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Analyzing e-Participation Models Based on Giddens' Structuration Theory

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Abstract

E-participation has emerged as a central pillar of digital governance, aiming to enhance citizen engagement, strengthen transparency, and improve accountability in public decision-making. Despite the proliferation of conceptual and empirical models, limited attention has been paid to the dynamic interaction between structure and agency as conceptualized in Giddens' Structuration Theory. This study analyzes existing e-participation models through a structuration lens in order to assess their theoretical grounding and identify conceptual gaps. A Systematic Literature Review (SLR) was conducted in accordance with the PRISMA protocol. Articles were retrieved from high-quality international databases, including Web of Science, Scopus, ScienceDirect, Emerald, and Springer, with a focus on journals ranked Q1 and Q2. After duplicate removal, screening, and quality appraisal using the CASP checklist, 39 eligible studies published up to 2025 were selected for in-depth content analysis. The findings reveal that most models emphasize technological and institutional dimensions, while social, cultural, and reflexive aspects-particularly reflexivity and time-space distanciation- remain underdeveloped. Comparative analysis indicates that existing models can be categorized into structure-oriented, agency-oriented,

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and integrative approaches. However, only a limited number of studies explicitly operationalize the duality of structure in explaining participation dynamics. This study contributes by (1) synthesizing high-quality interdisciplinary literature, (2) extending Structuration Theory into the domain of digital participation, and (3) proposing a conceptual framework that integrates institutional structures, citizen agency, and reflexive processes within digitally mediated time–space contexts. The findings offer theoretical advancement and practical guidance for designing context-sensitive and sustainable e-participation initiatives.

Keywords: e-participation; digital governance; structuration theory; agency; systematic literature review; Giddens.

Introduction

E-participation refers to the use of digital technologies to strengthen citizen participation in public decision-making processes. This concept, which emerged in the 1990s with the rise of the Internet, has gradually evolved from simple information tools such as governmental websites toward more complex interactive platforms, including online consultation systems, e-voting, participatory budgeting, and social media (Mariani & Mortati, 2024). The main goal of e-participation is to enhance participatory democracy, government accountability, and citizen empowerment in public governance, particularly in an era when trust in representative democracy has been declining (United Nations, 2010; Khadija & Prabin Kumar, 2018).

Given the complexity of public issues, the emergence of new technologies, and the need for multi-level interaction among government, citizens, and other stakeholders, e-participation has been introduced as a novel approach to digital governance. This approach not only enhances transparency and equity, but also contributes to improving the business environment, reducing corruption, and increasing public trust (Kasraei, Abedpour, & Karamati, 1402; Waheduzzaman & Khandaker, 2022). International experiences also indicate that the use of participatory technologies has made public policymaking and decision-making processes more efficient and responsive.

This study, adopting a Systematic Literature Review (SLR) approach and based on the PRISMA protocol, identifies and analyzes e-participation models and seeks to reveal existing gaps through the lens of Giddens' Structuration Theory. The primary aim is to classify the identified models based on key dimensions and participation levels, analyze their connections to structuration concepts, and explain their application domains. Accordingly, the overarching research question is: "Which models and frameworks of e-participation have been identified in the scholarly literature, and how can these models be analyzed and classified using the key concepts of Giddens' Structuration Theory?" Addressing this question ultimately provides a basis for proposing theoretical and practical recommendations to develop more comprehensive and effective models.

Research Questions

In alignment with the PRISMA approach, the PICO framework was used to design the research questions. Table 1 presents the PICO structure adapted to the subject of this study.

Table 1**. PICO Structure Adapted to the Research Topic**

Component	Description
P (Population)	Stakeholders of e-participation (citizens, governmental institutions, non-governmental organizations, and businesses).
I (Interest)	Conceptual models and frameworks of e-participation.
CO (Context)	The context of networked governance and analysis of models through the lens of Anthony Giddens' Structuration Theory.

Conceptual and Theoretical Framework

Definitions and Review of Key Concepts

The concepts of e-participation, e-government, and e-democracy have largely been analyzed in the literature within the context of digital governance theories and social theories. Among these, Giddens' Structuration Theory, with its emphasis on the dual relationship between institutional structures and human agency, provides a coherent framework for linking these concepts. From this perspective, notions such as participation, trust, reflexivity, and technology are not treated as isolated elements, but rather as interwoven components of a socio-technological process.

E-government refers to the systematic use of information and communication technologies to improve the delivery of public services, enhance transparency, facilitate interactions between government and citizens, businesses, and other organizations, and increase the efficiency of governance processes (Gunter, 2006).

E-participation refers to stakeholder involvement in policymaking and public service delivery through digital tools at three levels: information provision, consultation, and participation in decision-making (Nahleen, 2006; Cahlikova, 2017).

E-democracy refers to the use of information and communication technologies to deepen democratic processes and strengthen accountability and transparency (Gronlund, 2011; Paivarita & Saebo, 2006).

Structure is defined as the set of rules and resources that shape social actions. Structure is not merely constraining; it is also enabling. It may limit action while simultaneously creating new pathways and opportunities for action (Giddens, 1984).

