

**Moving to Quantitative Business Risk Assessment  
in Enterprise Risk Management**

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# Agenda

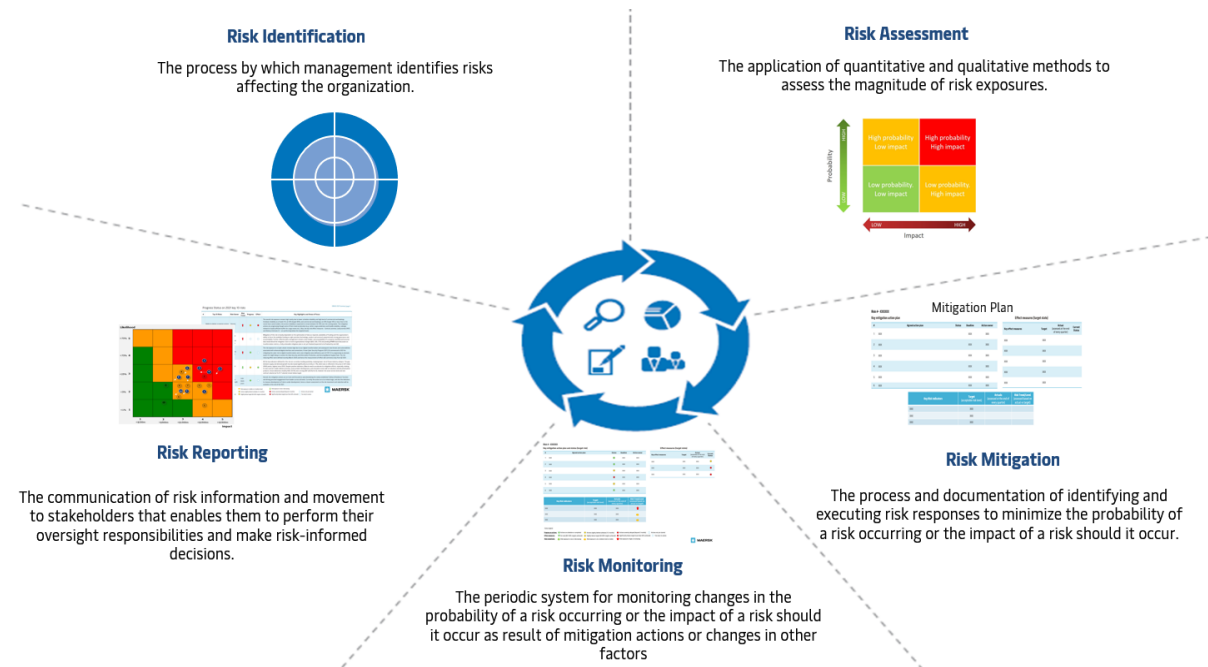
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- Introduction
- Risk assessment techniques
- Qualitative to quantitative risk assessment
- Illustration
- Conclusion



# Introduction

- Enterprise risk Management (ERM) : A process that takes a broad perspective on identifying the risks that could cause an organization to fail to meet its strategies and objectives.
- Several ERM frameworks are currently being used (COSO, ISO3100, RIMS), and while they may vary in name, industry, approach, the underlying theme remains fairly the same: identification, assessment, prioritization, mitigation and monitoring.
- With growing uncertainty in the economic landscape, an organisation's business model is challenged constantly by events that could give rise to substantial risks. ERM thus has become a hot topic in recent times and getting increasing amount of attention from executive management, stakeholders and regulators.
- ERM can add value only if it is strategic in nature and feeds into strategic decision making. Aim is not to create bureaucracy but to enable discussion on risks that could derail strategy and business objectives.



## Risk assessment Techniques

- Risk assessment techniques can vary from qualitative to quantitative, or a hybrid of both:
  - Qualitative assessment uses descriptive elements to rank risks based on probability of occurrence and impact, usually in the form of a 1-5 scale or high, medium, or low.
  - Quantitative assessment uses verifiable data to measure and analyze the effect or risks such as dollar impact or another metric.
- Qualitative assessment is the most used technique, mainly due to its ease of application and limited efforts (e.g., scenario planning, root cause analysis, or just plain conversations). They however tend to be more subjective and based on institutional knowledge of selected few.
- Quantitative assessment are more objective providing greater insight into risk impact but heavily depends on data analysis and modelling capabilities, that many organisations may not have readily available. But remember while the quantitative assessment is more objective, it is still an estimate for the future. Few commonly used tools are modeling, Sensitivity risk analysis, Monte Carlo simulations.

