

**SOFTWARE ENGINEERING INTERN**  
**OIL, GOVERNMENT DISTRUST, AND THE VENEZUELAN CRISIS**

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By  
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On my honor as a University student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments.

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## **Introduction**

In his “Principles of Natural and Politic Law” (1747), Jean-Jacques Burlamaqui posited that in order to establish a proper society, there must be a civil or political government to prevent anarchy. In this sense, government is considered the cornerstone of a civil society. Furthermore, government serves the people which it represents, and the people serve as “the basis of the authority of government” (United Nations, 1948). As such, it is essential that governments remain transparent and accountable in the eyes of the people.

Technology is increasingly suggested as a means to enhance trust in government. According to researchers at Kent State University, digital government improves communication between citizens and government (McNeal, Tolbert, Mossberger, & Dotterweich, 2003). Likewise, scholars in India have asserted that the use of technology can contribute to “the improvement of the democratic system of a nation as well as increasing the participation of people in the various decision-making processes.” (Sharma et. al., 2021, p. 1-6). It is widely acknowledged that technology can have a positive impact on the relationship between government and citizens. In fact, e-government (electronic government), has already been around for a while. At the turn of the century, 80% of local governments in the U.S. were already maintaining a website (Norris, Fletcher, & Holden, 2001), and all 50 states had adopted some form of e-government (Stowers, 1999).

For the last several decades, Venezuela has been engulfed in a political, economic, and social crisis. The primary factor is the decline in their oil industry, which is their primary economic institution. While strained foreign relations due to political unrest from recent coups and alleged election fraud has contributed to the decline, some attribute it to a failure to reinvest in technology and innovation (Rosales & Sánchez, 2020). As such, one could posit that the use of

technology would benefit the economy, and potentially the government by increasing transparency and public trust.

As government provides a framework for society, it logically follows that it should evolve as society does. At present, most local governments still rely on paper-based filing systems for document and record management. To align with the times and enhance efficiency, it is paramount that governments embrace and leverage modern technologies to overhaul and modernize this outdated system.

### **Software Engineering Intern**

For the past two years, I worked as a software engineer intern at the company OpenGov. OpenGov is a cloud software company that provides services to governments, including Budgeting & Planning, Permitting & Licensing, Procurement, Financials, Asset Management, and Reporting & Transparency. I worked on products for the Permitting & Licensing unit at OpenGov to develop software that allows citizens to electronically file permits, such as a building permit, and allows public servants to view, update, and send back these records.

In my time at OpenGov, I learned about the software development process, web development, and the industry in general. The process followed an agile software development that is a “flexible, iterative approach...that prioritizes collaborate, rapid prototyping, and continuous improvement” (Wrike, 2022). We had daily collaborative meetings to give status updates, and weekly sprint-planning meetings. My day-to-day schedule consisted of a morning meeting with my team, then I began to work on the tickets (tasks) that I had been assigned.

The day-to-day work I typically did was frontend – meaning the part of the web application that users interact with, known as user interface (UI) and user experience (UX). An example of a component I developed was a date-picker that allows users to navigate through a calendar and select a date. Through my work I became proficient in the platforms and languages used, which allowed me to be an effective developer. In my development process, I began with a ticket describing a problem or an addition to be made. For “bug-squashing”, I would first follow steps to reproduce it. For features, I examined the design and the description of how the addition should behave. After evaluating the task, I began coding, iteratively designing and revising my solution with feedback from my peers. Upon their approval, the code was entered into the code base for further testing. In the case that bugs, or issues, were found, I completed further revisions. The final code was pushed to production after passing thorough testing.

The major products I worked on are a workflow that allows public servants to request a change to a record, and an interface that allows public servants to send out customized notifications via email or SMS to record applicants. The “Requesting Changes” product contributes to efficiency, while the “Notifications” product contributes to transparency. This year, we worked with the Utah Department of Alcoholic Beverages to test our product. Working with real users and receiving feedback is a very important part of the development process: it allows developers to “improve [our] software’s functionality, usability, and overall user experience” (Cser, 2022). Once users have tested out the product, they often find things that we missed in our testing, and they send us feedback to improve our product.

The mission statement of the company is to “power more effective and accountable government” (OpenGov, 2023b) and the software does just that. Outdated technology or lack thereof causes public servants to struggle to communicate needs to citizens and elected officials

(OpenGov, 2023a). Paper filing systems are inefficient and difficult for the public to access. The use of cloud software for documents and records can greatly increase a government's transparency and effectiveness, and it may allow them to better serve their citizens.

