

## The Hidden Cost Premium in Offloading Project Risk to the Supply Chain:

Why it is not always a good idea to pass risk down your supply chain

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Projects are all about managing risk and uncertainty.

This paper discusses the common approach to risk transfer and off-loading, whereby project clients transfer the contractual responsibility for certain defined risks to the supply chain.

And we highlight the significant price premium that businesses pay for the convenience of “price certainty”.

Risk Transfer is one of the five common approaches to managing risk, as show in table 1. It is good practice in a project to create a risk register, identifying a wide range of events that could negatively impact the project. Each possible event is usually given a rating for the relative *impact* of the event (say High, Medium, Low), as well as the *probability* (again typically H, M, L). The combination of impact and probability gives an overall risk score, that is then used by the project team to prioritise the risks, and suggest which approach to take to reduce the risk.

A common approach to deciding whether to “transfer” a risk to a member of the project supply chain is to ask “Who is best placed to manage this risk?”

That seems the sensible thing to do, and we agree that it is, from the perspective of who should be responsible for managing the actions necessary to reduce the likelihood of the risk happening, and if it does, then to reduce the negative impact.

But we don’t believe that it is best to pass the financial responsibility to pay for the costs of recovering from a risk in a fixed price contract.

**Table 1: Common Risk Management Options:**

### TERMINATE

Choose not to do the thing that creates the risk.

### TREAT

Reducing the Probability or Impact

### TRANSFER

Sharing or passing the burden to others

### TOLERATE

Accept the risk

### THINK

Approach the situation differently

If you include this risk as a contractual responsibility of a supplier or contractor, then you can get a negative consequence that you did not expect, and one that often the client is not even aware of.

We will demonstrate this by way of a worked example.

Assume we have a project which has identified three risks

1. There is always uncertainty in the ground conditions, and the expert survey you have had done suggests that there is a 20% chance that the conditions will require much deeper foundations, that will cost an extra \$1.5M, on top of the \$5M most likely budget.
2. Your cladding contractor has proposed a design of external cladding for the building that will cost \$7.5M. However, you are aware that there is a local community lobby that wants you to use a different finish, that is similar to other buildings in the neighbourhood. Your planning advisor says that there is a very small chance (he thinks about 15%), that the lobby will be successful, and if they are the change in cladding will cost you an extra \$1.5M
3. Your building is using an innovative approach to building management, that your designer believes this will save you some \$2M a year in energy usage alone, as well as providing high levels of user comfort. However, there are several new innovations in the system, and they have never worked together exactly as they are proposed in your building. The cost of the work package is \$10M, and your project specialist thinks that, although there is a one-in-three chance that the system will not work fully, any problems could be resolved for at most, £1M.

So in summary

1. A 20% chance of an additional cost of \$1.5M
2. A 15% chance of an additional cost of \$1.5M
3. A 34% chance of an additional cost of \$1.0M

And statistically, from the project point of view the *expected value* of these risks is  $(0.2 \times \$1.5M) + (0.15 \times \$1.5M) + (0.33 \times \$1M)$ , ie = \$0.86M.

