



SYNCHRONY

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Passionate about improving the professionalism of project risk management and decision making.

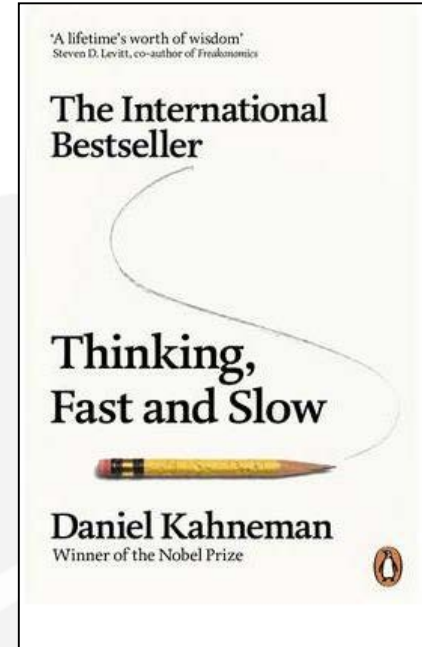
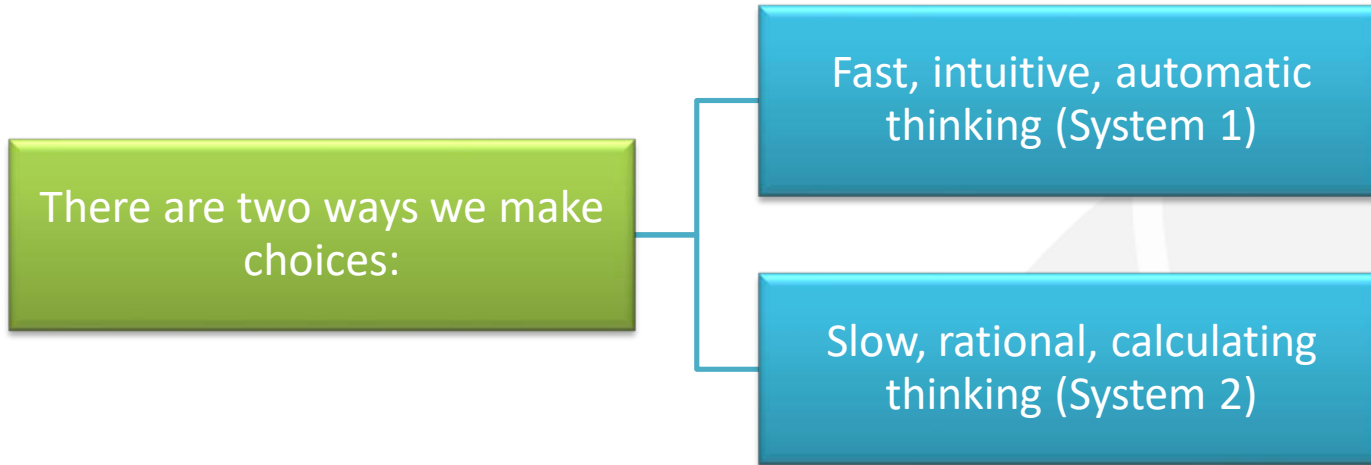
25+ years experience on complex engineering and technology projects.

Registered mentor with AACE.

