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Shubhra Pande is an Architect with M.Arch (Construction and Project Management) and has 9 years of experience as an Architect and interior designer. Projects undertaken by her involves residential, commercial, institutional, retail and pharmaceutical projects based in Chandigarh, Delhi, Bangalore, Chhattisgarh and Uttarakhand. She was also involved in Mall planning of TESCO stores across Thailand and Malaysia.

She is academically involved as an Assistant professor BMSCA. Bengaluru. Her Research area of interest is in Construction and Project Management and tourism infrastructure development.

KNOWLEDGE MANAGEMENT THROUGH ARCHITECTURAL HISTORY AS AN EFFICIENT TOOL FOR RISK MANAGEMENT OF HERITAGE TOURISM INFRASTRUCTURE DEVELOPMENT PROJECTS

Abstract

Heritage tourism plays a major role in the development of Indian tourism industry. While the importance of tourism infrastructure development is evident, there rests a research gap on a specific approach and vision for tourism infrastructure project management. The research paper is a response to the need for a specific vision and approach towards the development of heritage tourism infrastructure projects through implementation of knowledge management parameters. It examines the need for understanding the architectural history. It further evaluates the impact of architectural knowledge based risk management, on the inclusive and sustainable heritage tourism infrastructure development. This study includes analysis of existing research to identify and document the role of knowledge management in enhancing the performance of tourism infrastructure development projects. The paper aims at understanding importance of architectural history as an efficient tool for risk management of heritage tourism infrastructure development projects.

Keywords

Heritage tourism, history, architecture, project vision, adaptive usability.

1. Introduction

India come under the G-20, geographic group. Tourism Industry contributed to the FEE (Foreign Exchange Earnings) of 44 Lakhs in 2018 and FTA (Foreign Tourist Arrival) of Rs.89,693 Crores in 2018. During December 2019, Indian tourism revenue reached all time high of 3,177 USD million [1]. As per the World Travel and Tourism Council, “tourism generated 9.2% (16.91 lakh Crore) of India’s GDP and supported 8.1% (4.2673 Crore) nation’s total employment in the year 2018”.



Tourism is one of the agendas of UN sustainable development Goals. Tourism has the potential to support each of 17 sustainable development goals (like hunger removal, health, education, equality of gender, no poverty, clean water & Sanitation, affordable clean energy employment, sectorial innovation and infrastructure, climate action, sustainable cities and communities, peace and partnership achieving goals) [2]. Infrastructure development is required amongst all the products and schemes and thus an emphasis on knowledge based project management of tourism infrastructure development project is desired. In the specific case of heritage tourism projects the knowledge of architectural history amongst the stakeholders impacts the overall project scope and vision.

2. Heritage tourism infrastructure development project management.

Tourism and heritage have a complex relationship as the heritage is reinterpreted and reconstructed constantly in order to meet the changing demand of tourists. Heritage reflects the socio-cultural changes of the contemporary world by representing both, the tangible and intangible aspects of the past [3]. Most of the infrastructure projects related to heritage tourism include renovation and conservation of historical monuments and places.

Provision of proper tourism infrastructure is one of the primary driving forces for the tourism demand. This has resulted in various projects by public and government funds that aim at serving maximum population at the earliest.

The competition for increased state and national revenue has further increased the demand of “Project Management in Tourism Infrastructure” [4].

O.A. Burukina emphasizes that tourism Infrastructure is different from other construction projects due to its human perception-based demand. Heritage tourism involves consideration of several factors including culture, society, environment and historical importance of the project. Understanding of architectural history plays an important role in project management and improvement of the implementation process.

3. Risks involved in Tourism Infrastructure development projects.

The Tourism Infrastructure development projects in India varies largely in terms of scale and scope. The process of risk management involves a methodical approach of identifying the project risk followed by analysis and response. “The six steps of Risk management are: Risk planning, identification of risks, risk analysis (qualitative and quantitative), response planning, risk monitoring and control” [5]. The aim of identifying risks is to clearly understand them to ensure effective management [6]. This can reduce the risk to an acceptable extent [7]. A systematic web-based maturity model based on knowledge management can enhance the success of a risk management tool in an inclusive project.

