

Making good use of risk models in major projects

Dr Stephen Grey
Broadleaf Capital International Pty Ltd

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BROADLEAF CAPITAL INTERNATIONAL PTY LTD

ACN 054 021 117

23 Bettowyn Road Pymble NSW 2073
Tel: +61 2 9488 8477 Fax: +61 2 9488 9685
Cooper@Broadleaf.com.au
www.Broadleaf.com.au

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Overview

Trends

Common problems

Sources of guidance

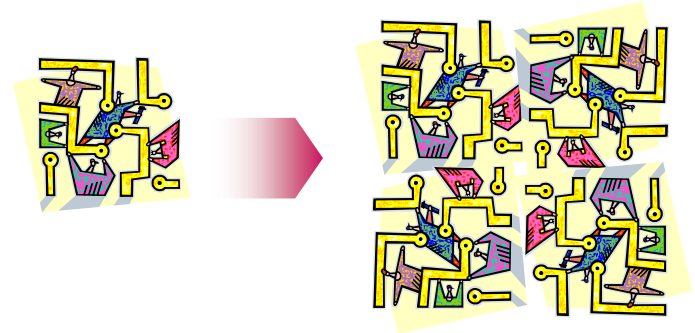
Geographical differences

Barriers and challenges

Way forward

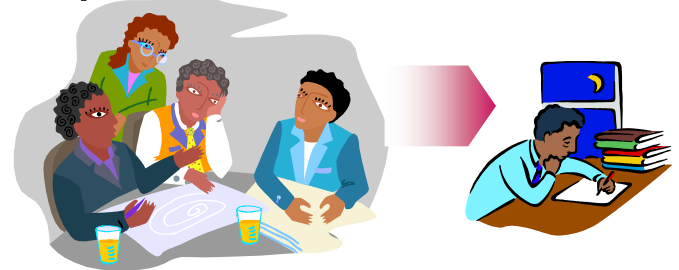
Project scale rising

- Marginal mineral resources
- Economies of scale
- Big packages to attract PPP and alliance proponents



Owners' skill base declining

- Small team or single in-house specialist
- Rely on external consultants
 - Multi consultant teams
 - Multi national teams

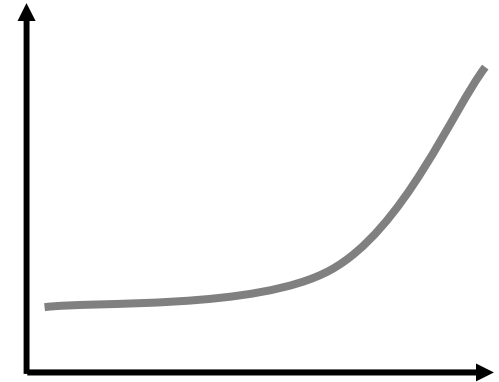


Volatile escalation

- Fuel and other oil based products
- Steel
- Professional effort

Resource shortages

- Engineers
- Machinery
- Major equipment vendor capacity
- Fabrication shop capacity



More peer reviews and external checks

Closer attention to risk

Formal risk assessment

Model cost and schedule risk

Model business and economic risk

Use model to set

- Budgets
- Stretch targets
- Warning levels

Many expect software to “save the day”

