

Building Construction and Solar Panels Set-Up Project: A Case Study of YTL Corporation

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Abstract

Project management refers to strategies and their implementation to obtain a specific objective. Purpose of this project is to elaborate the installation of solar panels and reviews its scope and performance.

Keywords

Project management, organisation, communication, evaluation.

1. Introduction

In this report critical analysis of project management plan of YTL Corporation in case of implementation of solar panel will take place. Purpose of this report is to get an overall understanding about the requirements for installation of solar panels in the construction project and its potential impact on the management of project.

This report will discuss about various types of scope management in the construction business and the management of time. Cost, quality and procure management will also be assessed in this report. Human resource management for the construction project and management of various risks at the workplace will also be discussed in this study to get a generalised idea.

2. Background of the Project

YTL Corporation is an infrastructure developer that operates in Malaysia. This organisation has total assets of about RM 71.3 billion. This organisation has link with contract of various constructions in Malaysia, manufacturing of cement, investment as well as development of properties in this country. Additionally, this organisation has direct link with the development of hotel business. Effective time management is the main key for this organisation as they always try to execute a project within a proper time frame (ytl.com, 2019). This helps the organisation to create a quality value in the market. Goals of this organisation are to maintain honesty, togetherness and vitality through maintaining moral responsibility and providing quality work. YTL has presently completed successful construction that is worth about RM 7.25 billion (ytl.com, 2019). Moreover, civil engineer of this construction organisation of Malaysia has completed a gas fired power plant within 22 months. This shows the capability of this organisation and time management to value for the money of consumers. In addition to that, YTL has also taken civil engineering construction of Malaysia on Express Rail Link Project (ytl.com, 2019). This project has been taken this organisation within scheduled budget as well time frame.



Figure 1: Governance structure

(Source: ytl.com, 2019)

3. Critical Analysis of the Management of Construction Project of YTL

Project management plan of YTL Corporation includes various guidelines and overview of the project that helps the organisation to complete the total project within provided guidelines. Managers of YTL Corporation are focusing on ethical practices and corporate governance structure to meet the values of stakeholders. Additionally, higher authorities of YTL Barhed try to maintain clarity in their management that allows showing accountability and providing long term success to the organisation.

3.1. Scope Management

Management of project scope includes the procedures that helps in ensuring the definition of project scope properly and specified it correctly to the employees. According to Kerzner, (2017) this helps the whole team to get an understanding about the requirements to complete the project within the given budget and timeline. In addition to that, it also helps the managers of YTL Corporation to allocate resources according to the needs to complete the project of solar panel installation in a successful manner. Moreover, effective communication is also needed among the staffs and managers which help the stakeholders to get a clear understanding of project scope and goals. Scope management of a construction project helps the leaders and supervisors to avoid potential challenges which are not listed for the deliverables of solar panel installation (De Araújo *et al.* 2017). Moreover, make changes in the control process of construction management projects of YTL helps to maintain clarity. This helps in keeping record for changes and organisation also try to maintain effective control mechanism to complete the project with transparency.

Table 1: Scope management

PMI	YTL Scope management practices	Evaluation
Proper planning to define work scope <ul style="list-style-type: none"> ● Requirement collection ● Define and verification of scope ● Scope in plan management. 	Project plan and change procedures have been mentioned.	Incomplete definition of project scope that leads to confusion.
Controlling <ul style="list-style-type: none"> ● Changes in documentation ● Track and approve changes (influenced by de Carvalho <i>et al.</i> 2015) 	Control and change management procedure has been implemented in the plan.	
Legend	Comply √	
	No comply	

(Source: de Carvalho *et al.* 2015)

Through comparison it has been noticed that YTL construction project management has some noticeable scopes that leads to missing deadlines of the project and create unrest among the stakeholders. Without having a proper scope management construction projects can face serious risks while estimating time and budget of the whole project. Therefore, management needs to discuss scope management before starting a project.

3.2. Time Management

Creation of project schedule is highly important to avoid conflicts with the stakeholders. It is also considered as one of the main points to measure the success rate of the YTL Berhad. Proper management of time includes effective measurement of success through efficient allocation of time to the ongoing projects in different stages.

