**Hullabaloo Party Supplies Customer Order System**

Lucy Mills

Colorado State University, Global

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Donald McCracken

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An online order system will allow for the Hullabaloo Party Supplies company to expand its business and become more competitive amongst other party supply outlets. As a systems analyst, it is important for me to design the new customer ordering systems to fit all the requirements set by the company’s stakeholders. In addition to the base requirements, the system should also include some nonfunctional requirements to enhance the user experience and keep system maintenance as minimal as possible. After looking at the estimates given for corporate gains and costs, an approximate value for the return on investment and breakeven point can easily be calculated using the appropriate formulas. To develop and advance the HPS online ordering system, it is recommended that the company utilizes the Agile software development methodology as the iterative cycles will guarantee that the new system not only includes all listed requirements, but also other innovations and patches as they are needed.

**Addressing Requirements**

To begin, the software development team at HPS must incorporate the base requirements outlined by corporate into the system by the launch date. The first requirement is for the system to allow for customers to browse and order different items at various quantities from the online catalogue. At the checkout, the system has to securely collect and store the customer’s information for creating an account. Additionally, the order total must be calculated at this time to show the customer the total with shipping and tax included. Then, a payment page has to be added to allow for customers to pay either by inputting credit card or PayPal information. After all the necessary information has been collected for completing the order, the system has to debit the ordered items from the online inventory to keep it accurate for future orders. The final requirement included is for the system to offer the customer multiple options for shipping at different rates based off of the customer’s distance from the Hullaballoo Party Supplies storage warehouse.

Additionally, nonfunctional requirements can enhance specific attributes of the software system to encourage maintainability and usability. While NFRs are not, typically, thought about during the early development stages for a new software system, each contributes to the overall quality of the application. Evaluating a system based on non-functional standards includes testing its “responsiveness, usability, security, portability”, which determine the success of the product (Martin, 2022). Once enough nonfunctional attributes have been added to the system, both security and profitability will largely improve.

**Economic Analysis**

Given the proposed figures for customer orders, upfront costs, yearly costs, and a discount rate with a specified horizon, an economic feasibility analysis can be conducted to find estimates for the company’s return on investment and breakeven point. Calculating the potential return on investment shows HPS if the proposed system will be worth the initial investment and development costs.

Following the formula, ROI = (Net Profit / Cost of Investment) \* 100, the team can see whether the venture will yield a positive or negative return (Strobierski, 2020). To use the return on investment, however, the net present value (NPV) has to calculated first. Using the formula, NPV= => and built-in online calculator, the net present value for the first year is estimated to be $165,178.57, the second year to be $147,480.87, the third year to be $131,679.35, the fourth year to be $117,570.84, and the fifth year to be $104, 973.97 (Colerick, 2012). The sum of the net present value for all five years is overall monetary benefit, which is $666,883.60, for this project. Calculating the present value for yearly costs uses the same formula, i.e. NPC= , and using the same online calculator the values are found after paying the high initial cost of $275,000, the costs after the first year will be $75,892.86, $67,761.48 after the second year, $60,501.32 after the second year, $54,019.04 after the fourth year, and $48,231.28 after the fifth year (Colerick, 2012). The sum of all the costs, including the initial, yields the overall cost value being $581,405.98. Now that the net present value and net present cost have been calculated, the overall net profit can be found by subtracting the costs from the benefits which is ($666,883.60 - $581,405.98 = $85,477.62). Plugging into the return-on-investment formula, the ROI can be found to be (ROI = ($85,477.62/ $581,405.98) \* 100 = 15%), making the potential return on investment positive for this project.

Next, calculating the breakeven point for the HPS order system will show the company the exact point where sales are covered by its expenses; the formula for finding the break-even point is BEP = ((annual cash flow – overall net profit) / annual cash flow) (Carlson, 2022). Calculating the annual net present value can be done by adjusting the prior formula to ANPV = , which comes out to $360,477.62 (Colerick, 2012). With that value, the breakeven point can be calculated, i.e. (($360,477.62 - $85,477.62)/ $360,477.62) = 0.76, or about nine months.

