Consulting Inventory Redesign: Applying Technical Knowledge in a Project Management Role

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Abstract

Yext, a technology company that offers brand management solutions to businesses, decided to overhaul its outdated Consulting Inventory, a searchable database of completed project implementations. I worked as a project manager alongside the software development team, using my knowledge of databases, user interfaces, and Agile development to successfully complete this redesign. In doing so, I learned the importance of communication and documentation to clearly define the requirements and capabilities of the system. My background in computer science also proved to be beneficial when determining what changes would be feasible within our time constraints and how to divide that programming work. Ultimately, we received much positive feedback from users of the Consulting Inventory and are confident that it has become a practical tool for consultants at Yext. The next steps for the Inventory include ensuring that it is consistently updated and developing a method for removing any outdated information.

1 Introduction

"Has anybody done a Pages implementation that uses AJAX headers for a healthcare company?" In the summer of 2021, questions like this frequently appeared in the Slack channel for consultants at Yext, looking for examples of previously completed projects to build upon for future implementations. Yext is a technology company with a wide range of tools and systems for helping companies manage their information online. This includes landing pages for store locations, directory listings on platforms like Google, and AI search solutions for a more comprehensive site search. The consultants who carry out these implementations are called Technical Engagement Managers, or TEMs, and are responsible for working with the design and development teams to define the technical requirements for a project as well as communicating regularly with clients.

With many unique projects already completed for an array of companies, it is helpful for a TEM to find a similar or related project to use as a guide. However, the process for finding a guide project was not streamlined. The Consulting Inventory, Yext's existing project database, was outdated and difficult to navigate, so most TEMs resorted to asking around on Slack. This was inefficient and did not always lead to an answer, so the consulting team decided to overhaul the Consulting Inventory. Along with two other interns, I took on this project with the goal of providing a site that was easily searchable and maintainable.

2 Related Works

The methodology for the Consulting Inventory redesign was Agile project management, defined by Fernandez and Fernandez [2008] as a collaborative and flexible form of development with small, incremental deliverables. A key facet of project management is balancing hard skills and soft skills, and many resources provide guidance in approaching this role and evaluating outcomes. Marando [2012] makes a distinction between such skills: soft skills typically involve interpersonal relations, like leadership and conflict management, whereas hard skills are typically characterized by the ability to produce an output. Alias et al. [2014] outline the critical success factors for a project, which are the variables that impact the outcomes of project delivery. These include adequate communication channels, client contributions and feedback, external issues, and much more.

While these works informed the approach to my summer project as well as my takeaways from it, this report focuses on my unique experience as a computer science undergraduate in a project management role and the lessons I've learned as a result.

3 Project Design

The process of reworking the Consulting Inventory can be divided into three phases: planning, designing, and implementation. The planning phase commenced with a stakeholder meeting, during which our managers addressed the desired features and deliverables of the project. The most important goal was to improve the Inventory's search functionality to find relevant consulting projects based on a set of characteristics. We also aimed to develop a system to keep the site updated in the long term, ensuring that any future projects would be added to the Inventory. The rest of the planning phase involved creating a spreadsheet with all of the features we hoped to implement, categorized on a scale from "must-have" to "nice-to-have." We also constructed a timeline to guide our work and guarantee that we could receive feedback on each week's deliverables.

Next, we began the designing phase, with both the site's user interface (UI) and its underlying database in need of a redesign. We first planned out a new UI using Figma, a collaborative graphic design tool. We reorganized each project page's information in order to be more readable and to display key details, like the project's features, at the top of the page. We also restructured the search page for a more intuitive user experience (UX), which will be discussed further during the implementation phase. Finally, we added brand logos, icons, and images to make the pages more engaging. During this stage, I was able to apply my technical knowledge of UI and UX to understand how future users would interact with the Consulting Inventory, informing how we could make that process more seamless. We also redesigned the Inventory's underlying database, which utilized a piece of Yext software called the Knowledge Graph. The Knowledge Graph adds a layer of abstraction to a database, simplifying the actions of adding and removing information and presenting data in a more readable form. The Inventory's Knowledge Graph was missing a lot of useful details, like the contact information of the individuals who contributed to a consulting project and the features of that project. I was able to use concepts from the course *CS 4750: Database Systems* to best organize the information stored in the Knowledge Graph. For example, certain entries were limited in the values that they could accept to maintain data uniformity.

