Assignment 2
MG4205- Project Management

Academic Report

On
Lusail Stadium Construction
For
Understanding Project Management

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Introduction:

For FIFA 2022, the Qatar govt built the Lusail stadium for the opening and final match. This Project started in the year 2010 and has completed in 2021. This report discusses supply chain, procurement, Lean strategic tools, Stakeholder engagement and risk register and changes in management processes in the development of Lusail Stadium.

Supply Chain in Project Management:

Supply Chain is a network of individuals, companies, resources, and technology involved in creating a product or service (Maylor, 2010). In an iconic construction project like Lusail Stadium, the supply chain's key components are Architects, engineers, Contractors (General Contractor, Subcontractor), Organisers, construction other raw material suppliers, equipment suppliers, technical solution providers and many more (Bankvall et al., 2010). The performance of supply chain can be measured by supportability and readiness.Supply chain management flows information, material, and finances from supplier to contractor to the owner (PMBOK guide,2017). Delay in any information flow can impact the rest of the processes. Similarly, any delay or lack of finances can compromise quality of the project. Lack of supply chain orientation can result from on-site problems of material flow, internal communication, and external communication (Thunberg et al., 2017). According to Eriksson (2010), implementing lean strategic tools across the project's life cycle, improves construction supply chain collaboration and performance while also attaining project's aim. Lean, on the other hand, may represent a trade-off between increased process efficiency and the customary short-term focus on cost reduction(Eriksson. E, 2010). Therefore, long-term contracts play an essential role in efficient supply chain management.

Stakeholder analysis:

Fig 1: Stakeholder Map(SCDL-Project Profile, 2018)

Risk Register with probability impact grid

Probability Impact Grid:

Probability Impact Grid						
Impact		Very Low	Low	Medium	High	Very High
Probability	Very high	Moderate	Severe	Severe	Critical	Critical
	High	Sustainable	Moderate	Severe	Critical	Critical
	Medium	Sustainable	Moderate	Moderate	Severe	Critical
	Low	Sustainable	Sustainable	Moderate	Severe	Critical
	Very Low	Sustainable	Sustainable	Sustainable	Moderate	Severe

Fig 2: Probability Impact Grid(Appendix 1)

Risk Register:

R.ID	Risk	Probability	Impact	Severity	Mitigating Strategy	Probability	Impact	Severity
	Design Risk							
1	Structural Design Defects	Low	Very High	Critical	**Employing a Virtual Simulation tool to find the consistency of design; Positive change may lead to better structural design.**	Very Low	Medium	Sustainable
2	Small construction staging area	Low	High	Severe	**Following Just in time Lean Approach in Raw material purchasing**	Very Low	Low	Sustainable
	Risk Related to Supply chain Management							
3	Sudden Inflation in Raw Material Prices	Medium	High	Severe	**Planning Budget including tentative inflation in supplies**	Low	Medium	Moderate
4	Poor Quality of Raw Material	Medium	Very High	Critical	**Terms and conditions for contact must include claims to recover loss of time and material and poor performance.**	Low	Medium	Moderate

5	Wrong Inventory	Medium	Very High	Critical	**Monitoring procurement planning according to the WBS and Network Diagram of the project**	Low	Low	Sustainable
6	Poor Vendor performance	Medium	High	Severe	**Applying Stakeholder maps for engagement and using controlling and monitoring tools; utilising proper communication and, if necessary, terminating the contract and hiring a new vendor**.	Low	Medium	Moderate
	Governance and Management Risk							
7	Delays in approvals due to political issues	Medium	High	Severe	**Including some slack time while planning for getting approvals etc.; Utilising people's skills**.	Low	Low	Sustainable
8	Organisers Attractions(Scope Creeps)	Low	Low	Sustainable	**Accept changes that could be implemented within cost, time and quality constraints; Exploit the opportunity to find better ways for project development.**	Very Low	Low	Sustainable
	Financial Risk							

9	Delays in Financial decisions	Low	High	Severe	**Maintaining some spare Finances for urgent use; Teams should pre-plan their expenses, which must be communicated prior.**	Very low	Medium	Sustainable
10	Legal Issues due to unclear Claims	Medium	High	Severe	**Proper documentation of every communication; including the addendum clause in the contract**	Low	Medium	Moderate
	Miscellaneous Risk							
11	Cyber Attack	Low	Low	Sustainable	**Making the system more secure using the latest firewalls; using two-step authentication**	Very low	Low	Sustainable
12	Terrorism	Low	High	Severe	**hiring trustworthy security; taking protection from local government**	Low	Medium	Moderate
13	Pandemic/ Natural Disaster/Fire And	Low	Medium	Moderate	**Following the response guideline for natural disaster and accident management and training staff according to guidelines.**	Low	Low	Sustainable

	accidents at Site							

Fig 3: Risk Register for Lusail Stadium

Procurement:

The objective of procurement management is to acquire products or services at competitive prices with favourable terms and conditions to meet the project's needs. Procurement successfully manages supply chain risks through negotiating contracts, cost and price models, quality, and other essential supply elements. (Lysons and Farrington, 2020).

