Generative Artificial Intelligence Empowers the Operational Mechanism and Practical Path of Public Governance

Shu Chen
Institute of Science and Technology Information, Beijing Academy of Science and Technology, Beijing, China

Hui Li
Institute of Science and Technology Information, Beijing Academy of Science and Technology, Beijing, China

Xiaohong Jin
Institute of Science and Technology Information, Beijing Academy of Science and Technology, Beijing, China

Guiquan Xi
Institute of Science and Technology Information, Beijing Academy of Science and Technology, Beijing, China

Xiao Tan
Institute of Science and Technology Information, Beijing Academy of Science and Technology, Beijing, China

Abstract

The rapid proliferation of generative artificial intelligence (AI), particularly large language models, has opened new avenues for governance innovation while posing profound challenges to conventional public governance frameworks. Traditional governance models, marked by static rules, centralized decision-making and linear execution, struggle to address the increasingly complex, dynamic and uncertain public affairs in the digital age. This paper puts forward the concept of generative governance as a new paradigm of public governance underpinned by generative AI technologies. Theoretically, it identifies three foundational operating mechanisms: first, the generative emergence of cross-domain knowledge, which transcends the linear constraints of traditional knowledge production through large-scale model training; second, the self-organizing, adaptive and evolutionary mechanism derived from biological principles, which realizes iterative optimization of governance strategies via continuous data input and interactive fine-tuning; third, the interplay of instrumental rationality and value rationality, which strikes a balance between governance efficiency improvement and adherence to public values and ethical norms. Practically, this paper summarizes four core functions of generative governance: predictive decision-making generation, responsive policy adjustment, personalized public service delivery, and multi-stakeholder collaborative governance. It further discusses its typical application scenarios in urban planning, public health emergency response, disaster prevention and environmental management. The study concludes that generative governance represents a fundamental paradigm shift in public governance. By reshaping the knowledge production and decision-making mechanism, it enables multi-scale governance from micro individuals to macro systems, and provides a systematic approach to advancing the modernization of governance systems and capabilities in the AI era.

Keywords

Generative Governance, Generative Artificial Intelligence, Public Governance, Governance Paradigm Shift.