The final and lengthiest phase of the project was the implementation phase, which involved creating and assigning tasks to the software engineering team, receiving iterative feedback, and building a process for keeping the Inventory updated. In order to structure and assign various tasks, we used a project management tool called Jira. We created Jira items for each task that required software development, describing the tasks in detail and including them in each week's sprint. A sprint in Agile development is a short period in which a team completes smaller components of a larger project, resulting in deliverables at the end of each sprint. Having a background in software development allowed me to group tasks with similar logic and estimate the time needed to complete each one. The most crucial task was the restructuring of the site's search page. The original search page had a simple keyword search bar and filters that were difficult to use. The new search page included a more intuitive filtering method with the ability to filter on features like the company's location or industry or properties of the company's website, like AJAX headers. With the help of the software engineering team, we also added an AI search bar with Yext's *Answers* software. This new search understands natural language, allowing complex queries and more relevant results. At the end of each sprint, we received feedback on that week's deliverables, reassessing timelines and reprioritizing tasks as needed. Once all of the site's key features had been developed by the software engineering team, we shifted our focus to verifying that the Inventory would remain updated over time. Yext utilizes a tool called

Process Street that outlines repeatable processes for TEMs to follow during project implementation proceedings. We added instructions on how to update the Consulting Inventory in each of these Process Streets so that all future projects would be accounted for. Additionally, the existing information in the Inventory was out-of-date and many completed projects were missing. Therefore, we created a spreadsheet of the missing projects with the TEM who oversaw each one and sent it out to the consulting team. Lastly, to close out the Consulting Inventory redesign, we made a spreadsheet with comprehensive documentation for altering and updating the site as well as the contact information of those who assisted with the project.

4 Results

Upon completing the Consulting Inventory redesign, we presented our accomplishments to the software engineering and consulting teams at Yext. I demoed our overhauled search experience, illustrating the kinds of queries that could now be asked using the site. This minimized the need for such queries to be asked over Slack, saving time for TEMs and increasing their self-sufficiency. After the presentation, we received much positive feedback from TEMs confirming that this tool would be useful. On average, three to five questions were posed in Slack channels each day that could now be answered by the Consulting Inventory. However, the Inventory does not take the place of such Slack messages entirely as it can only handle complex queries to a certain extent.

While the process of overhauling the Consulting Inventory illuminated ways in which I could apply my technical knowledge, it also affirmed the importance of soft skills. Clear and effective communication proved to be crucial when working with our stakeholders and the software engineering team. Written communication was just as valuable, especially when recording documentation for future developers of the Inventory. Organization skills were also necessary in order to keep track of various documents, meetings, and tasks throughout the summer.

5 Conclusion

Each phase of the Consulting Inventory redesign allowed me to utilize technical skills, like database design, and practice soft skills, like clear communication, demonstrating the applicability of a computer science background to a project management role. The new Consulting Inventory also made a positive impact at Yext by increasing the accessibility of information about previous consulting projects, especially with the inclusion of AI search functionality. By recording extensive documentation and building a process for maintaining the site, we expect this tool to remain useful over time.

6 Future Work

The most valuable feature to add to the Consulting Inventory would be the automation of certain tasks, like updating the inventory. For example, when a client's new website is launched, there could be a trigger in place to create a new entry in the Consulting Inventory's Knowledge Graph. This would prevent TEMs from neglecting to add their projects to the Inventory, ensuring that this information is not lost. Another useful addition would be a more robust process for removing outdated information, like if a client's site were to become inactive. One approach may be to have existing projects' data verified annually by the TEMs in charge of their implementation.

7 Acknowledgements

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8 References

[1] Zarina Alias, E.M.A. Zawawi, Khalid Yusof, and N.M. Aris. 2014. Determining critical success factors of Project Management Practice: A conceptual framework. *Procedia - Social and Behavioral Sciences* 153 (2014), 61–69.

DOI:http://dx.doi.org/10.1016/j.sbspro.2014.10.041

[2] Daniel Fernandez and John Fernandez. 2008. Agile Project Management —Agilism versus Traditional Approaches. *Journal of Computer Information Systems* 49, 2 (2008), 10–17. DOI:http://dx.doi.org/10.1080/08874417.2009.11646044

[3] Anne Marando. 2012. Balancing Project Management Hard Skills and Soft Skills. (February 2012). Retrieved February 20, 2022 from https://www.guanaitong.com/uploadfile/2018/0904/20180904153603911 8.pdf