Agency refers to the capacity of actors (individuals or groups) to act consciously and transform conditions. Contrary to theories that portray individuals as passive, Giddens conceptualizes agency as active, creative, and endowed with the power of choice (Giddens, 1984).

Reflexivity denotes the capacity of individuals to reflect upon their actions, evaluate them, and modify behavior based on experience and new information. In everyday life, actors continuously monitor and revise their conduct (Giddens, 1984).

Time–space distanciation refers to the process through which social relations and actions are no longer confined to physical co-presence or simultaneity. With the development of technologies such as the Internet and telecommunications, interaction becomes possible across different locations and times (Giddens, 1984).

The duality of structure is the central concept of Giddens' theory, positing that structure and agency are not separate entities but are mutually constitutive. Structures are produced and reproduced through human actions, while at the same time shaping the framework within which those actions occur. In simple terms, individuals create structures, and structures shape individuals (Giddens, 1984).

Theoretical Framework: Giddens' Structuration Theory (Structure, Agency, Reflexivity, Time–Space)

Anthony Giddens' Structuration Theory (1984) explains the reciprocal relationship between social structures and human agency. According to the concept of the "duality of structure," structures simultaneously constitute the medium and the outcome of social practices; they are both the condition of action and reproduced through the repetition of those actions (Giddens, 1984).

This theory avoids both technological determinism and social determinism. It does not attribute outcomes solely to technological infrastructures or purely to social forces. Rather, information technologies acquire meaning within the context of social practices. In other words, the success of e-participation initiatives is not merely the result of the existence of technological infrastructures, but emerges from meaningful citizen action within institutional rules and resources (Parvez, 2006).

Applying Structuration Theory to the review of e-participation models enables analysis beyond linear or purely technical classifications. It allows for the examination of the dynamic interactions among institutions, technologies, and human actors. This perspective is particularly significant for the design of stakeholder-oriented and context-sensitive models. Several studies, including those by Porwol et al. (2014, 2016) and Prashant et al. (2018), have drawn upon Structuration Theory to analyze e-participation processes (Porwol, Ojo, & Breslin, 2014; Porwol, Ojo, & Breslin, 2016; Prashant, Nemati, & Bagir, 2018). Likewise, Hanafizadeh and Taherianfar (2023), in their study titled "Individual Adaptation in the Face of Enterprise IT Changes in the Organization," applied Structuration Theory to examine adaptation processes within organizational contexts.

A synthesis of the literature indicates that although research has gradually moved beyond purely technological approaches, theoretical coherence across models remains limited. Many studies focus on describing levels or tools of participation without sufficiently explaining why and how participation emerges within specific institutional and cultural contexts. This condition has led to conceptual fragmentation and limited generalizability of models. Therefore, employing Structuration Theory provides an opportunity for a deeper and more integrated analysis of the e-participation literature.

Classification of Levels in E-Participation Models

The research literature commonly categorizes e-participation into three principal levels:

1. **E-information**: The one-way dissemination of data and policies to citizens through portals, dashboards, and official platforms.
2. **E-consultation**: Two-way interaction involving the collection of citizen feedback through surveys, forums, and consultative platforms.
3. **E-decision-making**: Active citizen involvement in public decision-making through mechanisms such as e-voting, virtual councils, or instruments of direct digital democracy.

The models proposed by Nahleen (2006), Curtin (2006), and Macintosh (2004) elaborate this three-level typology. Reports of the United Nations Department of

Economic and Social Affairs (UN-DESA, 2022) also emphasize the role of governments in enabling and institutionalizing these participation levels.

Subsequently, Porwol and colleagues (2014, 2016), adopting an ontological perspective, analyzed participation across three dimensions: the democratic process, participatory projects, and consultative infrastructure. These classifications provide a conceptual foundation that can be adapted in designing stakeholder participation models in specific domains, such as business licensing systems or other sectoral governance contexts.

Methodology

The research process was designed according to the standard stages of a Systematic Literature Review (SLR), including identification, screening, eligibility assessment, and analysis, in accordance with the PRISMA protocol.

Overall SLR Framework and PRISMA Protocol

A systematic review is structured, transparent, and replicable, and is conducted according to a predefined protocol such as PRISMA. It typically employs frameworks such as SPIDER or PICO to formulate research questions, applies explicit inclusion and exclusion criteria for selecting studies, and evaluates the quality of selected articles through critical appraisal tools.

Despite these strengths, SLR has certain limitations, including its time-consuming nature, the need for advanced skills in systematic searching and analysis, and its greater suitability for focused research questions. It is particularly applicable in studies where all relevant scientific evidence must be systematically identified, screened, and synthesized (Tranfield, 2003). In addition, adherence to recognized journal ranking standards—such as prioritizing Q1 and Q2 journals—ensures the quality and credibility of the reviewed evidence (Rank, 2025).

