Decision making in uncertain times

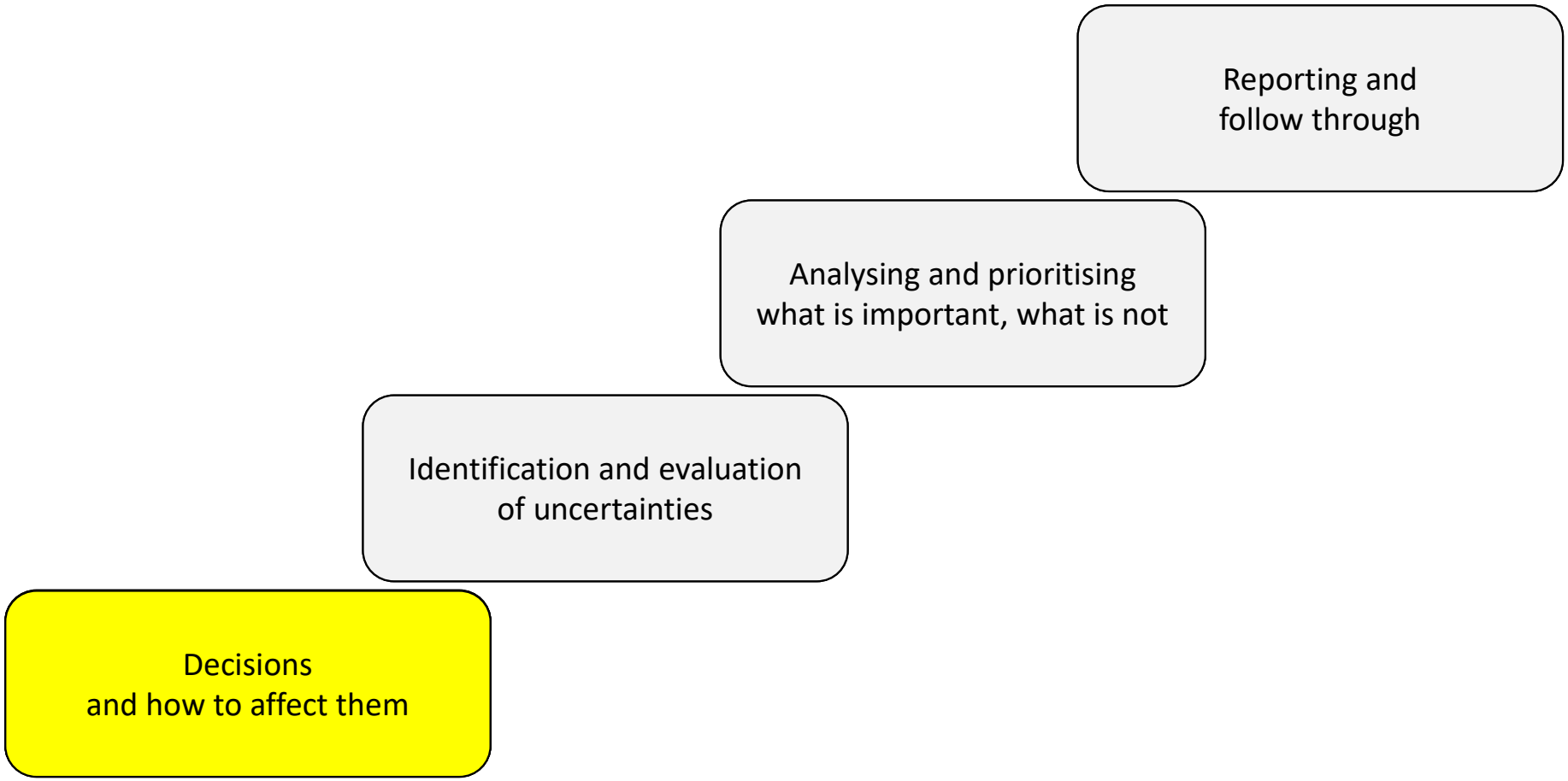
How to become comfortable being uncomfortable

Hans Læssøe
AKTUS Risk Advisory

Presenting myself

- Danish, 66 with four children and four grandchildren
- M.Sc. in Electrical Power Engineering
- 35 years of broad LEGO Group experience
  - 2 years in IT
  - 13 years in Supply Chain
  - 4 years in Product Development
  - 6 years in Finance
  - 10 years in Strategic Risk Management
- Started **AKTUS** risk advisory April 2017
  - AKTUS = “AKTiv USikkerhed” (i.e. Active Uncertainties)
  - Uncertainties are facts of life … you may as well learn to manage these to your benefit
  - In a volatile world, manoeuvrability is a competitive advantage

Agenda



Purpose of risk management

Risk management must enhance business performance

It is not about:

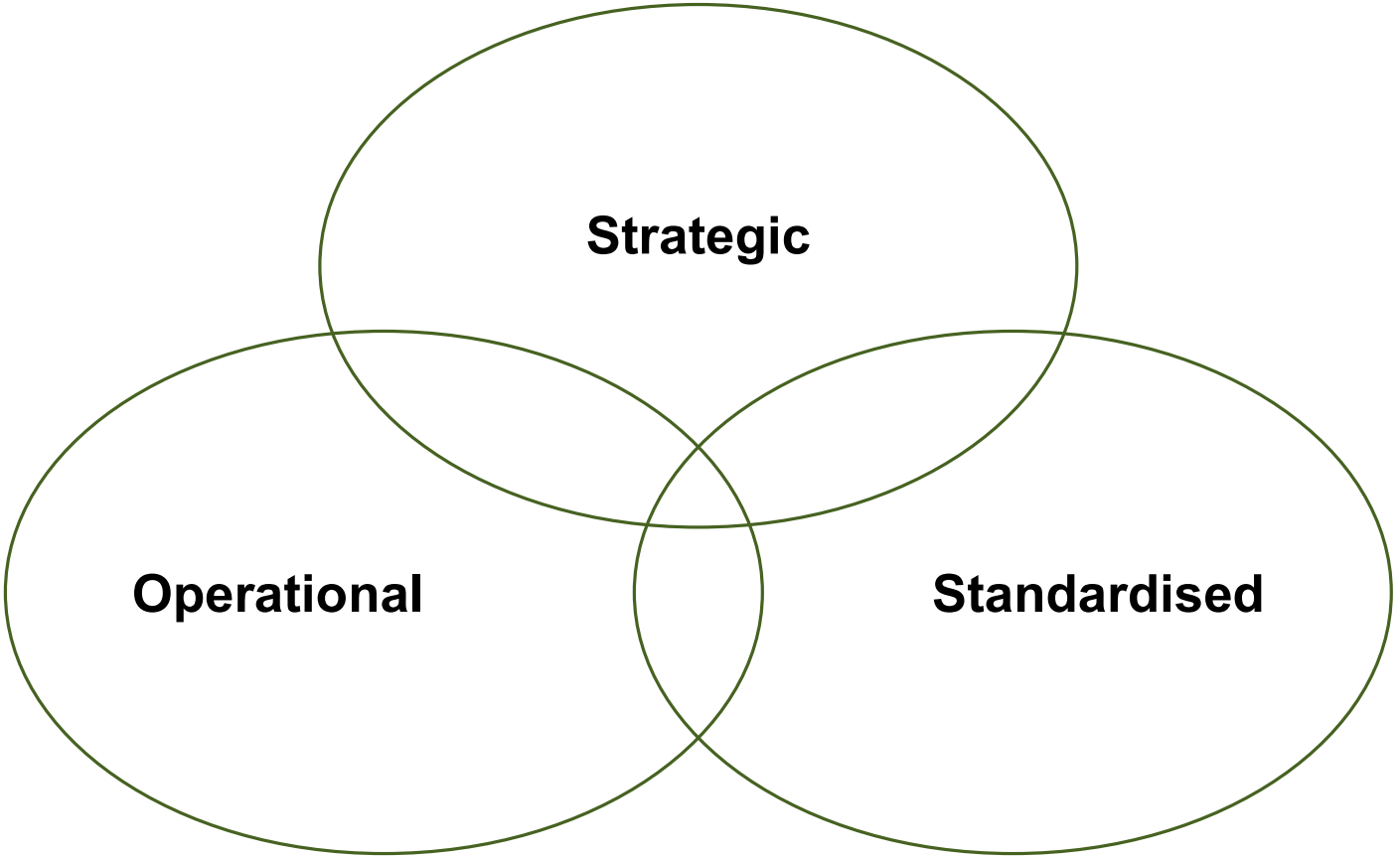
- Managing risks
- Predicting the future
- Avoiding or minimizing risks
- Insurance

It is about:

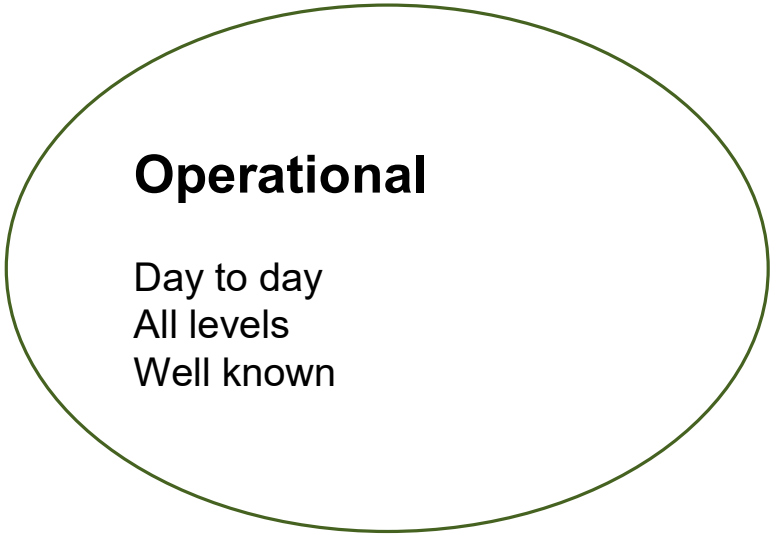
- Business performance
- Being prepared for the future
- Taking risks … intelligently
- Supporting bold decision making

"If everything is under control, you are moving too slow" Mario Andretti

Decisions are made in various ways



Postpone dealing with operational decisions



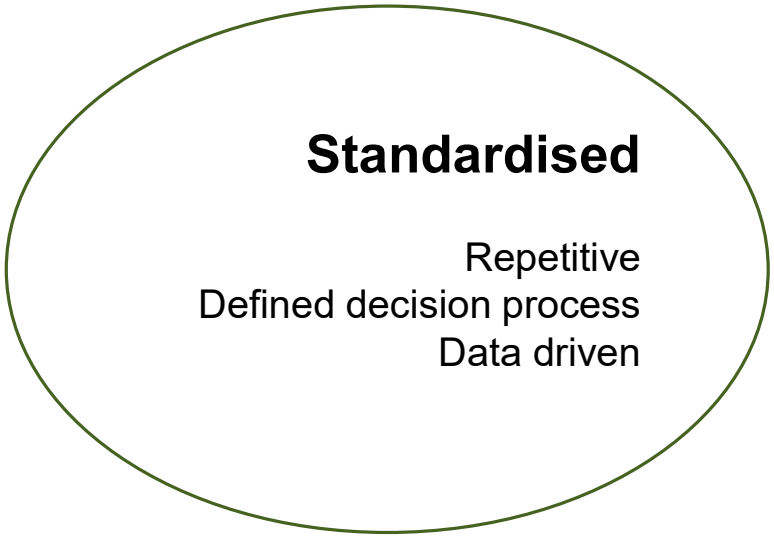
- Many
- Simple
- Limited consequences
- Made fast
- Decision makers can, validly, rely on experience

⬇

- Some day – make decision makers think:

"What may happen, and what do I do about that"

