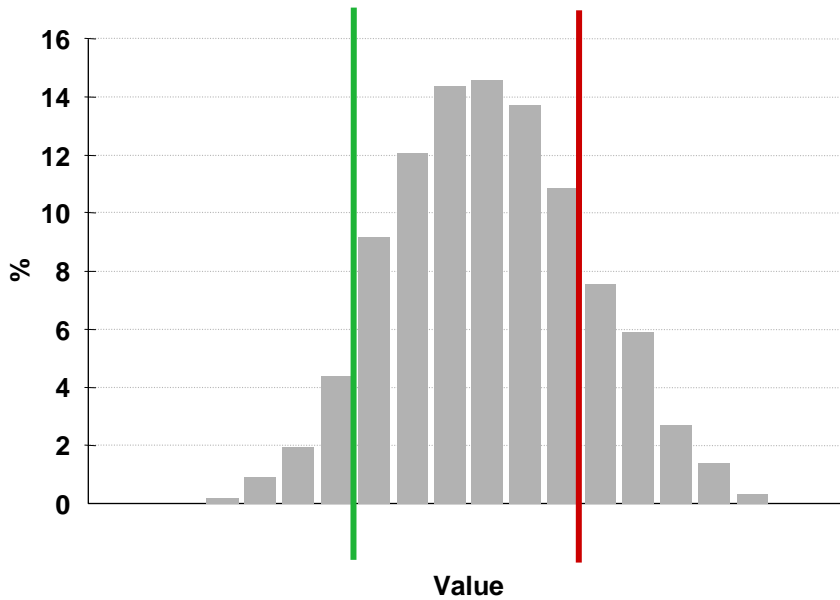
- Option analysis
 - Capital cost vs cash flow
- Sensitivity analysis
 - Uncertainty about demand
- Risk analysis
 - Construction delays



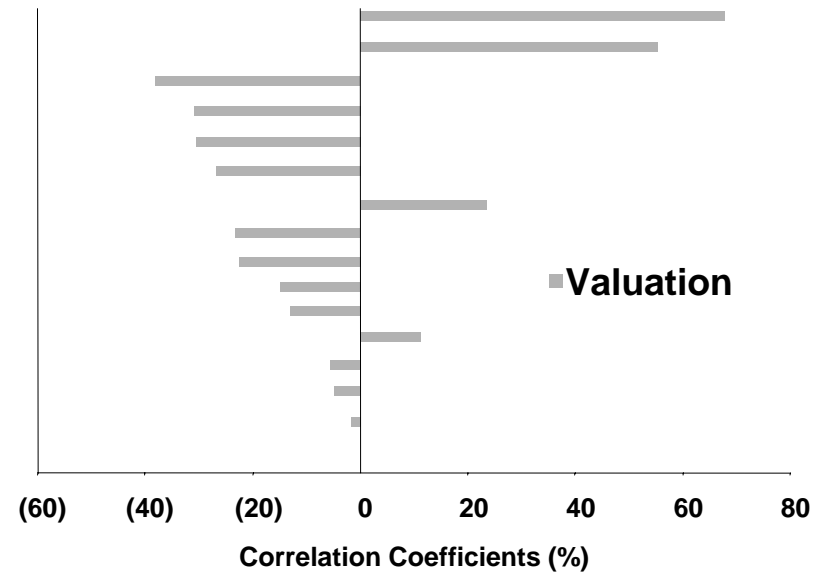
Risk Analysis



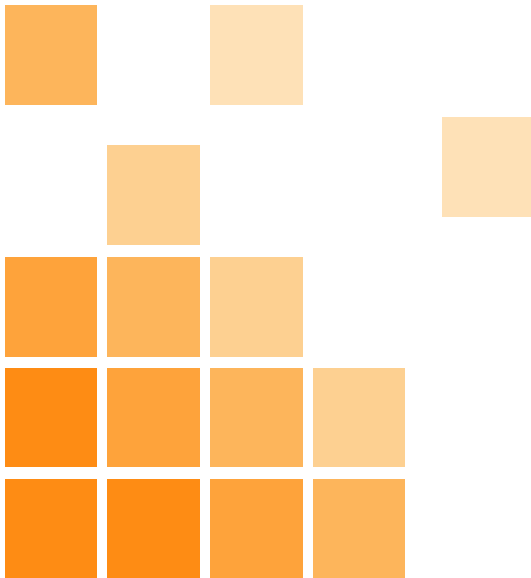
Valuation of business



Effect of uncertain inputs



3 Why is good practice modelling important



“A best practice model should be robust, easy to use, flexible and adaptable. It should provide insight into the commercial aspects of the business decision.”

