

Title: Trust in Generative AI: A Semantic Synthesis of Trust Dimensions and the Development of an Integrated GenAI Trust Framework

Abstract

The rapid integration of Generative Artificial Intelligence (GenAI) across low, medium and high-stake domains including education, healthcare, business, and public services has intensified scholarly interest in understanding how users develop trust in these systems. Despite the growing number of trust-related studies, existing research remains fragmented, with substantial variation in trust definitions, theoretical foundations, and measurement dimensions. This study synthesizes the emerging literature on trust in GenAI to identify how trust has been conceptualized, measured, and operationalized across contexts. Following PRISMA-based review procedures, 18 empirical studies published between 2023 and 2026 were systematically analyzed using a mix of inductive and abductive semantic synthesis approach consisting of open, axial, and selective coding. The synthesis identified 15 higher-order trust dimensions, including Cognitive Trust, Affective Trust, Behavioral Trust, Cognitive Distrust, Epistemic Trust, Institutional Trust, Ethical Trust, Transparency-Based Trust, Calibrated Trust, and Ethical-Spiritual Trust. Findings reveal that Cognitive Trust remains the dominant paradigm within existing research, while emerging dimensions such as Epistemic Trust and Calibrated Trust remain underrepresented despite their increasing relevance to GenAI systems. The review further demonstrates growing support for conceptualizing trust and distrust as distinct constructs that coexist rather than opposite ends of a single continuum. To address the conceptual fragmentation of the literature, the study proposes the Integrated GenAI Synthesized Trust Dimensions Framework (IGSTDF), which organizes trust into interconnected layers encompassing trust antecedents, trust appraisals, calibration mechanisms, behavioral outcomes, and feedback processes. The framework provides a comprehensive foundation for future theory development, trust measurement, and the design of trustworthy GenAI systems.

Keywords: Generative Artificial Intelligence, Trust in AI, Generative AI Trust, Cognitive Trust, Epistemic Trust, Trust Calibration, Distrust, Semantic Synthesis, Systematic Literature Review, Trust Framework, Open Code, Axial Code, and Selective Code