

PROJECT MANAGEMENT

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Module name: PROJECT MANAGEMENT

Module code: LCBB5005

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1. Introduction

1.1. Introduction

A project plan has been developed based on the new Google building being constructed at Kings Cross London. This plan is going to highlight the budgeting, and time required to complete the project. In addition to this, the plan also sheds light on the stakeholders and risks involved in completing the project along with the overall evaluation of the plan. Lastly, the plan also provides certain recommendations that could help the completion of the project effortlessly.

1.2. Background

Gillespie has been selected to design a big and distinctive rooftop landscape for Google's upcoming specifically designed 11-story headquarters at King's Cross. Heatherwick Studio and Bjarke Ingels Group (BIG) constructed the structure, which will have an emphasis on nature and be made entirely of materials purchased using Google's environmentally friendly resources initiative. BDP is the undertaker's conception and execution designer. The latest construction, in addition to the present structure at 6 Pancras Square along with a third building, will form a Google campus with the capacity to accommodate 7,000 Google employees (gillespies.co.uk, 2024)

The freshly constructed building is currently being built from the foundations upwards and is expected to contribute positively to the Knowledge Quarter as well as King's Cross's expanding information-based industry. The roof will be completely covered with a 300-meter-long landscape arranged into zones such as an open lawn, wood-based fencing, an unspoiled meadow, huge vegetation, and a 200-meter "trim trail" among runners. The roof terrace will offer a flexible place for Googlers, with performing areas, landscaping, and adjustable plantings to accommodate fluctuating needs for space.

2. The Body

2.1. Budget

The construction of a large roof-top landscaping to accommodate the 1 million square foot new Google headquarters in King's Cross, among which Google will be using 650,000 square feet. The structure itself will be the first entirely owned as well as constructed Google property outside of

the United States. Starting of, the rooftop landscaping includes numerous essentials that needs to be considered in order to ensure proper feasibility as well as functionality. Hence, the breakdown of the cost or budget that will be required are:

Depending upon the building's existing condition as well as additional requirements required for the purpose of providing extra support to additional weight will require approximately \$50,000 to \$100,000. In addition to this, proper waterproofing and drainage system needs to be incorporated properly. Which is why essential for complete protection of the building structure an estimation of \$3 to \$5 per square foot for the purpose that will lead to a total approximation of 1.95 million dollars to 3.25 million dollars amount.

Furthermore, a high quality along with light weight aggregate mixture needs to be incorporated which will lead to a total of 975,000 dollars to 1.95 million dollars for \$1.50 to \$3 per square foot estimation. Furthermore, for adding plants in order to increase the beauty of the place, depending on the plant selection and its outsourcing, a total of 650,000 dollars to 1.3 million dollars shall be allocated based on \$1 to \$2 per square feet estimation.

In addition to based on the estimations made above, along with several other necessary requirements, given the foregoing calculations, the total cost of building a 650,000 square feet rooftop garden would involve between 10 million dollars and 20 million dollars. This range encompasses all important factors, including infrastructures supplies, cultivation, furnishings, periodic upkeep, designing expenses, along with unforeseen circumstances. It is critical to adjust the budget to individual site conditions, design choices, and localised cost considerations. Comprehensive preparation and coordination with professionals will guarantee that the undertaking maintains on budget while meeting the required sustainability and aesthetics objectives.

2.2. Time

Two to three months will be required for a proper evaluation of the capacity of rooftop structure needs to be assessed along with its drainage system as well as the access points. For this purpose few structural engineers and architects will be appointed for assessing the site inside out properly. In addition to this, based on the assessment made, the concept of the garden or landscape along with the theme and required layout will be defined (Latter et al., 2024). After which the engineers

will be collaborating with the designers for the purpose of creating a detailed plan based on local climatic conditions along with biodiversity related objectives as well as different user preferences. Moreover, obtaining essential permissions as well as approvals from the local authorities is essential before beginning any project. Which is why this process could take three to six months depending upon the location as well as the complexities involved in the project. However, it is essential to give time for environmental assessment as well as community consultations if need be.

