

PROJECT MANAGEMENT PLAN

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Introduction

This essay will detail a project management plan for a textile company that wants to change the machine layout of one of its sections. The plan will provide a clear reason for embarking on the project, the impact it will have on the firm, the project implementation plan, associated risks, and the challenges that must be overcome before the project is termed successful.

The project in consideration is to be carried out by Company X. Company X is a Textile processing firm, whose activities involve creating a detailed pattern on textile and giving them a good finish. The finishing section of the firm has a range of manual machines that currently employ 10 semi-skilled handlers per 12 hours shift. The annual labour cost of running this section is about £560,000. Likewise, the section processes about 185,000 meters of fabrics per day. However, the firm wants to replace the manual finishing machine with an automated system that will be sourced from China. Furthermore, the automated system will be fitted with conveyor belts that will cut out manual handling of the fabrics during finishing.

The reason the firm intends to embark on the project is that its production capabilities are lagging among its counterpart in the industry. Other firms have been able to boost production to about 250,000 meters daily with minimal increase in labour cost. However, the only way for Company X to increase production is to increase the number of shifts and employ more hands. But this will drive up labour costs and overwork the machines. Therefore, the alternative is to install an automated system that will increase production capacity without increasing the labour cost.

The new automated system is expected to reduce the cost of labour in the finishing section by at least 40%. This is because the new system will only need 5-6 hands to monitor operations. Additionally, the new system would be able to boost production to about 280,000 meters a day. From the business perspective, installing the new system will also boost the efficiency and quality of the fabric finish that will be generated from the section. Currently, the section has a defective fabric frequency of 1 meter for every 9,000 meters. However, the automated system promises to increase this to about 1 meter for every 45,000 meters of fabric. As suggested in the literature, automated machines can increase the quality

of production because they reduce human errors that accompany human input in manufacturing processes (Salomons, 2018, P21). Furthermore, the increased production output will increase the revenue of company X as the firm will have more fabric units to sell. Also, the reduced labour cost will increase the profit margin of the firm and a higher return on assets margin as well. Return on Assets (ROA) is a measure of the profitability of a firm that indicates how efficient a firm is in generating profits from the asset it has (Ali *et al.*, 2018, P60). In this case, increasing output and reducing labour costs at the same time will increase the profitability of the firm through the increasing ROA.

Stakeholder Analysis

To analyse the stakeholder's influence on the project, a power and interest graph was plotted. Power and interest graphs help to predict the attitude and disposition of various stakeholders concerning a project (Missonier & Loufrani-Fedida, 2014, P1111). It also helps to identify stakeholders who will give maximum of partial support to the project and who would not be supporting the project's implementation. The stakeholder analysis of the project as seen in the power and interest graph depicted in figure 1 showed that the project is generally in the interest of the shareholders and the management of the company. Also, the customers are expected to benefit from the increased production output volume and quality of the firm. The same can be said of the suppliers as well. However, the workers in the finishing section are going to be dissatisfied with the development as this would mean that some of them would be let go. Therefore, they might take it up with the worker's union who might in turn take up arms to fight the project. This is expected because the primary function of the worker's union is to protect the interest of the workers (Green & Heywood, 2015, P584). However, replacing some of the workers with automated machinery is not in the interest of some of the staff