Good

- Inexpensive

- Highly capable

Bad

- Any fool can use them and many do

- Easy to produce meaningless but glossy results

Ugly

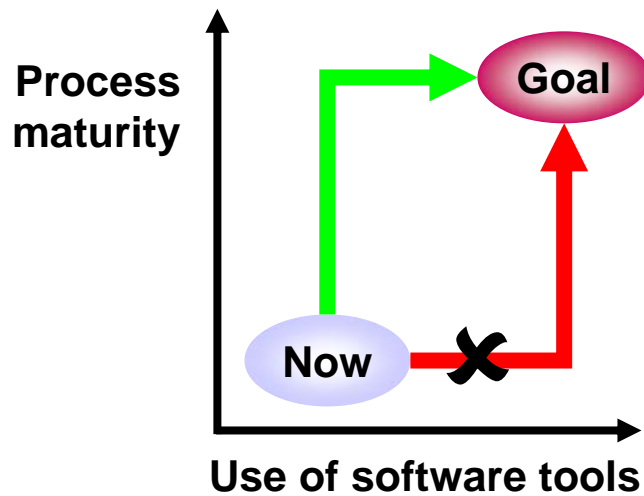
- Unrealistic outputs

- Erroneous conclusions

- Loss of faith in the process

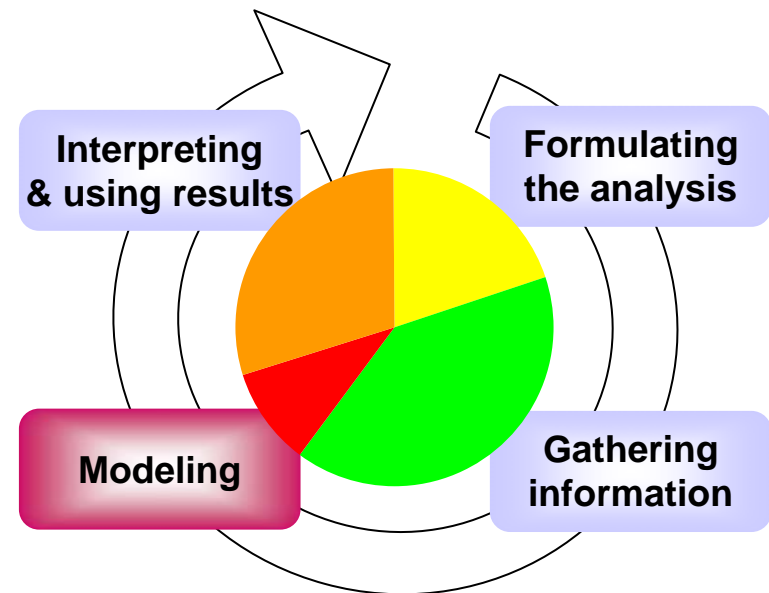
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Put tools in their place