Principal for training company **Synchrony**

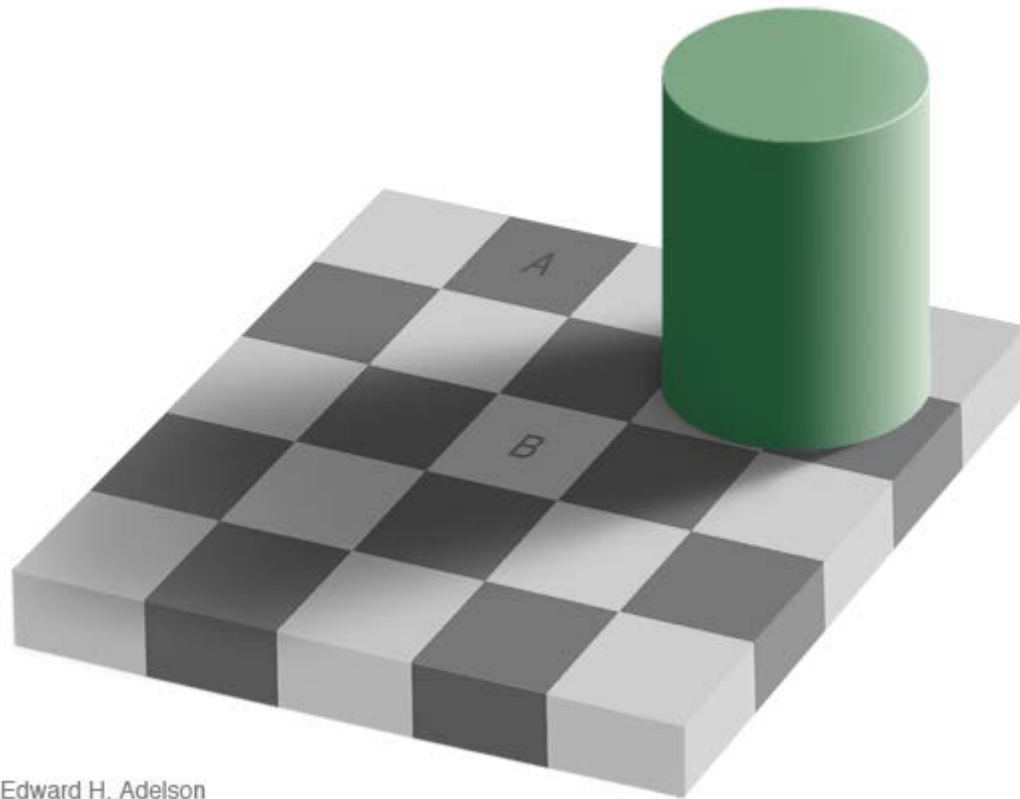


# Why – Risk Management and Decision Making

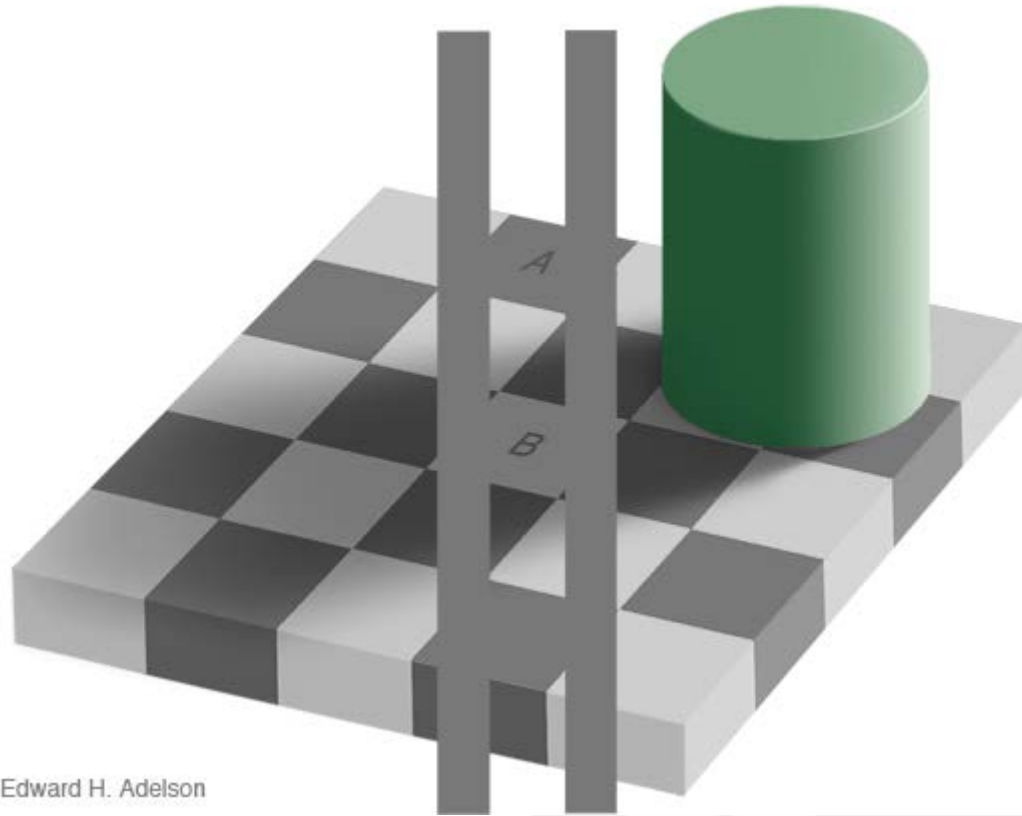


Our minds are flawed by errors and bias. This is particular evident when dealing with risk based problems involving probability and statistics.

Complex projects by their nature involve high levels of risk.



Edward H. Adelson



Edward H. Adelson

Human psychology can have a big impact on managing complex projects.

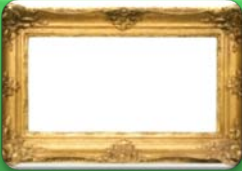
We make 'cognitive' errors.





## Anchoring

- Clinging to an irrelevant earlier piece of information such as a number



## Framing

- Considering issues based on how they are formulated (framed)