Rationale for Using SLR in This Study

By following the PRISMA protocol, transparency, replicability, and comprehensiveness of the review process are ensured (Moher, 2009). The SLR approach also enables the integration of theoretical frameworks—such as Giddens' Structuration Theory—into the analysis of models (Petticrew, 2006). Given the interdisciplinary nature of the topic, spanning information systems management and political science, and the dispersion of studies across different domains, a systematic review facilitates the consolidation and structured presentation of existing knowledge (Denyer, 2009).

Study Selection and Screening Process

The search was conducted across international databases (Scopus, Web of Science, and other reputable sources) as well as Persian-language databases (Scientific Information Database (SID), Magiran, and Noormags). The time frame covered publications from

the emergence of the e-participation concept through 2025. Articles published in English and Persian languages were included.

The inclusion criteria comprised review, empirical, conceptual, and theoretical studies addressing e-participation and related models. The exclusion criteria included studies without full-text access, studies lacking technological or theoretical dimensions, and low-quality articles identified through the CASP checklist. Ultimately, 39 articles were selected for final analysis.

Search Strategy

The literature search was conducted systematically using combinations of keywords related to e-participation. The primary keywords included "e-participation," "digital participation," "e-democracy," "e-government," and "structuration theory," which were combined using Boolean operators (AND, OR).

The search was performed in international databases—Scopus, Web of Science, ScienceDirect, Emerald, and Springer—as well as national databases—SID, Magiran, and Noormags. The temporal scope extended from the early emergence of the e-participation concept to 2025.

Keywords Used in the Search Process

Table 2. Keywords Used for Literature Search

PERSIAN TERM
E-PARTICIPATION
PARTICIPATION MODELS
DIGITAL GOVERNANCE
STRUCTURATION THEORY
STAKEHOLDERS
NETWORKED GOVERNANCE

Data Analysis Method

The method of data analysis was content analysis, which included:
(1) identification of key themes,
(2) conceptual mapping to classify models, and
(3) construction of a PRISMA flow diagram to illustrate the article selection process.
Article Identification and Selection Process – PRISMA Flow

The systematic review process was conducted in accordance with PRISMA guidelines. In the identification stage, 232 scientific records were retrieved. After removing 55 duplicate articles, 177 records remained.

During the screening stage, titles and abstracts were examined, and 80 articles were excluded due to lack of thematic relevance. Consequently, 97 articles proceeded to the full-text eligibility assessment stage.

In the eligibility stage, 41 articles were excluded due to insufficient scientific

quality or lack of direct relevance to the research questions. Ultimately, 39 studies met the inclusion criteria and were selected for final analysis.

Table 3. Flow of Article Selection and Screening Based on the PRISMA Protocol

Stage	Description	Number
Identification	Total records identified from scientific databases	232
	Duplicate records removed	55
	Records remaining after duplicate removal	177
Screening	Titles and abstracts screened	177
	Records excluded during screening (lack of thematic relevance)	80
Eligibility	Full-text articles assessed for eligibility	97
Final Selection	Articles excluded after full-text review (insufficient quality or lack of relevance)	41
	Articles included in final analysis	39

After applying inclusion and exclusion criteria, the quality of the remaining articles was assessed using the CASP checklist (Table 4). This checklist was employed to ensure scientific rigor, theoretical coherence, and methodological adequacy of the selected studies.

Table 4. Quality Assessment Criteria Based on the CASP Checklist

Evaluation Criterion	Description	Score
Clarity of research objectives	Explicit statement of research aims and questions	
Theoretical coherence	Logical alignment between theory and model or analysis	
Methodological transparency	Clear description of methods, data, and analytical procedures	
Consistency between data and analysis	Alignment between analytical approach and research objectives	
Validity of findings	Theoretical support and logical justification of conclusions	
Total Score		0–5

Articles that achieved a minimum score of 3 out of 5 were considered eligible for inclusion in the final analysis. The combined use of the PRISMA protocol for transparent study selection and the CASP checklist for quality appraisal ensured that the review focused on theoretically grounded and methodologically robust studies, thereby providing a reliable basis for qualitative and comparative analysis of e-participation models.

Reporting of Results

In this section, a general description of the selected articles is first provided. Subsequently, the findings are presented in response to each research question (RQ),

accompanied by relevant tables and analytical explanations.

Results of RQ1: Identified Conceptual Models and Frameworks

Table 5 presents the models and conceptual frameworks identified in the reviewed studies. It specifies the type of model or framework proposed in each study, its main focus or key findings, its connection to Giddens' Structuration Theory—particularly in relation to structure, agency, and other identified indicators—and the type of study conducted.