Understand the process before becoming immersed in tools

Only about 10% - 20% of effort should go on modeling



“Add risk” to existing estimates & schedules

Hundreds of cost lines

Thousands of activities

Some parts a bit rough

Expedient approximations

Fixed dates that are not really fixed

“Plug” numbers

Easily become large, cumbersome and difficult to understand



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Putting tools first

Very large models

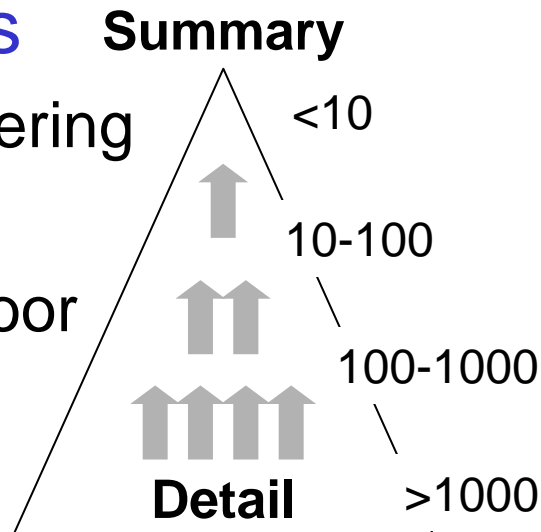
Lots of data gathering

Validation hard

Understanding poor

Run times long

Detail is **GOOD**



Project uncertainty
is understood here

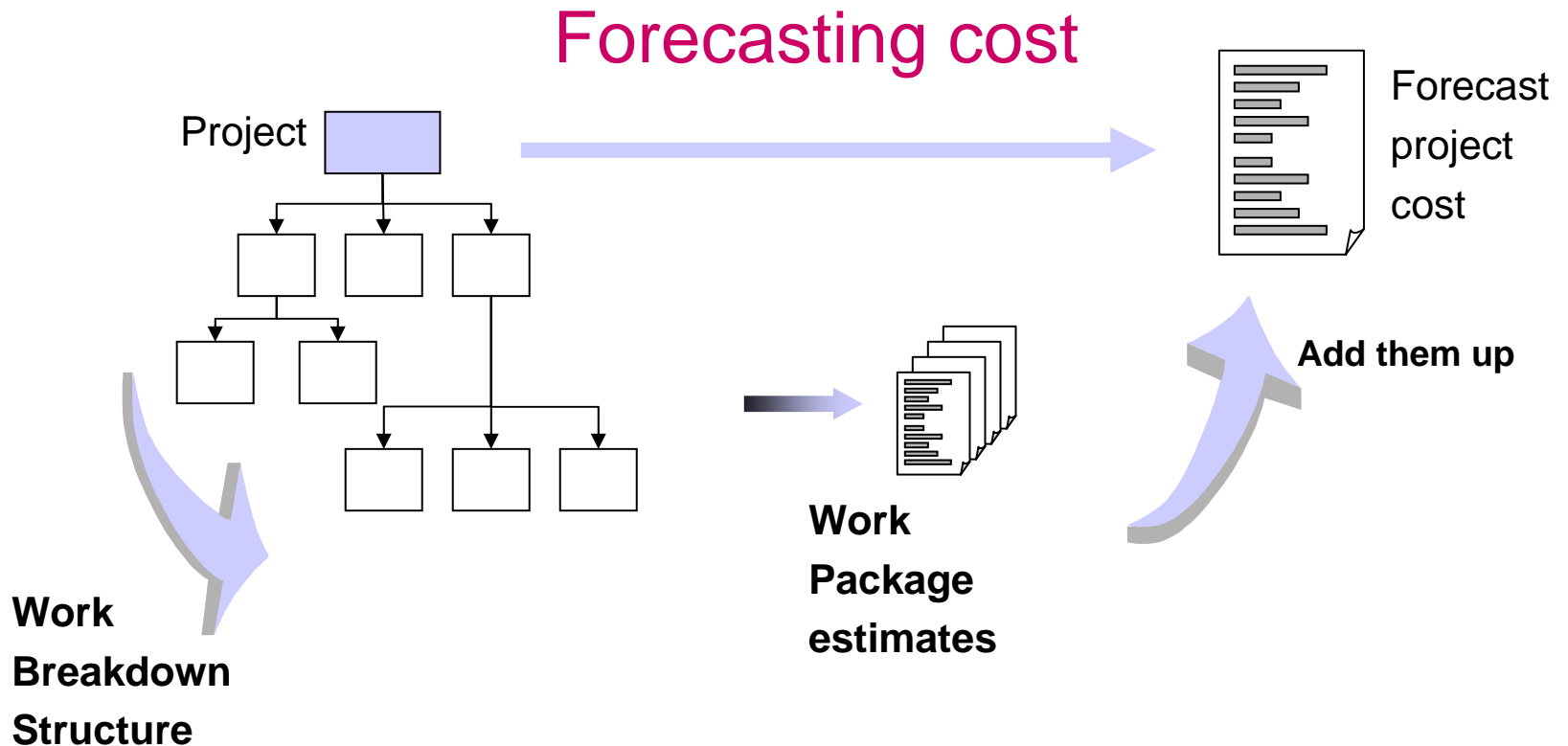
We can add value
by examining it here

Scale and complexity
overwhelm us here

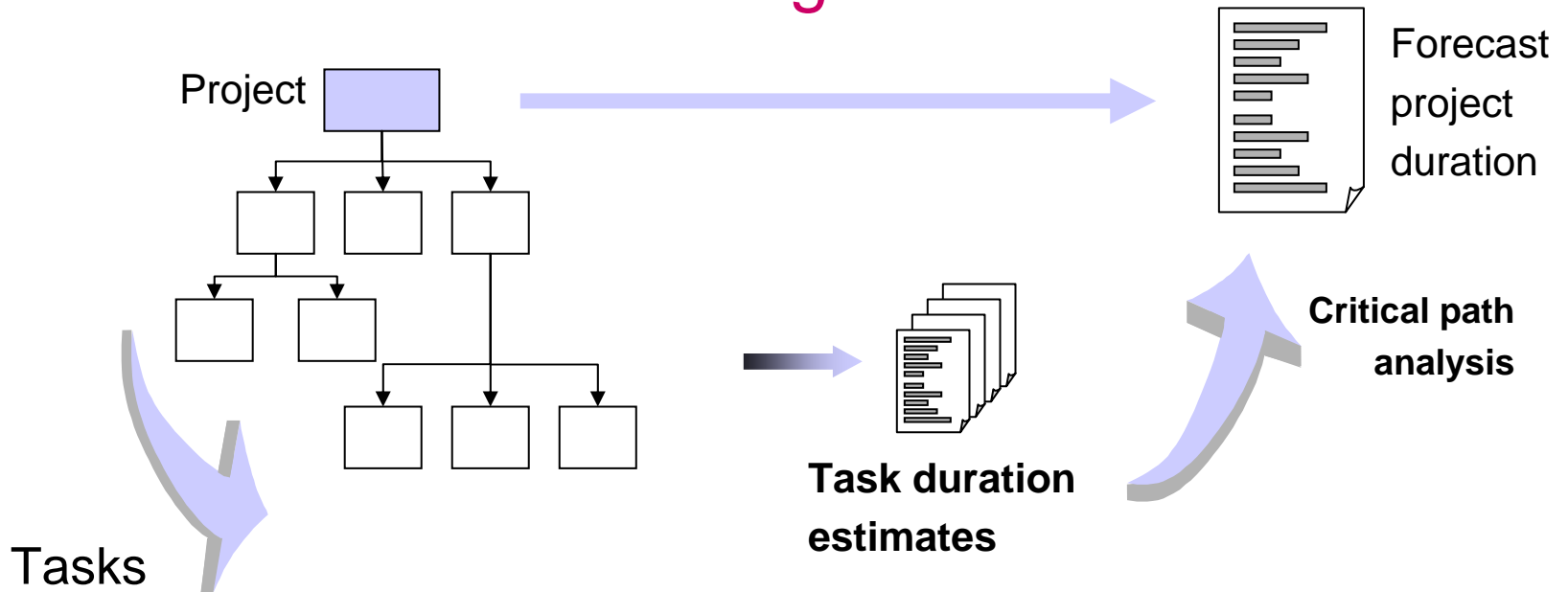
Very large “bottom up” exercises often absorb a lot of effort and deliver little or are abandoned