The PMBok (2017) describes the input for risk identification stage as Brain Storming Sessions and/or Checklist analysis and output as the Risk register (Figure 1) [8].



International Infrastructure projects have been observed in a study to identify the key risks by using previously collected data and studies. The key risks have been categorized using the Risk Breakdown Structure. After analysis of the checklist, the Risk register is prepared based on risk priority and categorization. These include technical, financial, external and project management Risks. Figure 2 shows the priority of different risks types identified in the infrastructure projects. The risks implemented by an organization of contractor in an infrastructure construction project, represent internal risks. Internal risks include project management

risks, technical risks, financial risks, organizational risks and environmental risks.

The risks external to the constructed infrastructure environment represent External risks [9].

Each step of risk management process in the heritage tourism projects involves the consideration of architectural history related to that project. This knowledge can be implemented during the planning and mitigation of several internal and external risks by strengthening the risk identification process.



Figure 1: Risk Identification Process
Source: PMBOK

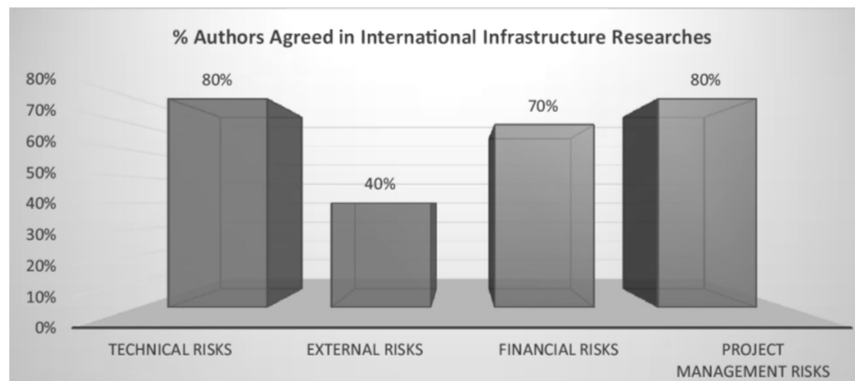


Figure 2: Percentage of Authors agreed and infrastructure Risks Categories in International Studies.

Source: Khodeir, L.M. and Nabawy, M. Identifying key risks in infrastructure projects—Case study of Cairo Festival City project in Egypt.

In the case of mega projects, nine main risks have been identified and allocated to stakeholders based on the study of existing research papers as shown in Figure 3 [10].

Type of Risk	Stakeholders					
	Public sector	Management Company	Construction Company	Shareholders	Financial institution	Consultants
Design	✓	✓		✓		✓
Legal/Political	✓	✓		✓		✓
Contractual	✓	✓		✓		
Construction			✓			
Operation		✓	✓			
Labour		✓	✓			
Clients/users/society	✓	✓				
Financial/ economic		✓		✓	✓	✓
Force Majeure	✓	✓	✓			

Table1: Transfer of Risk allocated to stakeholder

Source: Irimia-Diéguez, A.I., Sanchez-Cazorla, A. and Alfalla-Luque, R. Risk management in megaprojects.

4. Knowledge management in risk management of infrastructure projects.

The main steps included in a risk management process are: (1) Risk planning; (2) Risk identification; (3) Risk assessment (qualitative and quantitative); (4) Risk analysis; (5) Risk response; (6) Risk monitoring, and (7) Risk management process record and documentation”, (ISO 31.000, 2009; Baloi and Price, 2003). Construction projects are influenced by the triple constraints for quality (time, Cost, scope) [11] and involve both internal and external risks [12]. However, these risks are not communicated throughout the construction supply chain in a consistent, complete and efficient manner [13]. Alfredo Federico Serpella (2014) suggests a useful and interesting framework

based on knowledge management approach aiming to reduce the risk management process deficiencies.

