Practical Project Risk Management [1]

Risk Classification Criteria Tables: A brief guide [2]

Purpose

Classify risk probability and Impact estimates into bands in order to map risks to a Probability-Impact Matrix (PIM). (This guidance should be read in conjunction with the *Probability-Impact Matrices* guidance sheet (PMWJ, Feb 2023).

A Summary of the Technique

The probability and impact of each risk is estimated and matched to a pair of bands defined by the criteria table. The associated index numbers are then used to map each risk to the project PIM. Where impacts are assessed for more than one type of consequence e.g. as shown in the example below, the worst-case impact band is assessed as representing the overall impact.

Example of a Risk Classification Criteria Table

	Probability		Impact			
Band	(%)	Index No.	Cost (£)	Time (w/days)	Product Quality	Index No.
V High	75%+	0.8	£1m +	80 days +	Failure to achieve a critical or primary purpose of the project's product	100
High	50% - <75%	0.6	£300k - <£1m	40 days - <80 days	Failure to achieve any other key product performance requirement	40
Med	25% - <50%	0.4	£100k - <£300k	20 days - <40 days	Failure to achieve any secondary product performance requirement	16
Low	10% - <25%	0.2	£30k - <£100k	10 days - <20 days	Defect with acceptable user workaround	7
V Low	<10%	0.1	<£30k	<10 days	Minor defect with easy user workaround	3

The table should be tailored to the size and objectives of the project for which it is used. For example, the table above might suitable for a project with a cost of around £10 million and duration of 2 years. The product impact criteria should be tailored to the project outputs.

[1] This series of articles is by Martin Hopkinson, author of the books "*The Project Risk Maturity Model"* and *"Net Present Value and Risk Modelling for Projects"* and contributing author for Association for Project Management (APM) guides such as *Directing Change* and *Sponsoring Change.* These articles are based on a set of short risk management guides previously available on his company website, now retired. See Martin's author profile at the end of this article.

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Notes on the Design of Risk Classification Criteria Tables

1. Impact classification criteria for different types of consequence e.g. time cost and product should be defined to reflect equivalent "pain" thresholds.
2. It is often best to start by setting boundaries between Medium and High levels of impact, with High impacts being regarded as being unacceptable in normal circumstances.
3. The boundary between High and Vey High impacts can be set at a level at which the viability of the project business case would be undermined should such an impact occur.
4. Since 50% probability risks are those with the greatest level of uncertainty regarding their occurrence, it is good practice classify them as being of High or Very High probability.
5. The index numbers should be representative of the relative values of the associated bands.
6. As an exception, aligning the Very Low Probability index number with its band's upper boundary helps to highlight the significance of Very Low Probability-Very High Impact risks.

Most Probability-Impact Matrices are (correctly) weighted towards Impact

This PIM corresponds to the example table on the previous page. It illustrates why most risk matrices are weighted towards impact. Whilst probability impact bands have an approximately linear progression, the progression through impact bands is closer to being logarithmic. This affects the calculation of risk scores obtained by multiplying index numbers.

Probability							
	V High	0.8	2.4	5.6	12.8	32	80
	High	0.6	1.8	4.2	9.6	24	60
	Med	0.4	1.2	2.8	6.4	16	40
	Low	0.2	0.6	1.4	3.2	8	20
	V Low	0.1	0.3	0.7	1.6	4	10
		Index numbers	3	7	16	40	100
			V Low	Low	Med	High	V High
			Impact				

Limitations of the PIM

Although the PIM is in widespread use as a project risk assessment technique, it has numerous limitations that should be understood and recognized (See *Probability-Impact Matrices* guidance sheet). Some leading authors advise against using the PIM for project risk analysis.

Common Faults

1. Using index numbers that do not reflect relative significance e.g. using 1,2,3,4,5 as impact index numbers when progression through the impact bands is closer to being logarithmic.
2. Making probability and impact estimates without a clear understanding of each risk – good risk descriptions should be seen as an essential prior risk assessment step.
3. Using cost, duration and product criteria that don't represent equivalent levels of impact.
4. Over-rating the usefulness of PIM-based risk scores and risk prioritisation results.

About the Author

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Martin Hopkinson, recently retired as the Director of Risk Management Capability Limited in the UK, and has 30 years' experience as a project manager and project risk management consultant. His experience has been gained across a wide variety of industries and engineering disciplines and includes multibillion-pound projects and programmes. He was the lead author on Tools and Techniques for the Association for Project Management's (APM) guide to risk management (*The PRAM Guide*) and led the group that produced the APM guide *Prioritising Project Risks.*

Martin's first book, *The Project Risk Maturity Model*, concerns the risk management process. His contributions to Association for Project Management (APM) guides such as *Directing Change* and *Sponsoring Change* reflect his belief in the importance of project governance and business case development.

In his second book *Net Present Value and Risk Modelling for Projects* he brought these subjects together by showing how NPV and risk modelling techniques can be used to optimise projects and support project approval decisions. (To learn more about the book, click here.)