### Differences

#### Qualitative

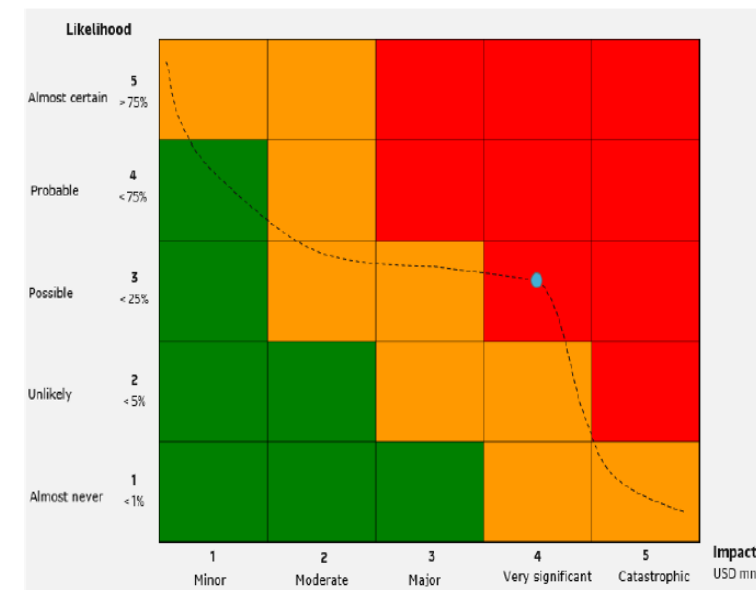
- Easy to perform
- Subjective
- Quick
- Fraught with bias
- Static view of risk

#### Quantitative

- Optional
- Objective
- More efforts and time
- More detail and high dependencies
- Go/no go decisions

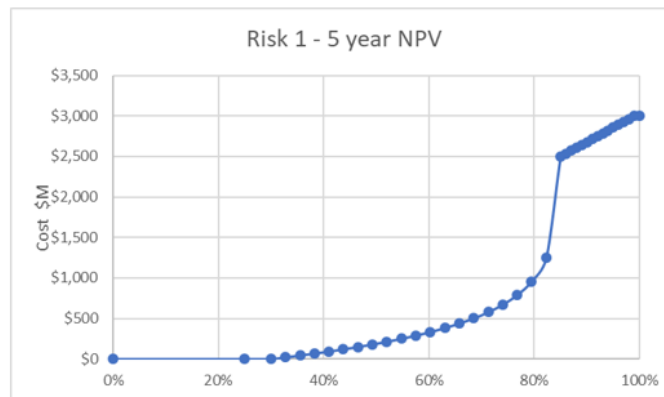
## A simplistic approach to move to quantitative risk assessment

- Executives and others need a range of likelihood and impacts, not a single point, to make truly informed decisions. This is because risks are a range of possibilities and not a single point of impact.
- As a first step, clearly define the risks that should undergo quantitative assessment. For some risks like reputation, legal, or talent, qualitative can be the only option since it's difficult to assign a dollar or some other numerical value to these.
- Rather than assigning a static number to the identified risk, lean on the experience and knowledge of managers, employees, or whomever to come up with a range of impacts. Do not tell them but rather provide some parameters enabling them to come up with numbers based on their experience. For e.g, 5-10% chance of occurring an event resulting in a loss of USD 50mn, or 10-25% chance resulting in 25mn USD loss. So, on the flip side, there is 75% chance of that event not occurring.
- With concrete numbers like this in hand, senior management can then use risk tolerance and other tools to determine if it's worth taking steps to reduce the chance of the risk occurring.
- This is where the tough decisions are made on what the company is willing and able to tolerate or go after (e.g., the best risk response).
- It's important to be up front with management – while these ranges are derived from data, they are ultimately determined by a person's experience and knowledge and is not a math model.
- This approach still carries some bias, but it's a baby step along the path of improved risk assessment.
- A matured ERM does not mean constantly adding fancy and complex modeling techniques, but should rather be simple and value-based, and is aligned with available data and capabilities.

