Self-Checkout Kiosk at College Bookstore

(Project Management)

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**Introduction**

Project management is considered as a strategy that helps in designing a plan to develop the organization's goals. The reason behind using a project management framework is that it helps in increasing the organizational value. By using the project management framework for a project, the organization can benefit from the increase of effectiveness of all resources. Hence, the success of the project can be measured by effectiveness and getting the desired results in the long term. Hence, the project value can be understood by understanding the organization's strategy. Some project management criteria that need to be analysed include the product's profit, schedule, and budget required for the completion of the project (Badewi, 2015). The project that is considered in this project management paper is implementing a self-checkout kiosk at the college’s bookstore. The project plan will be developed using Waterfall methodology. The paper will include developing WBS, cost estimation, quality control.

**Project Background**

The project is about implementing a self-checkout kiosk at the college’s bookstore. The self-checkout kiosk is an automated system that will help the student to check-out the books with a very minimum response time. A smart card will be issued to students and staff to have the facility of self-checkout at kiosk. The kiosk will read the barcode of the card and will provide all details of the card owner. Here, the user can borrow or return books by clicking on the button and the list of books available in the college bookstore will be displayed on the screen. After selecting or returning the book, the user will be able to checkout from his id. When the user wants to borrow the book, he must keep the book in front of the screen, so that the kiosk can automatically read the barcode. After successfully reading the barcode, the details of the book will appear on the screen. Also, the kiosk system will ask the user whether he wants to borrow another book or not.

**Three Sphere Model**

Business

Organization

**Business Issues**

* Would the kiosk implementation increase the budget of the organization?
* What will be the actual cost of the project?
* Would there be any annual maintenance cost?
* What would be the impact of the self-checkout kiosk on college students and staff?
* Would this kiosk implementation solve all issues related to the bookstore?

**Organization Issues**

* Does the organization require additional technical manpower for the implementation process?
* Would the project be implemented within the organization, or some external company will be hired?
* What would be the impact of the self-checkout kiosk on students and staff members?
* Will there be option to print all required reports?
* How will the books inventory be managed?

**Technology Issues**

* Which operating system and version be used for kiosk?
* Will the kiosk are based on server client model?
* Which database will be used to store all books’ details?
* Which technology will be used to scan the books’ barcode?
* Does it require internet connection for self-checkout kiosk installation?

**Assumptions**

* The project sponsor has only three months for the implementation of kiosk.
* The external company is hired for the project. The third-party company will be responsible for software and hardware framework.
* A proper training schedule will be developed for providing the sufficient training to staff members.
* The students’ identification cards will be used as the bar code. It implies that every card will be provided with certain barcodes.

**Work Breakdown Structure (WBS)**

|  |  |  |
| --- | --- | --- |
| Task Name | Duration | Start |
| **Implementation of self-checkout Kiosk** | **100 days** | **Thu 01-07-21** |
| **Project Initiation (Requirement Analysis)** | **11 days** | **Thu 01-07-21** |
| Analysing technical feasibility | 5 days | Thu 01-07-21 |
| Analysing the mechanism | 5 days | Thu 08-07-21 |
| Preparing Project Charter | 1 day | Thu 15-07-21 |
| Milestone 1: Project Charter Document | 0 days | Thu 15-07-21 |
| **Project Planning** | **20 days** | **Fri 16-07-21** |
| Meeting with Third party vendors for kiosk | 5 days | Fri 16-07-21 |
| Analysing all requirements | 5 days | Fri 23-07-21 |
| Getting details of functioning of bookstore | 6 days | Fri 30-07-21 |
| Estimating budget and schedule | 2 days | Mon 09-08-21 |
| Analysing Risks | 3 days | Wed 11-08-21 |
| Milestone 2: Developing Project Plan | 0 days | Mon 16-08-21 |
| **Project Execution** | **60 days** | **Tue 17-08-21** |
| Finalizing the third-party vendor | 5 days | Tue 17-08-21 |
| Developing kiosk self-checkout Application | 30 days | Tue 24-08-21 |
| Checking the compatibility | 5 days | Tue 05-10-21 |
| Design the front-end kiosk application | 5 days | Tue 12-10-21 |
| Preparing back-end servers | 2 days | Tue 19-10-21 |
| Integration processes with kiosk | 5 days | Thu 21-10-21 |
| Testing kiosk application | 5 days | Thu 28-10-21 |
| Milestone 3: Project Execution | 0 days | Wed 03-11-21 |
| **Project Closure** | **5 days** | **Thu 04-11-21** |
| Users Training | 2 days | Thu 04-11-21 |
| Preparing System Documentation | 2 days | Mon 08-11-21 |
| Handover the self-check-out kiosk | 1 day | Wed 10-11-21 |