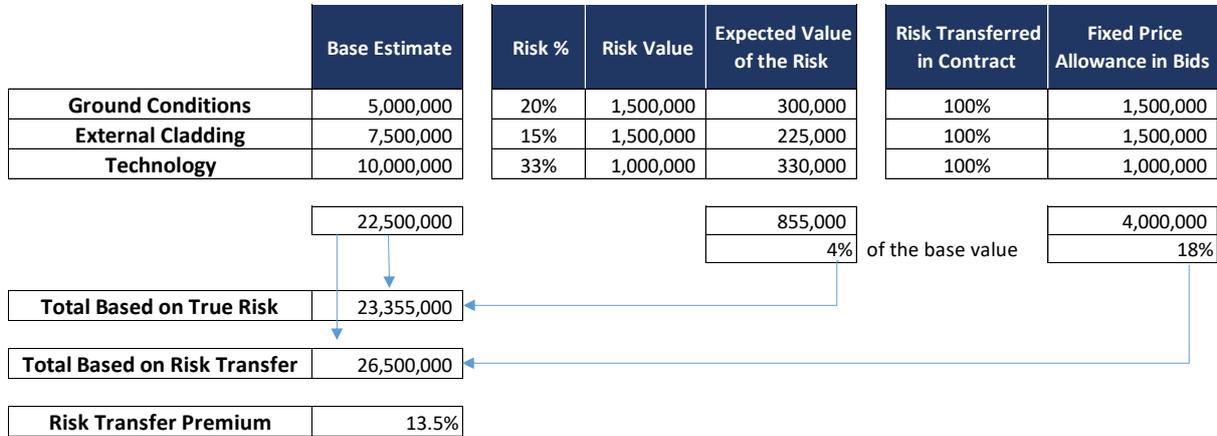
Now with just three risks, the least expensive of which will cost \$1M to rectify, it might be prudent on the project to hold a contingency of say \$1M, or \$1.5M. \$1.5M would equate to 7% of the nominal value of the three packages of work.

But on a real project, where there could be dozens of such risks, then holding the expected value as a contingency fund would be a good approximation.

But what happens if you feel that the best person to manage these risks is the supplier or sub-contractor who will be doing the work. Sure, they are probably best placed to identify early-warning signs of problems, and to find innovating and cost-effective ways to reduce

the risks. However, if you also expect them to cover the costs to solve the problem should the risk occurs, they you get a very different impact on their bid prices, and thus the project cost.

The following table shows the impact if you expect suppliers to cover the cost of the risks in a fixed-price bid.



If this was representative of the whole of the project, then the simple act of offloading the cost of managing these identified risks to the supply chain, would add about 14% to the cost.

Even if you negotiate hard with the suppliers to squeeze the allowance they include, you are unlikely to reduce this difference much – after all if you expect each supplier to cover the cost of a change event, to them the cost will be either 100% or 0%. They don't have the same opportunity to balance one thing off against another.

The only cost you should expect suppliers to include for, are those that are extremely likely to be needed, otherwise the project client is best retaining the cost responsibility, and allocating it when it is needed.

The second type of risk on project comes from the simple fact that it is impossible to predict accurately exactly how long a task will take, and therefore how much it will cost.

Think about it. Most of us don't even know exactly how long our drive home from the office will take us after work, so how on earth do we expect a contractor to estimate the cost to do a complex series of activities 18 months in the future, working alongside people they have not worked with before, and at the time of bidding they don't even know who they will be? To say nothing about what their own supply base will be like, what prices will be like, which contractors will be available, which of their team members will be available to work on the project, etc, etc, etc.

In reality, a good contractor could probably easily give an estimate within a range – for example

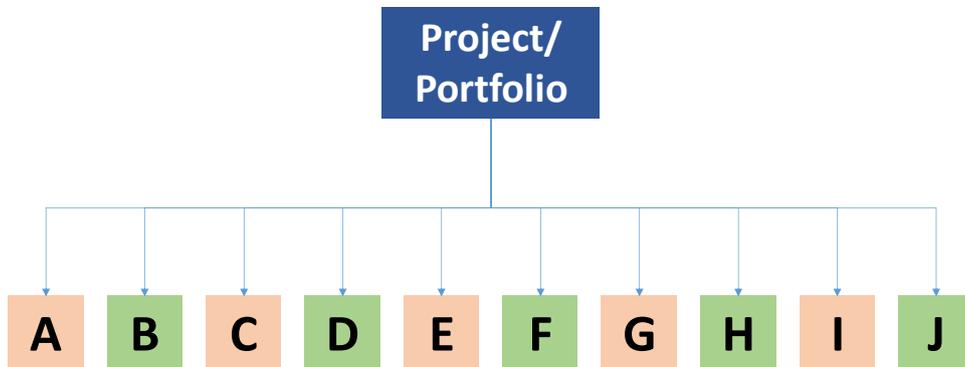
| Price Range \$ | Chance |
|----------------|--------|
| <35M           | 10%    |
| 35-42M         | 20%    |
| 42-47M         | 35%    |
| 47-57M         | 15%    |
| 57-67M         | 10%    |
| >67M           | 10%    |

So if you want 100% certainty, my price is going to be over \$80M. But there is a 65% chance it will cost less than \$47M. But even if you put a negotiation squeeze on me and persuade me to take a bit of a risk, I am very unlikely to go below \$57M (where there is a 20% chance that I will make a big loss on a project).