In addition to this, three to six months will be needed for reinforcing the rooftop structure which is necessary for supporting the garden's weight. This will include several work related to constructions along with the cooperation from the structural engineers (Knowles et al., 2024). In addition to this, ensuring adequate waterproofing as well as proper drainage system needs to be installed in order to protect the site and provide proper management for excess water seamlessly. Furthermore, four to six months will be required for sourcing plants that would be best suited for rooftop conditions depending upon the intensity of sunlight, exposure of the wind and so on (Joshi et al., 2024). In addition to this, few trees needs to planted as well as some shrubs, along with provision of proper ground coverings. Proper seating areas need to be arranged with pathways and some decorative features like art works and lightings suitable for multiple occasions.

In addition to this, one to two months will be required for finishing the details like installation of furnitures, installing decorative elements, as well as incorporating signage. Furthermore, incorporating fine-tune settings for irrigation as well as testing the overall functionalities of the settings (Habib et al., 2024). Moreover, carrying out a proper inspection for ensuring all the landdscaping and gardening aspects properly meet the specifications of the designs along with the safety standards.

Therefore, the entire procedure of establishing a 650,000 square feet rooftop garden normally takes between eighteen and thirty months, including preliminary preparation to the public inauguration. Environmental variables, availability of materials, along with unanticipated issues could all have an effect on timelines. The roof-top garden's swift conclusion and efficient administration require competent project administration as well as straightforward interaction amongst stakeholders.

2.3. Quality stakeholders

Developing a successful rooftop landscape or garden includes cooperation from several stakeholders who are necessary and contribute to the project in several ways like expertise, support as well as necessary resources which are essential throughout the project. Hence, the breakdown of key stakeholders who are necessary for this project are discussed below:

Starting with the building owners and property managers. They are one of the key stakeholders of this project as they provide the necessary space within the rooftop and provide necessary decisions with respect to the feasibility, and designing along with the maintenance of the project at hand. Furthermore, they also provide financial backing along with providing approval to designs and ensuring proper compliance with the codes and regulations regarding the site.

In addition to this, architects as well as landscaping designers are the key stakeholders who are responsible for the overall layout of the landscape gardening, along with the necessary aesthetics and its functionalities. Moreover, these stakeholders provide the necessary infrastructural design for the garden which is necessary for optimizing the space properly, integrating sustainable practices along with selecting suitable plants based on the conditions of the building rooftop keeping in mind the wind, sunlight, and drainage (Gray et al., 2024). Additionally, they also partner with the structural engineers for closely monitoring the safety and proper integration of the gardening with the overall building aesthetics.

Structural engineers are another key stakeholders who are essential for assessing the overall structural capacity of the rooftop spacing in the building who recommend enforcements based on the assessment if required. Their primary job is to ensure that the rooftop could support the weight of the garden properly along with the irrigation system as well as the load of the people visiting the rooftop (Geary et al., 2024). Moreover, they also monitor the required modifications for the structural improvement and coordinate with the architects for integration of required necessary safety measures.

As a result it could be said that Incorporating these groups promotes teamwork, acknowledges different points of view, and improves the rooftop garden's general performance, environmental responsibility, and public effect. Communication that is successful and collaboration among stakeholders are critical to meeting project objectives and ensuring the garden's over time vitality.

2.4. Risk factors

Constructing the garden on the roof involves a number of risks that must be carefully considered and mitigated in order to guarantee that the project is successful. Following are the primary risk factors:

Integrity of the structure. The roof could be insufficiently strong enough of sustaining the garden's increased weight, which includes vegetation, soil, along with equipment. In addition to Insufficient waterproofing or drainage may result in water leaks, damage to structures, and additional upkeep expenses (Aboagye, 2024). Rooftop gardens have vulnerabilities to powerful winds, that can harm vegetation, furnishings, and equipment. restricted access and insufficient safety precautions might pose hazards throughout development, regular consumption, and tourist use. Moreover, selection of plants along with its proper maintenance which include improper choice of plants considering rooftop circumstances (e.g., sunshine, wind exposures) might result in inadequate development, infestations of insects, along with increased care (Aggarwal et al., 2024). In addition to several factors related to the environment such as extreme weather conditions like hurricanes, soaring temperatures, and snow are capable of having a detrimental effect on plant well-being and structure. In addition to cost overruns as well as constrains within the budgets involving unexpected expenditures throughout execution, equipment acquisition, or continuous maintenance can surpass budgeted amounts (Chang et al., 2024). To deal with these potential hazards, stakeholders must work together, follow standards of excellence in the planning and building stages, and supervise the garden on the roof strategically across its existence. By recognising and addressing hazards early on, project supervisors may reduce interruptions while ensuring the rooftop garden's durability over time.