Standard process decisions can often be enhanced



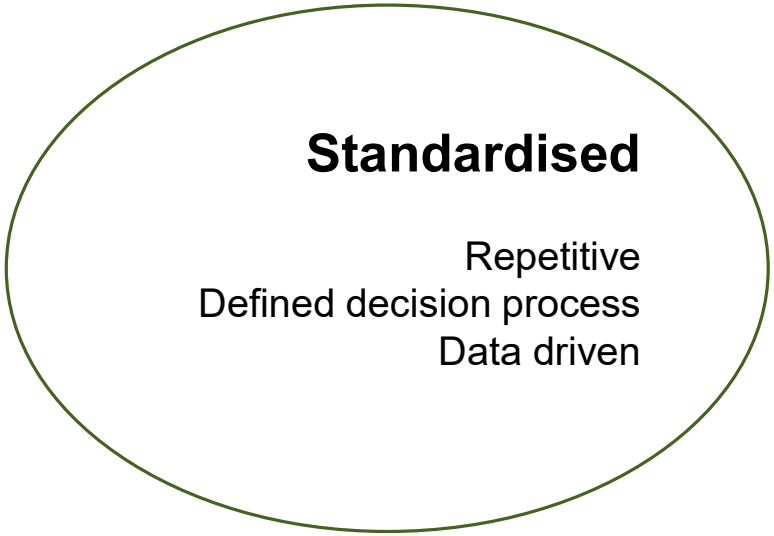
Examples:

- Sales & Operations Planning
- Budgeting

Characteristics:

- Defined frequency
- Specific data
- Supported by specialists
- May include massive investment decisions
- Decisions are “sanctioned” by executives

Adding value to standard process decisions



Embedding risk management

- Liaise with process driver
- Invite yourself to listen and learn
- Focus on how uncertainties are addressed
- How can risk management improve on decision making
- Prepare and suggest
- Help and support implementation

Strategic decisions are politically made …

What …

- Made by executives
- Happening "whenever" – fast or slow
- A political process
- Based on perceptions
- Not defined tangibly enough to "go do"

⬇

- You will not be invited
- If you were, how would you contribute?

… and your value is added in implementation

How …

- Made by employees
- Based on the "what"
- Predictable
- Frames and targets
- Decision document

⬇

- Your colleagues/peers
- Focused on validity
- Can be influenced

Agenda

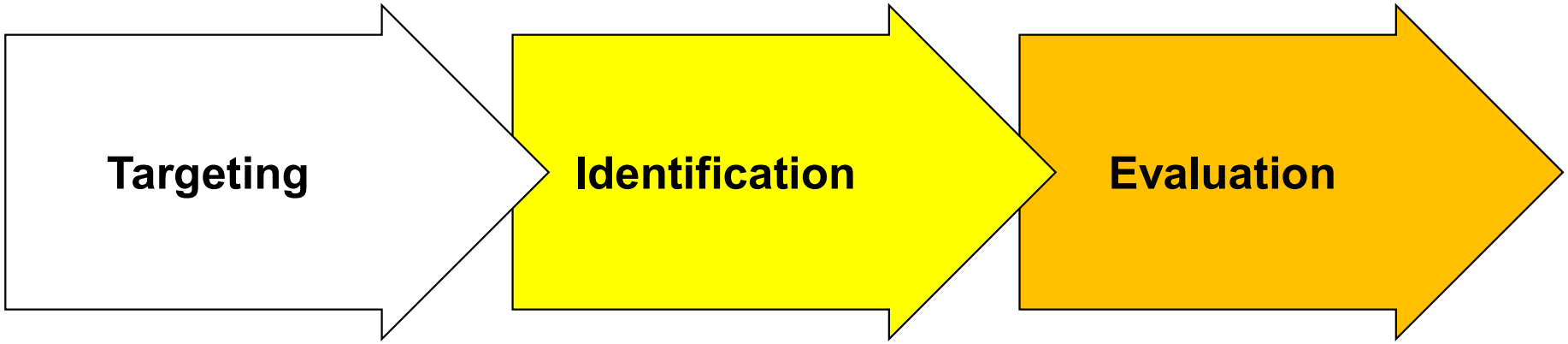
Reporting and follow through

Analysing and prioritising what is important, what is not

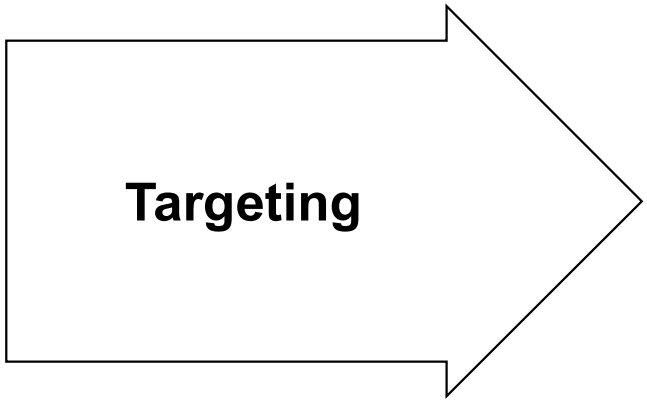
Identification and evaluation of uncertainties

Effectively affect decisions by focusing on implementation

Identification and evaluation comes in three steps



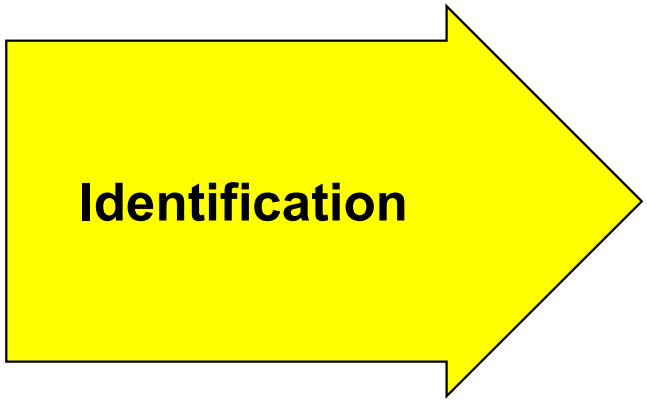
Getting the “real” target is pivotal for effectiveness



Questions to ask

- How does this enhance performance?
- How do you measure outcome performance?
- What is success and failure?