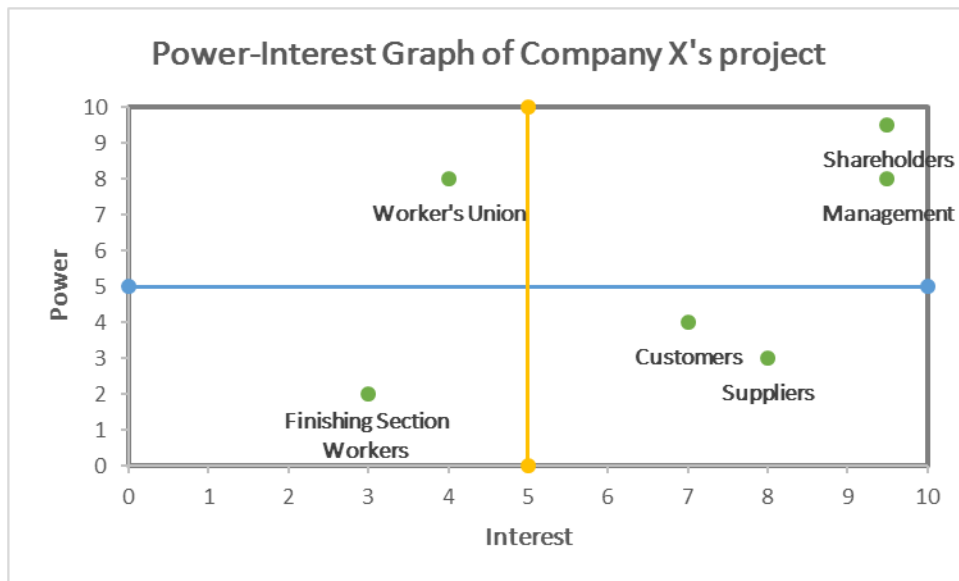


Figure 1: Power and Interest Graph

Table 1: Communications Plan

Communication Item	Method	Frequency	Goal	Owner	Audience
Initial Consultation	Meeting	Before the project begin	To appease the union workers and ensure that the development is accepted by all	Management	Workers' Union
Bidding and proposals	Presentation	End of the month	To discuss the various cost provided by Chinese suppliers about the cost of purchasing and installing the equipment	Project Manager	Management (Project Sponsor) Purchase Manager and Finishing Section Supervisor
Selecting supplier	Email	One week after cost estimate presentation	To select the supplier whose quote will be accepted	Management	Purchase manager, Project Manager and Finishing Section Supervisor
Logistics update	Email	Weekly	To provide information	Project manager	Management and Purchase

			about the status of the machine's Shipment delivery		Manager
Installation and Training	Email	Once	A single email to select the date for machine's installation and training of workers in its use	Project manager	Management, Purchase Manager and Finishing Section Supervisor

Communication Item	Method	Frequency	Goal	Owner	Audience
Training Feedback and equipment integration	Presentation	After the training	To provide a feedback on the training of workers in using the machine and how the equipment will be integrated into the production line	Project Manager and Finishing Section Supervisor	Management
Initial Use Status Update	Email	Weekly	To provide update on the initial use of	Project Manager and	Management

			the machine and issues discovered and how they were fixed	Finishing Section Supervisor	
Full Integration and Standard operating procedure	Presentation	After the end of the initial use phase	To explain how best to utilize the machine and how it will fully handle in the production line	Project Manager and Finishing Section Supervisor	Management

SMART Objectives

SMART goals and objectives must be specific, measure able, achievable, relevant, and time-bound (Moore, 2017, P14). Hence, the SMART goal of the project is to increase production capacity while driving down the cost of labour in the finishing section of Company X's operation. To do this, an automated fabric finishing machine will be purchase from Chinese manufacturers and installed in the finishing section of the factory floor. Likewise, a conveyor belt will be installed alongside the automated system to minimize manual handling of the fabric. It is expected that the installation of the automated machine and the conveyor belt will reduce the defects in production to less than 1% of the total production output. Likewise, the production output is expected to increase from the current volume of 185,000 meters per day to at least 265,000 meters. Additionally, the cost of labour in the finish section must be reduced by at least 40% after the integration of the automated equipment and conveyor belt. It is expected that the project will be completed within 6 months of initialization.

Work Breakdown Structure

WBS

Work breakdown structure (WBS) of projects are productivity tools that make a project easy to execute and monitor (Burghate, 2018, P15). The work breakdown structure can either be task-based or phase-based (Zecheru & Olaru, 2016, P123). For the breakdown to be phase-based, the various activities in the project that will be grouped in sequential order according to the phase of the project. The WBS of the project in consideration for company X is going to be grouped into 6 phases., as shown in figure 2. The consultation phase will include discussions and meetings with union workers, finish section workers and supervisors, and other stakeholders to secure an acceptance of the project by the workers. After this, bids from various Chinese manufacturers will be collected, from which one will be selected. Afterward, the equipment along with the conveyor belt will be installed and the manufacturer will arrange for the training of workers in the use of the machine. When this has been done, a gradual integration of the equipment will be undertaken, to ensure that all facets of the operation of the equipment are mastered. After this, the machine will be fully integrated into the production line operation of the firm.