Table 2: Time management

PMI	YTL project time management	Evaluation
Activities on deliverables of construction project.	Almost all activities are listed by the supervisors.	√
Sequentially implement plan into the activities to efficiently complete the project (influenced by Martens and Carvalho, 2017)	Sequencing of activities is done by the leaders.	√
Make an estimation of materials as well as human resources.	Materials and human resources are engaged according to needs in the project.	√
Allocation of time for activities	Time is allocated according to the plan	√
Monitor and control of the total construction project	Leaders and supervisors have done monitoring.	√
Legend	Comply √	
	No comply	

(Source: Martens and Carvalho, 2017)

From this analysis it has been noticed that, YTL Berhad has maintained a quality time management with the help of proper monitoring and controlling of the construction project and solar panel installation. Additionally, they also maintain checklist to maintain data regarding construction materials and human resources. This allows them to complete the provided task within the provided schedule and maintain the value of clients' money.

3.3. Cost Management

Cost of a construction project plays the most critical role to review the success rate of the project. This management helps in optimising the resources of the YTL Corporation in order to achieve success in this market. Managers and leaders play a critical role in the development of cost management program for each project and implement that budget in the implementation of solar panels. Influenced by Meng & Boyd, (2017) allocation of human and other resources have taken place according to the budget plan in each stage of the project. Moreover, cost management also allow the project management to make certain changes to make the project more profitable for the organisation. YTL Berhad is focused on completing the project within the provided budget by the clients. Therefore, they have planned, estimated and controlled the cost from the beginning of the project. Cost management has considered various technical requirements, materials as well as facilities according to the updated information from the

designers (Samset and Volden, 2016). Cost planning of YTL has outlined the overall expenses that have been targeted in construction to support the approval of the project. This management also helps in making sure that the project stays within the grip of corporation.

Table 3: Cost management

PMI	YTL Corporation	Evaluation
Resource planning	Prohibition of service, testing of resources and training to the employees are efficiently planned in every stage of the project.	√
Estimation of project cost	Cost of different activities is estimated by the managers of YTL Berhad.	√
Controlling of cost	Cost of the total projects are being updated and reviewed by higher authorities in every month.	√
Legend	Comply √	
	No comply	

(Source: Samset and Volden, 2016)

3.4. Quality Management

Quality management helps in providing more success to the construction business of YTL Berhad. It also reduces the number of reconstructions of various parts of a project which may have an adverse impact on the expectations of consumers. Any construction gets significant amount of benefits from the quality management through gradual improvement of the total system. As commented by Schwalbe, (2015) maintenance of quality of construction is always dedicated to the end user or consumer. This helps showing the guidance of the YTL Corporation as well as basic deliverables of the project to make it successful. According to Meredith *et al.* (2017) management of project quality is important while implementing solar panel includes project planning, insurance of quality of the project and control of quality. Quality planning of YTL Berhad helps in setting quality standards to provide guidance to the project delivery. An efficient process has been followed by the supervisors and managers for implementation of quality checks that has been planned. In addition to that, control of overall quality makes sure the needs of the clients are met at the time of execution of project. Moreover, quality standards are also being maintained by the managers and supervisors through active monitoring of total procedures.

Table 4: Quality management

PMI	YTL quality management practices	Evaluation
Planning for construction quality	Plans <ul style="list-style-type: none"> ● Manual for quality check ● Work instruction of the region ● Maintenance of records 	√
Assurance of construction quality	Implementation sequentially <ul style="list-style-type: none"> ● Reviews of design ● Modelling, and testing ● Proper identification of configuration 	√
Quality control of construction	Documentation of project <ul style="list-style-type: none"> ● Repairing of defects ● Control of configuration ● Impacts of innovative techniques. 	√
Legend	Comply √	
	No comply	

(Source: Meredith *et al.* 2017)

3.5. Procurer Management

Raw materials are made by the manufacturers according to the standards of YTL Berhad. Choose of these materials are based on the provided price at the start of the project. At first, several suppliers send the samples of raw materials to this organisation to make bid for supply. From them management of YTL choose the quality materials for solar panels that also have an affordable price. Time management of material delivery and relationship with the suppliers also play a critical role in choosing a supplier (Sánchez, 2015). Procurement management has overall 6 steps which are planning for procurement, efficient planning for contract, selection of suppliers, solicitation, administration of whole contract and close out of it. At first, management needs to make an effective plan according to requirement of construction project. After that, lists are made for the procurement from vendors according to resources and skills of human resources.