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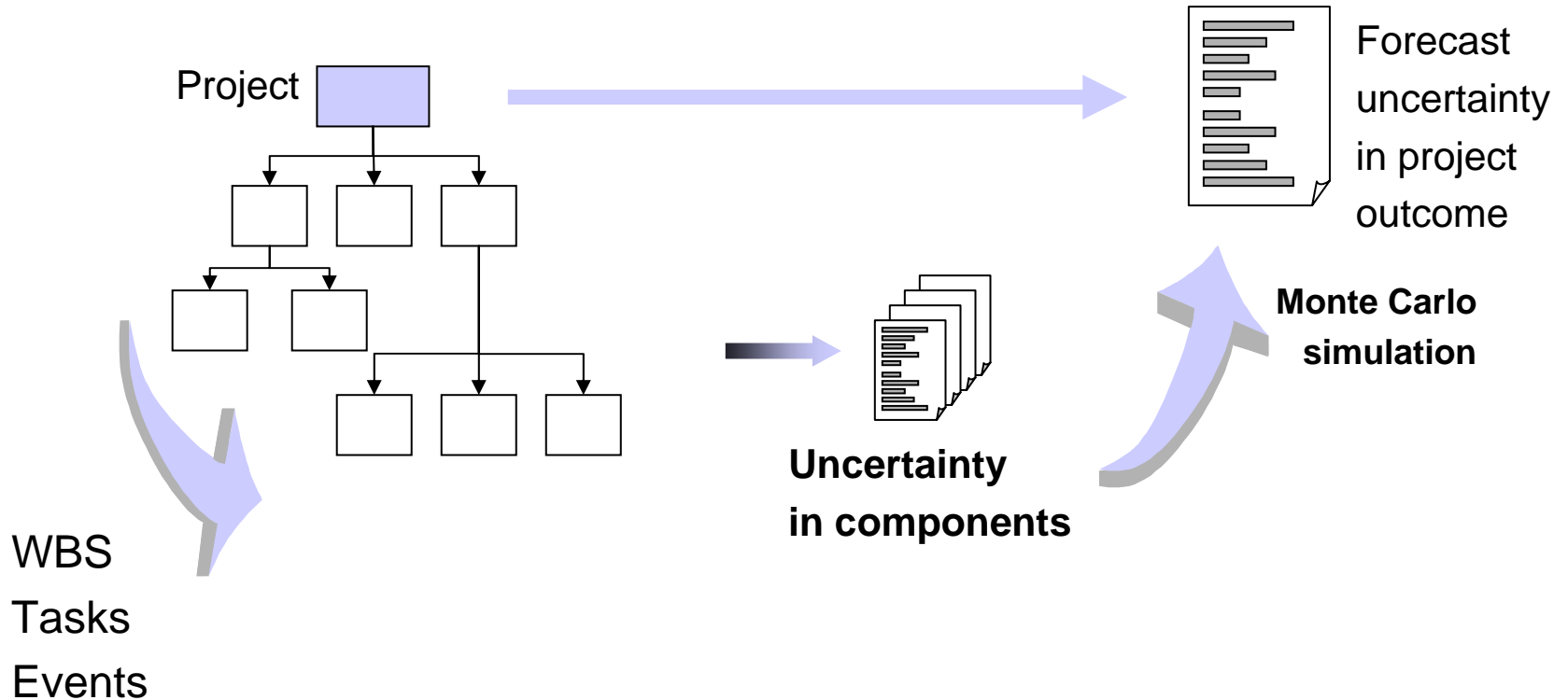
Costs



