White Paper 2023-07

How to Deal with Systemic Risks Beyond Project Remit

Many large projects can be impacted by risks and opportunities which are beyond the control of the project or organisation, and which can be systemic (e.g. like climate change, global economics) or that can be quite unknown. The situation gets worse the longer the project is, or for owners that must consider the full infrastructure lifecycle over decades. How to account for those risks and opportunities as part of the project risk analysis is not always straightforward. In this White Paper we expose a method which allows for due consideration of those risks and opportunities.

Preliminary remarks on common risk & opportunity management processes

Category of risks

Risks and opportunities can generally be categorised as:

- Known-knowns: they are included in the base scope, execution plan and estimate,
- Known-unknowns: by definition they are identified in the risk register and the contingency is designed to protect against most effects of those risks; they may include low probability / high impact and systemic risks that have been identified and for which some amount of protection can be provided,
- Unknown-unknowns: by definition, risks and opportunities that are not identified, not provisioned in a contingency, but may still impact the project.

When performing a project risk analysis, one tries to increase the known-unknown domain through lessons learned and picking up the experience of a large array of project contributors. However, within this category, some risks may be identified generally but their impact or probability be quite difficult to assess, in particular on the longer term. Those are the specific risks that are addressed in this White Paper.

How the risk process leads to picking a conventional simplified {probability x impact} description of risks and opportunities

Risks and opportunities can generally be characterised by a {probability x impact} characteristic description. Sometimes other parameters are also considered. For the sake of simplicity, we will here focus on the most important ones. The {probability x impact} leads to deciding whether the risk is acceptable or not, and how it should be treated and to determine the level of contingency. The contingency is often close to the factorisation of both parameters.

In reality, there is a continuum of {probability x impact} factors (more probable occurrences generally having a lower impact), and during the risk process, a conventional characteristic is worked out that participants feel best represents the risk or opportunity (generally, to be conservative, a point where probability x impact is supposed to be the highest). However, even for common risks or opportunities, one needs to keep in mind that this simplification may not represent well the remaining possibility of very high consequences associated with a remote probability.

Strategies for systemic risks

Systemic risks affect the entire economic and social environment of the project. They generally have multiple consequences on many project aspects and are not quite under the control of the organisation. Examples include interest rates variations, currency foreign exchange fluctuations, inflation, raw material and equipment price changes, climate change, general economic growth (or recession), social unrest etc.

As project-driven organisations are generally not in the gambling business, the risk and opportunity process aims at protecting the project and the business as much as possible from such risks. Because those risks cannot be addressed by a direct action from the project or the organisation, the only possible protection is by managing the consequences of their occurrence.

Systemic risks require a specific treatment. The best strategies are to avoid or transfer those risks, followed by internal hedging through diversification.

Avoid and transfer

The simplest approaches are to avoid or transfer those risks, if required against a known fee: a contractor can require specific contractual terms compensating for certain risks (compensation for fuel price or currency fluctuation), or removing certain risks from its responsibility, or an organisation can transfer the risk to a financial body or insurance (example of foreign exchange rate hedging, insurance against catastrophic events etc).

This is of course not always feasible: it may be impossible in certain markets to transfer risks to other parties, or certain risks may not be insurable. Owners in particular will not be able to avoid or transfer a large number of systemic risks because they are involved with the infrastructure on the long term.

Internal hedging

The next best strategy is internal hedging: ensure that there is an intrinsic protection against a certain risk thanks to other organisation activities or other consequences of the risk. For example, an organisation that has revenues in various currencies can use this situation to hedge itself internally against currency fluctuation; increase in raw material price can translate in product selling price; a global footprint can protect against local risks; some activities that may benefit of climate change may compensate for others which performance may be affected, etc. This obviously works best in very large organisations that have multiple diversified sources of income and expenditure fields,

and less so in very specialised and smaller organisations. Internal hedging has some limitations, is never perfect and may even lead to some accounting complications.

Methods for the evaluation of the residual systemic risks: organisational level and usage of scenario analysis

Remaining systemic risks that cannot be avoided, transferred or hedged, or the residual part of the risk after the application of such mechanisms, must be evaluated.

The first important aspect is that they need to be evaluated at organisational (portfolio) level and not at individual project level, thus benefitting of any natural hedging. It does not make sense to protect against those at the individual project level.

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Sensitivities must be developed for known systemic risks and potential actions identified to avoid an excessive damage to the business. It is often best to proceed using scenario analysis, combining the possible combination of several systemic risks, rather than the usual statistical approaches. The reason is that systemic risks rarely occur by themselves but are part of a wider set of events; therefore, the prospective identification of potential scenarios will provide possible combinations of events that make sense for the analysis. In those scenarios it remains possible, and is actually quite recommended, to pick {probability x impact} combinations that are different from what would be considered conventionally, while remaining overall consistent.

General remarks on protection against systemic risks

Contractors vs Owners

Contractors will generally tend to be extremely risk adverse because of their limited balance sheet and will not consciously take on any risk which may jeopardise their continued existence. This perspective is made easier by an involvement over a limited timeframe. In the case where they have to take some of those risks to get business, they will generally price it in their offer or as part of a portfolio level risk. This pricing will be based on deciding on a conventional {probability x impact} factor and associated contingency calculation or provisioning an amount to cater for the full impact (for example for a risk transferred from a client to a contractor). A large part of their protection is to be nimble in the face of the occurrence of systemic risks, taking early organisational decisions in case they occur, and managing their portfolio averaging out business conditions over a couple of years.

Owners (or contractors building and renting out assets) have generally a much stronger balance sheet, assets and continuous revenue streams and are thus more robust against systemic disruptions. At the same time, they need to consider systemic risks over a longer timeframe and with potentially a much larger magnitude. In their case, the portfolio-level protection and maximum natural hedging is an adequate strategy, which may lead to identifying diversification opportunities to compensate for excessive exposure in certain areas.

Recognising the residual business risk

No business venture is of course completely immune of the risk of doing business. Most systemic risks will result in residual business risks, which may be more or less dampened by the aforementioned methods.

Those risks and opportunities will generally end up being listed in the financial reports of public companies as risks that need to be known and understood by investors and followed by enterprise risk management systems.

Summary

Systemic risks require a specific treatment. Their occurrence is independent of the project or organisation management and only their consequences can be addressed. The best strategies are to avoid or transfer those risks, followed by internal hedging through diversification. Their evaluation will require specific techniques; they are generally assessed at the organisational or portfolio level, and prospective scenario-based analysis will be more effective than more traditional probability based techniques. Contractors and owners will generally have distinct strategies due to quite different involvement timeframes and strength of their balance sheet. Still, there is always residual risk in any business venture and the residual exposure must generally be publicised for investors to understand the risks they take.