You do not manage what you have not seen



- Look for
  - Risks
  - Levers
  - Uncertainties

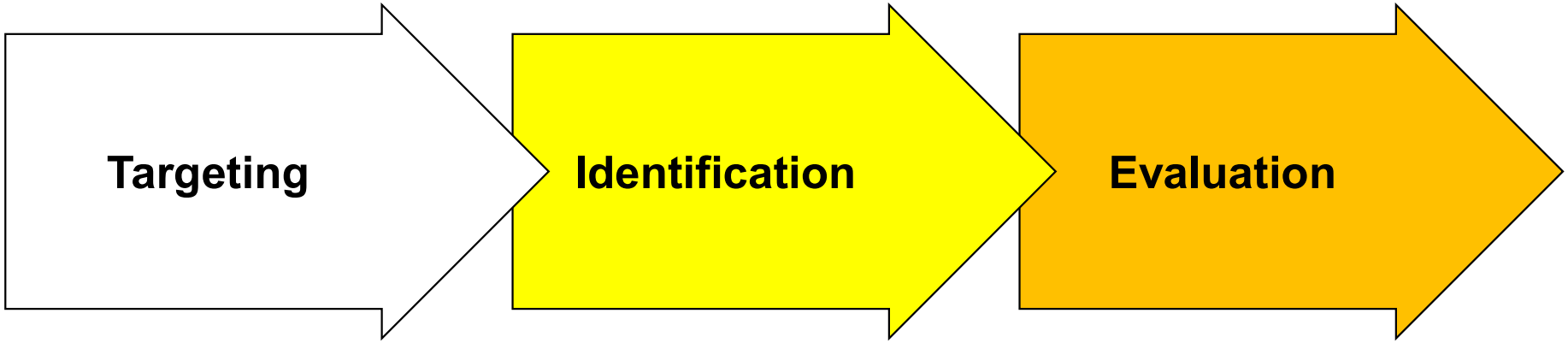
- Leverage the methods you already know well
  - Brainstorming
  - Interviewing
  - Bow Tie analyses
  - Pre-Mortems
  - Scenarios
  - Subject Matter Expert insights

Evaluation is quantified in performance metrics

Approach

- Quantified in terms of performance metrics
- Leverage data
- Define likelihood
- Define outcome range

Identification and evaluation comes in three steps



- How does this decision enhance performance?
- How do you measure outcome performance?
- What is success?
- What is failure?

- Risks, levers and uncertainties
- Brainstorms
- Bow Tie analyses
- Pre-mortems
- Scenarios

…

- Quantified in terms of performance metrics
- Leverage data when available
- Likelihood
- Outcome range
  - Best case
  - Most likely
  - Worst case

Agenda

Reporting and follow through

Analysing and prioritising what is important, what is not

Comprehensive identification and quantitative evaluation is the base for valid prioritization

Effectively affect decisions by focusing on implementation

Monte Carlo Simulation as a methodology

- Named after the Casino de Monte Carlo
- Using empirical analytics when formulas do not work
- First used by a British WWI prisoner, finding decimals of π
- Computers made this commonly available in the 1960's
- Many technical professions have used this regularly for decades
  … apparently not risk management
- Today a plethora of software packages can do this easily – often as add-ons to Excel
  - @Risk
  - ModelRisk
  - Crystal Ball

  … and they all have great tutorial videos and examples
- Nothing magical … just a modelling tool

Modelling your initiative

- Find the spreadsheet
- Highlight all embedded assumptions
- Include risks and levers
- Run the Monte Carlo simulation and address results

From calculation to modelling

Product Launch	mio NZD
Activity	**Base Plan**
Concept development & testing	2,5
Product development	7,5
Product engineering	8,0
Manufacturing preparation	8,2
Total Intital Costs	**26,2**
Sales	100,0
Total Sales	
Manufacturing Costs	38,7
Additional overhead costs	2,1
Margin	**59,2**
Launch profit	**33,0**

- This will be a normal type calculation
- We know this is not correct:
  - Sales will not be 100 mio. NZD
  - Product Engineering will not hit 8,0 mio NZD
  - Something unplanned for will happen

  etc.
- Yet, this is often the base, decisions are made upon
- Especially in the building industry, overruns are (much) more likely than not
- As risk professionals, we can help management get a valid decision base …

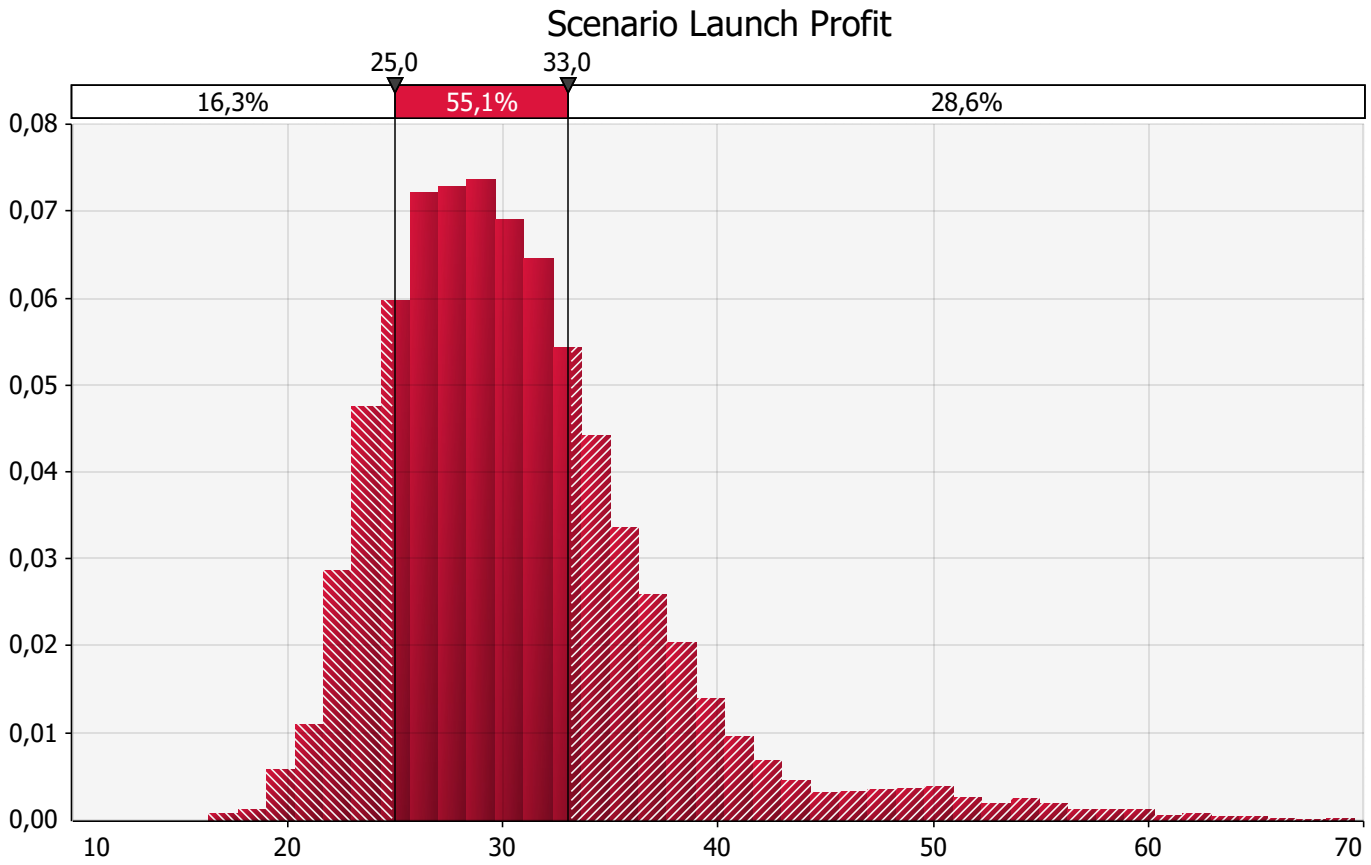
  … by embedding risks, levers and uncertainties