Table 5. Main Dimensions Identified in e-Participation Models (RQ2)

No.	Title / Author / Year	Model / Framework Type	Main Focus / Key Findings	Study Type
1	The Constitution of Society: Outline of the Theory of Structuration (Giddens, 1984)	Structuration Theory	Explains the reciprocal relationship between structure and agency; concept of the duality of structure	Book – fundamental theory
2	A Structural Analysis of E-Government Initiatives: A Case Study of SCO (Devadoss, Pan, & Huang, 2002)	Structure–Agency Model	Duality of structure and agency in e-government implementation	Empirical (Case Study)
3	Research in E-Government: A Review Using Structuration Theory (Heinze & Hu, 2005)	Theory-Based Review	Structures and agency in information systems research	Review (Theoretical Analysis)
4	Models of E-Participation (Nahleen, 2006)	Three-Level Participation Classification	Review of national models; emphasis on inclusion and empowerment	Review
5	Evaluating E-Participation and E-Government Methodologies (Curtin, 2006)	Three-Level Classification (IAP2)	Analysis of OECD models; citizen empowerment	Review
6	Shaping E-Participation: Describing an Emerging Research Field (Saebo, Rose, & Flak, 2008)	Conceptual Modeling	Review of e-participation literature; focus on technology, actors, outcomes	Review (Content Analysis)

No.	Title / Author / Year	Model / Framework Type	Main Focus / Key Findings	Study Type
7	Giddens' Structuration Theory and Information Systems Research (Jones & Karsten, 2008)	No Explicit Model	Application of structuration theory in IS research	Book (Review)
8	Government as Part of the Revolution: Using Social Media to Achieve Public Goals (Landsbergen, 2010)	Practice-Oriented Approach	Local governments' use of social media; opportunities and risks	Case Study
9	Understanding the Rise of E-Participation in Non-Democratic Countries (Astrom et al., 2012)	Conceptual Analytical Model	Political and international factors influencing e-participation	Conceptual Analysis
10	From E-Government to We-Government: A Typology of Citizen Co-Production (Linders, 2012)	Sociological Conceptual Framework	Network capabilities and co-production in social media era	Conceptual Study
11	On the Duality of E-Participation (Porwol, Ojo, & Breslin, 2013)	Duality Model	Interaction of government-driven and citizen-driven participation	Conceptual + Case
12	Empirical Analysis of E-Participation (Vicente & Novo, 2014)	Probit Model	Role of social networks and e-government in online participation (Spain)	Empirical (Quantitative)
13	Predictors of Online Services and E-Participation (Gulati & Williams, 2014)	International Regression Model	Impact of political structure and government performance	Cross-National Quantitative
14	Government Type and E-Participation (Zheng, 2014)	Survey Model	Impact of local government type (New Jersey municipalities)	Survey
15	Ontology for Next-Generation E-Participation (Porwol et al., 2016)	Participation Ontology	Integrates democratic processes, projects, infrastructure	Conceptual
16	Social Software Infrastructure for E-	Social Software Infrastructure	Architecture of digital participation platforms	Design Science

No.	Title / Author / Year	Model / Framework Type	Main Focus / Key Findings	Study Type
	Participation (Porwol et al., 2016)	(SSI)		Research
17	Opportunities and Challenges of Digital Governance (Luna-Reyes, 2017)	Literature Review	ICT role in governance rules and institutions; transparency & privacy	Review
18	Acceptance Models of E-Participation (Naranjo-Zolotov & Oliveira, 2017)	Acceptance Models (UTAUT, TAM)	Trust, perceived usefulness, attitude as key drivers	Review + Meta-analysis
19	Organizing Communities Around Participation Portals (Vidiasova et al., 2017)	Social Network Framework	Role of virtual communities in Russia	Exploratory Study
20	ICT for Socio-Economic Development (Prashant et al., 2018)	Narrative Capabilities Framework	Citizens' perspectives on ICT and development (Pakistan)	Qualitative (Thematic Analysis)
21	Youth and E-Participation: Gamified Approach (Rexhepi & Filiposka, 2018)	Gamification Approach	Empowering youth through simulation and games	Case + Conceptual
22	Measuring E-Participation in Smart Cities (Dias Cordeiro, 2018)	Data-Driven Platform	Twitter-based evaluation in Brazilian capitals	Design + Case
23	Integrated Strategic E-Participation Framework (Wirtz, 2018)	Integrated Strategic Framework	Organizational drivers of participation	Review + Conceptual
24	Student E-Participation in Universities (Li & Zhao, 2018)	Social Interaction Model	Low participation levels in Chinese universities	Empirical (Survey + Interview)
25	Social Media Use in E-Government (Khadija & Kumar, 2018)	Mediation Model	Social media as mediator in e-government development	Quantitative (Modeling)
26	Scientific Mapping of	Bibliometric	Evolution of e-	Review