**Recommendations**

Iteration can help ensure that all aspects of the software being developed are advanced through each lifecycle; knowing this, it is recommended that the Hullabaloo Party Supplies company utilize an Agile methodology for creating and maintaining an online ordering system. Creating this new technology for the company will make the work environment more fast paced, which can be difficult for employees to adjust to without any guidance or structure. Following the Agile approach gives the development team a leader, the scrum master, and structure in the form of development sprints. With additional artifacts and backlogs, team members using the Agile method are motivated as goals are clearly defined and comradery is encouraged (Ashtari, 2022).

**Implementation Plan**

Starting the next phase of the project involves planning the implementation of Hullabaloo Party Supplies’ online ordering system. Transferring from a physical ordering system to an online one will require a lot of initial effort in terms of manually inputting data, but the benefits of having a fully online system will be well worth the exertion.

To start, the development team must account for all predetermined requirements to accurately determine the processes and procedures necessary for the new system (TEC Team, 2020). Next, the IT infrastructure, physical or cloud-based, of the ordering system has to be reliable and capable enough to handle large spikes in usage, especially around the holidays. Thirdly, HPS should determine exactly which pieces of physical data will be retained for the new online system i.e., key client information or vital addresses. Defining the roles of users allows for the development team to correct assign the privileges for system users in an effort to increase internal security. Preparing the physical data for input into the new online database should also include filtering out unnecessary clutter of outdated or duplicated data. The final step of software implementation is to organize the project’s reporting or documentation of system objectives, key performance indicators, decisions, and requirements to give the company an outline of the project’s evolution throughout the development process (TEC Team, 2020). Although the initial transition from the physical ordering system will take time for employees and users to get acclimated to the new online system, the benefits of a fully integrated online system, fiscal and managerial, will outweigh the original effort exerted.

**Testing and Training Plan**

Once the first implementation of the website is finished being developed, the members of HPS must begin the next phase of testing the application. Concocting a Test Plan gives the HPS team a detailed list of strategies, objectives, schedules, estimates, deliverables, and resources needed to perform a thorough test of the system (Hamilton, 2022). The test manager of the project uses the created Test Plan as a blueprint in controlling the software testing activities being performed.

First, the team must analyze the application to fully understand all the features and target audience for the product. With that information, the development team can then develop a test strategy document to define the testing objectives and required testing labor/ costs for the website. Next, defining the test objectives and criteria gives an overall goal for achievement and a precedent for testing procedures. Then, creating a resource plan gives the team a detailed list of all the resources, human or system, needed to complete the project. The test environment has to be created to emulate real processes and encounters that the system will have with the outside world. After analyzing the testing requirements, the team then has to create an estimate list with the expected amount of time each test process will take, and then a test schedule is made by the project manager to create deadlines for testing to ensure that it is completed in a timely manner.

Once HPS’s new online ordering system is functional, it is important that all team members know how to properly use it for processing and shipping orders to customers through appropriate training. While all department members will need a basic level of training for interacting with the system, only a few, the IT team, will need in-depth training for configuring and troubleshooting the ordering system over time. Following the training plan will instruct the team members on how to best learn the system and find bugs throughout. Training for a new system can quickly become tedious for department members, so it is helpful to incorporate everyone and try to make the training sessions enjoyable to make the work feel easier for everyone involved (Nelson, 2022). Additionally, HPS can seek advice from its implementation partner to provide guidance in the form of management processes, training resources, and corporate practices for software training.

**Conclusion**

After evaluating the requirements and economic factors for the Hullabaloo Party Supplies company online ordering system, the company should pursue this business venture to become more profitable and competitive. With only a few outlined requirements from management, the development team will have time to include many non-functional requirements to benefit the system. Calculating the return on investment and breakeven point shows that the company only stands to gain in a short period of time. Through implementing the scrum Agile methodology, the development team at HPS will be able to organize their time and resources to efficiently construct the new software. Implementing the new online ordering system, through transferring data and processes, will advance the company in many ways. A thorough testing and training plan will ensure that the system is patched and that employees are well versed in the new system upon its release.

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