### **Oil, Government Distrust, and the Venezuelan Crisis**

Throughout the country's 200-year history, Venezuelans have struggled with the structure and powers of their government. At its founding, the factions within the country fought between a constitutional government and military rule. Some political analysts argued the need for a strong central government to provide order (Vallenilla-Lanz, 1919), while others condemned dictatorship, calling it barbaric (Julio César Salas, 1919). In the 20<sup>th</sup> century, centralization of power occurred under the leadership of Cipriano Castro and Juan Vicente Gómez. Then, in 1958 the Punto Fijo Pact, an agreement between political parties following the overthrow of military dictator Marcos Pérez Jiménez, was made, marking the return of democracy and the beginning of a period of economic prosperity. However, there were still several issues with the political system. Political parties were often oligarchical, economic opportunity favored businesspeople and political leaders, and by the 1980s the justice system fell into corruption. According to researchers Núñez M. & Pérez-Perdomo (2022), complaints against the political system led to the political crisis in the 1990s.

The oil industry in Venezuela is essential to understanding the current economic, political, and social state of the country. When former caudillo (military and political leader) and president from 1908 to 1935, Juan Vicente Gómez, allowed foreign oil companies into the country, there became an insoluble link between oil and the economic and political evolution of the country

(Rosales & Sánchez, 2020). This marked the beginning of Venezuela's oil dependence and set the stage for the subsequent developments in the sector.

This engagement with foreign oil companies also sowed the seeds of a socio-economic divide, as the benefits of oil wealth were not equally distributed among the population. Decades later, in the early 2000s, President Chávez's altered the oil industry's legal framework, which marked a significant turning point in Venezuela's history. His policies redirected a larger share of oil revenues toward social programs, aiming to alleviate poverty and reduce income inequality. While these initiatives had a positive impact on many Venezuelans in the short term, they also caused the country's dependency on oil to increase (Rosales & Sánchez, 2020). Venezuela's economic structure became heavily reliant on oil exports, making it extremely vulnerable to fluctuations in global oil prices. As a result, when oil prices decreased, the country faced a myriad of economic challenges, including inflation, fiscal deficits, and shortages of essential goods, which significantly impacted its socio-economic fabric and stability.

These economic problems persisted when Chávez's vice president, Nicolás Maduro, rose to presidency and continued his successor's policies. When the time came for Maduro's reelection, reportedly only 46% of voters participated, and there were rumors that opposing candidates had fled the country for fear of imprisonment (Hammond, 2023). This led citizens and parliament alike to believe the election was fraudulent, causing more distrust in government. Today, only Venezuela's allies (Iran, China, and Russia) recognize Maduro as the legitimate president, while countries such as the United States show support toward Juan Guaidó, the interim president following Chávez's untimely death.

Despite economic turmoil, political polarization, and institutional fragility there is still hope for Venezuela's democratic system (Levine & Crisp, 1990). While some attribute the current

crisis to “a deeply ingrained culture of protest and endemic violence” (Hillman, 1994, p. 13), others argue that culture is a human construct, subject to be challenged (Levine, 1995). If we indeed believe that culture is malleable and that Venezuela’s pattern of violence can be remedied, a comprehensive analysis of the oil industry's infrastructure is essential to understanding the root causes and to work towards solutions. Additionally, the strategic incorporation of technology in government offers a promising avenue for improving democratic systems, fostering accountability, and rebuilding public trust.

### **Research Question and Method**

Amid ongoing discussions surrounding technological determinism, where some argue that technology alone does not exclusively drive societal transformations (Wyatt, 2008), it remains indisputable that technology wields a significant influence on society. The question regarding Venezuela follows: How could technology use in government improve the current crisis?

To analyze the situation and later answer this question, I will interview family members of mine who have emigrated from Venezuela in recent years. While I cannot truly use an ethnographic approach and immerse myself (Star, 1999), I will still collect data with “insider” perspectives, which will be diverse since I have family that immigrated to Venezuela from another country, were raised in Venezuela, and that have spent time living in the United States as well. Because of their differing backgrounds, the people I will interview will be able to compare different governments and give feedback as to why they chose to leave Venezuela. The specific questions I will ask will be regarding how they feel the government best served them, what

failings they observed, how they felt technology was utilized, and what ultimately motivated them to emigrate from the country.

## **Conclusion**

Without meaningful reforms and a shift in government policies, the future of Venezuela's democracy appears bleak. The rampant corruption within the oil industry is draining its resources and exacerbating the economic crisis. The escalating violence and poverty have left countless Venezuelans desperate for change. To ensure the survival of their democracy, the government must prioritize transparency, invest in social welfare programs, and seek international cooperation to address these pressing issues. Without decisive action, the exodus of citizens will continue, further eroding the foundations of the nation's democracy.

In my research, I will delve into the intricacies of the political, economic, and social crisis occurring in Venezuela. With this analysis, I will construct a proposition for a plan of action the government could take to rectify issues within the establishment. Part of my research will be on the use of e-government, focusing on how integration of such practices could benefit the national and local governments and bring increased transparency and accountability to the people of Venezuela.



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