No.	Title / Author / Year	Model / Framework Type	Main Focus / Key Findings	Study Type
	E-Participation Research (Rodríguez-Bolívar & Alcaide-M., 2018)	Mapping (SciMAT)	participation research in JCR journals	(Bibliometric)
27	E-Participation and Anti-Corruption (Waheduzzaman & Khandaker, 2022)	Cross-National Regression	Policies and communication freedom impact participation	Cross-National Quantitative
28	Institutionalizing E-Participation (Randma, 2022)	Institutionalization Framework	Institutionalization processes in European governments	Qualitative (Comparative Case)
29	Stakeholder Views on Virtual Youth Councils (Juusola & Varsaluoma, 2023)	Institutional Framework	Stakeholder perspectives in Finland	Qualitative (Interview)
30	Acceptance of E-Participation in Malaysia (Nur Salam Man & Abdul Manaf, 2023)	Acceptance Model (UTAUT + TRI)	Systematic review of adoption factors	Systematic Review
31	Public Participation in Local Planning (Abas & Arifin, 2023)	Systematic Review (PRISMA)	Three levels: information, consultation, participation	Systematic Review
32	Individual Adaptation to IT Change (Hanafizadeh & Taherianfar, 2023)	Conceptual (Structuration + PLS-SEM)	Personal adaptation to IT change	Quantitative (PLS-SEM)
33	E-Participation and Gen Z Satisfaction (Aden, 2023)	Structural Equation Model (SEM)	Transparency, service quality, and Gen Z satisfaction	Empirical (Quantitative)
34	Digital Approaches in Economic Regulation (Pivavaravaab & Koopb, 2024)	Organizational Capacity Framework	Cross-national regulatory participation	Quantitative + Conceptual
35	E-Participation and Public Housing (De Gans et al., 2024)	Mixed Model (Regression + Case)	Impact on civic participation (Netherlands)	Mixed Methods
36	Design Thinking for E-Participation (Mariani & Mortati,	Strategic Framework	Strategic role of design thinking	Book Chapter (Conceptual)

No.	Title / Author / Year	Model / Framework Type	Main Focus / Key Findings	Study Type
	2024)			
37	SCOT Analysis of Anti-Corruption Platform (Huss, 2024)	Social Construction of Technology (SCOT)	Social shaping of anti-corruption platform (Estonia)	Conceptual Study
38	AI in E-Participation (Vasilakopoulos & Tavantzis, 2024)	Systematic Review (PRISMA)	AI integration in participation models	Systematic Review
39	E-Participation in Energy Transition (Radtke, 2025)	Energy Participation Framework	Democratic opportunities and barriers (Germany)	Qualitative (Interview + Survey)

The review of Table 5 indicates that the e-participation literature encompasses a wide range of models. These range from relatively simple typological classifications, such as the three-level models of Nahleen and Curtin, to integrative frameworks such as Porwol's duality model and strategic or technology-oriented models.

A significant proportion of early models primarily focused on categorizing participation levels (information, consultation, decision-making) and adopted an operational perspective. In contrast, a limited number of models explicitly drew upon social theories, including Structuration Theory. However, few studies have proposed a fully integrated and context-sensitive framework grounded in structuration principles.

Overall, the findings suggest that although theoretical references to structure and agency appear in several models—either explicitly or implicitly—comprehensive operationalization of the duality of structure remains limited. This gap highlights the need for theoretically coherent models capable of integrating institutional, technological, and social dimensions of e-participation.

Results of RQ2: Components, Dimensions, and Key Factors

In response to the second research question, the components identified across the reviewed e-participation models were extracted and categorized. The aim was to determine which dimensions are recurrent and widely emphasized, and which remain underexplored, thereby indicating potential research gaps.

Table 6. Components, Dimensions, and Key Factors of E-Participation

Dimension	Main Codes (Components)	Sample Studies
Technical	Data security, digital access, system integration, platform architecture	Porwol et al. (2016); Dias Cordeiro (2018); Vasilakopoulos & Tavantzis (2024)
Organizational	Policies, institutional transparency, organizational capacity,	Curtin (2006); Randma (2022); Wirtz (2018)

Dimension	Main Codes (Components)	Sample Studies
	institutionalization	
Social	Citizen trust, digital literacy, gender gap, participation motivation	Nahleen (2006); Rosalia Vicente & Amparo (2014); Waheduzzaman & Khandaker (2022)
Cultural	Local values, norms, geographical–political differences	Astrom et al. (2012); Juusola & Varsaluoma (2023); Radtke (2025)

The thematic analysis of the selected studies indicates that e-participation models commonly encompass a set of shared components that can be grouped into four primary dimensions: technical, organizational, social, and cultural.

The technical dimension includes digital platforms, ICT infrastructure, data security, and social media tools. The organizational dimension highlights the role of policies, institutional structures, regulatory mechanisms, and accountability frameworks. The social dimension emphasizes citizen trust, motivation, and levels of digital literacy. The cultural dimension refers to contextual variables such as societal values, participation norms, and political–geographical differences.

The findings demonstrate that technical and organizational dimensions are extensively addressed in the literature. In contrast, social and cultural dimensions receive comparatively less systematic attention. This imbalance underscores the necessity of incorporating socio-cultural factors—such as trust culture, democratic values, and participation norms—into future model development to achieve more comprehensive and sustainable e-participation frameworks.

Results of RQ3: Relationship Between Models and the Concepts of Structuration Theory

In response to this question, the extent to which e-participation models relate to the key concepts of Giddens' Structuration Theory—namely structure, agency, reflexivity, time–space distanciation, and the duality of structure—was examined.

In this analysis, a *direct relationship* refers to models that explicitly adopt Structuration Theory as their theoretical foundation. An *indirect relationship* refers to models that incorporate structuration-related concepts implicitly, without explicit reference to Giddens' theory.

