**RISK MANAGEMENT PART II**

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# Introduction

In the report about a new regional railway fleet project introduced by the New South Wales Government, the risks and their probable treatments have been discussed. A risk management plan chart has been given which identifies potential risks and measures to manage or mitigate them. The project responsibility is given to Momentum Trains who will design and structure the train fleet project as well as see over the maintenance facility, which would maintain this fleet effectively. Suitable recommendations for developing the fleet and justifications regarding the chosen recommendations are stated. These justifications would analyze in detail why they said recommendations are suited to the project in question. The regional coach and rail services are monitored and controlled by NSW Train Link who is also the authority who will be operating the new fleet.

# Treatment of risks

The risks, which have been identified, need to be provided adequate treatments or responses in order to either manage or control them. The elements relating to risk responses or treatments involve avoiding, optimizing, transferring or maintaining the risks. The internal risks are related to project management, organizational operations, stakeholders, and sponsors. Whereas the external risks might be from the environment and other miscellaneous factors (Moura et al., 2017).

***Treatment /responses to internal risks:***

* Project management risk measures include monitoring any issues, which have the ability to stall the project. Stakeholders have to be identified in time and their opinions have to be considered so that nothing is missed out while creating responses that suit a particular risk (Martin, 2018).
* Project management internal risks also include financial related issues like fewer funds, the liquidity of assets, and confiscation of assets due to non-payment of dues. Financial issues also involve improper allocation of funds and unutilized funds being wasted.
* To solve financial issues, strategies related to financial management have to be implemented by a finance expert. The contract holders have to see that financial issues do not result in the compromise of quality.
* Treatment plans for other issues like getting sponsors for a project involve much research. Adequate sponsor hunting requires planning and design. Sponsors need to be informed about the project design, structure, and how it is to be implemented. A model or blueprint of the project is to be made by railway engineers and designers. Such a blueprint would help sponsors assess the magnitude and importance of the project. Sponsors generally give their nod to projects, which involve fewer risks, and bottlenecks, therefore risk treatment strategies have to be implemented accordingly (McDonald & Dean, 2016).
* There are issues in long and short distance railway networks. The risks are related to building a conventional railway network while also maintaining synchronization with main radial routes of railways. To solve this, railway networks need to be developed individually for each sector, urban or local. Multi- railway networks need to be seamlessly integrated into a united system so that both regional and urban railway services can interact and result in positive economic growth (Arabian & Chan, 2017).
* Organizational operation related risks include timely and accurate transport mobility. Timeliness and accurateness in transport like railway systems go a long way in improving the overall infrastructure of a country's economy. Passenger information systems have to be developed in an orderly manner so that passengers do not miss out any notable information. A passenger information system can be improved by digital voice announcement systems that work automatically when a train schedule is on time, or way behind schedule (McDonald & Dean, 2016).
* Internal risks can be treated by modifying any negative outcomes, which can come from any inherent risk. They can be avoided by stopping or eliminating any activity, which has the potential to cause problems in the overall operational management. Risks can be shared with any stakeholders who can manage or handle the risk effectively. It has also to be kept in mind that not every stakeholder can manage risks effectively. Outcomes of the results can be modified by meeting with the sponsors so that outcomes do not affect the project management in any manner (Arabian & Chan, 2017).

***Treatment/responses to external risks:***

* External risks as mentioned come from external factors like environment, functional or any other factors. Environment factors include climate change, functional factors include engine or track related issue, and other factors might be political or sociological.
* The treatment or responses to external risks that are related to the environment include running the new fleet on bio-fuels or eco-friendly fuels. Emission standards have to be improved in the new fleet, which would control pollution and enhance the durability of the fleet.
* There has been a shortage of skilled railway workers who can create and implement the project after final drafting has been done. Workers need to be appointed and trained so that the project is completed in time along with efficient handling of the same. Such issues involve sociological factors (Arabian & Chan, 2017).
* Climate change is such a factor, which cannot be avoided or cancelled in any manner. Therefore, the new fleet of regional rail has to be designed in such a way that it is protected from any natural calamity that may arise while the fleet is on the move. For example- Australia is prone to high humidity and heat conditions most times of the year, the railway fleet has to be designed in a way, which evaporates the humidity and does not let it circulate inside the compartments (Jagan & Zhu, 2016).
* A rise in sea levels and drought conditions might affect the functionality of the fleet, therefore, periodical repair and checking might help in knowing about any damages that can cause the fleet services to disrupt. Functional risks like engine or track related issues could be treated by modifying or upgrading the systems from time to time.
* The consequences of these external risks can be controlled or modified so that these risks do not cause any problem later. For example- if the engine of any railway fleet develops a snag, there should be provisions for a quick replacement of that faulty engine, wherever it is presently halted. Political risks include war or any turmoil within the country due to which railway services can be disrupted. In the case of such a situation, the new fleet might be damaged; therefore, precautionary measures should be taken beforehand (Rathinam, 2017).
* The risks, which cannot be treated even after control or mitigation measures have been applied, are known as residual risks. Such residual risks sometimes are not considered significant if they do not affect the overall functionality of the project. If such residual risks by any way affect the functionality and the project, then steps ought to be taken to mitigate or at least control it (Jagan & Zhu, 2016).
* The older fleet is more than thirty-year-old and therefore it has to be seen that no older design is kept, and the design needs to be new and improved that suits the infrastructural as well as transport situation of contemporary Australia. Such an issue involves functionality as well as organizational risk factors that need to be treated on time.