Horror stories

TransAlta Corp, Toronto

- Bought more hedging contracts at higher prices than it should have leading to a **charge to earnings**
- “It was literally a cut-and-paste error in an Excel spreadsheet that we did not detect prior to submission.”
said Chief Exec Steve Snyder

\$24m

Source www.eusprig.org, www.theregister.co.uk

Horror stories

Connex

- An auditor report concluded that Connex had:

“An inadequate grasp of basic financial modelling and cashflow management.”

Lost their south-eastern train franchise

Source: The Guardian

Horror stories

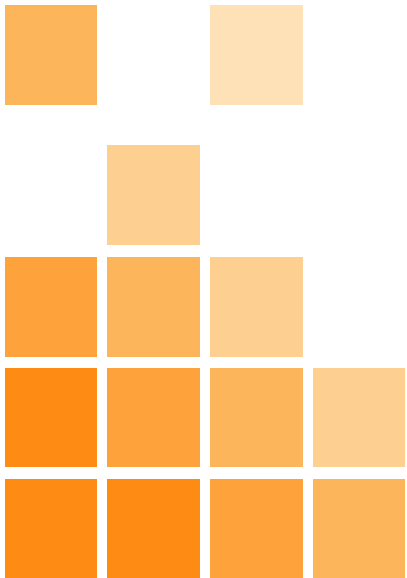
National Australia Bank subsidiary Homeside

- *Incorrect interest rate assumption fed into Homeside's financial modelling.*
- *Contributed to a write-down of the value of Homeside of AUS\$3 billion*

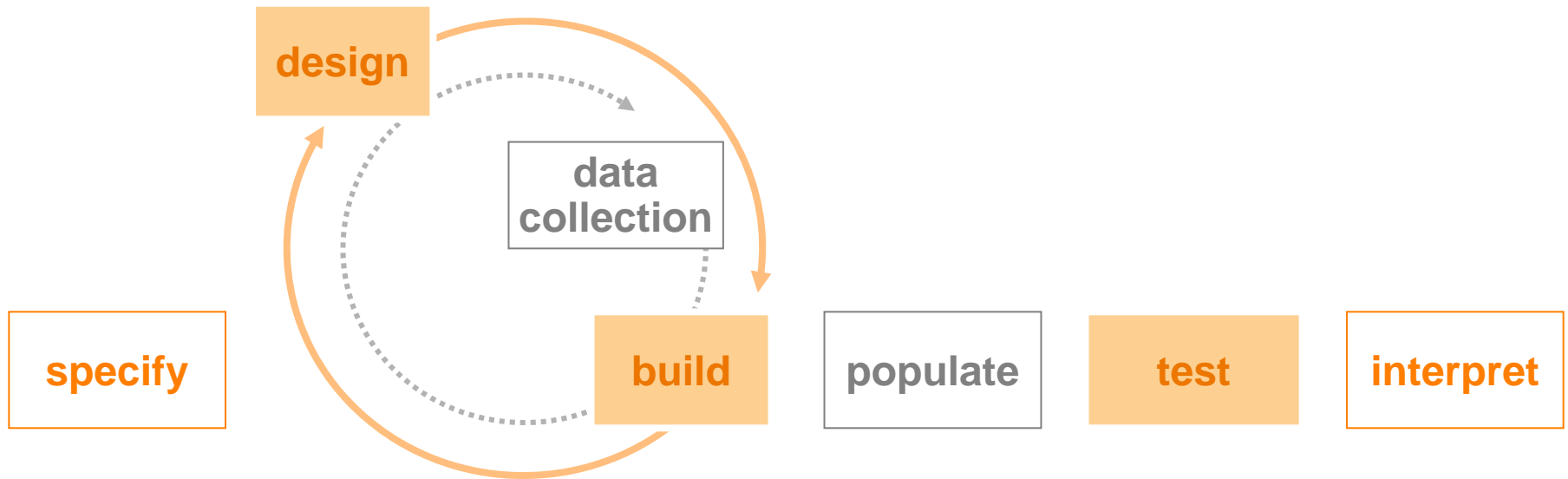
\$755 million

Source: www.abc.net (Australian Broadcasting Corporation)