From calculation to modelling

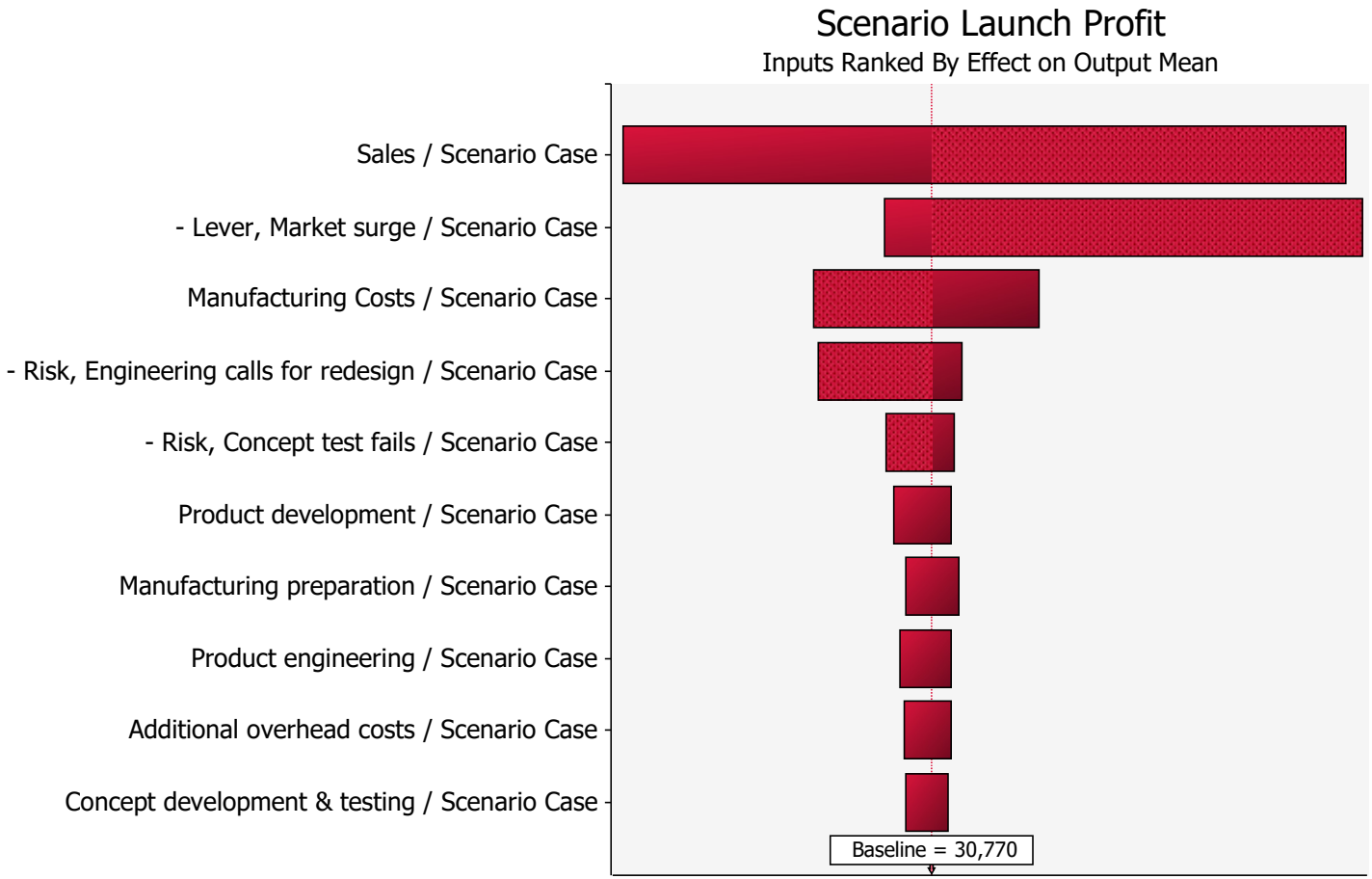
Product Launch	mio NZD
Activity	**Base Plan**
Concept development & testing	2,5
Product development	7,5
Product engineering	8,0
Manufacturing preparation	8,2
Total Intital Costs	**26,2**
Sales	100,0
Total Sales	
Manufacturing Costs	38,7
Additional overhead costs	2,1
Margin	**59,2**
Launch profit	**33,0**

Product Launch		Uncertainty Description			
Activity	**Likelihood**	**Best Case**	**Expected Case**	**Worst Case**	**Scenario Case**
Concept development & testing		1,5	2,2	2,9	2,4
- Risk, Concept test fails	25%	0,1	0,3	1,5	0,6
Product development		6,9	7,1	8,1	7,3
Product engineering		7,2	7,8	9,1	8,5
- Risk, Engineering calls for redesign	10%	1,5	2,5	4,5	0,0
Manufacturing preparation		7,5	7,9	9,5	7,6
- Risk, Product safety "glitch"	5%	0,3	1,5	3,5	0,0
Total Intital Costs			**25,0**		**26,5**
Sales		90	100,0	155	104,9
- Lever, Market surge	25%	30	50,0	100	60,1
Total Sales					**165,0**
Manufacturing Costs		33,8%	37,5%	41,3%	62,6
Additional overhead costs		1,7	1,8	2,3	2,0
Margin			**60,7**		**100,4**
Launch profit			**35,7**		**73,9**