## Fundamental attribution error

- The tendency to blame others when things go wrong



## Loss aversion

- Responding more strongly to losses than to gains



## Herding

- Doing what everyone else seems to be doing

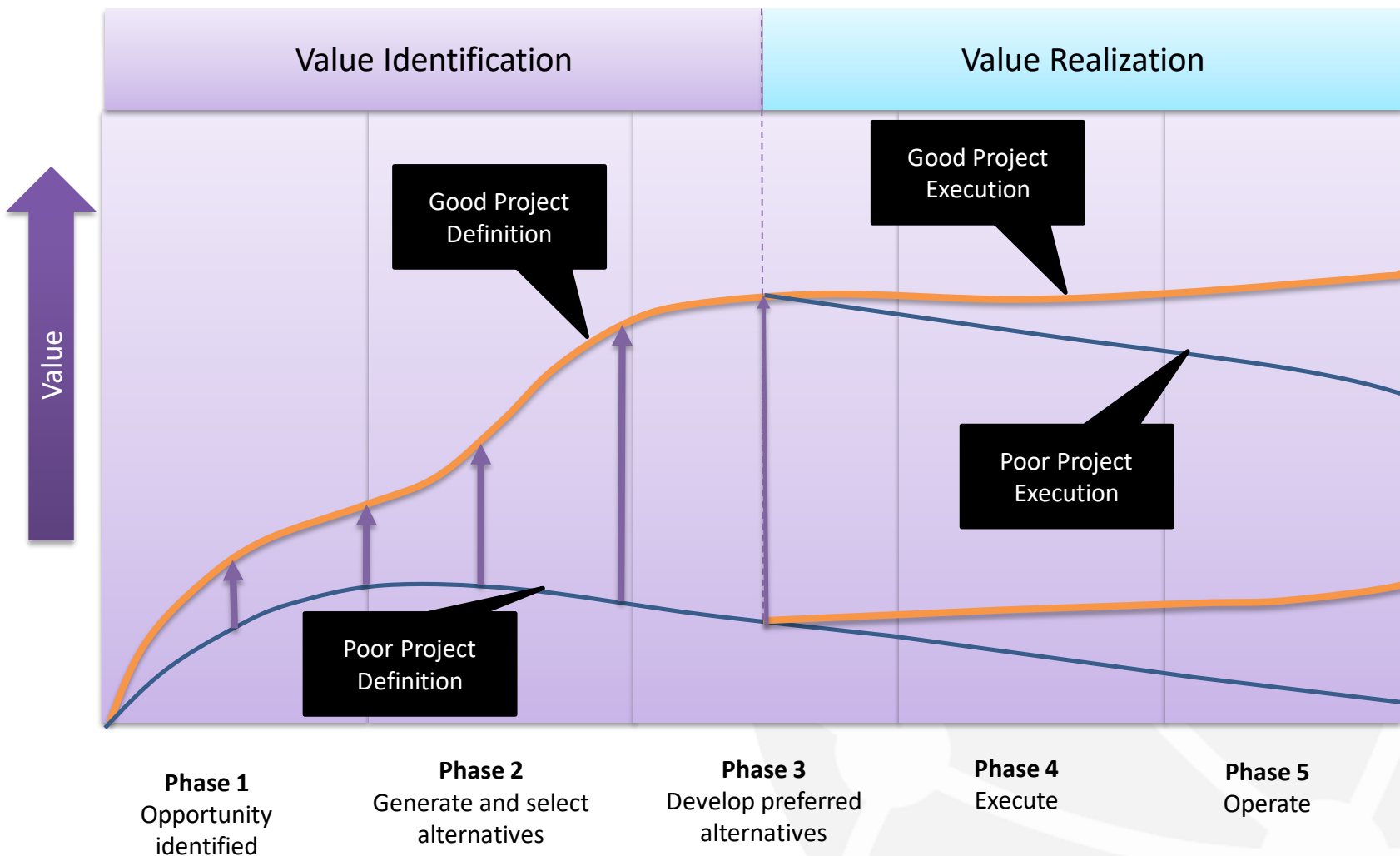




Complex projects / decisions



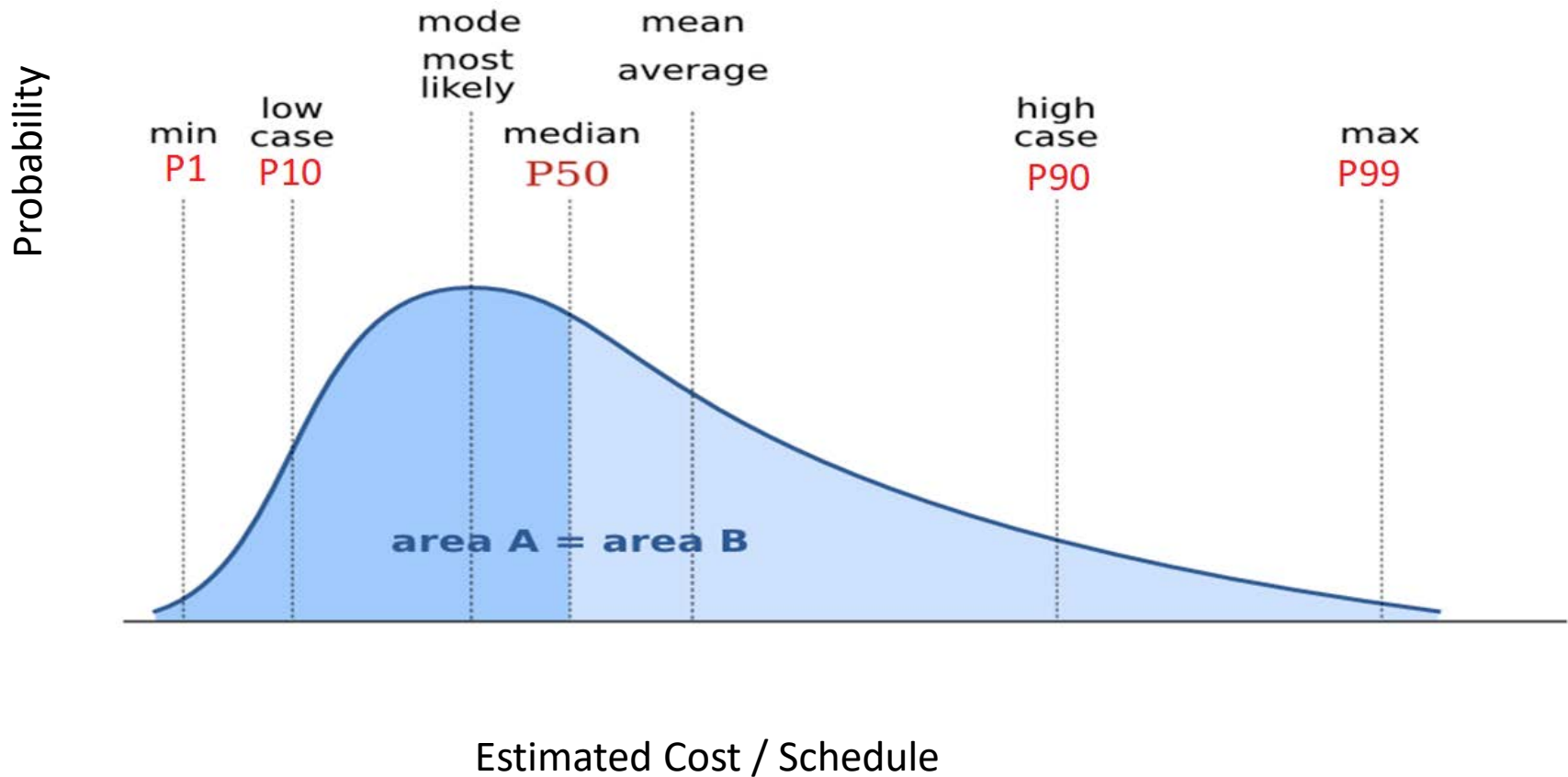
Human biases





# What is risk management?

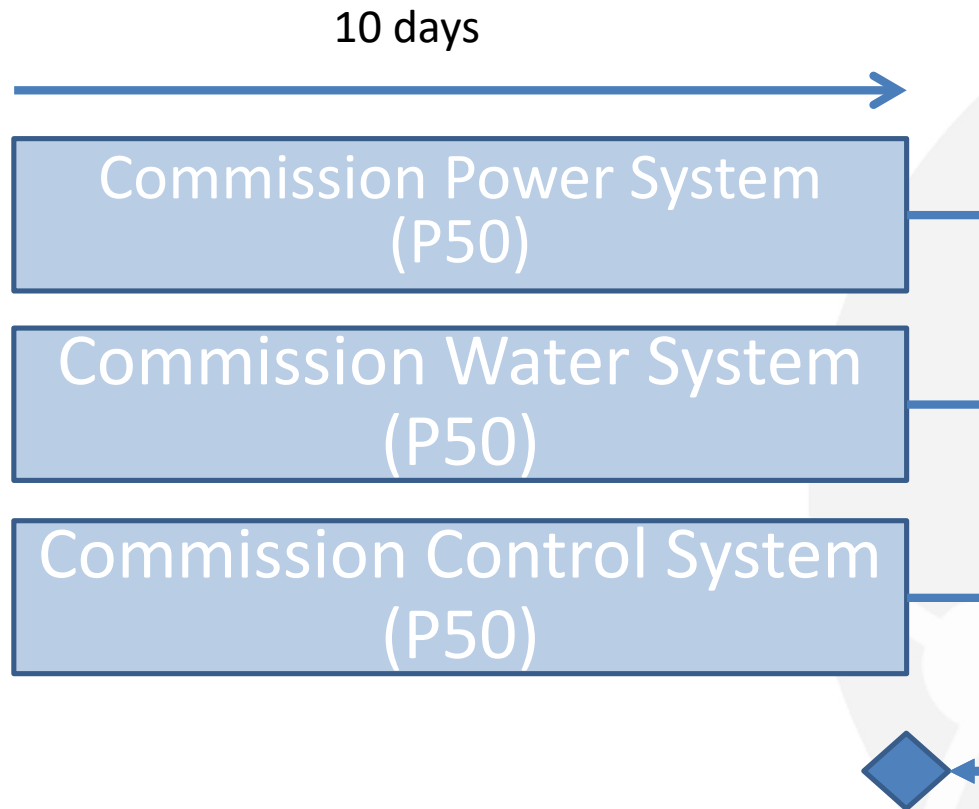