Table 5: Procurer management

PMI	YTL procurer management	Evaluation
Planning for procurement	This has been standardised by the management of YTL.	√
Provision of requirements for the project	Relevant resources are identified by management.	√
Obtain of quotation and proposals	Raw material suppliers are chosen according to project.	x
Choose of material suppliers	Suppliers are selected according to the price and quality of their materials.	√
Management of contract with the material suppliers	Development of communication with suppliers.	x
Completion of contract for the project	Closeout of the contract has been done by the higher authorities.	√
Legend	Comply √	
	No comply	

(Source: Sánchez, M. A. 2015)

3.6. Risk Management

Managers of YTL must be familiar with various risks and its management related to construction project. Risks related to the price of materials, quality of construction and scope need to be understood by the leaders and managers before starting a project. In addition to that, activities at the workplace also need to be assessed among the workers. Managers of YTL are eligible to manage risk of the projects with the progress of that project. This helps to mitigate the risks step by step and make the project successful (Svejvig and Andersen, 2015). Documentation of potential risks while installing solar panels and planning in adherence to it also helps in maintaining the quality. Risk management is the mixture of control procedure like initiation of scope, estimation of cost for construction, effective review of the schedule, management of employee integration and allocation of resources according to the needs of people.

Table 6: Risk management

PMI	Risk management of YTL Berhad	Evaluation
Effective planning for the management of risks	Procedure for risk management in the project area is practiced by YTL Corporation.	√
Identification of risks	Proper identification has been done at the time selling of project	√
Analysis of risks through mixed approach	It is not facilitated through qualified professionals.	x
Response towards potential risks	Plans for reduction of risk has been developed	√
Supervising and controlling the risks	Revision of risk has been scheduled.	√
Legend	Comply √	
	No comply	

(Source: Svejvig and Andersen, 2015)

3.7. HR Management

HR management is termed as a strategic approach to manage the people of an organisation for gaining effective productivity and competitive advantage (Joslin and Müller, 2015). The application of HR in this project would help in documenting project responsibilities and roles, obtaining important team members, put improvisation on competences and tracking team performances;

In comparison with literature practise, the solar panel construction project management followed all the listed points of HR management plan. The project teams are taken into selection by analysing their performance analysis and knowledge competencies. A discussion session will be taken into consideration for sharing knowledge between the various team members from various working departments. In addition, the team opinion will be taken into consideration to strengthen the project and produce better outcome. The HR will also analyse the various functions of team members and will lead them to their designated positions. According to Papke-Shields and Boyer-Wright (2017), this will help the workers work according to their designated qualifications in their own working field. Hence it will lead the project succeed with less working biases.

Table 7: HR management plan

HR management requirements	Elucidation	Compliances
Identification and documentation of project responsibilities and roles	Need of a proper plan of HR management and to outline the goals and targets with necessary resources	✓
Plan for staff management		✓
Achieving the necessary and skilled team members	Need of skilled project teams with project managers	✓
Improvisation of competencies	Interactions between team members and lead their development	✓
Tracking the performance of team	Project team work-output management	✓
Optimisation of project performance		✓

(Source: Joslin and Müller, 2015)

3.8. Communication Management

Communication in project management ensures that the project does not lead to any kind of failure just because of errors in communication or communication gap. According to Kivilä, Martinsuo and Vuorinen (2017), the communication management will help in establishing positive work relationship between the stakeholders and between the project team, ensuring their success;

The solar panel construction project management has used the above Key Performance Indicators mentioned above. The communication is established between various stakeholders and to keep proper maintenance of the project outcome. There are followed the aspects of cross functional project teams. People from various backgrounds were taken into consideration to complete the project. A mixture of both the engineers and secondary working staffs are considered to complete the project within the given deadline and necessary resources. Queries are entertained by the query solving department for eliminating any kind of biases in the project management.