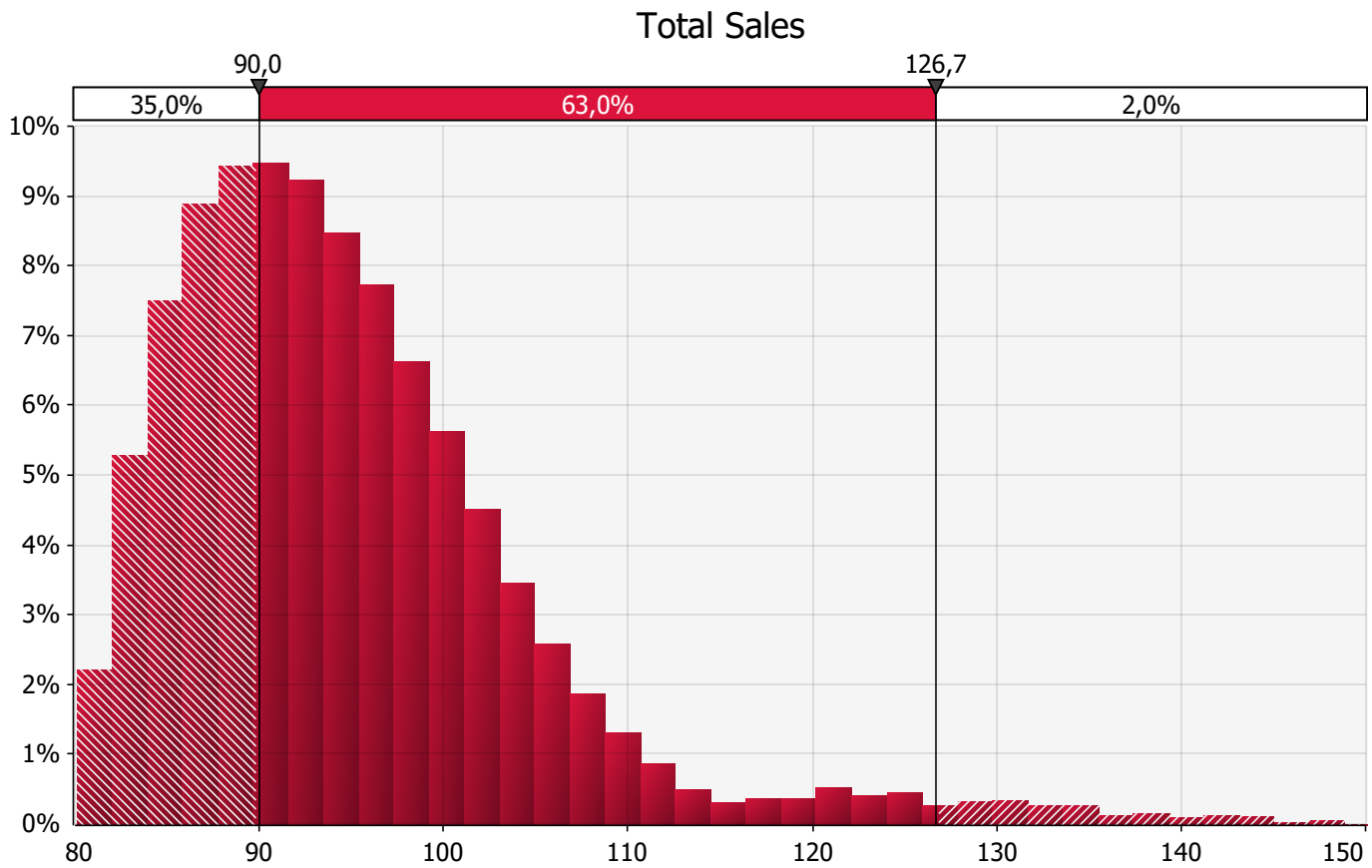
We can now “play” the project 10,000 times



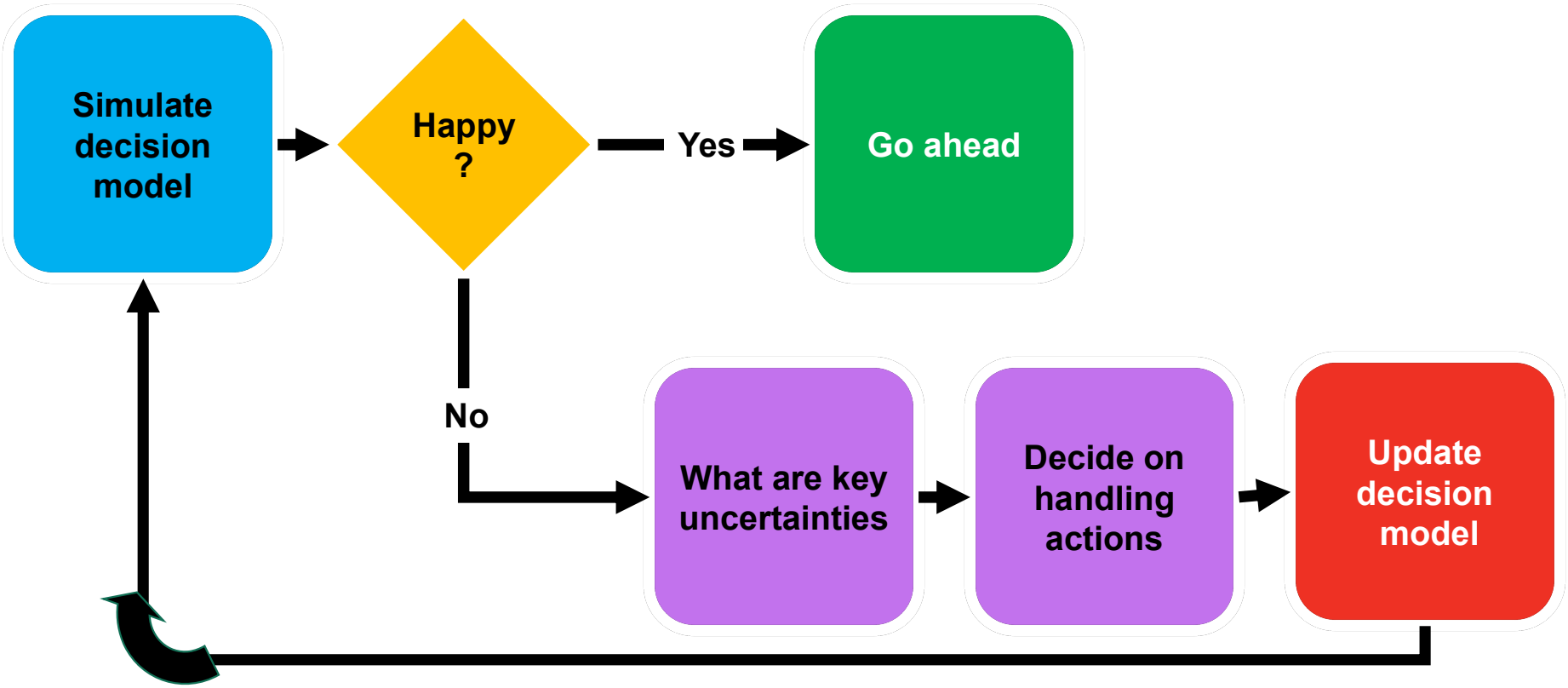
Key uncertainties are “given” from the simulation