Forecasting duration



Forecasting uncertainty



Modeling uncertainty is, in principle, no different to modeling anything else

It is not impossible to do it well

It easy to do it badly

We all need support

- Structured process
- Guidance on where and how to apply effort
- Appropriate tools and the skills to use them

AS/NZS4360

Local standard

Generally used to guide qualitative methods

Can help with quantitative analysis too

PMBOK Chapter 11

Project Management Institute (USA and the World)

Deals with qualitative and quantitative methods

Handbook and Practice Standard in development

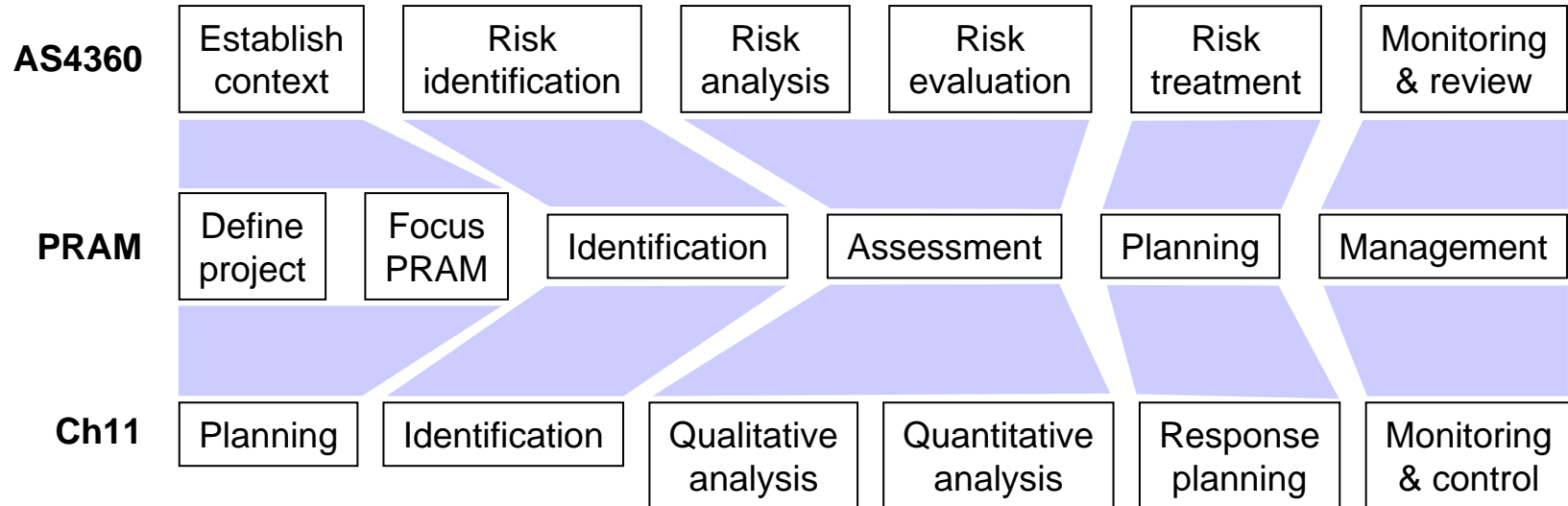
PRAM Guide

UK Association for Project Management

Deals with qualitative and quantitative methods

Guide to process and tools

Approximate relationship



AS/NZS4360

- True standard – core requirements
- Well established in general risk management
- Not yet as well established in quantitative work
- Scalable – equally relevant to all sizes and types of project

PMBOK Chapter 11

- Mixture of guide and standard
- Mixture of process and methods
- Implicit big project high tech bias

PRAM Guide

- Guide not a standard
- Separates process from tools
- Broad applicability
- Easy to read - accessible

Australia & New Zealand

Patchy uptake of quantitative modeling - variable quality

Sound approach to risk from AS/NZS4360

Expectation that risk management will be taken seriously

Some strong demand for realistic quantitative assessments

USA

Widespread use of models – distrust of qualitative methods

Tendency towards large models (eg. 2000 or more activities)

Belief in detail and “objective” data

UK & Europe

Long history of using risk models – North Sea oil etc.

