

My Time at DOW Chemical Company: The Benefits of Working in Multiple Projects

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ABSTRACT

During my internship at DOW Chemical company, I worked on several projects, my main focus being development of a functional calculator for one of their chemical products. Utilizing HTML, JavaScript, and CSS programming languages to develop and work on this project, I designed a calculator for publication on the DOW website. Now successfully published and accessible to the public, the calculator allows customers to input their parameters and materials to obtain the necessary results. Future work needed includes the IT team fixing the uplift of the project to the company's website and enhancing accessibility.

1. INTRODUCTION

Working at DOW chemical company came as a surprise for a computer science major, especially since the role was as a digital marketing intern. I was responsible for very diverse projects, from programming to benchmarking. However, my main project was to build a calculator for the DOW website, which I had to achieve without prior experience with web-development or designing.

My project involved many stakeholders, from my supervisor to people from different parts of the world, such as the IT team from China and the project manager in Europe. Other projects in different disciplines included working with

a benchmarking team in Michigan on improving the design of DOW.com, and analyzing data for the Sadarah project, company jointly-owned by Aramco and Dow.

2. RELATED WORKS

Because of the nature of my internship, the work I conducted for DOW was influenced by my extensive literature reviews. For instance, Yusoff, et al. (2012) applied work techniques to establish benchmark times for car seat polyurethane injection. My work building the calculator also involved getting input from consumers and letting them know how long it would take for the machine to inject the polyurethane.

Another project I was working on required evaluating competitor companies' websites and finding flaws on them so we could prevent those flaws on the DOW website. As Krishnamoorthy and D'Lima (2014) noted that competitiveness and benchmarking help companies with a successful implementation. Inspired by such concepts, the suggestions I gave to improve the website included identifying features that drive visitor retention and satisfaction. Also, analyzing how competitors, like SABIC, organizes their homepages to highlight sustainability efforts and recent innovations clearly, and trying to make it clear on Dow's website.

3. PROJECT DEVELOPMENT AND RESPONSIBILITIES

The calculator project I worked on during my time at DOW was the only project directly related to my computer science major. I had to develop the project using HTML, JavaScript, and CSS, with which I had very little experience. Teaching myself these coding languages and how to work on a project in a big scale while working on a real project was a bit of a challenge for me, but I was determined to make it work. Though my supervisor was based at the DOW location in Thuwal, the main stakeholder for the project was in Germany, so I had to find good times for us to communicate through Zoom meetings. Over the six weeks, I had multiple calls discussing project requirements, updates and feedback to ensure that the final product met their needs.

One of the biggest challenges I faced during the internship was uploading the code to Dow repositories on their internet. The IT team responsible for this was based in China so I had to deal with additional time zones and communication barriers. I had to go back and forth with them to solve these problems and the same time, work on other projects unrelated to programming. When I started the internship, I thought most of my tasks would involve my major, but I realized that I had to work on different areas.

During the development process, the calculator I created required carefully designing the user interface. The calculator itself has several useful features for customers. It allows users to input various parameters such as dimensions, density and machine settings to calculate important values needed when customers—other chemical companies--want to buy polyurethane. The calculator also provides different outputs, such as shot time and wet/dry times, helping companies make accurate decisions. It supports both SI and

Imperial units, which make it accessible to international audiences.

Besides the calculator project, I also worked on projects that were very far from the programming world. One of these was benchmarking competitor websites to analyze how DOW's website compared to others in the industry. I spent time studying different chemical company websites, identifying strengths and weaknesses; examining features, usability, design and overall customer experience; and making recommendations to improve DOW.com. No improvement I made myself, but I was tasked to share suggestions. One of the most significant suggestions I made was adding more video visuals instead of just photos and adopting the usage of visual storytelling to better showcase the company's achievements.

Another project I worked on was analyzing data for the Sadarah project, a joint venture between Aramco and DOW. I had to use regression models to find patterns in the data, which was something I had never applied in a real-world setting before. I used Power BI for data visualization for the business intelligence. Even though these projects were outside my major, they helped me develop critical thinking skills and a deeper understanding of how decisions are made in the business world. Balancing these different tasks while also working on the calculator made my internship more challenging, but it also made it more rewarding because I was constantly learning something new.

4. RESULTS

The calculator was successfully created and published on the DOW website, allowing everyone, including customers, to use it. They can enter their own numbers like width, height and density to get the results they need, including output values like shot time. The final version provides the option for the buyer

to download all their data either as an Excel form or an PDF. Figure 1 below shows the calculator.

UNITS
SI ☒ Imperial ☐

MEASUREMENT
Enter the dimensions to calculate the volume and then enter the density to get the material needed

Width (cm) Enter Width Length (cm) Enter Length Height (cm) Enter Height

Volume (L) Density (kg/m³) Enter Density (30-80) Material Amount (g)

MACHINE
Enter the machine settings

Output (g/sec) Enter Output Target Weight (g) Enter Target Weight Actual Weight (g) Enter Actual Weight

OUTPUTS:

Wet / Dry (sec) Shot Time (sec) Shot Time + 5% (sec)

Figure 1: Calculator

5. CONCLUSION

This experience fulfilled an urge for an exciting new experience. It taught me valuable soft skills such as time management, flexibility, and working with diverse teams from different backgrounds. Though it was difficult at times, I completed all of my tasks to the best of my ability, and in the end, the calculator I designed was successfully published on the website.

6. FUTURE WORK

A good deal of future work is needed on my projects, though I will not be able to contribute further, as my internship has ended. There are some technical issues on how the calculator was placed on the website as the dimensions do not meet the intended ones. Analyzing the data for the Sadarah project should be moved to the disganted [What is this word? Is it correct?] team for review.

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