



The Role of AI in addressing complex Policy challenges: an exploration of the use of AI in tackling wicked problems in Public Policy

AIM: to examine the role of AI in addressing complex policy challenges, focusing on the wicked problem framework within the domain of public policy.

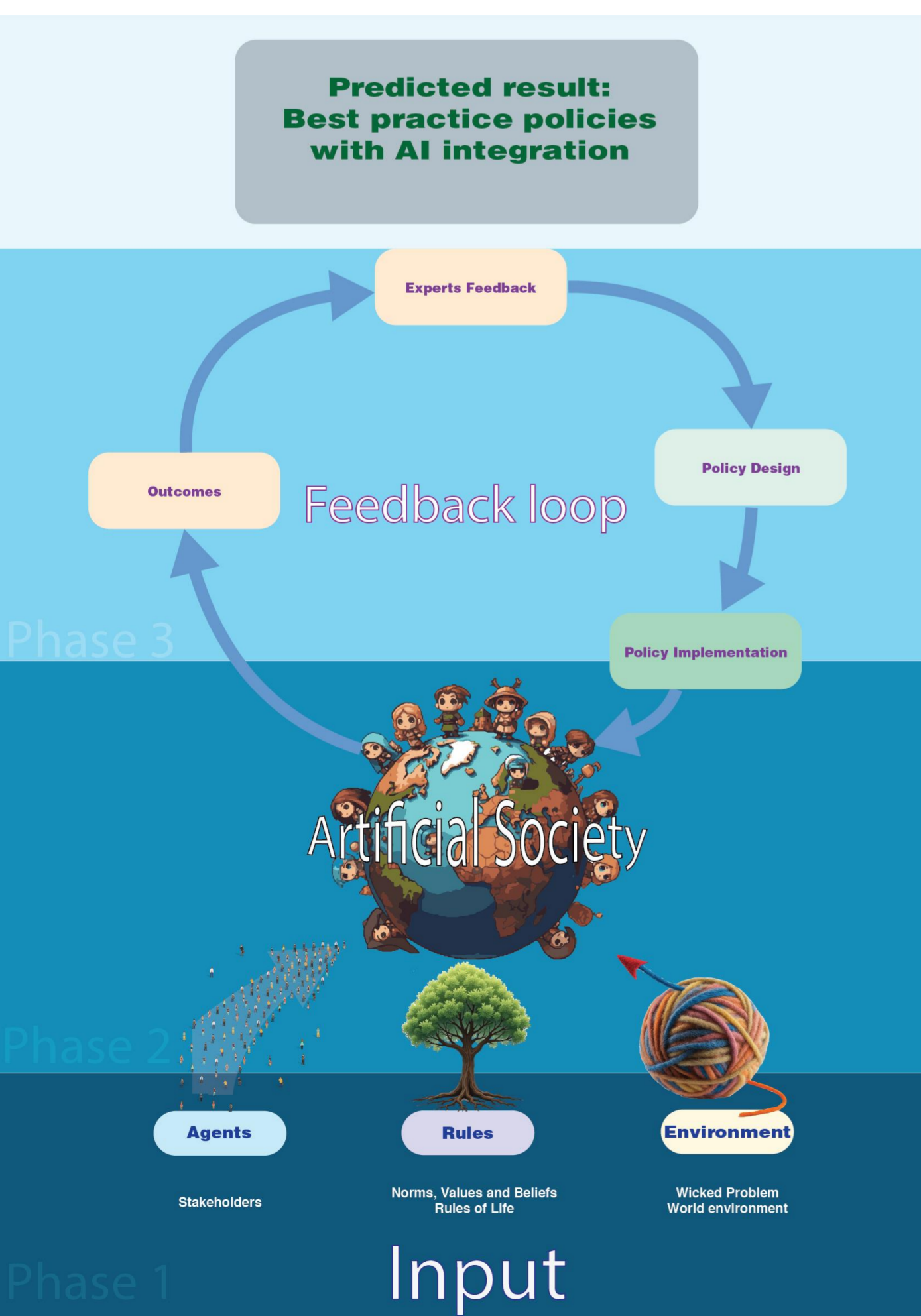
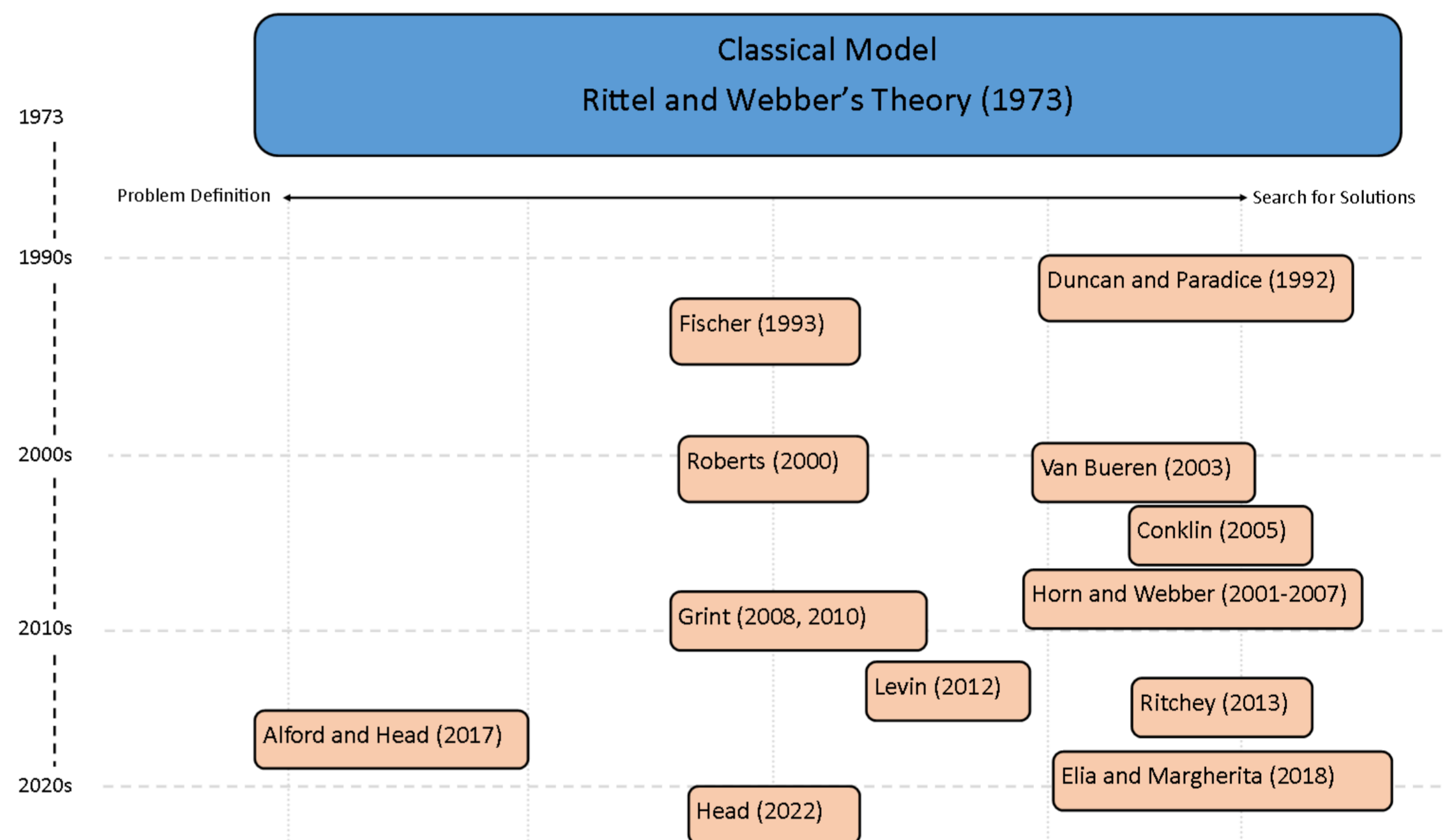
Objectives:

1. Build a thorough literature review underlining both the literature on complex policy issues with special attention to wicked problems and also artificial intelligence, especially AI use in Public Policy.
2. Delve into the challenges and barriers found in both subjects which may hinder the research, in the same literature review.
3. Develop a methodology whereby a wicked problem can be synthesised into an artificial society which incorporates agentic AI, environment and rules.
4. Test policy regimes inside the artificial society to gather responses from all virtualised stakeholders.
5. Utilise Generative AI (GenAI) to create and refine different policy regimes, which can be further tested.
6. Develop new methods in which AI can assist in tackling wicked problems inside the artificial society.
7. Evaluate the effectiveness of agentic AI in bargaining towards a solution for specific problems.
8. Compare and contrast between the two case studies to identify commonalities, highlighting variations and checking for robustness in the framework.
9. Identify technical, legal and sociological barriers which will hinder AI use in tackling such complex issues.
10. Identify difficulties which need to be addressed for adaption of AI.
11. Tackle legitimacy of proposed solutions.

Brief review of literature

The term “Wicked Problems” refers to a specific category of complex societal challenges that resist conventional solutions due to their intrinsic nature and interconnectedness. The original authors have described these as having ten distinct characteristics. Different authors have addressed this theoretical framework and added towards either the problem definition or created solution frameworks. However, none of these solution frameworks have gathered enough acceptance to be considered a key solution. AI can be a solution to these perennial issues. It provides tools that can tackle several characteristics which these problems have. However, to date, there is no theoretical framework which incorporates AI into Public Policy to address these issues. This thesis attempts to create this, specifically utilising Artificial Societies - AI simulations to try to solve Wicked Problems.

Wicked Problem Theories



Methodology

How to build an artificial society

The methodology of the thesis is two-fold –

1. Two case-studies are performed, namely Land Grab as a Local Issues and Climate Change as a Global issue
2. AI Simulation: These two case studies shall be fed into a virtual world whereby AI actors, mimicking human society, shall be “living”. Policy regimes will be introduced and the solutions shall be observed together with the reactions of the actors. AI-driven solutions shall also be introduced to check which solution works best.

These two artificial societies shall be compared and contrasted to gather the similarities and differences between the methodology used to find the optimal solution.