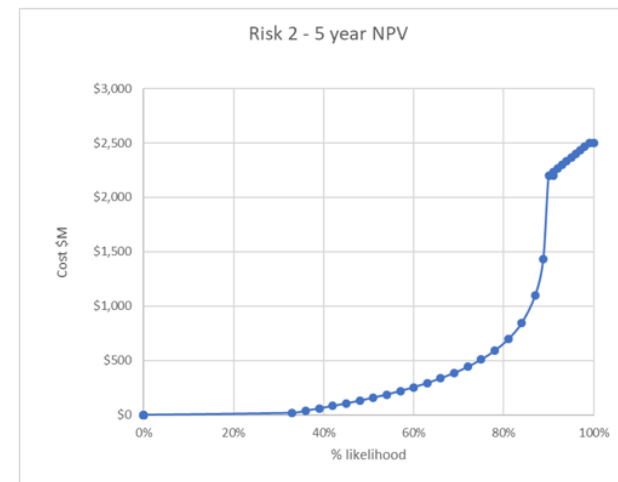


# Illustration

Rank	Risks & impact (USD bn)	Likelihood					Point on the curve	Risk curve data points
		<1% 1	1-5% 2	5-25% 3	25-75% 4	>75% 5		
1	Risk 1	>2.5	>2.5	>2.5	0.5-1.5	0-0.25	15% likelihood with 2.5bn impact	0-30%= 0 impact 30-85%= steepening rising to 2.5bn 85-100%= flattening/linear rise to 3bn
	(Hottest spot= Likelihood x impact <sup>2</sup> )	25	50	75	36	5		
2	Risk 2	1.5-2.5	1.5-2.5	1.5-2.5	0.5-1.5	0-0.25	10% likelihood with 2.2bn impact	0-30%= 0 impact 30-90%= steepening rising to 2.2bn 90-100%= flattening/linear rise to 2.5bn
	(Hottest spot)	16	32	48	36	5		
3	Risk 3	1.5-2.5	1.5-2.5	1.5-2.5	0.5-1.5	0-0.25	10% likelihood with 2bn impact	0-50%= 0 impact 50-90%= steepening rising to 2bn 90-100%= flattening/linear rise to 2.5 bn
	(Hottest spot)	16	32	48	36	5		
4	Risk 4	>2.5	1.5-2.5	1.5-2.5	0.5-1.5	0-0.25	25% likelihood with 1bn impact	0-60%= 0 impact 60-75%= steepening rise to 1bn 75-100%= flattening/linear rise to 1.5bn
	(Hottest spot)	25	32	48	36	5		



- Proposed curve shape (amount in USD)**
- 0-30%= 0 impact
  - 30-85%= steepening rising to 2.5bn
  - 85-100%= flattening/linear rise to 3bn



- Proposed curve shape (amount in USD)**
- 0-30%= 0 impact
  - 30-90%= steepening rising to 2.2bn
  - 90-100%= flattening/linear rise to 2.5bn

## Conclusion

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- While quantitative methods will certainly play a major role in the future of risk management, they must also be approached with caution.
- Companies who jump heavily into quantitative-based analysis without being ready are at high risk of overwhelm and wasted resources.
- Many companies simply are not ready for a “probability chart” that shows a range of outcomes they can expect from a given choice.
- For some industries, change happens so quickly that it can make re-running models cumbersome and frustrating, even for those who regularly use modeling (like property insurance companies and banks).
- Instead of jumping right into modeling, one possibility to start this journey is for executives and the broader company to be more disciplined in their strategic and operational planning by asking challenging questions. Examples can include:
  - What are any internal and external dependencies to achieving this goal?
  - How confident are we that all of those dependencies will be in place when needed?
  - What if one assumption turns out not to be true? How does that impact achieving the goal?
- Though the change must happen in how risks are analyzed, and information is distilled to decision-makers, it can also be damaging to assume that there’s only one path to the future of risk management.
- Quantitative analysis are also commonly based on historical data, which is one reason why it can be impractical for those early in their ERM journey.
- Organizations must have access to robust data analysis and modeling capabilities in order to use quantitative analysis for examining a variety of risks.





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