## Thinking Probabilistically



# What is the probability of achieving this milestone on schedule?

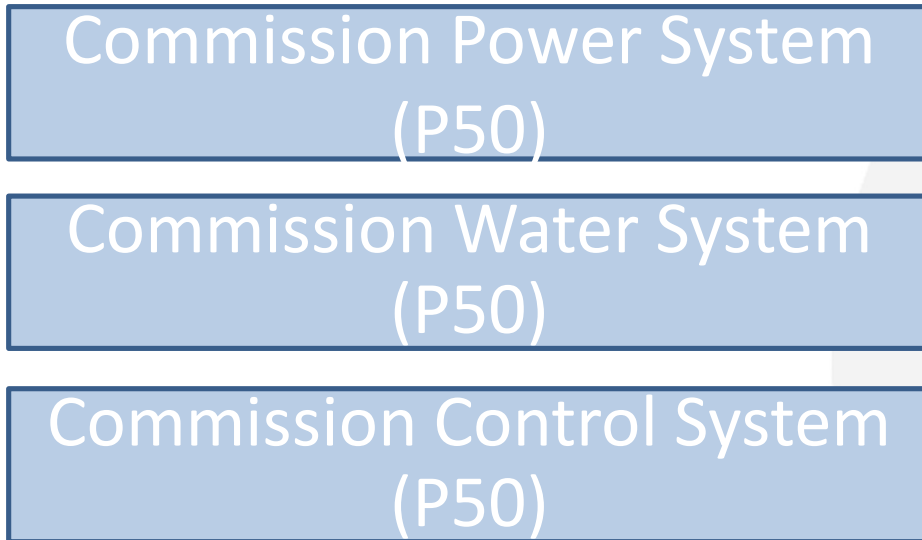
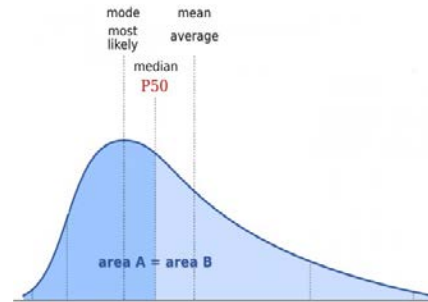
Each system has a 50% chance of finishing in time.

So what is the probability that all three systems will finish in time?



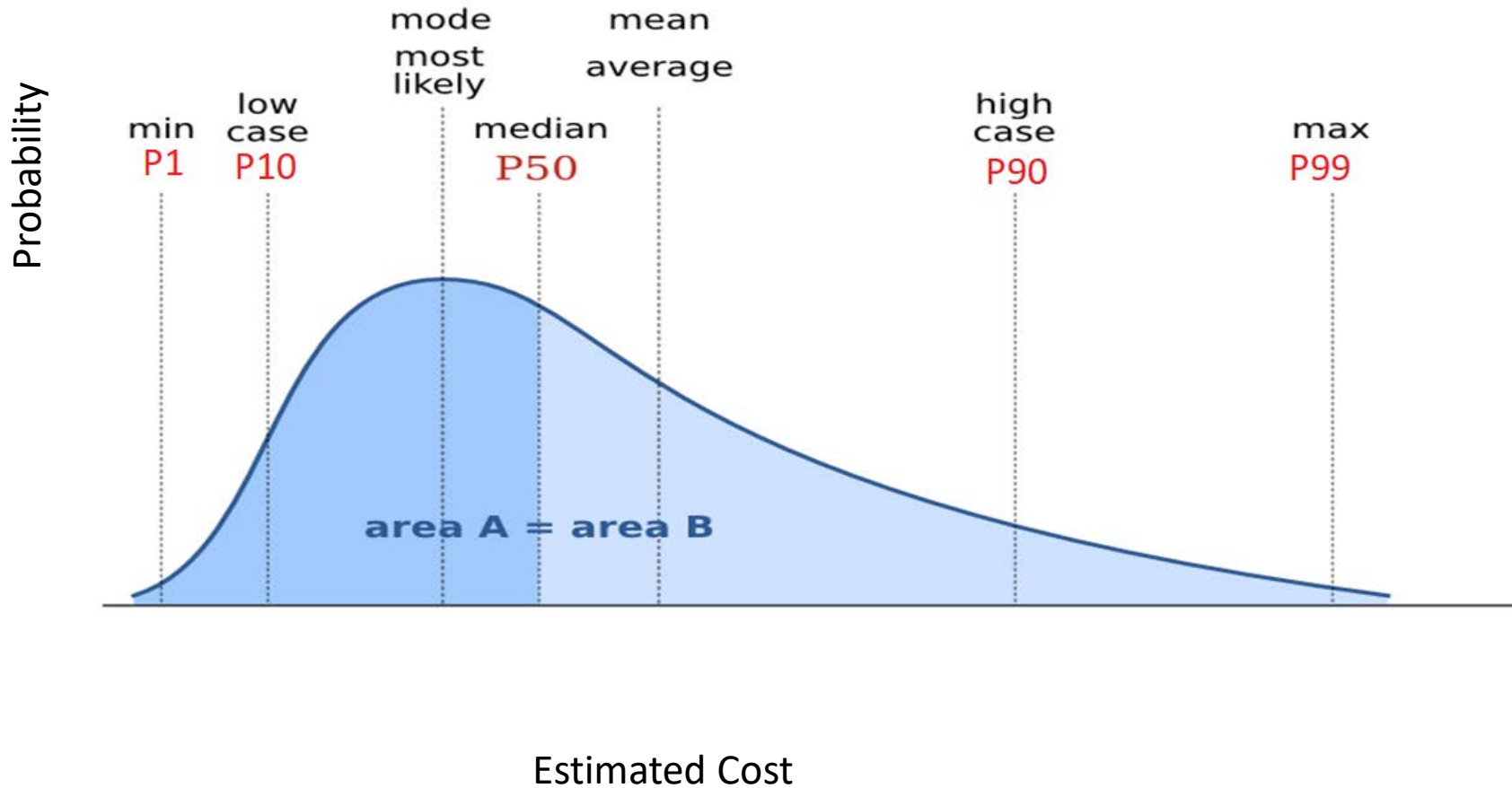
# What is the probability of achieving this milestone on schedule?