4 Good practice basics



Process for building models



Scope / specify



what the user described



what marketing heard



what went into the requirements



what got designed



what development built



what the user actually wanted

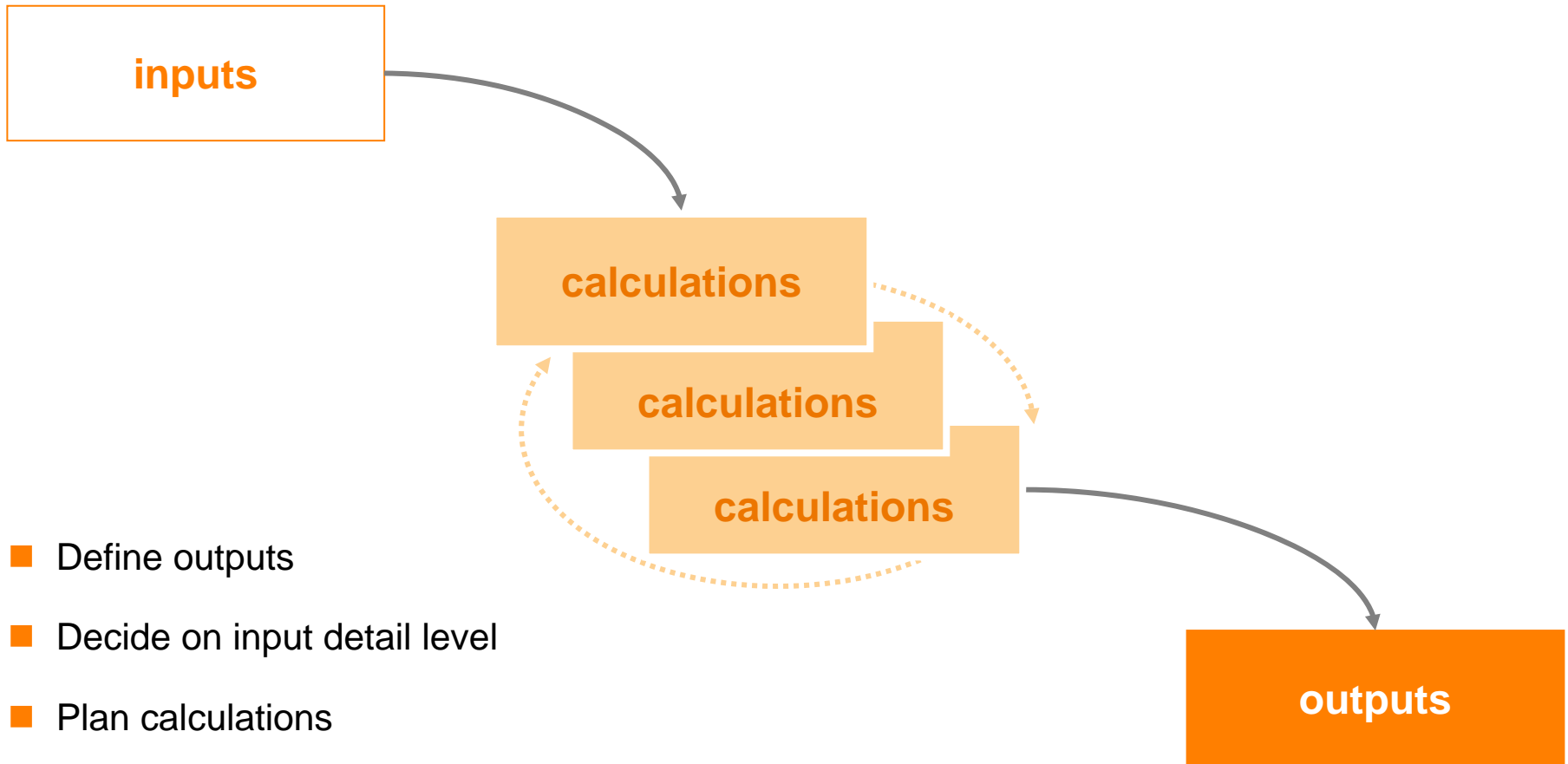
Modelling objectives

Two elements to most business models:



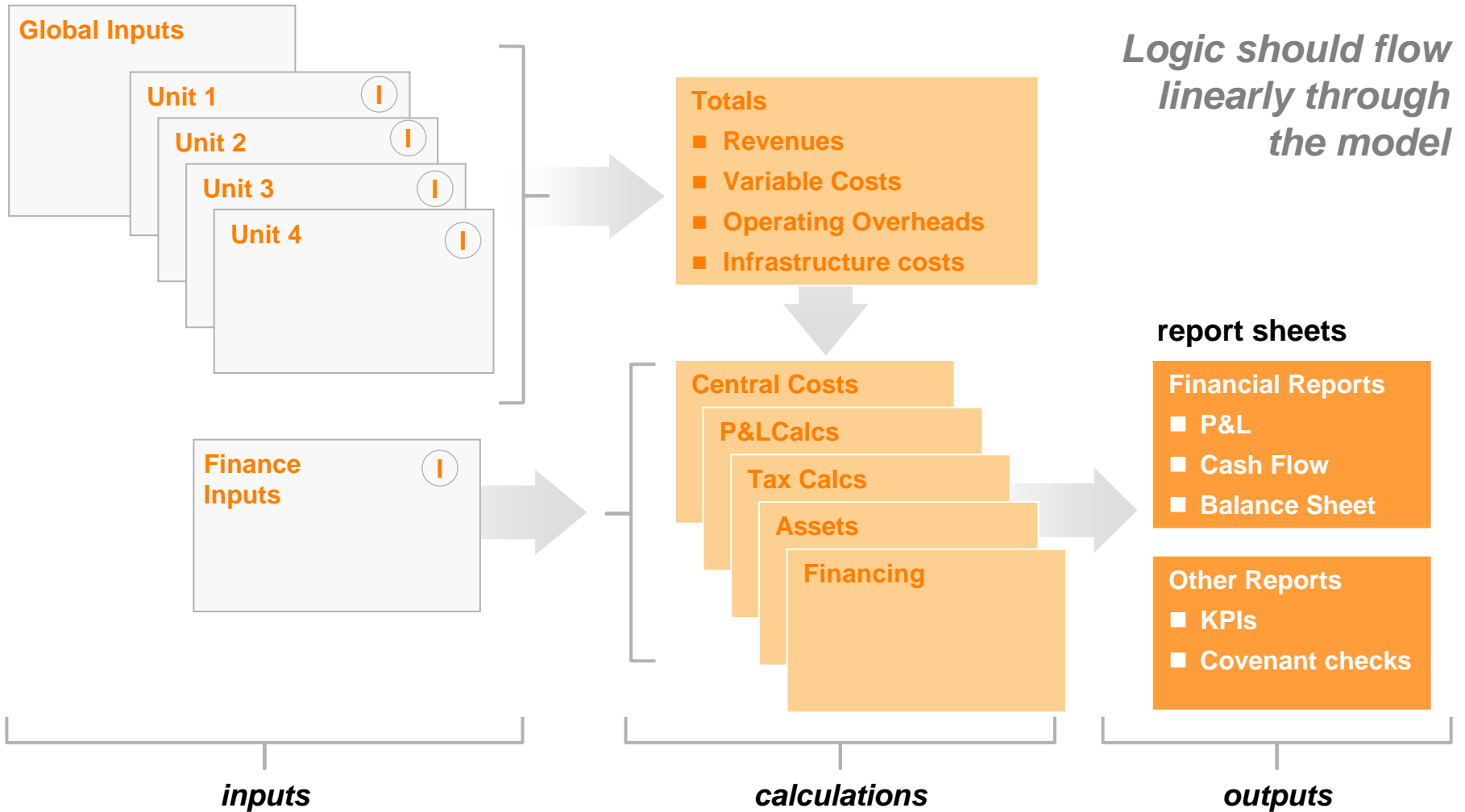
- What resources do I need?
- What price should I charge?
- What are the time critical stages in my project?
- How should I organise my delivery network?
- Is this a viable investment?
- Will I breach my banking covenants?
- When will I need funding?
- What are the returns for different classes of investors?