Deep diving into sales outcome



Plan the work, and then work the plan



Agenda

Reporting and follow through

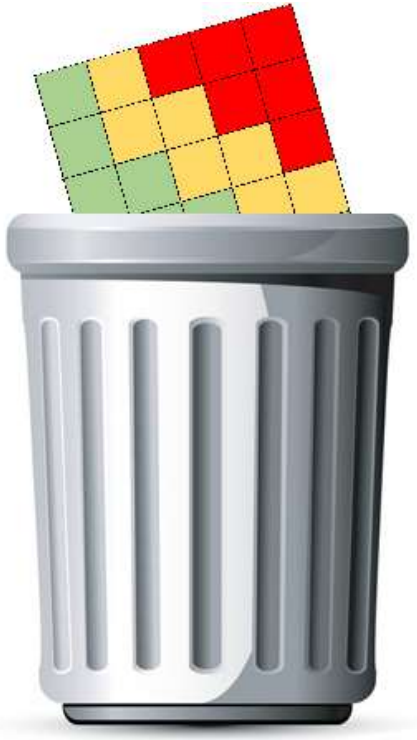
Leveraging the insights you already have and Monte Carlo simulation will add value

Comprehensive identification and quantitative evaluation is the base for valid prioritization

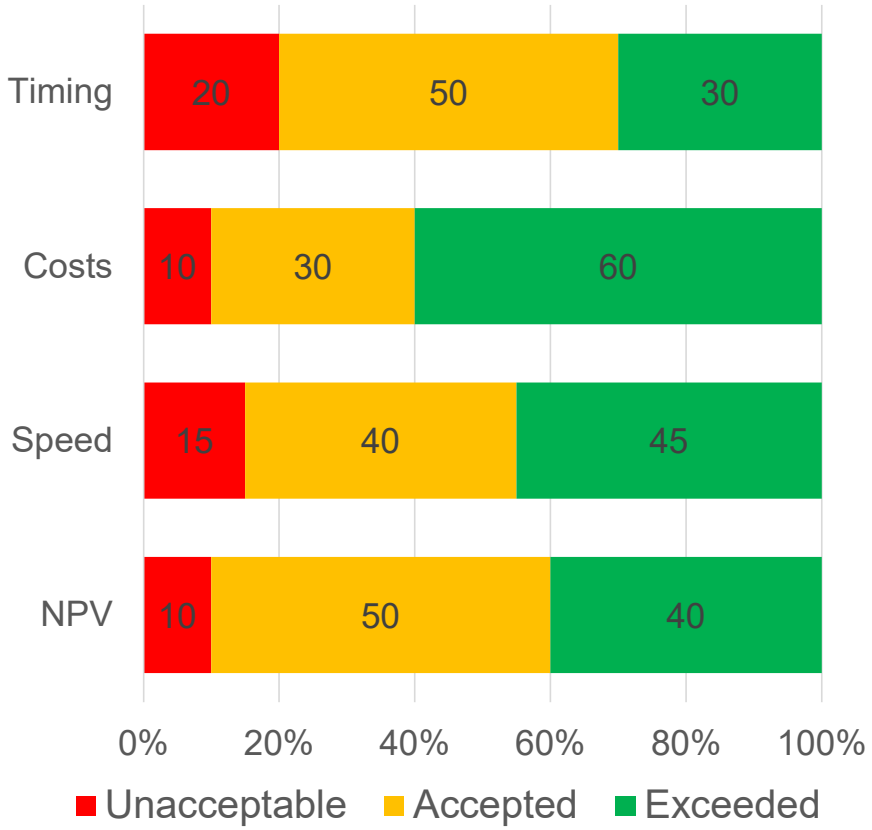
Effectively affect decisions by focusing on implementation

Risk matrices do not help decision making

- Risk focused rather than performance focused
- Levers and uncertainties are generally not considered
- Evaluated based on single point estimates
- Consolidation is not an option
- Does not tell the likelihood of meeting targets



Report initiative performance to management

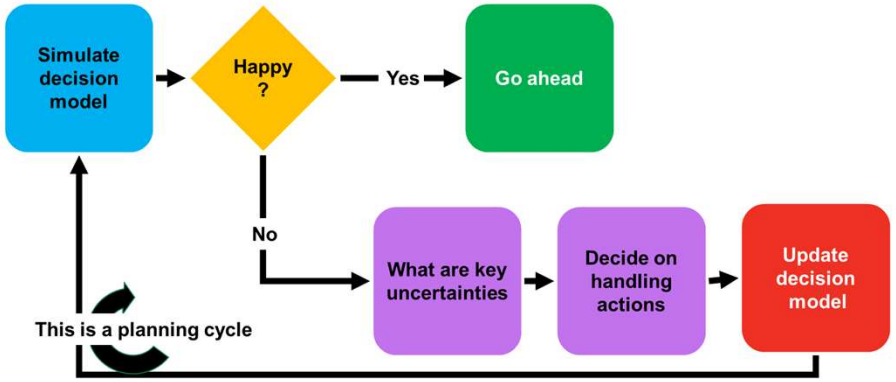


- Decision documents are single point estimates
- You can communicate a valid outcome range
- Now report the likelihood of:
  - Meeting or exceeding targets
  - Exceeding minimal acceptance level
  - Failing