10 days

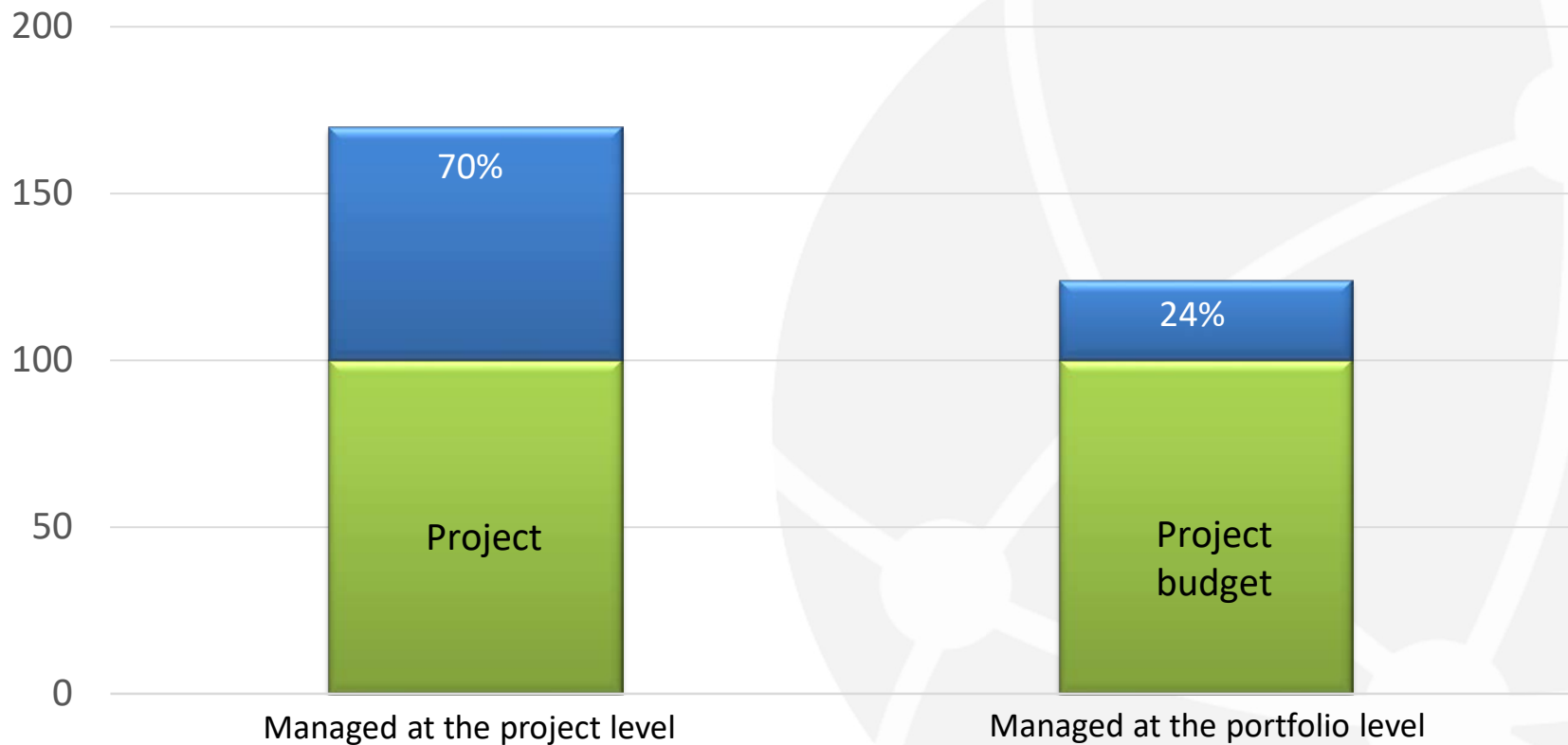


Probability of achieving this milestone on time is only 12.5%.

$$(0.5^3 = 0.125)$$



# What are levels of contingency?



Notes: Australian transport projects completed between 2008 and 2013.

Source: Investment Monitor; Grattan analysis.

Introduction – Why its important to make Complex Projects more predictable

Followed by 5 key tips on how to make them more predictable

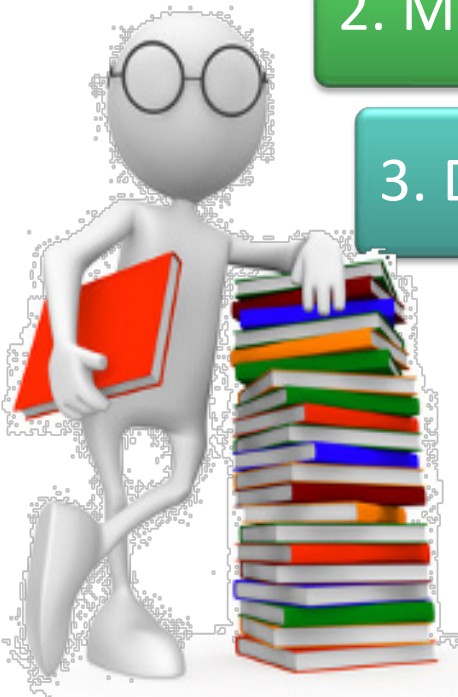
1. Measure what matters

2. Make it safe to fail

3. Do it virtually before the real thing

4. Mix up the team

5. Educate and influence





Improving Decisions with;

Integrated processes

Information and Data



But what information do we need?





When we identify and communicate our values we empower teams to make better decisions

Organisations and projects place importance on project outcomes depending on their values.