Planning



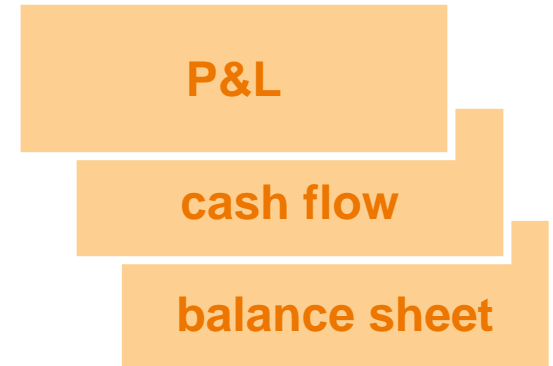
- Define outputs
- Decide on input detail level
- Plan calculations

Design



Build – integrated models

- Balance sheet = built in check
- Double Entry
- “Control account” calculation



	2004	2005	2006
Opening balance	100	95	103
Additions	25	40	45
Reductions	(30)	(32)	(35)
Closing balance	95	103	113

Two red arrows point from the closing balance of 2004 (95) to the opening balance of 2005 (95), and from the closing balance of 2005 (103) to the opening balance of 2006 (103), illustrating the continuity of the balance sheet.

Build – typical (bad) example

	Q1	Q2	Q3	Q4	Y1 X	Q1
Revenue	100	110	120	115	445	115
CoS	(65)	(72)	(78)	(75)	(289)	(75)
Gross Margin	35	39	42	40	156	40

	Q1	Q2	Q3	Q4	Y1	Q1
Revenue	100 X	110	120	115	=SUM(B2:E2) X	115
CoS	=-B2*65%	=-C2*65% X	=-D2*65%	=-E2*65%	=SUM(B3:E3)	=-G2*65%
Gross Margin	=SUM(B2:B3)	=SUM(C2:C3)	=SUM(D2:D3)	=SUM(E2:E3)	=SUM(B4:E4) X	=SUM(G2:G3)

- Timeline is broken
- Formulae not consistent across a row
- Hard coded numbers in formulae
- Inputs mixed with calculations

Build – Good example

Inputs	Y1 Q1	Y1 Q2	Y1 Q3	Y1 Q4	Y2 Q1
Revenue	100	110	120	115	115
CoS (% of revenue)	65%	65%	65%	65%	65%

Calculations	Y1 Q1	Y1 Q2	Y1 Q3	Y1 Q4	Y2 Q1
Revenue	100	110	120	115	115
CoS	(65)	(72)	(78)	(75)	(75)
Gross Margin	35	39	42	40	40

Calculations	=B\$1	=C\$1	=D\$1	=E\$1	=F\$1
Revenue	=B2	=C2	=D2	=E2	=F2
CoS	=-B3*B5	=-C3*C5	=-D3*D5	=-E3*E5	=-F3*F5
Gross Margin	=SUM(B5:B6)	=SUM(C5:C6)	=SUM(D5:D6)	=SUM(E5:E6)	=SUM(F5:F6)

- Inputs separated from calculations
- Timeline is unbroken – Annual summaries on another sheet
- Formulae consistent across a row (also keep consistency between sheets)

Risk management

What steps can you take to increase confidence?

■ Process

- Specify
- Design
- Build / populate
- Test

■ Checks and balances

■ Consistency

■ Naming convention for files

■ Checking of numbers (sense check)

■ Personnel

- Adequate training
- Supervision
- Approval before distribution

■ Software to identify potential problems

- Hard coding
- Changes in formulae

■ Documentation

- Objectives
- Assumptions
- Model logic

www.numeritas.co.uk

www.financialmodelling.net