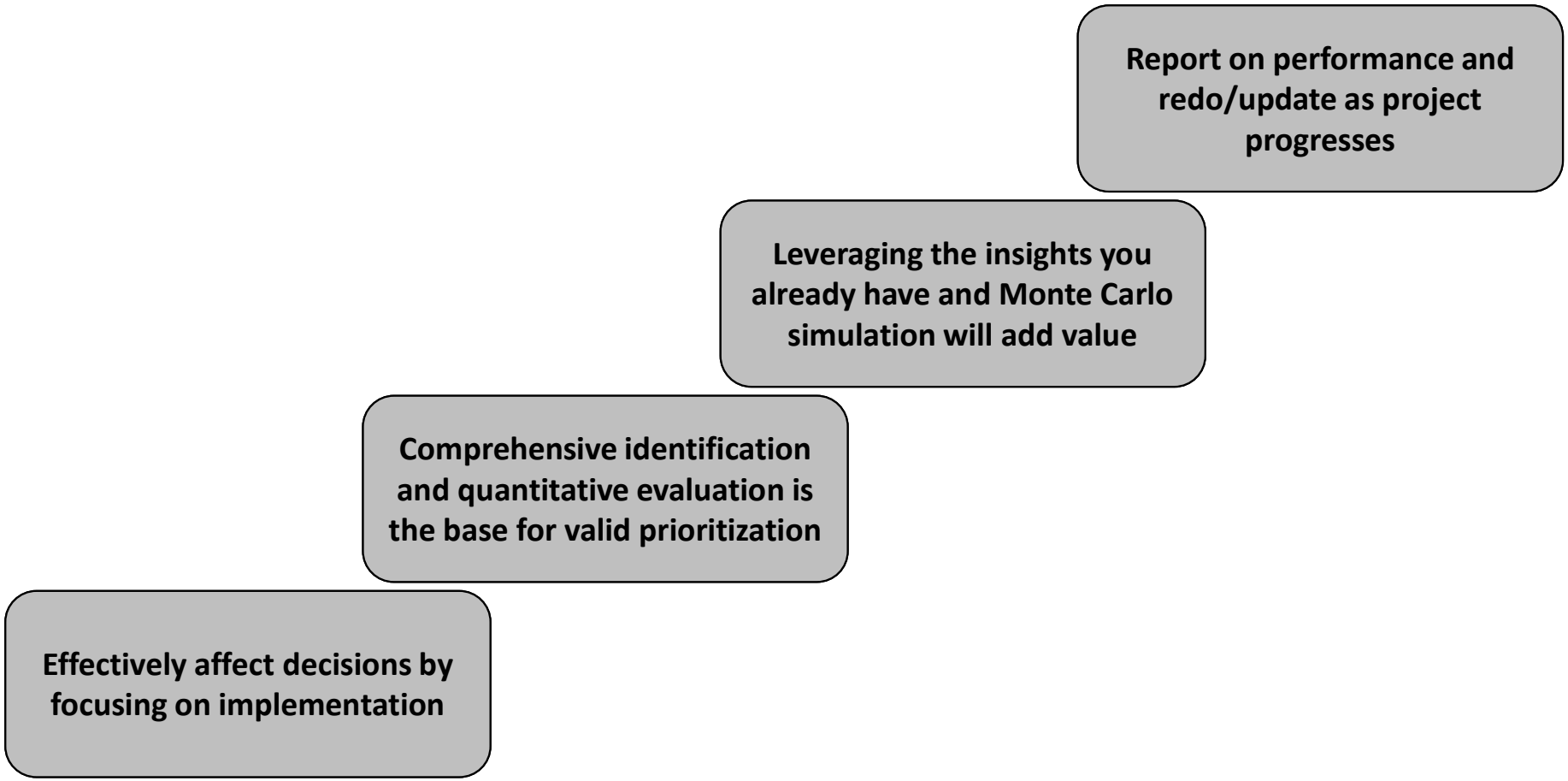
… which invokes good discussions with management

Follow through and update – be the project heads best friend

- Keep model updated
- Follow through
- Report continuously on likelihood of meeting targets
- Be the best support to successful implementation you possibly can



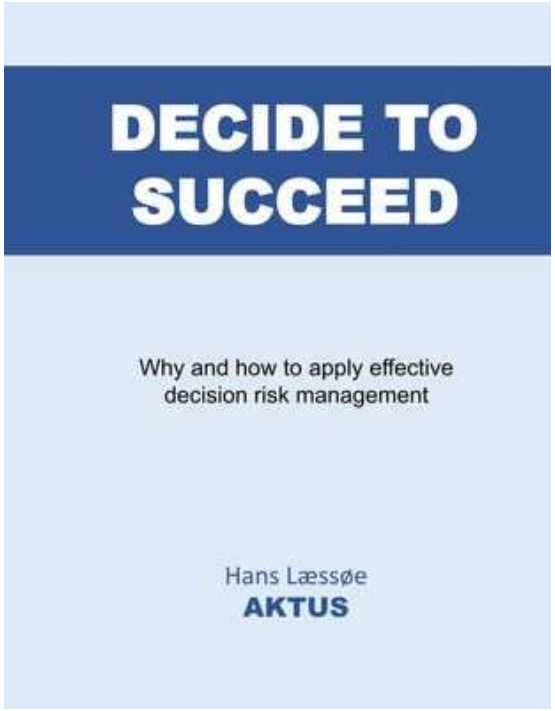
Summing Up



Thank You

Should you wish to dig deeper:

- The presentation as well as the reference model used is available to you
- The reference model is used @Risk from Palisades as Monte Carlo tool
- https://aktus.dk
- Decide to Succeed booklet



Questions, Please