Less obsessed with massive detail (some exceptions)

Diverse and creative

Overall approach

Integration with qualitative analysis

Integration with other processes

Estimating

Scheduling

Statement of core requirements

Guide to good practice

Engaging stakeholders and interpreting output

Prevalence of simplistic views (eg. Risk = Probability x Impact)

Effort devoted to conventional methods creates resistance to alternatives

Confusion between estimating rules and uncertainty (eg. allowance for fittings)

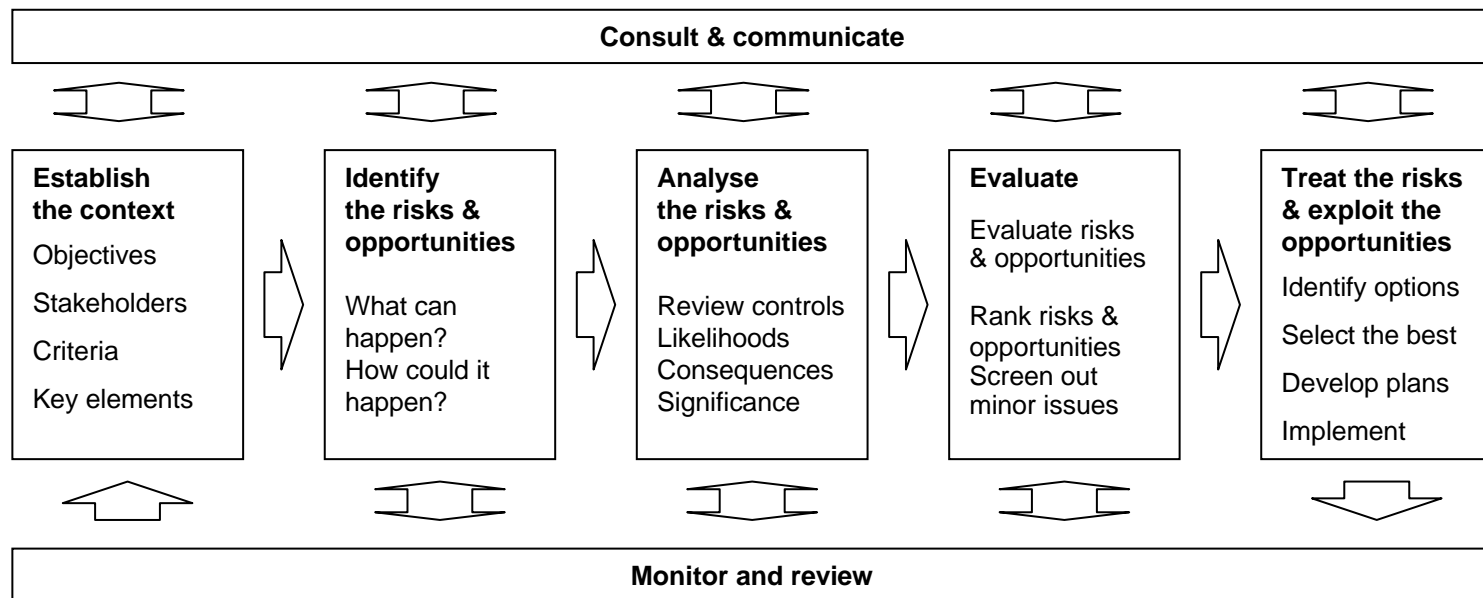
Bottom up mind set versus top down analysis