Profit

Health and  
Safety

Reputation

Social /  
Community  
Relationship

Environment

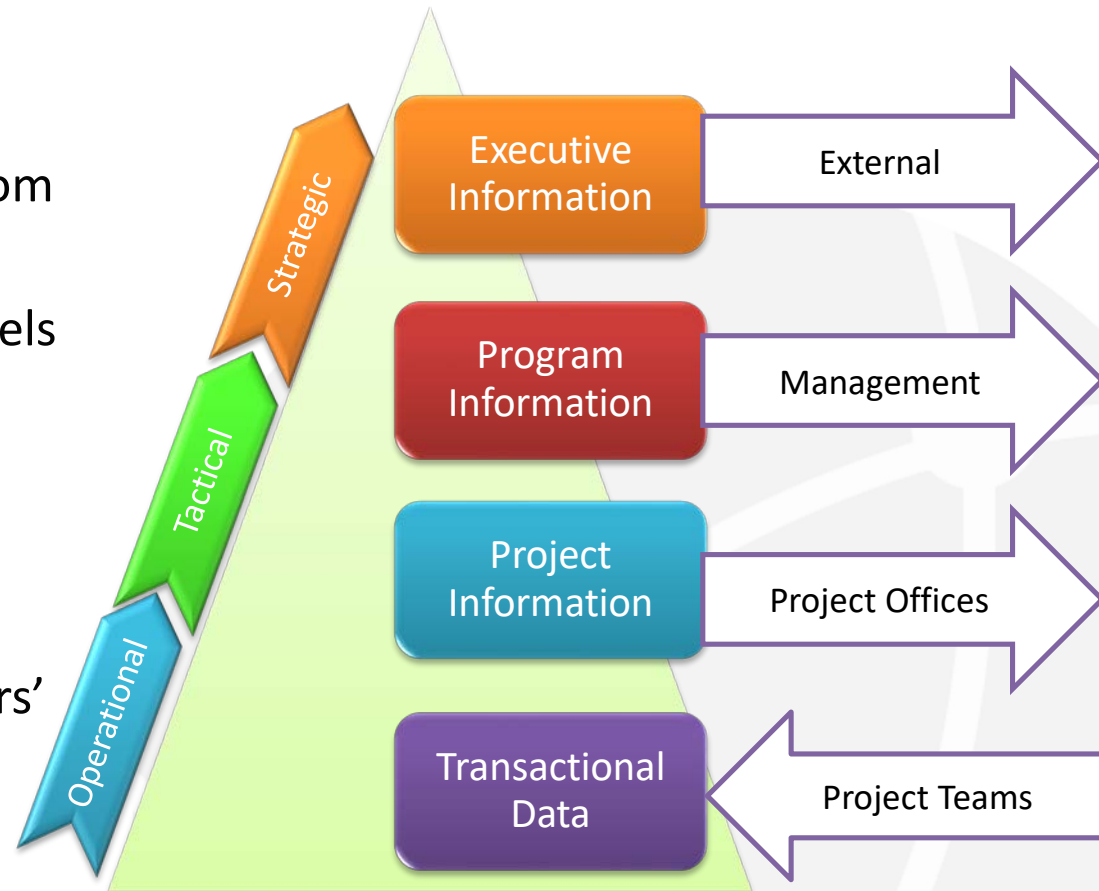
Governance and risk processes should be designed to reflect the relative importance of these values.



	Value Category			
Consequence Rating	Asset / Financial	Health & Safety	Environment	Social / Community /Reputation
Catastrophic	> \$10M	Multiple fatalities, multiple permanent disabilities or ill-health.	Permanent or widespread long term damage to the environment. Collapse or complete shift of ecosystem processes.	Demand for government inquiry
Major	Between \$1M and \$10M	Single death &/or long-term illness or multiple serious injuries	Long term, significant impact with an extreme change to both ecosystem structure and function.	Adverse and extended national media coverage
Moderate	Between \$100k and \$1M	Injury; Possible hospitalisation & numerous days lost	Ecosystem function altered to an unacceptable level with some function or major components now missing &/or new species are prevalent.	Adverse capital city media coverage
Minor	Between \$10k and \$100k	Minor injury; Medical treatment & some days lost	Maximum acceptable level of change in the environment structure with no material change in function.	Adverse local media coverage only
Insignificant	< \$10k	No or only minor personal injury; First Aid needed but no days lost	Measurable but minor change in the environment or ecosystem structure but no measurable change to function	Negligible impact

# Consider the Information Needs of different customers

- Hierarchy of data and Key Performance Indicators (KPIs)
- Agreed summarisation of data from operational to strategic
- Reporting rolled up at various levels
- Work progress, time, safety and cost data entry at bottom
- Consider Sponsor's information needs
- Consider user groups or customers' information needs



# Behaviours (Values Based)

Best for program decisions

Effective governance and decision making

Shared understanding and allocation of risk

It is safe to fail (calculated risk taking, innovation)

No surprises, good sharing of information

Collaboration and diverse inputs

Performance driven

Teams ask for help when it is needed

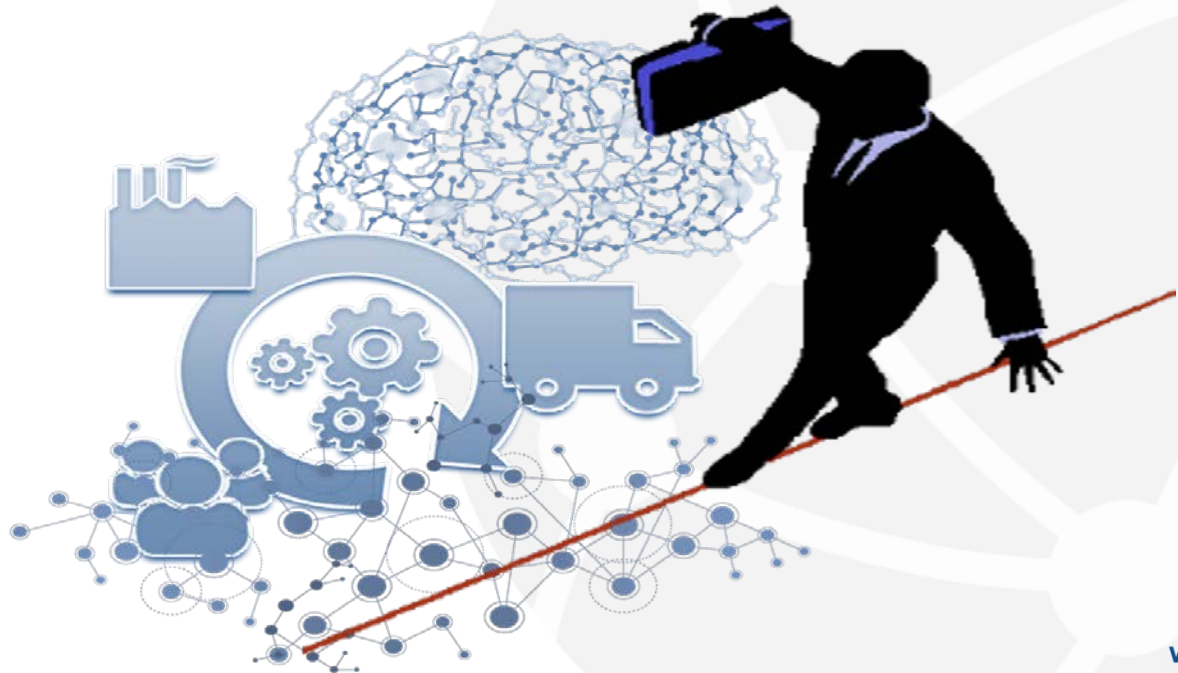
Celebrate success and learn from failure





