Risk Attitude = f (Appetite,Tolerance,Threshold)

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While most Project Managers actively accept negative risks, hardly do they accept actively positive risks. This peculiar attitude of most PMs indirectly implies that, as human beings, most of us are basically *risk-averse* in our *risk appetite*.

But, what the industry wants or prefers most seems to be risk-seekers.

If it's so, then how to select a PM with the ***right risk attitude*** for the project and the company.

This question comes across almost every project owner's mind and this article is a preliminary attempt to select an ***"ideal PM candidate"*** based on his or her risk attitude and based on the discussion we had recently in the LinkedIn group ISO 31000 : Risk Management Standard.

In any project there will always be obvious *negative risks* and obscure *positive risks or vice versa*. While a project manager must try to *minimize* the probability and consequences of negative risks, he or she must also try to *maximize* the probability and consequences of positive risks. Seldom does this happen.

In project risk management, most of a PM's work time goes in mitigating negative risks rather than exploiting or enhancing opportunities. Few project managers allocate time to identify opportunities with the same rigor as they do to identify threats. While this hypothesis' validity could be influenced by the cultural background and assertiveness of a PM, continued failures of projects across industries around the world seem to support this hypothesis. Risk attitude of project managers and the enterprises they work for might have played significant role in how the project risks were managed by these PMs.

As per the 5th edition of the PMBOK®Guide by the Project Management Institute, among other things, the ***risk attitude*** of a person or organization is influenced by three major factors that include ***risk appetite, risk tolerance and risk threshold.***

Organizations perceive risk as the effect of uncertainty on projects and organizational objectives. Organizations and stakeholders' willingness to accept varying degrees of risk depends on their risk attitude.

Risk attitude of both organization and stakeholders may be influenced by a number of factors. These factors are broadly classified into three themes:

1) Risk Appetite – Degree of uncertainty an entity is willing to take in anticipation of a reward.

2) Risk tolerance **–** Degree, amount or volume of risk that an organization or individual will withstand.

3) Risk threshold **–** Refers to measures along the level of uncertainty or the level of impact at which a stakeholder may have a specific interest. Below that threshold, organization will accept the risk. Above that threshold, organization will not tolerate the risk.

When a person's risk attitude is influenced by such factors, each with its own range or levels, the ***right risk attitude*** of a project manager, for a given project and the enterprise's environmental conditions, is quite a difficult measure to deduce. If the risk attitude of the PM does not match that of the organization's, then there could be serious issues in managing projects, especially in the selection of suppliers, sub-contractors, adoption of new / innovative methods or materials, etc.

I have attempted,in this study, to take the help of Design of Experiments, a quality-improvement technique that helps arrive at the ideal or best combination of these input factors(aka predictor variables) that affect the output (response).

If we decide to examine 2-levels (low-high) for each of the above 3 factors (*risk appetite, risk tolerance, and risk threshold)* that determine the ***risk attitude*** of a person, ***what should be the "right risk attitude" of a project manager for a given set of enterprise conditions?***

Let us use Design of Experiments (DOE) technique to get a possible answer.

The generic equation Y = f (X) could be written, for our current problem, as:

Risk Attitude = f (Risk Appetite, Risk Tolerance, Risk Threshold)

A 2-level, 3-factor full-factorial experiment gives us the following 8 combinations /runs. For simplicity, I have considered only the main effects, ignoring the higher order interactions between variables as insignificant in affecting the output.

risk attitude1 = low appetite + low tolerance + low threshold

risk attitude2 = high appetite + high tolerance + high threshold

risk attitude3 = low appetite + low tolerance + high threshold

risk attitude4 = low appetite + high tolerance + high threshold

risk attitude5 = high appetite + low tolerance + low threshold

risk attitude6 = low appetite + high tolerance + low threshold

risk attitude7 = high appetite + low tolerance + high threshold

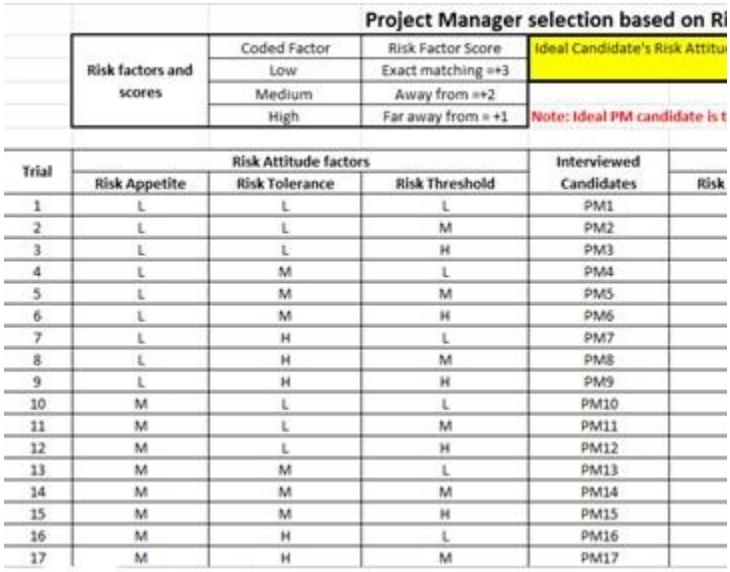
risk attitude8 = high appetite + high tolerance + low threshold

I have created an Excel file "Risk Attitude-DOE-Ari Final-August 14.xls" (this Excel file is available in Microsoft's OneDrive for public access) that analyzes the above 3-factors at each of their 3-levels (Low, Medium,High). The 27 possible combinations of these factors have been arrived at using full factorial experiment design.

The ideal PM candidate, from these 27 combinations, is considered to be the one who exactly matches all the three company's risk attitude criteria / factors as below:

Ideal PM's Risk Attitude,Y = Risk Appetite(H) + Risk Tolerance(L) +Risk threshold (L)

Giving a score of +3 for each of the 3 factors above, a candidate who exactly matches the above requirements is expected to score a value of 9.



Project Manager selection based on Ri

Risk factors and scores	Coded Factor	Risk Factor Score	Ideal Candidate's Risk Attitu
	Low	Exact matching =+3	
	Medium	Away from =+2	
	High	Far away from = +1	Note: Ideal PM candidate is t

Trial	Risk Attitude factors			Interviewed Candidates	Risk
	Risk Appetite	Risk Tolerance	Risk Threshold		
1	L	L	L	PM1	
2	L	L	M	PM2	
3	L	L	H	PM3	
4	L	M	L	PM4	
5	L	M	M	PM5	
6	L	M	H	PM6	
7	L	H	L	PM7	
8	L	H	M	PM8	
9	L	H	H	PM9	
10	M	L	L	PM10	
11	M	L	M	PM11	
12	M	L	H	PM12	
13	M	M	L	PM13	
14	M	M	M	PM14	
15	M	M	H	PM15	
16	M	H	L	PM16	
17	M	H	M	PM17	

Keeping the company's requirement in mind while selecting the PM for the project, out of all the possible PM candidates interviewed, the candidate # PM19 seemed to be the "exact match" with the company's "risk attitude" as this candidate's risk attitude score is a perfect 9.

A PM with this risk attitude is expected to match with that of the company's for the project in hand in all of the three factors that influence the risk attitude of a PM.

The ideal risk attitude of a PM towards positive risks or opportunities is not covered in this study and may be taken up for analysis along these lines if this approach is found useful

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