Fear of unfamiliar ideas and methods

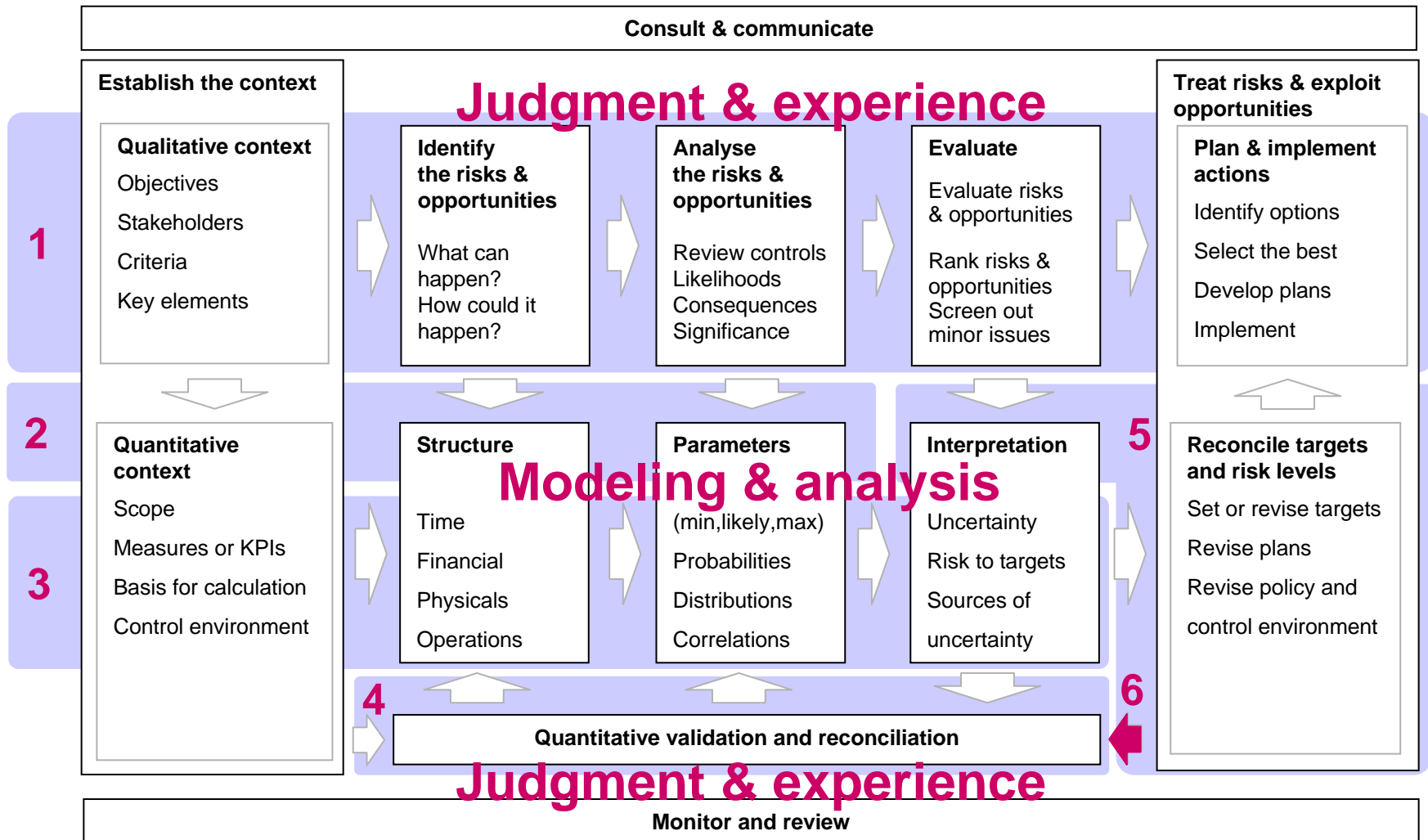
Obsession with the right answer instead of realism

“It’s not the way we do things”

AS/NZS4360



Proven process for understanding and managing risk
Australia & NZ have a solid base of expertise



