Prioritisation of risks should rely on a combination of how likely the risk is to occur and its effect on the project's schedule or budget. Cleary, certain risks may be very unlikely to occur but could have an extremely serious effect on budget, schedule or even on your ability to complete the project. Others may be very likely to occur but require no more response than dipping into a contingency fund to resolve the issue.

Avoiding

Once compiled, the detailed and prioritised list of all the known risks needs to be communicated to the team members, stakeholders and anyone else involved in the project. By doing, this you will enable your team to work towards avoiding these risks – if a team is not made aware of what could go wrong, how can they work to avoid it? It is impossible to avoid unknown risks, and more effective to concentrate your efforts on the known risks associated with your project.

Mitigating

Before any potential risks have occurred it will benefit the process to consider what the best solution to the problem would be, should it occur. You can also decide for each individual risk whether to try and implement the solution, if resources allow, or simply accept there is a problem but defer any solution to a later date – possibly after the final product has been delivered – depending on the severity of the problem. If the decision is to resolve the problem then ensure the solution is fully implemented otherwise you will have just wasted your time. Effectively managing risk, as already mentioned, is part of a project manager's role and helps ensure more successful projects. However, risk management should never be such an onerous task that it takes significant resources away from the other aspects of project management.

Evaluating Risks to the Schedule:

You cannot respond to all risks, neither should you. Prioritization is a way to deal with competing demands. This aids in determining where you will spend your limited time and effort.

We evaluate in order:

- **To have the greatest impact.** Eighty percent of the impact will come from twenty percent of the risks. What are the *vital few things* that we should do that will have the greatest impact on minimizing threats and maximizing opportunities?
- **To respond wisely and appropriately.** The goal of evaluating risks is to discriminate between one risk and another. This aids us in determining the amount of effort to invest in developing response plans.
- **To assign resources suitably.** Assign your most skilled, knowledgeable resources to the projects with the greatest risk.

Two Methods of Qualitative Risk Analysis

1. KISS Method

I use the *KISS (Keep It Super Simple) Method* on smaller projects and with teams that lack maturity in assessing risks. This one-dimensional technique involves rating risks as:

- Very Low
- Low
- Medium
- High
- Very High

Risk	Risk Rating		
А	Low		
В	Very High		

This scale allows greater discrimination than the commonly used Low, Medium, and High scale.

2. Probability/Impact Assessment

I normally use this technique with larger, more complex projects and with teams that have experience with risk assessments.

This two-dimensional technique is used to rate probability and impact. Probability is the likelihood that a risk will occur. The impact is the consequence or effect of the risk, normally associated with impact to schedule, cost, scope, and quality. Rate probability and impact using a scale such as 1 to 10.

Risk	Probability	Impact	Risk Score
А	4	8	32
В	3	5	15

Once you have rated each risk, calculate the Risk Score as Probability x Impact. I sort my risks in descending order with the Risk Score as the primary sort.

Calculating the Z-Value:

PERT/Activity Diagrams, Completion Probability and the Z Score Source: Bob Hugg, Thinking in Project Management Terms

PERT/CPMDefine the goal of the project and the tasks required to complete itPlace tasks in a logical order and determine the critical pathThe critical path is the longest time path through the network of tasksGenerate a set of duration estimates for each taskAn optimistic, a most likely, and a pessimisticLabel as a, b, c, or as TO, TL, TP

3 Calculate PERT for each task

 $\overline{TE} = (TP + 4TL + TO)/6C$ omplete the above for all tasks The sum of duration of tasks on the critical path will determine the project duration

4 Calculate standard deviation and variance

Standard deviation is the average deviation from the estimated timeAs a general rule: the higher the SD, the greater the amount of uncertainty)SD = (TP - TO)/6Variance reflects the

speared of a value over a normal distribution V = (SD)2SD and V are very useful in determining the probability of a project meeting its desired completion time

5 Sample table for the estimates

6 Consider the following tasks and activity diagram

Populate table with sample data

8 Table of estimates with start dates

Determine completion probability

A wealth of information in the above tableCritical tasks, non-critical tasks, best and worst estimates and the expected duration for each, SD and V valuesCalculate probability of project completion on a desired dateS: the sum of all expected durations on the critical pathV: the sum of all variances on the critical pathD: Select a desired completion timeCompute $Z = (D-S)/\sqrt{v}$ Look up the value of Z (e.g., here)

10 An exampleWhat is the probability of completing the project in 15 days? $Z = (D-S) / \sqrt{V} = (15 - 15.51) / \sqrt{2.51} = -0.51/1.59Z = -.321A$ corresponding probability value for Z is 37.7%There is 38% probability that the project will be completed within 15 days of the start day