2.5. Evaluation of the Project Plan

Evaluation of the project plan based on the rooftop gardening includes proper assessment of the feasibility, considerations related to the designing, strategical implementations, along with the potential impact. Therefore, listed below are some of the considerable key aspects related to the evaluation of this project:

Starting from the feasibility assessment of the project that includes proper analysis of the structure is essential for rooftop verification including the capacity it can support which involve the weight

of the garden including soil, plants, along with the overall infrastructure. In addition to this, it is also necessary to ensure proper compliance with respect to the building codes along with the safety regulations throughout complete assessment and evaluation of the overall structure (Leonardi et al., 2024). Furthermore, it also involve several technical related feasibilities which is equally essential for the project as it oversees proper implementation of irrigation system along within the access routes for the visitors and staffs with respect to the constraints and conditions based on environmental variablities.

In addition to this, it is also essential to evaluate the design considerations of the structure which should be based on the aesthetics and functions it provide. Assessing the overall layout of the rooftop garden including selection of th plants, seating arrangements, along with the services that are provided are aligned with the overall objectives of the project as well as the client preferences (Thane et al., 2024). Moreover, Consider whether the garden complements the structure's architecture, increases the environment, increases conservation of energy, and helps accomplish urban environmental goals. Architecture eliminating to create a timetable including program for progressive development, taking into account seasonal limits and environmental factors which could influence the development process. Arrange funds efficiently for components, labour, supplies, and specialized skills needed for each step of the construction endeavor (Turner et al., 2024). In addition to proper management of risks that include possible hazards include building integrity concerns, waterproofing errors, maintaining the facility difficulties, and budgetary extensions. Furthermore, incorporate ways to decrease the recognized risk within the project, such as proper preparation, the usage of superior supplies, financial preparation for emergencies, and the implementation of rigorous cleaning procedures.

In addition to this, it is also essential for evaluating the social interaction and participation by stakeholders. Furthermore, as per the viewpoint of Watson *et al.* (2024), it is equally essential to consider methods that include “property tenants, neighborhood people, and other stakeholders for the completion of project's preparation and execution stages”. Generating essential tools in order to obtain input along with tackling issues across the course of the project's existence for the purpose of improving community support and effectiveness. Establishing “important performance indicators (KPIs)” for environmental impact, visitor happiness, the condition of the plants, and effectiveness in operation (Vanderwerf et al., 2024). Generating criteria for evaluating the project's achievement versus its original goals, which include visual appeal, environmental advantages, and

the effectiveness of costs. Moreover, it is equally essential to provide a complete care plan that is based on “irrigation timetables, trimming, fertilization, pest management, and frequent examinations to guarantee the plant's maintenance and endurance.” Lastly, it would be considered effective to keep on assessing the operational expenditures along with allocating resources for repairs that could be done in the future along with its improvements

3. Conclusion

On the basis of the risk elements identified above, numerous recommendations have been developed in order to overcome the risks within the strategy. Professional architects conduct detailed structural inspections (Watson et al., 2024). First enhancing the framework of the roof if necessary to meet safety requirements along with architectural standards. In addition to this, the installation of high-quality waterproof barriers in order to ensure enough draining can be proven effective as well. Additionally, based on the suggestion of Chang et al. (2024), it could be stated that implementing regular inspections as well as maintenance of these buildings is essential to prevent water overflow or logging. In order to create hurricane limitations, the use of weather-resistant vegetation that includes bushes or screenings could be installed.

In addition, for the purpose of securing high-end furniture along with equipment to prevent destruction from high winds could be implemented as well. According to Aggarwal *et al.* (2024), it could be suggested that in order to provide secure routes for servicing staff, incorporating enough security measures, fences, and banners to ensure guest security is essential. Carrying out regular inspections for the purpose of security along with providing instruction for support employees. Cooperating together with agricultural professionals in order to choose plants that are appropriate for rooftop circumstances can be proven beneficial.

Therefore, a project plan has been created encompassing a budget, timeline, as well as list of stakeholders, along with the necessary assessment of potential risks that could arise while executing of the project. In addition, several necessary recommendations were additionally made for minimizing the risks discussed before in order to carry out the project effectively.

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