
Risk Assessment: Brisbane Metro Project

Risk Assessment

Before beginning the Brisbane Metro project, it is important to perform a risk assessment. This will allow us to:

- Understand the possible risks that can be encountered during the project
- Pinpoint the sources of each risk involved
- Determine the likelihood of occurrence and severity of impact tied to each risk
- Plan ways to respond to and control these risks

Before beginning the risk assessment/management process, project managers may elect to confer with their team, stakeholders, customers and experts to determine the best way to approach risk management for their specific project. There may be limits to the amount of risk a stakeholder will allow before rescinding their offer to buy-in to a project, and thus it is important to speak with all people involved to gauge what the limits of the project are. Often, organisations will have dealt with similar projects before, and can use these experiences to guide them in their risk management tactics. Generally the risk management plan will detail the methodology that will be employed to assess risk during the project, including any models used, people involved and how often assessments will take place.

Risk Identification

The first step in the risk assessment process is risk identification, where the project team work together to create a list of the known risks in the project. Making an early effort to recognise potential risks tied to a project can help aid an organisation with structuring their project and its timeline to work around problem areas, and may also enable the company to hand some risks off to contractors through their contract strategies. Any and all risks should be considered in this process, regardless of how severe or likely they are.

While many risks will be easy to identify (they may be day-to-day risks that the company already deals with), some will be unique to the project undertaken, and others will be harder to spot, flying under the radar for much of the project's early phases. As well as this, unforeseen setbacks and changes to the project can also alter the surrounding risks, or even add new ones. It is for these reasons that risk identification is regarded as an ongoing process, with risks being added and iterated as the project progresses.

Generally, risk identification is done using group brainstorming sessions and contractor interviews, analysing past projects and the WBS of the current project to identify any potential situations where an uncertainty may be present. Experts may also be consulted, however this usually comes at a cost. The use of analysis tools such as the Fishbone and Pareto diagrams may be beneficial to identifying risks, and approaching the analysis from different angles (root cause, checklist, SWOT analysis) can uncover new risks that we previously unidentified.

In the case of the Brisbane Metro project, the main risks can be broken down into three

categories: financial, contractual and operational. Some examples of the risks identified include risks of:

- Harsh weather extending the deadline of the project or damaging works
- A workplace accident
- A change in government policy effecting the project
- An exchange fluctuation adding cost to the project
- Delay in material procurement effecting the project deadline
- Redesigns being required to continue the project
- Fund exhaustion halting the project completely
- Noise pollution damaging the hearing of people on-site

Risk Quantification

The next step undertaken after identifying project risks is risk quantification. This process involves assessing the found risks to determine the probability of their occurrence as well as the severity of the impact in relation to the project's progression. This is important, as it will give the organisation an outline of what risks are the most important to focus on. In risk quantification, all risks are assessed taking into account the maximum possible impact and probability, assuming no corrective action has been taken prior.

Although some risks may introduce a serious threat to the project or even the organisation itself, their likelihood to occur may still be low, making them less of a threat than they are immediately believed to be. Similarly, low severity risks may have a high probability of occurring, requiring more attention to be paid to them. Table 1 below outlines the general approach to weighting risks.

Using the ranking system shown, some of the risks present in the Brisbane Metro project were assessed, detailed below in Table 2. For the sake of this assessment, the extent of the risk quantification was limited to just three risks (one of each type mentioned above).

The possibility of slight redesigns to the Brisbane Metro system is a very real possibility, and while it will not result in the project's failure, it may halt progress completely and cause delays. This causes it to fall into the medium probability and medium severity categories, giving it an over risk rating of 12 (medium). Similarly, work accidents have a medium severity, with the potential to slow project progress and possibly incur a legal monetary cost, however this has been deemed to have a low probability of occurrence, giving it a low-medium (6) overall risk rating. Finally, a fluctuation of the global currency exchange is expected during the project's lifetime with an almost 100% certainty, and with the potential to completely ruin the budget with hiked trading prices, the risk rating for this is considered to be high (20) without intervention.

Risk Response Planning

After identifying risks and ranking their need for attention, a risk response plan must be developed. The organisation will need to formulate plans to tackle all risks identified in the most effective way possible. Major risks should be mitigated if at all possible, while lower probability risks may be able to be ignored. The way that an organisation approaches their risk response can vary depending on the type of project and what resources are available to tackle the

problem.

Risks can be addressed in four ways: transferring the risk to another party via contracts, controlling the risk by altering processes to dampen/remove their effects, avoiding activities tied to the risk altogether or accepting the risk's possibility to occur and continuing on with the job.

Exchange Fluctuation

Monetary viability is often the final decider as to whether a project is cleared to proceed or not, and exchange fluctuation can be a source of unaccounted for cost. The stability of the currency exchange relies on the economic stability of the nation in which the project is being undertaken in relation to any nations from which the project may require purchases from. If the exchange rate of the Australian Dollar becomes unfavourable, this may negatively effect the project's cash flow.

The possibility of an exchange fluctuation is inherently uncontrollable by nature, with no real tangible way to alter the dealings that change the exchange rate of the AUD. As a result of this, the only way that the organisation can combat exchange fluctuation is to repay any loans taken and purchase any materials required at the earliest time they can. This will dodge any influence of the fluctuation and minimise the potential deficit associated with a decline in the value of the Australian dollar.

Work Accidents

With any civil construction project comes the need for manual labour to finish the job, which brings the risk of accidents in the workplace. Working on any jobsite can be dangerous, especially those that require heavy machinery or working in dangerous places, and the Brisbane Metro project is no exception to this.

Like the risk of an exchange fluctuation, the risk of a work accident is not something than can be completely removed from the project with the current technology, however it is possible to take measures to reduce the likelihood of this risk and transfer some responsibilities. Providing safety gear to all contracted workers will minimise workplace injury chances and placing insurance clauses into contracts will allow the transfer of some risk to contractors. Ensuring all workers are properly trained in any specialist activities may also aid towards reducing this risk's impact.

Need to Redesign

Sometimes problems can be found during the construction phase of a project which require a redesign of part of a project. This can be due to changes in government legislature and/or engineering standards, improper measurements or simply overlooked complications on a job site. When redesign is required, this incurs a cost for the project organisation, which can be accrued from delegating extra time to engineers to make new drawings, paying for council approval permits and tearing down any progress made on the project tied to the redesign if it was already underway before spotting the error.

For the Brisbane Metro project to deal with this risk, it is important to control the initial design

process well to ensure that no changes need to be made. Onsite surveying measurements will need to be spot on so that bus terminals may be constructed to the right size, proper weight calculations must be done to ensure that any load-supporting structures are able to carry the required weight plus extra and all drawings should be thoroughly checked by multiple parties before being approved for construction. This process may draw the project's completion date out to a later date, however these measures will allow the organisation to avoid backpedalling on their project and bleed less money from wasted time/resources.

References

1. National Healthcare Group, Lindsey, M., & Emslie, S. (2010). Implementing Enterprise Risk Management across NHG. Retrieved September 22, 2019, from <https://slideplayer.com/slide/9323020/>