In Table7, the designation "high" indicates substantial and explicit engagement with the concept; "moderate" indicates partial or implicit consideration; "low" indicates limited or superficial reference; and "present" denotes explicit incorporation of the duality of structure within the model framework.

Table 7. Relationship of Reviewed Studies to Giddens' Structuration Theory

No.	Model / Article Title	Structure	Agency	Reflexivity	Time–Space Distanciation	Duality of Structure and Agency	Type of Link to Giddens' Theory
1	The Constitution of Society: The Theory of Structuration (Giddens, 1984)	High	High	High	High	Present	Foundational source of Structuration Theory
2	Structurational Analysis of E-Government Initiatives: A Case Study of SCO (Devadoss, Pan, & Huang, 2002)	High	High	Medium	Low	Present	Direct
3	Research in E-Government: A Review Using Structuration Theory (Heinze & Hu, 2005)	High	High	High	High	Present	Direct
4	Giddens' Structuration Theory and Information Systems Research (Jones & Karsten, 2008)	High	High	Medium	Low	Present	Critical review and theoretical deepening of structuration components in IS research
5	On the Duality of E-Participation – Toward a Foundation for Citizen-Centric Participation (Porwol, Ojo,	Medium	Medium	High	High	Present	Direct

No.	Model / Article Title	Structure	Agency	Reflexivity	Time–Space Distanciation	Duality of Structure and Agency	Type of Link to Giddens' Theory
	& Breslin, 2013)						
6	Ontology for Next-Generation E-Participation Initiatives (Porwol, Ojo, & Breslin, 2016)	High	Medium	Medium	Low	Present	Direct / Ontology model development grounded in Structuration Theory
7	Social Software Infrastructure (SSI) for E-Participation (Porwol, Ojo, & Breslin, 2016)	High	Medium	Medium	Low	Present	Direct / Extraction of structure–agency duality within structuration framework; DSRF design based on structuration mechanisms
8	Individual Adaptation to Organizational IT Change (Hanafizadeh & Taherianfar, 2023)	High	High	Medium	Low	Present	Direct

The qualitative analysis of Table7 reveals that although many models implicitly address structure and agency, only a limited number systematically conceptualize their dynamic and reproductive interaction.

For example, Devadoss et al. (2002) conceptualize institutional structures as both enabling and constraining conditions of action. However, the reflexive capacity of actors to transform these structures is less explicitly articulated. In contrast, Porwol et al. (2016) emphasize the duality of structure by conceptualizing participation as a

process in which citizen action contributes to the reinterpretation and reconfiguration of institutional rules.

Comparative analysis shows that certain studies—such as Devadoss (2002) and Porwol (2016)—explicitly incorporate the duality of structure and agency into their frameworks, whereas others focus predominantly on either structural or agentic dimensions.

Overall, the findings indicate that the majority of models remain largely descriptive and do not fully operationalize the analytical potential of Structuration Theory. In particular, the dimensions of reflexivity and time–space distanciation receive limited attention. This suggests that while the literature acknowledges institutional and individual dynamics, it often overlooks the broader socio-temporal processes emphasized by Giddens.

Consequently, Structuration Theory provides a robust analytical lens for explaining the complex interactions among digital technologies, institutional arrangements, and citizen agency in e-participation processes. Its fuller integration could enhance the explanatory depth and sustainability of future e-participation models.

Results of RQ4: Application Domains of the Models

In response to this question, the application contexts of the identified e-participation models were examined. The analysis explored the domains in which these models have been applied, including public governance, information technology management, public policy, smart cities, urban management, environment, education, and other sectoral contexts.

Table 8. Application Domains of the Reviewed Studies

Application Domain	Main Feature or Finding	Sample Studies
Public Governance	Design of consultative platforms and enhancement of institutional transparency	Wirtz (2018); Randma (2022)
Higher Education	Student participation in university governance and decision-making	Li & Zhao (2018)
Smart Cities	Measurement of citizen participation using social media data	Dias Cordeiro (2018)
Anti-Corruption	Use of digital platforms to promote transparency and combat corruption	Huss (2024); Waheduzzaman & Khandaker (2022)
Energy Transition	Citizen participation in energy transition initiatives	Radtke (2025)

The thematic analysis of the reviewed studies indicates that the application of e-participation models can be categorized into several principal domains.

The first and most prevalent domain is public governance and policymaking, where

emphasis is placed on transparency, accountability, and legitimacy of decision-making processes. The second domain encompasses public service sectors, including higher education and information technology management. The third domain includes emerging areas such as smart cities, environmental governance, and energy transition. Finally, a more specialized domain involves anti-corruption initiatives and the enhancement of public trust.

Overall, the findings demonstrate that e-participation possesses an interdisciplinary capacity, extending from macro-level governance structures to sector-specific applications. However, a central challenge for future research lies in developing models capable of simultaneously integrating institutional, technological, social, and contextual dimensions across diverse domains.

Results of RQ5: Research Gaps, Challenges, and Future Opportunities

In response to this question, the reviewed studies were analyzed to identify existing research gaps, implementation challenges, and future opportunities for advancing e-participation models.

