Chapter 13
The New Interdisciplinary Fields of Political Engineering and Computational Politics

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ABSTRACT

This chapter describes two new interdisciplinary fields defined by Ashu M. G. Solo called "public policy engineering" and "computational public policy." Public policy engineering is the application of engineering, computer science, mathematics, or natural science to solving problems in public policy. Computational public policy is the application of computer science or mathematics to solving problems in public policy. Public policy engineering and computational public policy include, but are not limited to, principles and methods for public policy formulation, decision making, analysis, modeling, optimization, forecasting, and simulation. The definition of these two new fields will greatly increase the pace of research and development in these important fields.

INTRODUCTION

In this chapter, the author, Ashu M. G. Solo, defines two new closely related fields that he has initiated called *political engineering* and *computational politics*. These fields were first originated and defined by Solo in Solo (2011). Basic and advanced methods in engineering, computer science, mathematics, or natural science can be used for political decision making, analysis, modeling, optimization, forecasting, simulation, and expression. This will lead to greatly improved political decision making.

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For example, politicians often determine how to spend limited campaign funds on advertising in certain geographic areas based on their best guesses rather than on a rigorous mathematical and computational analysis of how funds should be allocated for the greatest benefit to their campaigns.

POLITICAL ENGINEERING AND COMPUTATIONAL POLITICS

The term *political engineering* (Wikipedia, 2011) has been previously used to refer to designing political institutions. This is a poor usage of the term and an abuse of the word *engineering*.

Engineering consists of theoretical engineering and applied engineering. Theoretical engineering is the creative development of mathematics, natural science, technical principles, or technical methods for usage in the development, analysis, characterization, modeling, control, automation, optimization, forecasting, simulation, or visualization of devices, algorithms, components, systems, machines, apparatuses, structures, processes, operations, or materials. Applied engineering is the creative application of mathematics, natural science, technical principles, or technical methods for the development, analysis, characterization, modeling, control, automation, optimization, forecasting, simulation, or visualization of devices, algorithms, components, systems, machines, apparatuses, structures, processes, operations, or materials. These definitions of engineering, theoretical engineering, and applied engineering are by the author of this chapter.

As it has been previously used, the term *political engineering* does not require the creative application or development of mathematics, natural science, technical principles, or technical methods for the development, analysis, characterization, modeling, control, automation, optimization, forecasting, simulation, or visualization of devices, algorithms, components, systems, machines, apparatuses, structures, processes, operations, or materials. Therefore, the author of this chapter is giving a new and more appropriate definition to the term *political engineering*. Just like many terms in the dictionary have multiple meanings, the term *political engineering* can have multiple meanings.

As defined by the author of this chapter, political engineering is the application of engineering, computer science, mathematics, or natural science to solving problems in politics. Computational politics is the application of computer science or mathematics to solving problems in politics. Therefore, computational politics is a subset of political engineering. Political engineering and computational politics include, but are not limited to, principles and methods for political decision making, political analysis, political modeling, political optimization, political forecasting, political simulation, and political expression. Political engineering and computational politics are more technically, computationally, mathematically, and scientifically rigorous approaches to the field of political science.

The term *e-politics* (Livermore, 2011) refers to politics and the Internet. Some aspects of the field of e-politics, such as e-voting, are part of political engineering. An e-politics activity only constitutes political engineering when principles or methods in engineering, computer science, mathematics, or natural science are used in political decision making, analysis, modeling, optimization, forecasting, simulation, or expression. An e-politics activity only constitutes computational politics when principles or methods in computer science or mathematics are used in political decision making, analysis, modeling, optimization, forecasting, simulation, or expression.

Political expression on a blog doesn't constitute political engineering or computational politics. However, political expression involving the use of software methods for automatically generating political blog entries based on the latest polling data or government data would constitute political engineering and computational politics.

SCOPE OF POLITICAL ENGINEERING AND COMPUTATIONAL POLITICS RESEARCH AND DEVELOPMENT

Scope of Political Engineering Research and Development

The scope of research and development in the field of political engineering includes, but is not limited to, the following:

Plan Interventions Through Revisions/Changes Within the Scope of Disaster Law No. 6306: The Case of Sivas, Türkiye
Malike Torunand Yasin Bekta (2025). *Journal of Comparative Asian Development (pp. 1-30).*
www.irma-international.org/article/plan-interventions-through-revisionschanges-within-the-scope-of-disaster-law-no-6306/372679