Procurement management has three main steps 1)Planning, 2) Conducting 3) Controlling (Maylor, 2010; PMBOK, 2017). *First, project planning necessities* are identified by arbitrating scope and WBS(Work Breakdown Structure); after that, potential vendors and service providers are identified. Planning procurement involves documentation of procurement decisions, specifying the approach and identifying potential sellers (RFP, RFQ, RFI, IFB etc.). Furthermore, at this point, contract types in favour of the project have to be established.

The second step of procurement is carried out in accordance with the identified needs, which are published in order to invite bids(Maylor, 2010; PMBOK, 2017). For the development of Lusail stadium Govt. of Qatar formed a committee - Supreme Committee for Delivery & Legacy (SCDL) (SCDL -Project Profile,2018). The vendors who meet the selection criteria based on the scope and WBS are selected. This is a critical procurement stage because contracts are made between the organisation and the providers to satisfy the project requirements. For example, SCDL signed an EPC contract with China Railway Construction Corporation and HBK Contracting Company (SCDL-Project Profile, 2018). Because EPC project management typically deals with cost overruns, timetable delays, material supply delays, and productivity loss (Bajomo, Ogbeyemi, and Zhang, 2022).Construction delays are caused by funding, materials, contractual relationships, revisions, rules and regulations, workforce, scheduling and control, equipment, and environmental factors. The material delay is at the top of the list of risk (El-Razek. A et al., 2008). As a result, after the purchase is finished, controlling procurement becomes an important duty for the project manager. This is a three-step process where the project manager needs to track performance, make changes, and close contracts if required (Maylor, 2010; PMBOK, 2017). It becomes essential to define terms and conditions for making claims.

The different types of contracts, such as Fixed term, Cost Reimbursable contracts, and time and material contracts, are established in the interest of the project. Defining contracts, negotiating contracts, ensuring they are in place on time, and ensuring the supplier performs the contract satisfactorily are all difficult tasks (Lysons and Farrington, 2020). Therefore, contract openness and the addition of addendum clauses to update as needed and Legal teams are recruited for the same reason. Relationship management becomes critical in a long-term project like Lusail stadium to achieve good performance. The key to successful negotiations is ensuring that top executives from both companies actively participate in negotiations based on true commercial objectives because they have a shared commitment to sustainable growth (Lysons and Farrington, 2020). This could be performed by having clear communication, documenting, and updating change according to the project's scope. China Railway construction contractors were under the fixed term, which means the client has less say over the contractor in such contracts. Also, the benefit of entering a fixed term contact for a long term project is that cost control becomes the contractors' responsibility. Thus, the contractor must make risk-free arrangements to complete the project within the client's scope, schedule, and budget('Lusail stadium to be completed ahead of schedule', 2020).

Lean Strategic tool:

Lean is a Strategic tool of decreasing waste, continually striving to improve, and maintaining a production rate that meets the client's needs. Lean construction is the adaptation of lean production in the construction industry (Parfenova et al., 2020). The following are the major measures evaluated for the Lean approach: waste reduction; the just-in-time approach; a values-based strategy; continuous improvement; a quality management system; agility to necessary change (Erik Eriksson, 2010; Singh and Kumar, 2020). The principles of lean strategic tool are specified in the value map, value stream making, and value flow pull scheduling. These four will lead to the fifth one of seeking perfection (Harrison, 2019). To construct a project such as the Lusail stadium, a definite timeframe and design are required, as well as the right product at the right time in the right place. According to practitioners, the benefits of lean implementation include increased safety, shorter timelines, lower costs, more

profitability, and better risk management. (Forbes, Rybkowski and Tsao, 2021). Therefore, lean construction is the strategy which can optimise the construction of Lusail stadium within time, cost and performance constrains. ('Lusail stadium to be completed ahead of schedule', 2020). Lean construction arose as a reaction to dissatisfaction with low construction productivity, mistakes, delays, cost overruns, and safety. Lack of experience, a belief that lean is too difficult, and employee antagonism are all barriers to implementing lean on the job site. (Forbes, Rybkowski and Tsao, 2021). Thus, the human barrier is preventing the spread of lean in construction, which may be overcome by adopting an agile mindset, resulting in beneficial outcomes in the construction of the Lusail stadium (Watfa and Sawalha, 2021).