Research gaps were extracted from the objectives, findings, and conclusions of the reviewed articles. Implementation challenges were identified from technical, institutional, and socio-cultural barriers discussed by the authors. Future opportunities were derived from proposed research directions and improvement recommendations.

Table 9. Research Gaps, Challenges, and Opportunities

Category	Key Theme	Sample Studies
Gap	Limited attention to socio-cultural dimensions; insufficient coverage of reflexivity and time–space distanciation	Heinze & Hu (2005); Abas & Arifin (2023)
Challenge	Institutional resistance, lack of transparency in decision-making, limited resources, low digital literacy	Curtin (2006); Randma (2022)
Opportunity	Artificial intelligence, big data analytics, design thinking, gamification approaches	Vasilakopoulos & Tavantzis (2024); Mariani & Mortati (2024); Rexhepi & Filiposka (2018)

The thematic synthesis revealed three principal categories of research gaps that form the basis for the proposed conceptual framework.

First, there is insufficient attention to socio-cultural dimensions. The role of values, norms, and contextual factors in the success or failure of digital participation is not systematically incorporated into most models.

Second, a dominant techno-organizational orientation persists in the literature. As a result, key structuration concepts—particularly reflexivity and time–space distanciation—are rarely integrated into model design, despite their theoretical importance.

Third, there is a lack of integration and transferability across governance domains. Many models are developed within specific contexts and lack adaptability to other institutional or sectoral environments.

Proposed Conceptual Framework

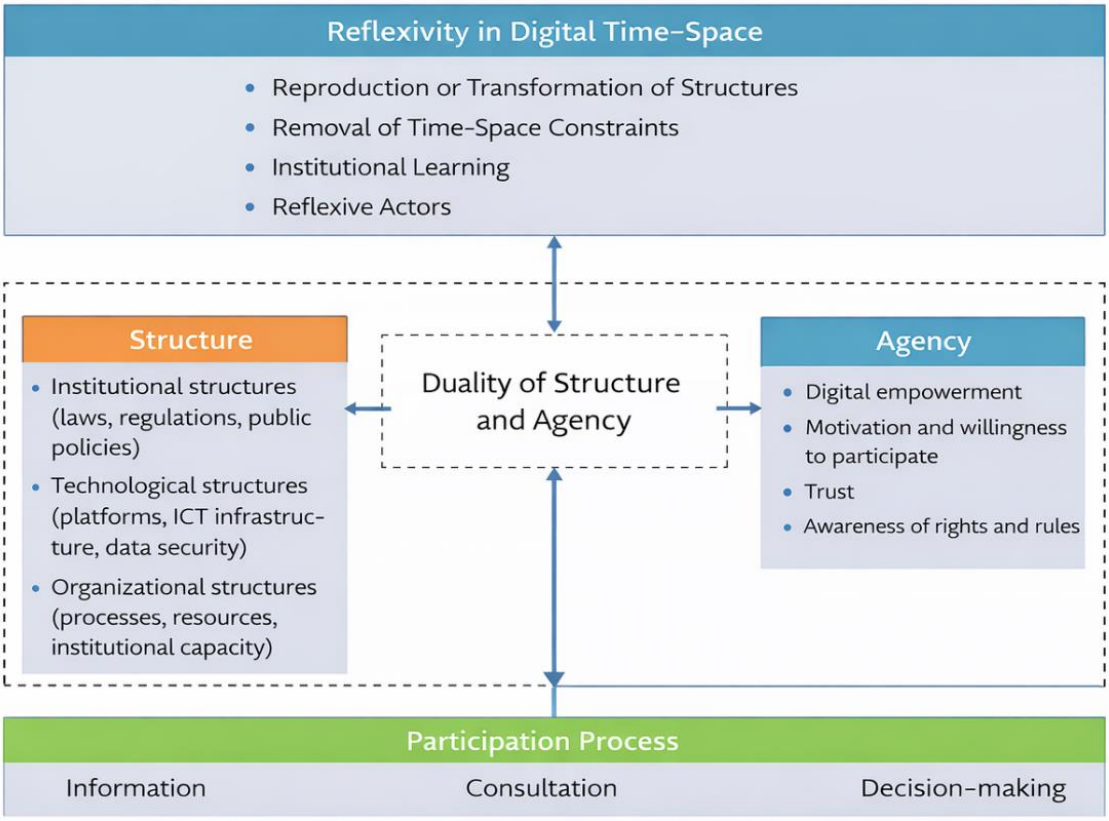
Based on these findings, a preliminary conceptual framework grounded in Giddens' Structuration Theory is proposed. In this framework, e-participation emerges from the dynamic interaction among three core components:

1. **Institutional and technological structures**, including laws, policies, digital platforms, and ICT infrastructures.
2. **Citizen agency**, encompassing capabilities, motivations, trust, and digital engagement capacity.
3. **Reflexive processes**, which enable learning, reinterpretation, and transformation of structures within digitally mediated time–space contexts.