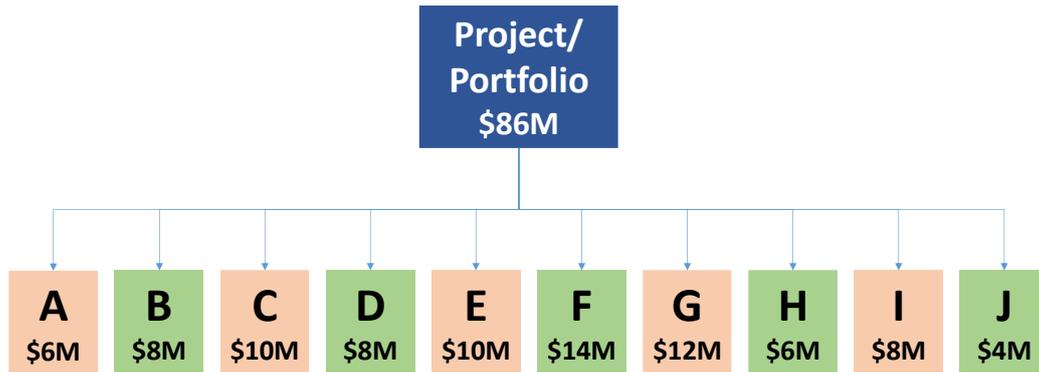
And remember that contracting is a relatively low margin business, with typical gross margins of 15%. So if I bid \$57M, and it comes in at over \$67M (a 10% chance), then my variable costs will be more than the income I get – a big loss!

To illustrate the impact of passing this risk down the project supply chain, consider this worked example.

Our example project consists of 10 independent work packages. By the way, the message is identical if you see these as 10 separate projects within an overall project portfolio.



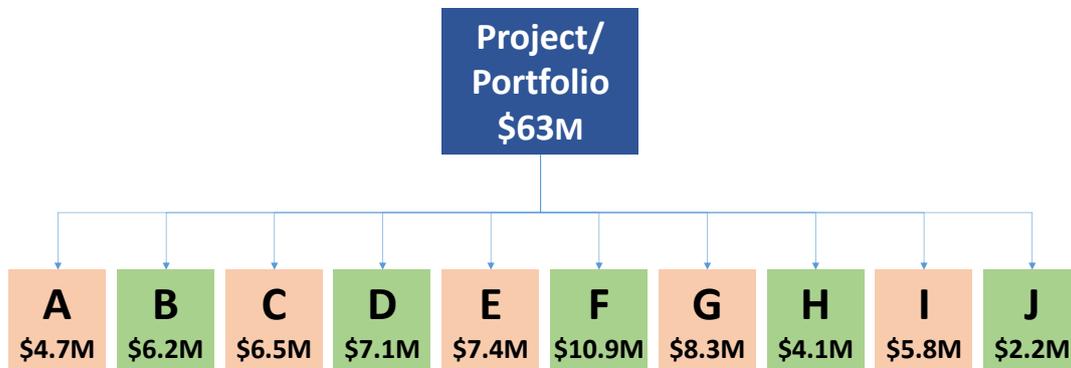
Each work package is awarded to a separate contractor on a fixed-price basis. Each contractor has bid a price that they can be about 85% sure of achieving – 1 time in 6 they will overspend this amount.



However, as we discussed above, the average cost of each work package is significantly lower than the fixed-price quotes. We wondered what would happen if the project manager paid a price in proportion to the actual cost incurred.