This can be achieved using tools like the Risk management maturity model (RMMM). It is created and designed to gauge the risk management capability of an organization (Hopkinson, 2011). The gaps detected in risk management function (RMMM) of organization are then related to the best practices and ways of improvement. A Continuous addition and improvement in the knowledge base shall be ensured [14].” Dysfunctional culture, ineffective controls and unmanaged organizational knowledge are identified as the three main causes of risk management failure [15].





Figure 4: Key evaluation factors in project management and their dimensions.

Source: Marshall, C., Prusak, L. and Shpilberg, D., Financial risk and the need for superior knowledge management.

Hsu and Shen (2005) describe about knowledge management as an organized and systematic approach that can support the underlying business by enhancing the decision making, action taking and result delivering of an organization through improving the ability to mobilize knowledge [16]. Knowledge management helps to store, share and distribute the information amongst all the stakeholders. It impacts the careful management and decision making by the analyzing the project information and knowledge [17]. In tourism development projects knowledge management for the use of key evaluation factors and their level (Figure 4) can help to achieve efficient, inclusive methodologies and resource availability, leading to a positive impact on the cost, time and quality of the project. The knowledge of architectural history enhances

the development through the experience in risk management.

5. Knowledge management in risk based inclusive PPP development.

Tourism infrastructure development in Indian context aim at optimizing the use of available resource (human, financial and material) and make it inclusive, while incorporating latest technologies that demand high funds that can be arranged through PPP models. Risk management of these models is a priority task, as this can severely affect the cost and duration of the project. The major risk categorization for heritage tourism PPP projects includes structure construction risks, project preparation risks, structure utilization risks and risks of changing the approved PPP model [18]. The solution given by the author is the awareness and contribution of public

developers and structure users in the preparation stage. Emphasis is laid on defining the design task clearly along with the functional, technical, and energy framework of the structure. In the construction stage the vital monitoring regardless of the risk allocation has been suggested.

The solutions to risk management in PPP models, emphasize the need for Knowledge management and identification of technical and financial risks in redevelopment projects. The understanding of architectural history can help in analysis of various social, cultural, technical and environmental aspects of a project. It further emphasizes the need to understand the adaptive usability of this infrastructure in terms of architectural and structural design. The risk structure in public infrastructure PPP project, aims at identifying all hidden risks under various categories [18]. Figure 5 shows the systematic approach towards risk management process [19].

Consideration of architectural history by the stakeholders can enhance the project funding by realization of the public interest and predict the future financial returns during the operational stages. Also, the possibility of adaptive reusability of the space can be evaluated based on the comparison of historical cultural and social parameters with the present supply demand scenario for heritage tourism infrastructure projects.

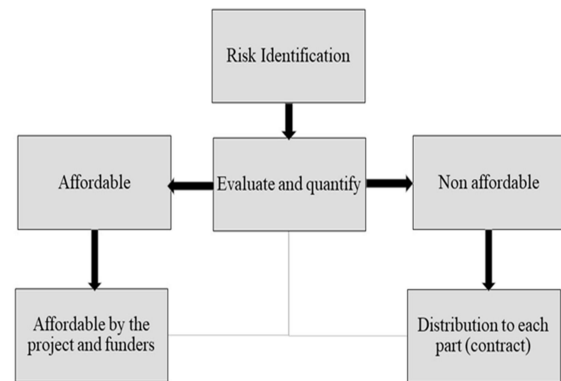


Figure 5: Risk management process

Source: Irimia-Diéguez, A.I., Sanchez-Cazorla, A. and Alfalla-Luque, R., Risk management in megaprojects

6. Conclusion

- The heritage tourism infrastructure projects in India include conservation and redevelopment projects that require consideration of additional risks pertaining to PPP model and structural needs.
- The study emphasizes the need for a systematic approach for risk identification through knowledge management that involves knowledge of architectural history along with other historical factors influencing the stakeholders, culture, and society and funding mechanism.
- It also emphasizes the importance of timely communication amongst all the stakeholders through knowledge management, thus considering the role of documentation of architectural history.
- Tourism infrastructure projects involving existing building requires consideration of additional external (Ground -building relationship) and project risks (project realization risks). This can be achieved by including team members with expertise in architectural history.

