

# Politico - Literature Review

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## Introduction

This document is a review of the relevant literature for my final year project; It will cover what games have inspired the project and what elements have been taken from said games. It will also discuss games on the web as a means of being cross platform and the technology choices made for such games and the project as a whole. Finally, the document will cover the potential use of politics and fuzzy logic within the game with references to my prior research into the subject.

## Similar Games

The idea behind this project is very simple and so where gameplay ideas have been taken from other games it is usually very small scale and requires discussion as it is more nuanced than a like for like copy.

The biggest inspiration for the project is the mobile game Reigns [1] that first implemented the idea of having a Yes/No decision be the only mechanic that a player can interface with. The biggest difference is that, in Reigns, the effects of a decision lie entirely within that decision as opposed to being a combination of different factors which is limiting in terms of being able to look at different areas within the game to inform any decision.

Alongside Reigns, another inspiration for the project is the board game Diplomacy [2] that utilises politics and the idea of making political decisions that affect different areas within the nation the player controls where a core tenet of the game is that beyond the initial start-up, there is no real randomness to the game, something I hope to partly take through my use of fuzzy logic (see section on Politics and Fuzzy Logic)

Some other notable mentions would be the Victoria [3] and Civilization [4] series where the idea of multiple parts of a nation making up an overall outcome comes from and how the player can see and interact with the individual parts.

## Games on the Web and Cross Platform Games

Early games on the web used technologies such as Flash and Java Applets which required the user to have external plugins/extensions installed on their machines in order to run them. Some of the most popular games for the web such as Fancy Pants Adventure [5] or Line Rider [6] were made using the technologies. These games weren't able to run in every browser as the proprietary technology wasn't a browser standard, this started to change slowly through the introduction of HTML5 which included a Canvas that could be painted to, overtime this has phased out the use of external technology and now most web browsers fail to support the outdated technology such as Flash player.

Although games were thriving early on after the introduction of HTML5, they were only really cross platform in the sense that they could be played on any device with a browser but it wouldn't be a comparable experience, many games just serving the desktop site with no support for touch controls. Some web games that decided to focus on being cross platform ditched the browser altogether and used a web wrapper such as Adobe AIR [7].

The focus of this project is to be completely cross platform whilst being in the browser, accessed in exactly the same way on all platforms, designed to be responsive and scale to any screen size with intuitive controls that work on all platforms without the need to query the platform. This will be driven through the use of mobile first design [8] that scales up from a mobile screen to any sized

screen and will be aided through the use of modern technology that is designed to scale and last over time (see section on Technology).

## Politics and Fuzzy Logic

The main theme of the game revolves around making political decisions that have various effects on the nation's attributes. As a minimum viable product, these effects could be randomly decided, but a more robust gameplay experience should make use of advanced techniques and, from my previous research, fuzzy logic within the domain of politics, especially in non-crucial scenarios such as a video game is perfectly suited and can produce impressive results.

To give a bit of background, the idea behind the project is that you make a decision that sits somewhere on the political spectrum (Left – Centre – Right etc) and then, depending upon how the different areas within the nation sit on the same spectrum, the player's yes/no decision will have an effect on the attributes of the nation. Without the use of fuzzy logic, the nation's political leaning could be decided at random, but with the use of fuzzy logic we can split up a nation into regions and then, for each region, give it various factors such as number of universities, average salary etc and use a fuzzy inference system to determine, accurately, where that region should lean on the political spectrum.

This is a topic which has a lot of research behind it, and from my own research I have found that there are many areas in which Fuzzy Logic can be applied to politics outside of just determining which way an area will land on the political spectrum. Some of these include using a fuzzy inference system that uses details about a politician to determine the likelihood they would win an election [13], determining the process a political leader could take when making a decision [14] or improving candidate selection within a political party by creating a fuzzy inference system that mimics intuitive decisions about candidate selection [15]. The conclusion reached through research and testing of a fuzzy inference system within this domain is that "the system can be used within less serious situations such as within Video Games that feature the simulation of political leaning where accuracy isn't important, but the use of a fuzzy system instead of randomly assigning political leaning would add more depth to the game or simulation." [16]

Outside of Fuzzy Logic, examples of other games that introduce politics as a main theme are the Tropico Series [17] and then an example of a game that deal with modern politics like this project is For a Better Country [18].

## Technology

Technology has come a long way from Flash and Java Applets to modern HTML5, JavaScript and SVG/Canvas and so it is important to look at the available options for a project of this kind and why using a certain technology is beneficial.

This project uses React and TypeScript; React [9] is a framework for JavaScript that allows you to write declarative components that output as HTML on a page and TypeScript [10] is a super-set of JavaScript that adds static typing to the language. React is designed for user interfaces and so games that heavily rely on other elements aren't suited to this platform and the use of the HTML5 Canvas is probably more suitable whereas games such as strategy games or games that have a high focus on their user interface can take advantage of React and its ecosystem. An example of a game made using React is The Danger Crew [11] and an example of TypeScript's use within game development can be seen with the Excalibur game engine. [12]

The use of React also brings with it a Component driven approach by default [19] where each UI element is broken down into its components that take properties to determine how it should look and behave.

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