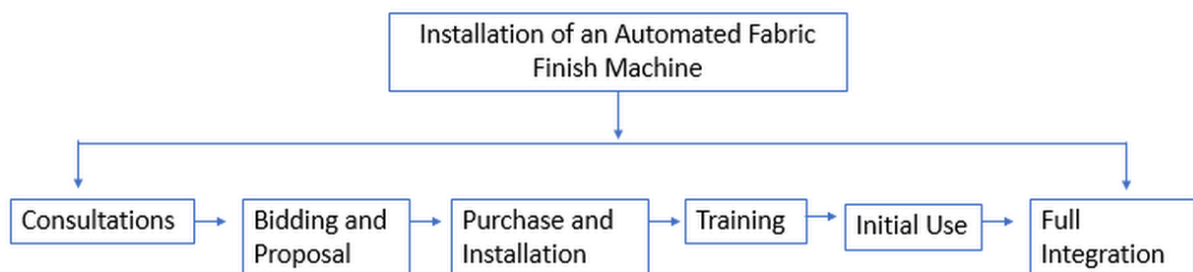


Figure 2: Work Breakdown Overview of the Project

Activity List

Activity list is a comprehensive list of activities that are required for the complete execution of a project (Kerzner, 2017, P37). The activity list of the project in consideration is closely linked to the WBS, as the activities are grouped according the project phase in which they will be completed. The full list of the project activities is stated in table 2. The consultations with the union and workers in the project are vital to avoid and reduce disruptions during the implementation phase of the project.

Table 2: Activity List

Project Phase	Activities	Goals	Owner(s)
Consultation	Management meeting	Final Project Ratification and Project Budget approval	Management
	Meeting with the workers in the finishing section	Discussion of compensations and staff restructuring	Management, Project manager, Finishing Section Supervisor, and workers
	Meeting with the Worker's Union	Update the union on the agreement with the workers	Management, Project manager, Workers Union representatives
Bidding and Proposal	Contact with various Chinese manufacturers	Business mails that will inform the manufacturers of Company X intentions	Project manager
	Receiving Proposals	Submission of proposal by contacted manufacturers	
	Selection	Selecting one of the submitted proposals	Project manager, Management, Purchase manager, Finishing Section supervisor
Purchase and Installation	Purchase and delivery	Purchase and delivery	Project manager, Purchase manager
	Installation	Installation of equipment and conveyor belt	Project manager, Finishing Section supervisor
Training	Training	Training of workers on the use of the new equipment	Project manager, Finishing Section supervisor and workers
	Report of Training	Presentation of the report of the training session	Management, Project Manager, Finishing Section supervisor
Initial Use	10% usage of the equipment's capabilities	To ensure the safe and gradual integration of the equipment and the conveyor belt	Project Manager, Finishing Section supervisor and workers
	30% usage of the equipment's capabilities	To ensure the safe and gradual integration of the equipment and the conveyor belt	Project Manager, Finishing Section supervisor and workers
	60% usage of the equipment's capabilities	To ensure the safe and gradual integration of the equipment and the conveyor belt	Project Manager, Finishing Section supervisor and workers
Full integration	Presentation of key findings	Presentation of Key issues discovered during initial use	Project Manager, Finishing Section

		phase	supervisor and workers
	Standard Operating Procedures	Development of Standard Operating Procedures for the equipment	Project Manager, Finishing Section supervisor and workers
	Full capacity	Final integration of the equipment and conveyor belt in production at maximum capacity	Project Manager, Finishing Section supervisor and workers

Risk Management – Risk Plan, Risk Register, Risk Priority Graph

The risk management plan of projects is designed to mitigate against the predicted risks that might arise during the implementation of a project (Tomanek & Juricek, 2015, P6). The major process in risk management is to first identify the risk that are of importance to the project. Then after the identification process, each risk will be evaluated and prioritized based on the evaluation (Hopkin, 2018, P35). Finally, the appropriate measure to control and mitigate against the risk will be installed during the implementation phase of the project (Hopkin, 2018).

Risk Identification

The process of identifying risks associated with a project is a creative process that involves the consideration of all possible risk factors (Sadgrove, 2016, P77). For the project in consideration, the risk factors are technical and economic. The technical risk factors, the major component is the likelihood of equipment failure. This failure can occur before installation, during installation and during the initial use or maximum usage of the equipment. The other technical component of the risk associated with this project is the likelihood of technical mal-handling of the automated by the workers or their general technical incompetence. On the other hand, the other risk factor that is associated with the project's implementation is economic. This economic aspect refers to the possible impact of low demand from customers on the economic viability of the firm's operation.