Table 8: Communication plan

	Purpose	Frequency	Medium	Available audiences
Start-up meetings (planning)	Introduction of project and confirmations of goals and targets	At the starting of project	Video conferencing	Management Engineering directors Project team and sponsors
Meeting of project teams	Reviewing the project status	Weekly meetings	Face-to-face meetings	Team of project
Check-ins	Updating the managers on project using notes and minutes	Weekly meetings	Emails and newsletters	Project sponsors
Status of project meetings	Updating the leadership style to be implied on the project	Monthly	Video conference	Management
Review of ongoing project in every stage	Reviewing feedback taken from project sponsors	Weekly meetings	Face-to-face meetings	Project sponsors and designers

(Source: Kivilä, Martinsuo and Vuorinen, 2017)

3.9. Stakeholder Management

Management of effective communication is important among the stakeholders. It allows increasing accuracy and time management while executing any construction project. Aim of this management is to keep all involved people engaged as well as satisfied. It helps in motivating people. Moreover, relevant data also transferred from higher authorities to lower level employees to implement the plans within the project (influenced by Todorović *et al.* 2015). Stakeholders like supervisors and leaders play the role to influence the workers and send requirements of workers to the higher authorities. On the other hand, higher level managers have the authority to stop any project.

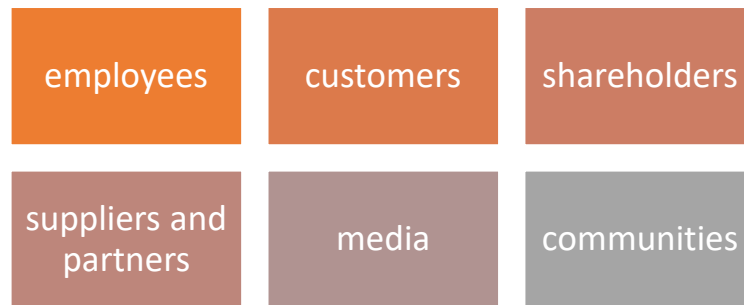


Figure 2: Stakeholders

(Source: Todorović *et al.* 2015)

3.10. Integration Management

YTL Corporation uses various project management tools that increase the management of project. If integration between different departments of a construction project does not happen, project can lead towards failure. Integration is needed in construction project to conduct various activities in a single time. Moreover, if there is no integration between employees and hierarchy then it can have a negative impact on the project and has a serious impact on the performance of the whole team (ul Musawir *et al.* 2017). YTL has done integration management to achieve the goals of their construction project. Professional supervises all projects and prioritises resources of those projects. They also provide report to their senior officials about completion of project. YTL has taken 6 months to provide solar panel in their construction project which helps clients to use renewable energy and mitigating pollution. Activities of panel installation have huge risks and corporation must follow present trends in the market (Svejvig and Andersen, 2015). This can lead to change in scopes in project and have an adverse impact on the time and cost planning. With the help of project integration management YTL Berhad can review their projects and set a deadline of certain amount of tasks. This helps to complete the whole panel installation process within deadline.

4. Conclusion

From the above discussion it can be concluded that construction project management and solar panel installations are in line with the help of effective planning. This project management plan can be effective for future guidance. However, there are some issues regarding communication and material management. There is some gap in communication between low level employees and higher authorities. This sometimes leads to inefficiency in the conduction of construction project and solar panel installation. Moreover, due to lack of efficient guidelines material management cannot took place accordingly which sometimes results in negative condition of quality management of the projects.

5. Recommendation

Table 9: Recommendation

Area for improvement	Weaknesses	Action plan as recommendation	Implementation of idea
Communication management	Lack of information sharing between low level employees and higher authorities.	Innovation in communication.	<ul style="list-style-type: none"> ● Introduction of innovative communication tools. ● Arrangement of meeting with the employees after every certain period of time.
Management of construction materials	Sometimes low-quality materials are being used which lowers the quality of project.	Changes in guidelines for material management.	<ul style="list-style-type: none"> ● Testing of the solar panels before installation in the projects. ● Change of supervisors of every department to maintain clarity.

(Source: influenced by Sánchez, 2015)

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