Leveraging Technology for Tax Solutions: A PwC Internship Experience

CS4991 Capstone Report, 2023

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ABSTRACT
In my PwC internship within tax technology, I tackled a problem that directly impacted the efficiency and accuracy of tax-related tasks for both PwC and its clients. To address the challenge of streamlining the complex process of tax data analysis, I developed five highly functional web application widgets dedicated to the comprehensive analysis and seamless processing. My strategy included close cross-functional team communication to fully comprehend business needs. This knowledge served as a foundation for the development of effective application widgets specifically crafted to satisfy the demands of our clients. The effective deployment of these widgets greatly reduced the time and effort needed for tax data processing. Clients benefited from quicker and more accurate tax-related decisions. Future work in this area includes further optimization of the widgets, addressing any bugs or glitches, and ongoing testing and evaluation to ensure that the tools continue to meet the evolving needs of PwC and its clients.

1. INTRODUCTION

An internship is like starting a journey filled with opportunities for discovery, education, and development. Working as a Software Engineer intern at PwC within tax technology and tackling significant, real-world difficulties affecting both PwC and its esteemed clients provided me with a range of opportunities. The job required quick learning and application of new skills, adjusting to a varied workspace, and participating in high-impact projects to navigate the dynamic environment of a worldwide consulting firm.

In this landscape, where technology meets the intricate world of tax, the objective was to streamline the intricate process of tax data analysis and enhance the accuracy and efficiency of tax-related tasks. I was entrusted with the responsibility of developing widgets that could simplify the complexities of tax data for clients, thus facilitating quicker and more informed tax-related decisions. This was not just about coding or designing software; it was about infusing innovation and practicality into solutions that resonated with the unique needs and challenges faced by the clients.

2. RELATED WORKS

The digital transformation of tax and finance departments is at the forefront of professional discourse, given the increasing complexity of the tax landscape and the rapid technological advancements. Two seminal works provide pertinent insights into this transformation and its implications.

Ogden and Forman (2023) identify a direct correlation between the increasing demands on tax functions and the challenges posed by current workforce dynamics, such as talent shortages and hiring freezes. They emphasize the necessity for tax leaders to strategically

harness both talent and technology to facilitate smoother operations and value-driven activities within the organization.

Their findings further highlight the shift in expectations from tax departments, which are no longer viewed as just reporting and compliance entities. Instead, business leaders expect the tax department to provide insights that influence crucial decisions, such as M&A transactions or investment strategies. Furthermore, PwC's Pulse Survey, referenced in their work, provides a crucial statistic that underscores the challenge: a mere 9% of tax leaders are confident in preventing "quiet quitting" within their teams, emphasizing the need for radical changes in managing tax functions.

Concurrently, Lee and Campbell's research from EY (2022) underlines the intertwined destinies of tax and finance in today's transformative process. Their study paints a picture of a tax landscape that is undergoing profound shifts due to emerging regulations, ESG reporting, and the drive for digital tax filing They highlight a critical aspect: the evolution of tax departments from being reactive entities, looking at past transactions, to becoming proactive strategists guiding business decisions in real-time.

Notably, their findings suggest that while the strategic integration of technology in tax functions is indispensable, a significant percentage of tax departments have been slow to adopt advanced technologies. This is attributable to factors like lack of understanding, perceived high costs of implementation, and the absence of time or external impetus to transition to new systems. Campbell's recounting of an automation project underscores the dangers of myopic technology implementations and emphasizes the value of comprehensive roadmaps.

Both these works, from PwC and EY, two of the Big Four accounting firms, provide a comprehensive view of the challenges and potential solutions for the transformation of tax functions. They collectively underline the paramount importance of integrating talent and technology, adopting future-ready strategies, and ensuring a robust, holistic vision for the tax departments of the future.

3. PROJECT DESIGN

In my role as a Software Engineer Intern on PwC's TRACK project, I was tasked with developing technology to help clarify companies' tax data, making it easier to identify opportunities, solidify their tech base, and streamline tax processes.

3.1 Introduction to Widget Design

In the ambit of the TRACK project at PwC, my role was to create and implement technology designed to assist clients in sifting through and understanding their tax data with greater ease and precision. The project's main goal was to provide a clearer view of a company's tax landscape, ultimately aiding the tax function in uncovering more opportunities, establishing a stronger technological foundation, and simplifying the overall tax-related workload.

3.2 Widget Development Process

Development of each widget was a multi-stage process that demanded attention to detail and an understanding of both the technical and user-experience aspects of the tool.

