Dealing with risk and uncertainty for better transportation infrastructure megaprojects development. Lessons learnt from Portugal

Summary

Transportation infrastructure megaprojects involve complex networks of interconnected risks which often impact megaprojects' outcomes. Failure in developing the megaproject according to its objectives can come at a high cost to the country economy because it is typically a capital-intensive investment and has visible impact on society, resulting in great changes in mobility and land-use patterns that last for decades, even centuries. The true is transportation megaprojects frequently have not been successfully delivered on-time and on-budget, presenting traffic demand far below forecasts, which have resulted in a negative image to the sector. Literature has investigated this poor performance, case studies and storytelling has been presented, but not so much about the reasons behind such underperformance; the reasons why this frequently happen, their risks and uncertainties during megaproject development, or even the way to handle such underperformance. There is still a long way to go in this subject and it is still important to understand i) which issues have real impact on transportation megaproject objectives and their outcomes and which may jeopardize the success of those projects, ii) this is it a continuous situation over time or there has been any kind of learning and improvement when developing those megaprojects, and iii) how project managers have dealt with all this uncertainty during transportation megaproject (risk) management. Finally, an abridge Risk Management framework and a Risk and Opportunity Management Plan are designed as a guide-template for decision/project makers when managing megaprojects of same category.

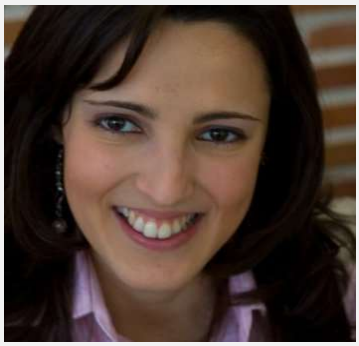
Main results from quantitative data highlight no statistical evidence of dissimilarities on traffic demand forecasts biases between highways and railways, and both are high. There is no evidence of relevant effects of cultural issues on megaproject outcomes, except that Non-European megaprojects show more inaccuracy in traffic forecasts than the European ones. Also, megaprojects in which the private sector is present do not show different project traffic demand overestimation when compared with public funding megaprojects. However, they tend to be delivered more on-time and within budget, despite the existence of overruns. There is no evidence of a positive evolution over time in terms of megaproject performance, as more recent megaprojects do not significantly differ from the older ones in terms of cost, schedule, and traffic demand forecasts accuracy. These conclusions support the claims found in previous literature.

The Portuguese experience shows that project risk management has not been formally integrated with project management, and it has been mostly used only in case of strategic decision-making or critical decisions. Nevertheless, there has been a significant improvement on the knowledge on the subject through all these decades. The laws are now more detailed and regulated. Project managers are more aware and have more attention on risk management on those projects. However, while in several countries risk analysis is performed in detail since the beginning of project life cycle, in Portugal this analysis is still poor and risk is not well registered and analysed in practical terms. The little risk analysis done is very focused on the risk management of the company's assets and not so much on the project itself. Risk management in Portugal is very focused on the operation phase instead of the front-end. Political pressure, optimism bias and unclear megaproject objectives and scope are the main uncertainties stated by experts and interviewees and that have impact on Portuguese transportation megaprojects performance and their outcomes' success, following the international experience described in literature.

At the end, it seems that there is a kind of learning about the reasons for poor performance in transportation megaprojects management, although not well described and registered for future improvement. Greater transparency in the contracts should exist as well as the awareness about the importance of dealing with risks and uncertainties for better transportation infrastructure megaproject development. Despite the improvements over the past years, there is still a long way to go if we want better transportation megaproject outcomes and successful transportation megaproject management in Portugal.

Keywords

Megaproject, risk, uncertainty, transportation systems, case study.



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