Complex projects often involve doing things that haven't been done before

Teams may need to take risks and experiment in order to do the work



Teams should not be punished if calculated risks fail – as long as basis for decision was ok



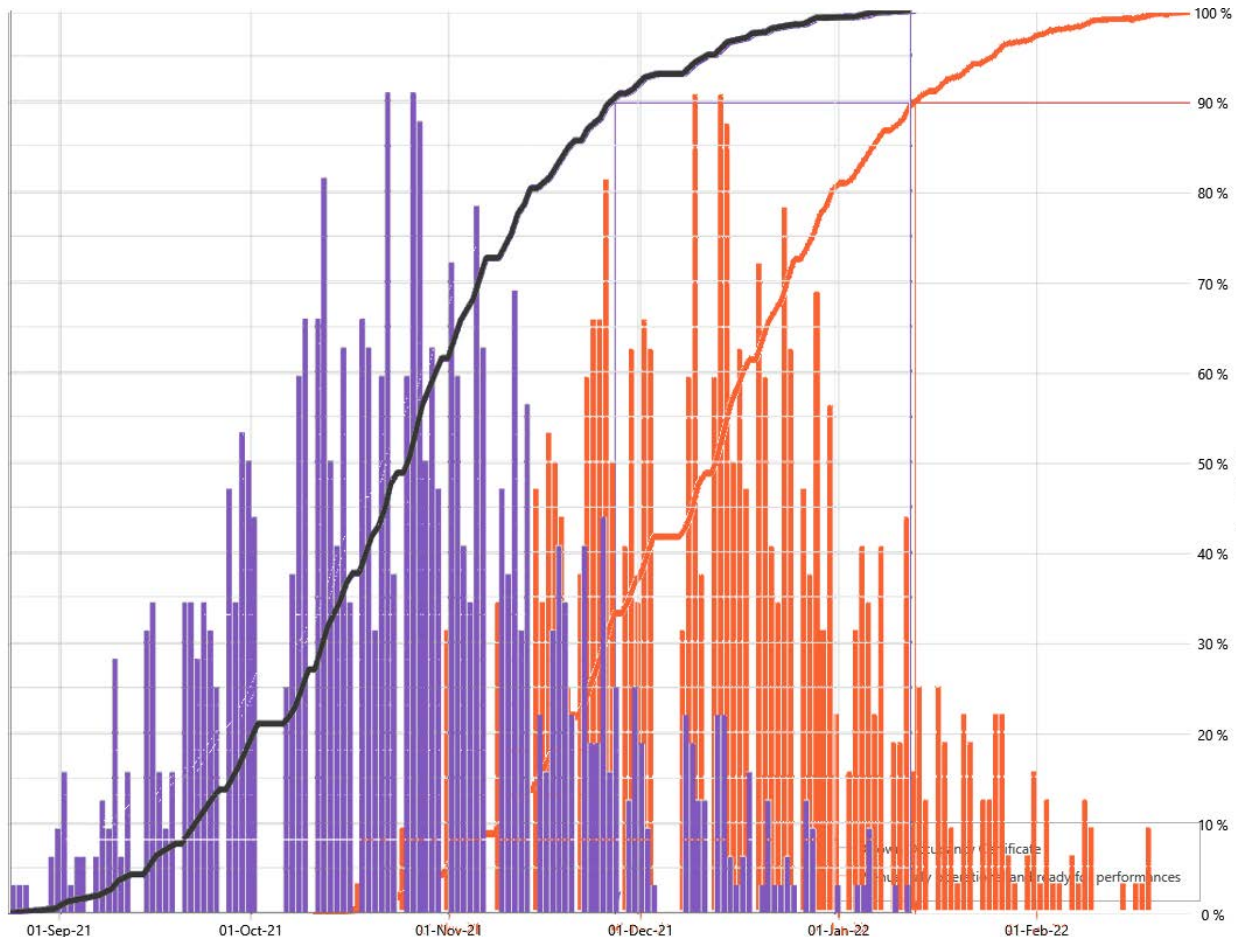
Projects can be modelled in 3D, 4D and 5D BIM.

Scenarios can be modelled and shared virtually prior to making decisions.

Great for value engineering and constructability workshops.



P90 Schedule Scenarios monte carlo analysis before and after risk mitigation is applied.



## Tip 4: Mix up the team

Decisions drive projects and diverse teams make better decisions.

Decision making and change management processes should consider;

- Strategic benefits
- Customer impacts (satisfaction/benefits)
- Safety and Security
- Environment
- Other values



As well as the traditional delivery parameters of;