3.2.1 Adding Widget Metadata

The creation of a widget kicked off with a crucial first step: assimilating widget metadata into the central database dashboard. The meticulous process involved refreshing SQL build files, which are the backbone for widget deployment. By updating the stored procedures, I made sure that the new widgets were inserted into the system without a hitch. Post-integration, I rigorously tested our

schema on higher-tier servers to iron out any kinks before declaring the widgets deployment-ready.

3.2.2 Backend Setup

With widget metadata in place, I moved to the backend, where I was responsible for the accurate execution of data retrieval. Creating new stored procedures for this purpose meant ensuring the data requested by users was fetched without fail. This backend crafting extended to perfecting the data endpoints and updating our data management layers to create a seamless back-office operation for the widgets.

3.2.3 Widget Load Shell Setup

After the backend was established, attention turned to putting up the widget load shell. Due to the existence of pre-existing widgets with a format similar to the one I was working on, this step went much more smoothly. I was able to guarantee the new widget's flawless integration and that it would load and show as planned on the local host by making use of these already-existing resources.

3.2.4 Configuring User Interface

The next piece of the project was the user interface layout, a stage that requires a sharp eye for detail and a strong grasp of user experience. The aim was clear: to guarantee that the data, now properly obtained and loaded, was presented on the widget in a manner that was both accurate and user-friendly. This required a number of changes and improvements to the user interface, all of which were made in an effort to create a presentation that was not only aesthetically pleasing but also extremely functional and educational.

3.3 Challenges and Learning Opportunities

In the initial stages, I spent my days exploring the uncharted waters of SQL, C#, and Angular. Despite the difficulties, I had already started to prepare days before the project began by immersing myself in various Angular coding lessons. This proactive approach gave me a solid understanding and perspective that were important as I worked my way through the project's intricacies.

I had to learn these new technologies fast, but more importantly, I had to use them successfully and efficiently. Each widget I worked on had its own unique set of specifications and difficulties, requiring an in-depth understanding of the technology resources at my disposal and a perfect alignment with the unique objectives of our clients.

Each tile offered several possibilities for learning. Building very useful and client-focused application widgets required overcoming each challenge and stage in the process. The encounter changed potential obstacles into turning points for growth and learning in my career as a software developer.

3.4 Conflict Resolution/Problem Solving

The collaborative nature of the TRACK project meant that I frequently encountered merge conflicts while integrating our widgets into the shared repository. These instances, although challenging, were invaluable for honing my skills in version control and team collaboration. I also faced technical challenges unique to data representation, requiring creative approaches like indexing tables for correct data visualization. These experiences were critical in refining my problem-solving skills and ensuring the widgets I worked on were not just functional but robust and user-oriented.

4. RESULTS

I successfully created and executed four widgets throughout my internship, all in line with the project's goals and schedule. The end result of this approach was a thorough

presentation I gave to a PwC partner, in which I described each widget's design process, time commitment, and difficulties. I described how I went from being ignorant to becoming proficient in SQL, C#, and Angular. This trip improved my ability to solve problems by teaching me how to be resilient and use strategic thinking in trying circumstances.

I also learned the nuances of version control and the value of clear communication within a team while navigating "merge conflicts" with another intern. Additionally, this experience helped me develop a client-centric perspective by making sure my technical contributions strategically matched the goals of the client.

5. CONCLUSION

Throughout my internship at PwC, I engaged in a project that was crucial not only for its immediate functionality but also for its broader implications in the domain of tax technology. By developing widgets tailored to enhance the tax analysis process, I contributed to a system that allows for more nuanced and accurate tax planning and compliance. These tools address an essential need in today's fast-paced business environment, where tax departments are expected to deliver strategic insights promptly. The widgets I developed simplify complex data, making it more accessible and actionable for users. This not only aids in the immediate tax-related decisions but also in long-term strategic planning, positioning PwC's clients to better navigate the evolving landscape of tax regulation and compliance. The anticipated value of this technology to consumers is substantial, as it promises to bolster the efficiency and efficacy of their tax functions, ultimately impacting their bottom line.

6. FUTURE WORK

As my internship wrapped up, the widgets entered the final development stage before being fully deployed and published for PwC client use. Moving forward, the focus will be on live environment performance analytics and iterative enhancements to address both user feedback and tax regulatory changes. Efforts will continue to evolve the widgets' predictive analytics capabilities, integrating machine learning for proactive tax insights. This continuous improvement will ensure that the widgets not only keep pace with but also anticipate and shape the future of tax data analysis and decision-making.

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