Stakeholder Engagement and Risk Register:

Stakeholders are the people or organisations interested in the project process or outcome. There are internal and external stakeholders for the project, the stakeholder outside the project but involved in the process or outcome are external stakeholders; the stakeholders that are part of the project are internal stakeholders. (Maylor, 2010). Project Stakeholder Management trends and emerging approaches include identifying all stakeholders rather than a select few and reviewing the stakeholder community frequently, sometimes in tandem with project risk assessments. Ensure that all team members participate in stakeholder engagement initiatives. Co-creation lays a stronger emphasis on including impacted stakeholders as partners in the team; and capturing the value of excellent and negative stakeholder interaction. The positive value may be generated by considering the benefits of increased levels of active support from stakeholders, particularly influential stakeholders(PMBOK,2017).

In the case of Lusail Stadium, allowing the contractor engaged to prepare the land for construction has a critical role at the start of the project, but his power is also limited. When the prescribed work is accomplished, his interest level drops from high to low. The enabling contractor was a critical participant at the start of the project. However, if the project site is prepared, the management will reduce stakeholder participation in the project and may watch them.

Risks are an unavoidable part of the project. There could be different types of risks, such as known and unknown risks arising at different times of the project. The active management of hazards is the focus of risk monitoring and control (Cretu O et al., 2011). For risk management, identifying the risk and analysing the probability of risk-

taking and its impact on the project are important steps (PMBOK,2017). A good way of risk management is to identify risk during the project's planning. Hence, monitoring risk response is adequate to monitor threats on the risk register, detect and phase out existing ones, updating or invent risk-response techniques (Maylor, 2010). Creating a risk monitoring strategy is one of the most effective ways to monitor risks and their solutions. A risk manager can use this tool to check in with the different risk owners to see how things are doing and to hold them accountable. Specific action plans outlined in the risk response strategy documents are documented, and dates for processes, meetings, and major milestones are established (Cretu O et al., 2011). Therefore risk register can help find a proper mitigating strategy within the cost, scope and schedule that could be performed. In the case of Lusail Stadium, the risk identified is the structural defect, which can affect all the constraints such as scope, time, and budget.

Change management

Change management is a systematic approach the deals with transformation of process objective or technology in our project. The four principles of change management are understanding, planning, implementing, and communicating the change. Change management is essential in project to mitigate risk or rectify the process for the better outcome that satisfies scope of project (Leflar, 2021). The change management could be related to cost control or for supply chain management or can be implemented in procurement.

According to Prosci ADKAR Model, the response of individual to a change refers to awareness desire knowledge ability and reinforcement(Karambelkar, M, 2017). In the process of change a resistance from people stakeholders are most likely because of the fear of unknown, lack of conviction, increased workload and change is perceived in a negative way, a project manager must therefore, use the situational approach(Kotter& Schlessinger, 1989) to manage resistance (Leflar, 2021).

A project manager requires good people management skill, communication good leadership and effective management skills. According to Beckhart and Harris, for a change to be effective, there must be enough dissatisfaction with the previous method and individuals must have faith in the new approach(Lewin, 2011). In the case of Lusail stadium, pandemic was an uncertain risk which required change management for successfully completing the project and a major change in the process of construction industry was introduced by reducing the number of employees at the site

and maintaining social distancing and following the W.H.O. rules for workspace. It led to resistance but by educating and communicating, participation in the methods and facilitating employees with sanitizers, face masks and PPE kits helped to successfully introduce change in the process and helped in timely completion of the project.

Conclusion:

This report shows that to manage a project like Lusail Stadium and bring desired results in a given time frame, a project manager needs to manage the supply chain to keep the processes running by efficient and prompt stakeholder management. Manage stakeholders from time to time; updating the stakeholder map is required. Relationship management is also one of the prior aspects of project management which could be achieved by proper channel of communication and designing suitable contracts depending on vendors.

The new strategic tool: lean is suitable for the construction industry; this can make projects sustainable but implementing lean with an agile mindset is beneficial. However, tools for stakeholder management and risk management are inevitable. Thus, maintaining a risk register can protect a project from failure. Also, for a project manager to manage change must be a leader as well as a team player.

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