7. References

1. Ministry of Tourism Government of India, *Annual Report 2018-19*, January 2018-March 2019.
2. Burukina, O.A., 2019. *Project management in the tourism industry: the basics of TMBOK. WORLD* (Modernization. Innovation. Development), 10 (1), pp. 26-37.
3. Hyung yu Park. *Heritage tourism*. New York, 711 Third Avenue – Routledge.
4. Panasiuk A. *Tourism infrastructure as a determinant of regional development*. *Ekonomika ir vadyba: aktualijos ir perspektyvos*. 2007;1(8): 212-5.
5. Dey, P.K., *Project risk management using multiple criteria decision-making technique and decision tree analysis: a case study of Indian oil refinery*. *Production Planning & Control*, 23(12), 2012, pp.903-921.
6. Mojtahedi, S.M.H., Mousavi, S.M. and Aminian, A., December. *Fuzzy group decision making: A case using FTOPSIS in mega project risk identification and analysis concurrently*. In 2008 IEEE International Conference on Industrial Engineering and Engineering Management, 2008, (pp. 1769-1773). IEEE.
7. Tohidi, H., *The Role of Risk Management in IT systems of organizations*. *Procedia Computer Science*, 3, 2011, pp.881-887.
8. Project Management Institute and American National Standards Institute. *A guide to the project management body of knowledge*. *Project Management Institute.*, Ed. (6), 2017.
9. Khodeir, L.M. and Nabawy, M. *Identifying key risks in infrastructure projects–Case study of Cairo Festival City project in Egypt*. *Ain Shams Engineering Journal*, 2019.
10. Irimia-Diéguez, A.I., Sanchez-Cazorla, A. and Alfalla-Luque, R. *Risk management in megaprojects*. *Procedia-Social and Behavioral Sciences*, 119, 2014, pp.407-416.
11. Visser, K. and Joubert, P., July. *Risk assessment modelling for the South African construction industry*. In PICMET'08-2008 Portland International Conference on Management of Engineering & Technology (pp. 1371-1379). IEEE, 2008.
12. Khodeir, L.M. and Nabawy, M., *Identifying key risks in infrastructure projects–Case study of Cairo Festival City project in Egypt*. *Ain Shams Engineering Journal*, 2019.
13. Tah, J.H.M. and Carr, V. *Knowledge-based approach to construction project risk management*. *Journal of computing in civil engineering*, 15(3), 2001, pp.170-177.
14. Serpella, A.F., Ferrada, X., Howard, R. and Rubio, L., *Risk management in construction projects: a knowledge-based approach*. *Procedia-Social and Behavioral Sciences*, 119, 2014, pp.653-662.
15. Marshall, C., Prusak, L. and Shpilberg, D., *Financial risk and the need for superior knowledge management*. *California Management Review*, 38(3), 1996, pp.77-101.
16. Hsu, S.H. and Shen, H.P., *Knowledge management and its relationship with TQM*. *Total Quality Management & Business Excellence*, 16(3), 2005, pp.351-361.
17. Sommerville, J. and Craig, N., *Implementing IT in construction*. Routledge, 2006.
18. Car-Pušić, D., *PPP model opportunities, limitations and risks in Croatian public project financing*. *Procedia-Social and Behavioral Sciences*, 119, 2014, pp.663-671.
19. Irimia-Diéguez, A.I., Sanchez-Cazorla, A. and Alfalla-Luque, R., *Risk management in megaprojects*. *Procedia-Social and Behavioral Sciences*, 119, 2014, pp.407-416.