Risk Evaluation and Prioritization

To evaluate risks that have been identified in a project, the possible scenarios through which the risk can impact the implementation process must be explored (Tomanek & Juricek, 2015, P7). The above-identified risk was evaluated using the risk register shown in table 3. The equipment failure risk might have arisen from poor transportation actions and handling while

in transit. Likewise, during installation, the equipment might be damaged because of installation errors. Furthermore, the equipment and the machinery might develop a fatal fault during the initial or maximum usage phase. In all the scenarios described, the breakdown of the equipment represents a fatal risk that will undermine the objectives of the project. Additionally, the poor training of workers can result in the mal-handling of the equipment during operation. This can damage the equipment as well and impact the project objectives. However, the economic viability of the firm represents a major risk to the successful implementation of the project. For instance, decreased demand for the products of the firm will undermine the essence of installing the new equipment as the sales will not match the newly enhance production capacity.

Table 3: Risk Register

Risk No	Risk Title	Description	Owner	Impact
R1	Equipment Failure A	Faulty equipment because of mal-handling during transit transportation	Manufacturer	High
R2	Equipment Failure B	Faulty Equipment because of installation errors	Manufacturer	High
R3	Equipment Failure C	Breakdown of machine during usage	Company X, Manufacturer	High
R4	Staff Technical Incompetence	Mal-handling of the equipment	Company X	High
R5	Economic Viability	Reduced demand for fabrics	Company X	Medium

To prioritize the risk so as to assign resources to them, a risk priority graph was plotted (See figure 3). A risk priority graph will help rank the identified risk in order of importance so that resource allocation will be guided by the relevance of the risk (Marcelino-Sádaba *et al.*, 2014, P331). In other words, the risk with the highest priority and relevance get the maximum attention and vice versa. The risk priority graph showed that the risk with the highest priority is the staff technical incompetence. The reason this risk was considered the most important from Company X's perspective is because the company will bear the consequence of the impact of risk should it occur.