Don't confuse the two

Distinct views of the same thing

Must be consistent with one another

Risks

- Description
- Priorities
- Plans

Quantitative risk model



Model components

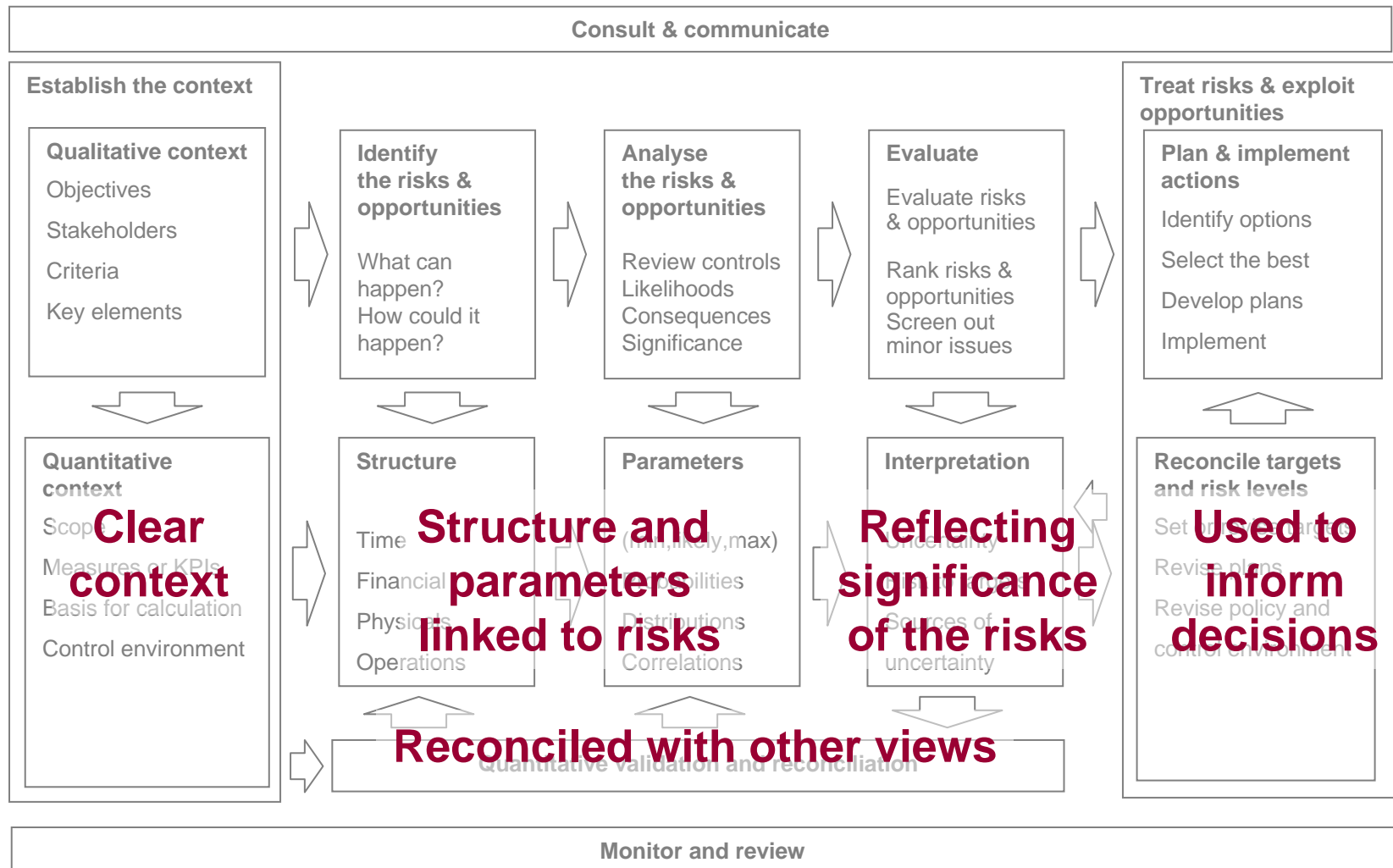
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Qualitative analysis

- cost-effective identification
- priority setting
- planning and review
- focus on risks as separate issues

Quantitative modelling

- aggregate view
- focus on overall decision making
- targets, commitments and contingencies



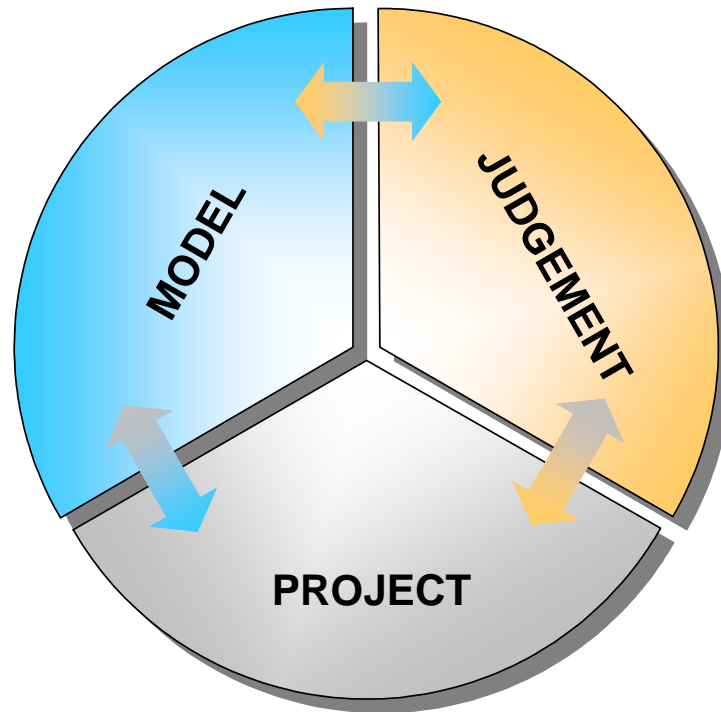
Process

- Get the process right then focus on tools
- Good practice not yet established anywhere
- Significant cultural and regional differences
- AS/NZS4360 is a good foundation

Approach and culture

- Use models to understand projects
- Don't expect them to make decisions for you
- Value experience and judgment as well as models

When your model of your project and your understanding of your project match up, who can argue?





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Dr Stephen Grey
ph 03 9787 0520
mob 0412 223 256
Grey @Broadleaf.com.au