**Resources**

|  |  |  |  |
| --- | --- | --- | --- |
| Resource Name | Type | Group | Std. Rate |
| Smitha Jones | Work | Project Manager | $180.00/hr |
| Meil Joseph | Work | Developer | $200.00/hr |
| Kat A. | Work | Developer | $500.00/hr |
| Jacqueline S. | Work | Developer | $150.00/hr |
| Michael | Work | Back-end Developer | $120.00/hr |
| Ferriq A. | Work | AI Developer | $180.00/hr |
| Bilson | Work | AI Developer | $150.00/hr |

**Cost Estimation**

|  |  |  |  |
| --- | --- | --- | --- |
| Task Name | Fixed Cost | Fixed Cost Accrual | Total Cost |
| Salaries and wages | $30,000.00 | Prorated | $30,000.00 |
| Hardware (Server + Delivery) | $50,000.00 | Prorated | $50,000.00 |
| Firewall Installation | $5,000.00 | Prorated | $5,000.00 |
| Training Expenditure | $10,000.00 | Prorated | $10,000.00 |
| Server | $5,000.00 | Prorated | $5,000.00 |
| Contract with Third party | $100,000.00 | Prorated | $100,000.00 |
| Project Cost | $200,000.00 | Prorated | $200,000.00 |

**Quality Control**

The quality of the project will be controlled by following activities:

**Scheduled Completion –** The project will maintain its quality when it will be completed within the scheduled time i.e approximately 100 days.

**Estimated Budget –** The approximate budget for the completion of the project is $2,00,000. If it will be completed within this estimated budget, the project will maintain the quality.

**Fulfil Customer Requirements –** The kiosk project will be developed based on users’ requirements, so that the clients’ can use this kiosk to automate their book store.

**Training** **Manual –** In order to maintain the best quality, a training manual will be provided to the client, so that non-technical users can easily use this kiosk without any technical guidance.

**Measuring the Project Performance**

The Performance Measurement Baseline which is also known as PMB is a significant tool in earned value management that is utilized by Program Managers and Systems Engineers in the Technical Assessment Process to evaluate the technical progress of the project. It incorporates the undistributed budget, budget plan, and all control account financial plans yet do exclude management reserve. The performance measurement baseline is developed for the entire project. In case of wbs, it refers to a control account that contains one or a few work packages or planning packages. It consists of three baselines - Project scope baseline, schedule baseline and cost baseline (Sebastian, 2021).

The project scope is to implement the self-checkout kiosk for the bookstore of the college. The project scope baseline consists of project scope statement and wbs. Hence, the project scope baseline is measured when the project is completed according to the accurate scope defined and wbs. Similarly, schedule baseline and cost baselines are measured by measuring the project cost and the project schedule.

**Techniques used to Manage the Project**

**Waterfall Technique -** Waterfall technique is used to develop WBS structure. It is a linear project management approach in which all requirements are gathered from stakeholders in advance, so that the scope can be developed accordingly. The project is divided into small phases – project initiation, project planning, project execution, and project closure. All parts and activities of the project are managed using waterfall technique (Maserang, 2002).

**MS Project –** MS Project is a tool that has been used to manage all resources, communication, and risks of the project. All scheduling and cost estimation has also been done with the use of MS Project. It’s a software that is used to correctly plan the project. The system helps in automatically calculate the critical path by using PERT methodology. Hence, MS Project is best option for developing wbs, project scheduling.

**References**

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Sebastian (2021). Performance Measurement Baseline: Definition | Example | 6-Step Guide. *Project Management Institute (PMI).* Retrieved from - https://project-management.info/performance-measurement-baseline/

Maserang, S. (2002). *Project Management: Tools & Techniques*. Retrieved from - http://www.umsl.edu/~sauterv/analysis/488\_f02\_papers/ProjMgmt.html