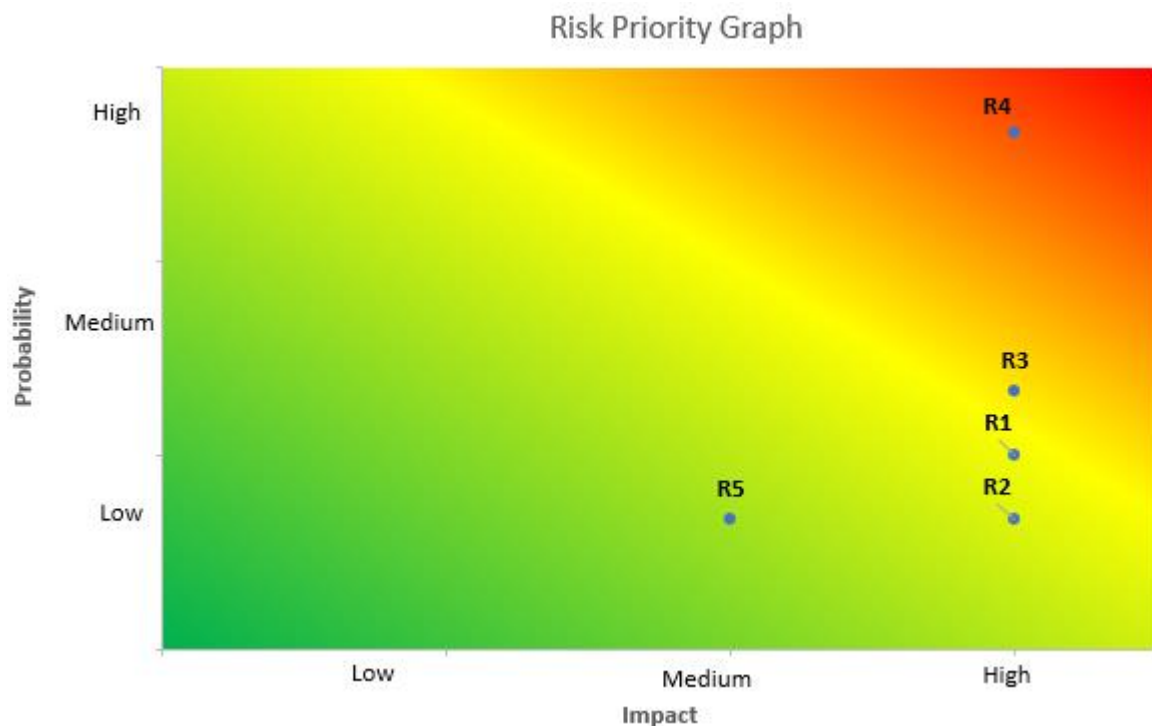


Figure 3: Risk Priority Graph

Risk Mitigation

In risk management, mitigation can be achieved by setting up processes or devices that can protect the project from the impact of a risk component (Marcelino-Sádaba *et al.*, 2014, P333). Also, another mitigation means can be the direct transfer of the risk to another entity (Marcelino-Sádaba *et al.*, 2014, P333). The body absorbing the transferred risk might be an insurance firm for example. Therefore, both models of mitigation are used in this project. The first two risk components R1 and R2 are being covered by the manufacturer as they are associated with the delivery and installation of the equipment in the firm's factory. Also, the R3 risk component has been transferred to the manufacturer in form of a warranty on the usage of the machine. This warranty is expected to last at least 2 years and it covers the cost of maintaining and servicing the equipment as well. To prevent and guard against the occurrence of R4, the firm will undertake a thorough training of the workers. Likewise, only competent workers will be allowed to operate the machine. Finally, the R5 risk component can only be reduced through increase advertisement of the firm's products to the customers.

Activity Sequencing

The activity sequencing of a project involves identifying the inter-dependencies that exist between the activity's of a project (Heagney, 2016, P23). These inter-dependencies must then be documented and inform the development of a feasible project schedule (Heagney, 2016, P25). For the project, the activity sequencing will be depicted through a Gantt chart (see figure 3). The management of the firm has requested that the project be completed under 6 months. therefore, the schedule and sequence of activities is depicted below.

Table 4: Gantt Chart of Activities Schedule

Activities	M1	M2	M3	M4	M5	M6
Managerial Meeting						
Meetings with workers and union representatives						
Contact with manufacturers, Bidding, and proposal submission						
Presentation summary of and Selection of choice proposal						
Purchase and Delivery of equipment						
Installation and Training						
Initial usage phase (10% and 30%)						
Initial usage phase (30% and 60%)						
Standard Operating Procedures and Full capacity usage						

Budget Modelling

Ensuring a good project must be one that is feasible within the scope of the predetermined budget (Turner, 2016, P7). When projects shoot beyond the budget, it incurs additional cost that might undermine the objectives of the project (Turner, 2016, P7). For the current project the cost of executing the task has been set to £50,000 and the project's activities must be streamlined to meet this budget. The budget and its cumulative cost are presented in table 5. From the analysis of the cost implications for the project, it was seen that the estimated cost of implementation is withing the budget. Hence, the project activities are feasible

Activities	Budget (£)	Cumulative Cost (£)
Consultations	1,120	1,120
Hosting proposal bids	800	1,920
Purchase of the equipment and conveyor belt	36,785	38,705
Delivery and Installation	free	38,705
Training	2,873	41,578
Initial Use (10%, 30%, 60%)	8,259	49,837
Full integration	free	49,837

Project Execution Challenges

The challenges that might be encountered during the implementation are diverse. One of the challenges might be the slow resolution of the discussion with the workers' union representative. Delay in the resolution of the worker's grievances through their union might arise from differences in the compensation values that the company is willing to pay and that of the union. Likewise, another challenge might arise from selecting the wrong equipment specifications. However, the problem will be solved through the input of the finishing section supervisor in the process of determining what manufacturer's equipment to order. As stated in the risk management, a challenge might arise from the breakdown of the equipment. This possible challenge has been mitigated under the risk management plan. In the same vein, there might be challenges in the slow integration of the equipment as there be issues in selecting the right workers to be trained. If this occurs, then there might be significant delay in training and certification of the workers who will operate the machine. Generally, the careful plan that has been drawn up for the project has limited the possible challenges that might have affected the execution of the project.

Conclusion

The project management plan that was drawn up for this project must address key issues that surround the project conceptualization and implementation. Specifically, the plan provided a sound business rationale to explain the reason Company X decided to embark on the project. Likewise, precise goals and objectives were outlined as well. Furthermore, the plan detailed the work breakdown structure of the project as well as the project activity list of the project. After this, a detailed risk assessment plan was included after which the sequence of project's activities was demonstrated with a Gantt Diagram. Additionally, the plan showed that the estimated cost of project implementation is in line with the feed budget of the project. However, the plan identifies challenges that might arise during the project's implementation. However, the careful planning strategy of the project has limited the possible number of challenges that might have disrupted the project's implementation. In conclusion, the project's plan has demonstrated that with enough planning the implementation of projects can be less chaotic and timely.

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