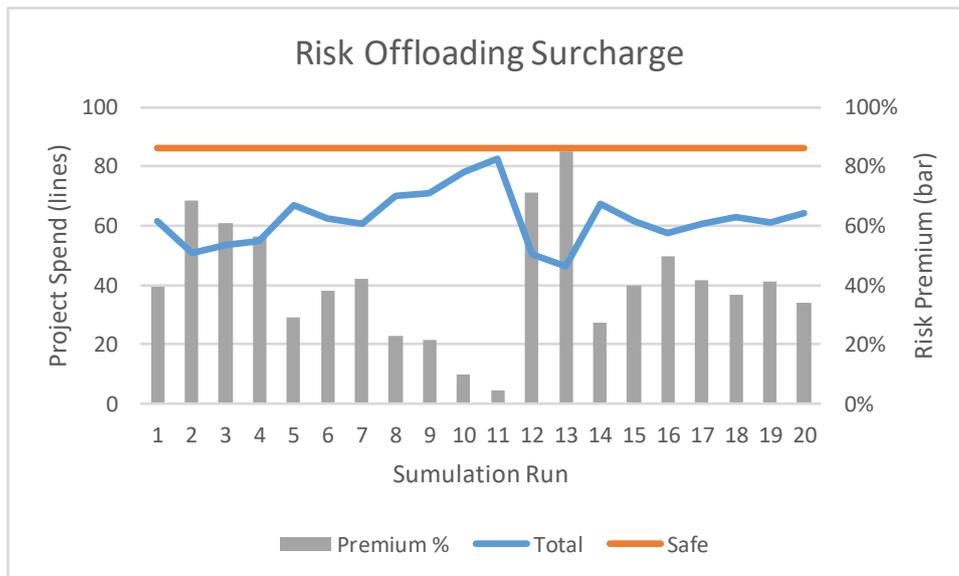
In order to assess this, we developed a simulation model. We allowed the actual cost of the individual projects to vary widely, to simulate real project activities, like in the single project example we gave above. This is not an unreasonable assumption. For project work that uses people, and where the cost is proportional to how much time they spend on the task, it has been demonstrated across thousands of projects that the average time a task takes can easily be 50% of the time it takes when things don't do well.

The average costs of each of the work packages are shown below



The numbers don't quite add up due to rounding. But the key message is clear. The premium paid for the convenience of having a "guaranteed price" for each work package is some 37%.

Or put another way, you could do the same project for 27% less, just by paying what was required. We ran our simple (but realistic) simulation 20 times, getting the results shown below



The orange line (called “safe”), is the total project cost using fixed prices (\$86M). The blue line is the actual cost when we added each independent work package cost. In all cases, the actual total was less than the safe value, even though in one run (number 11, 4 out of the 10 work packages were unlucky, and overspend their fixed price value by 20% (remember we said each work package had an 18% chance of overspending. However, 4 packages came in below the safe value, balancing it out.

If we had run the simulation 100 times, we estimate that only in 2-3% of circumstances would the actual project price be more than the safe value estimate.

Exploiting this characteristic is simple in concept, but not easy to do. This is because it requires managers to change their conventional thinking (for example thinking variance is “bad”, whereas in reality it is perfectly natural), and the ways in which they measure performance.

Aggregating the allowance for uncertainty, and being comfortable with actual costs being different from the average cost estimate, is one of the behaviours that underpins our new method for managing capex projects. You can read about the method in *The Executive Guide to Breakthrough Project Management*, published in July 2016.

**Our recommendation:**

Transfer the responsibility to manage and minimise the risk, but not the obligation to pay for it. Include an appropriate amount in your project contingency

This is one of a series of papers we have published on our website  
[www.BreakthroughProjectManagement.com](http://www.BreakthroughProjectManagement.com).

If you find the ideas discussed here interesting, and you want to know what you can do about them, then you should read our book – *The Executive Guide to Breakthrough Project Management*. It guides readers through our counter-intuitive approach to managing capex and construction projects, and will allow you to deliver projects in much less time, at a much lower cost, without compromising on the scope and quality, and without overworking your team and your supply base.

Why wouldn't you want to do this?