# Risk management plan

Western Australia is looking to develop in every mode of transport in the city. The most effective and reliable system is the railway. NSW government is looking to manipulate the project of introducing new and innovative trains for Australian citizens. These trains will differ from the older trains that are of the design of 25 to 30 years old. The risks in implementing the project would be surely a major concern to resolve. The project management team needs to have proper strategies to evaluate each of the issues and conflicts rising in the method of the implementations of new trains (Wong, Hughes & Long, 2016).

The projects could lead to the development of the overall railway infrastructure in New South Wales area as well as the whole of Australia. The government is planning to connect the completely western side to other parts of the country. Major issues standing in front of the project could be:

* Train tracks improvement.
* Rail infrastructure development shrinking down and low facility services.
* Mechanical structure design and implementations to prevent any loco or wheel and axle related faults.
* State background issues in projects planning
* Stakeholders assimilation and providing satisfaction to every stakeholder

In the context of the risks associated, the most prominent problem would be customer service providing (Warmerdam et al., 2017). The trains that are in process should exercise every possible improvement to avoid any situations or issues that the passengers faced in previous days. NSW government has some strict regulations for the project manager and the team regarding the proper accumulation of every machines and service throughout the project. Electric engines are the new innovations of railway worldwide. However, it is providing quicker, cheaper and reliable service; but it still has various trouble factors when comes to its maintenance.

The overall train engine is based on the mechanical design and electric drive system. The system includes various machines and continuous electric supply to run and serve the passengers. The most appropriate strategy that the project should have is the proper scheduled maintenance of the loco and the train coaches as well. Delicate failures can also lead to the entire collapse of the service and a very dreadful situation. The wheels and axles should be properly fitted thus to ensure no chances of wheel adhesive occurs during the journey. The passengers are well aware of their comfort and the railway should provide proper passenger satisfaction service to them in order to be more reliable in future (Rathinam, 2017).

NSW railway fleet management should produce strategic plans, which can meet all the required needs of the passengers and the system (Michel, 2018). A risk management plan is the execution of all probable resolve methods that the projects can have to implement it in a risk-free status. Moreover, Western Australia should produce the correct tender and provide the project to an experienced contractor who can modify and improve the railway fleets.

A strategic risk management plan has been tabularized below mentioning the possible causes, their effects, the other consequences that can be formed, and the recommendations of improvement that NSW railway should undertake to benefits the passengers.

**Risk management plan:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Possible Defects** | **Effects of failures** | **Related Consequences** | **Improvement Strategies** |
| Brake actuators failure | The actuators for a time fails to perform and cause a failure in the braking | Trains can overrun and collide with platforms or even can run over in local areas causing hazards that are more serious. The simultaneous failures of these actuators can cause serious drawbacks and the train mechanisms could fall in major trouble at a later time (Martin, 2018). | The actuators need to be checked on a regular basis. The overall infrastructure can fall in trouble if the brake actuators did not work properly. NSW railway needs to implement better performance enabled brakes in the train. |
| Railway Electric loco failure; wheel adhesion | The trains will fail to start and run smoothly. The wheels adhesion can cause the trains to leave the line during running. | Electric loco is the most important part of a train infrastructure. Loco failure leads the whole train system to fail and the passengers can fall in a serious condition. The wheels adhesion of trains is a technical failure and leads to heavy accidents causing the trains to even roll over from the track. | The new fleet management plan of the old trains should execute proper functions of the train loco. The railway infrastructure development should carefully impose the wheels to be properly inserted and the parts are adjusted tightly (Newman & Bird, 2017). |
| Accessibility issues and train coach arrangements | Improper seat adjustments and train coaches are required for maintaining proper functionality in the train coaches. | Senior citizens should be provided proper wheelchairs to travel on the train. Allotment of bio-toilets is a common factor and need to be implemented on every new train for further improvement. | NSW railway fleet management projects will be undertaking every possible to remove any sort of comfort related issues for the passengers. |
| Stakeholders issue and sponsors risks | Project management will hamper in the midway. The plan will not be implemented if the investors are not ready to invest in the project. Sponsors without proper project approval and aim notifications cannot come to support the project. | Risk regarding governmental regulations and managerial conflicts can arise. Service or workers and other investors may stop without any proper consent. | The project managers should conduct proper meeting regarding the project and the resolve criteria of all the issue regarding the project and investors. |
| Bogie assembling | Affected bogies structure could lead to the collapse of the two bogies in connection. | A disabled and displaced bogie from running train can run towards anywhere and anytime the accident can occur. | The fleet management team should properly diagnose the bogies of the trains and make it remain strongly attached and prevent further issues. |