- Project Cost (lifecycle)
- Project Schedule
- Project risk profile



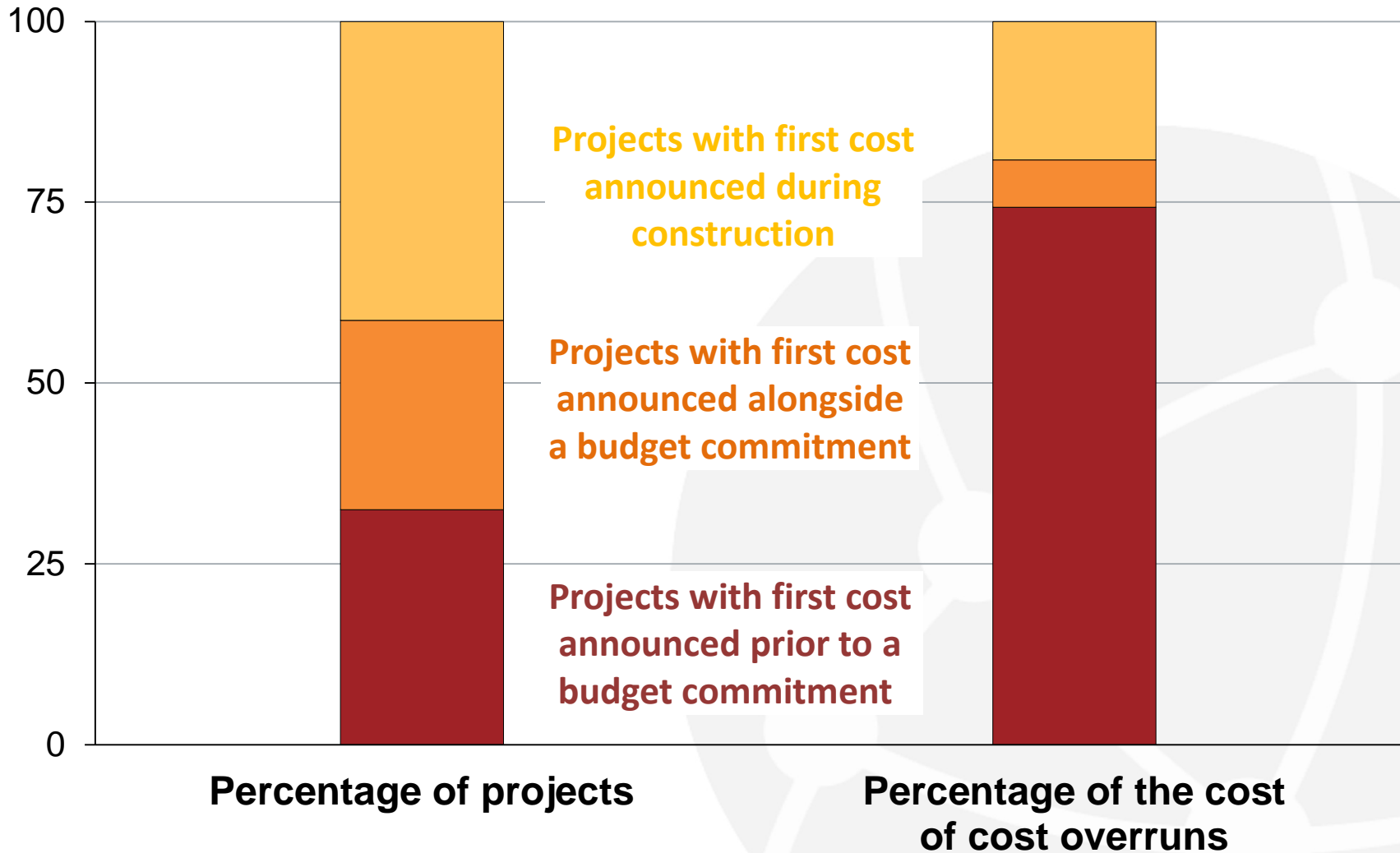




Awareness of Risk.  
Awareness change management.  
Life long learning

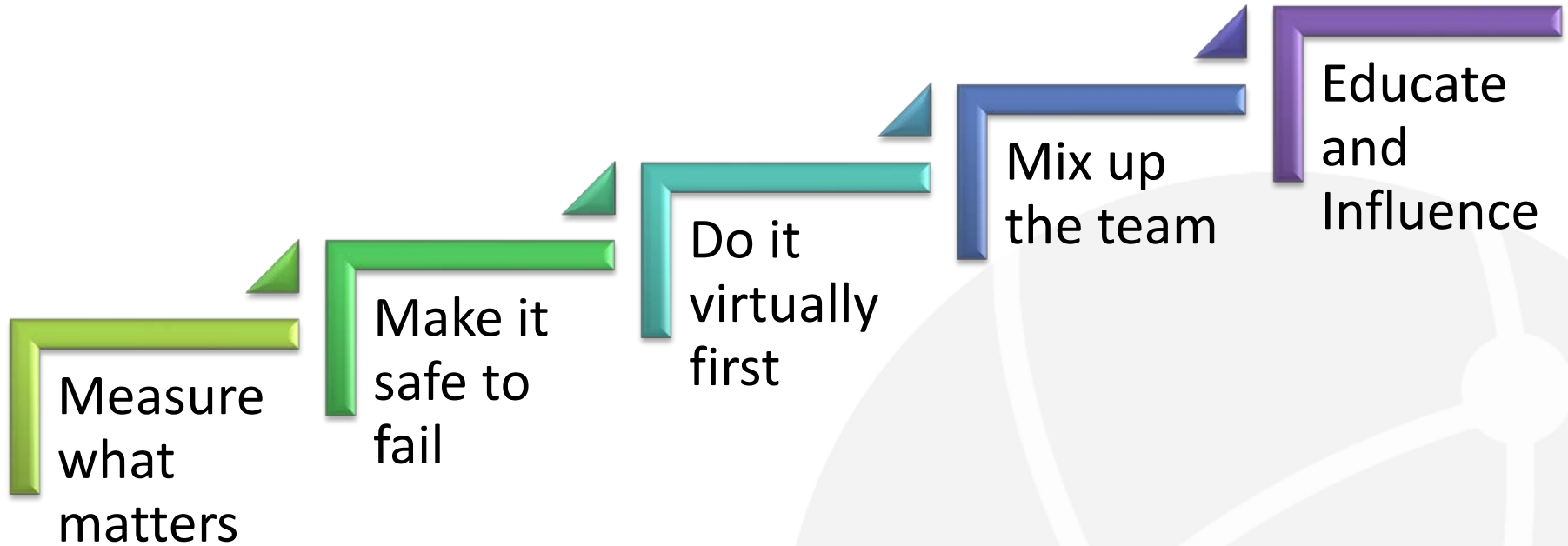


# What happens when analysis isn't done early



Notes: Australian transport projects completed between 2001 and 2015.  
Source: Investment Monitor, Grattan analysis

- The problem - Systemic risks. Competency and capability
- The solution - Improve the team's capability in risk analysis, planning and control
- Competency programs, skills and knowledge can help teams and people improve their capability





# THANK YOU

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