**Figure 1: Table showing risk management plan**

(Source: Self-generated)

# Recommendations

The project management regarding the NSW regional railway fleet involves intensive planning and research. The project has to be designed keeping in mind sociological, economic, and ecological and other factors, which might pose inherent risks as well. The possible risk treatment/responses have been mentioned above. In this section of the report, possible recommendations to help in the proper development of the railway project by the NSW government have been discussed.

The recommendations are as follows:

* The NSW railway fleet management project should provide proper manipulation of their available resources for implementing the fleet management in railways. This will surely benefit passengers on a daily basis. The most important reason for the recommendation is to enable the project manager to employ their workers properly to ensure smooth finishing the project. Resources in terms of capital, investments, sponsors, and materials are the common factors to be highlighted. The manager should employ each resource properly and allow the smooth process of the whole manipulation process for good results (Freeman, Banks & Davey, 2016).
* The fleet management should include the improvement of the berths and the seats inside the coaches of the trains. The most sensible and appropriate approach to passenger satisfaction will enhance and motivate the railway infrastructure to grow heavily. The Australian people look to move forward to the transport system the better will be their improvement in the world creating a trademark in the field of transport.
* Further improvement is recommended in the electrical and mechanical parts of the trains. New trains should include every possible evaluation in each part of the train running systems. Even a small careless approach can lead to the loss of several lives and the reputation of the NSW railways will decrease drastically. The project management team should aim to provide the best possible solutions to the passengers in terms of protection, safety, and service. Every coach should have bio-toilets arrangements fitted in and there is CCTV surveillance for the protection. CCTV protection is a must improvement as it provides general solutions for the passengers at the journey (McGregor & Hammer, 2016).
* Identifying potential risks and their mitigation is one of the most important requirements of any project management plan. Post identifying what involves is chalking out adequate measures. In the context of the railway fleet project, risks have been identified but there might remain some issues, which might go unaddressed. Such issues need to be given in writing to the project manager so that they can implement suitable measures.
* Another integral part of recommendations for this project includes mitigation of the project risks on time. Mitigation might not always mean that risks might be reduced completely. Risks related to environmental as well as political factors might always remain and the project has to be designed in such a way that such emergencies do not affect it (Thompson, Newnam & Stevenson, 2015).
* Risks cannot be avoided even if it is wanted badly. Therefore, risks factors as if financial as well as sociological have to be monitored and managed wisely so that they do not affect the project in any manner. For example- workers need to be trained from time to time so that they are adjusted with the new machinery and technical systems of the railway rakes. A pilot run of the fleet can be conducted so that any problems or issues can be identified before it is opened for public services.

**Justifications**

The recommendations and solutions mentioned above are a point of view of the whole situation of the NSW railway corridor. Effective solutions to the problems are a way to improvement in the context of fleet improvement in Western Australia. Basic requirements like the seats and the toilet facilities, wheelchairs for senior comfort and the CCTV footage for protection is highlighted in the paper (Banks, Freeman & Davey, 2016). From people's point of view, Australian railway should grow technically and be renowned in the world. The risk management strategies are a step ahead of making the railway system better and hygienic.

These recommendations have been chosen, as they are significant in managing risks with respect to the regional rail fleet project by the NSW Government. The risk management plan chart, as well as treatment measures, has been undertaken while recommendations were stated. The visible risk factors need to be taken into account along with invisible risk factors, which can anytime cause problems in such a significant project as the regional railway fleet project (McGregor & Hammer, 2016).

# Conclusion

The NSW railway industry is undertaking noteworthy efforts and improvement in concerning risk-informed processes to bear resolution making. A figure of those approaches has been discussed in this paper. Every railway infrastructures are under immense pressure to amplify track employment and an aim to improve safety. For this risk management processes are developed.

These allow episodic maintenance necessities to be done in the proceeding of track failure and concerns, and the risks are identified and qualms can be considered within the management process. Therefore, for those applications in the railway industry, there is a short of data necessary for exact analyses. More than often expert view is used to enhance the available information. The most significant risk management tools and the related summative recommendation have been provided with a table. It could be in particular relevant to the railway industry as it allows the qualms associated with the project to be dealt with.

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