Within this framework, structures not only provide the conditions for participatory action but are also reproduced or transformed through reflexive citizen practices. Simultaneously, citizen agency is shaped by structural constraints and opportunities. This reciprocal relationship reflects the duality of structure, a central concept in Structuration Theory.

The proposed framework offers a dynamic and context-sensitive explanation of e-participation processes and may serve as a foundation for developing empirically testable and transferable models in future research.

Figure 1- Preliminary Conceptual Framework Based on Giddens' Structuration Theory



As illustrated in Figure 1, the proposed conceptual framework of this study conceptualizes e-participation as the outcome of a reciprocal interaction between institutional and technological structures and citizen agency. This interaction unfolds within processes of reflexivity and the reduction of time–space constraints in digital environments, enabling the reproduction or transformation of structures through participatory actions. Grounded in Giddens' Structuration Theory, the framework provides a dynamic and context-sensitive explanation of e-participation.

Discussion and Analysis

Comparison with Previous Studies

The findings of this review are largely consistent with prior research. The three-level models proposed by Nahleen (2006) and Curtin (2006) categorize e-participation into information provision, consultation, and decision-making. Similarly, Porwol et al. (2014, 2016) emphasize the importance of considering the duality of structure and agency in understanding participation processes. In contrast, some studies—such as Macintosh (2004)—focus primarily on operational or technological aspects and provide limited theoretical integration.

Interpretation of Similarities and Differences

The observed similarities can be attributed to the dominance of a technological

orientation within the literature. Many models consistently highlight digital infrastructure and citizen trust as key determinants of participation. Differences, however, are largely shaped by institutional and cultural contexts. Studies conducted in developed countries tend to emphasize transparency, participatory democracy, and institutionalization, whereas research in developing countries often focuses on organizational efficiency, institutional constraints, and cost reduction. These contextual differences underscore the necessity of designing models that are sensitive to levels of development and local governance structures.

Interpretation Through Structuration Theory

The review findings indicate that most e-participation models focus primarily on two dimensions of Structuration Theory: structure (laws, institutions, policies) and agency (citizens and organizations). However, the dimensions of reflexivity and time–space distanciation are comparatively underrepresented. This suggests that the literature has concentrated on institutional–individual relationships while paying less attention to broader socio-temporal dynamics.

Nevertheless, Structuration Theory offers a comprehensive analytical framework capable of integrating technological systems, institutional arrangements, and citizen action into a coherent explanatory model. By incorporating the duality of structure, participation can be understood as an ongoing process in which institutional frameworks both shape and are reshaped by citizen engagement.

Strengths and Limitations of the Review

Among the strengths of this review are the comprehensive database search, adherence to the PRISMA protocol, and quality appraisal using the CASP checklist, all of which enhance transparency and reliability.

However, several limitations should be acknowledged. The review included only English and Persian publications, excluded some studies due to lack of full-text access, and identified a relative scarcity of empirical research in developing countries. Furthermore, the focus on academic literature may have limited the inclusion of policy-oriented or practitioner-based reports.

In addition, while Structuration Theory provides substantial analytical depth, it also has limitations. These include its high level of abstraction, the difficulty of operationalizing concepts such as reflexivity and duality of structure, and the interpretive complexity required for empirical application. Such characteristics may pose challenges for direct implementation in applied model design.

Comparative Analysis of Models Based on Structuration Theory

The comparative analysis reveals that e-participation models can be grouped into three broad categories:

1. **Structure-oriented models**, which focus primarily on institutional rules,

governance mechanisms, and technological infrastructures (e.g., Devadoss, 2002).
2. **Agency-oriented models**, which emphasize citizen motivation, digital literacy, and trust (e.g., Nahleen, 2006).
3. **Integrative models**, grounded in structuration principles, which attempt to explain the reciprocal interaction between structure and agency (e.g., Porwol, 2016; Hanafizadeh & Taherianfar, 2023).

While each category captures part of the participation dynamic, integrative models demonstrate the greatest theoretical alignment with Structuration Theory and provide a stronger foundation for developing comprehensive and context-sensitive frameworks.

Comparative examination across countries further indicates meaningful differences between models developed in advanced and developing contexts. In advanced countries, emphasis is placed on deep participation, transparency, and institutionalization. In developing contexts, models are more frequently oriented toward organizational efficiency, institutional control, and cost management. These contextual differences reinforce the importance of designing adaptable and locally grounded participation frameworks.

Implications for Theory and Practice

From a theoretical perspective, the findings demonstrate that Structuration Theory has the capacity to integrate technical, organizational, social, and cultural dimensions of e-participation. However, future models must more fully incorporate all core structuration components.

From a practical perspective, the design of participatory platforms should simultaneously address technological infrastructure, institutional transparency, citizen trust, and socio-cultural context. Mechanisms that promote reflexivity and accountability are essential to prevent digital participation from becoming merely symbolic. Integrating theoretical insight with institutional practice can enhance the legitimacy and sustainability of digital governance initiatives.

Conclusion

Overall Summary

This systematic review demonstrates that e-participation models are diverse in scope and approach; however, social and cultural dimensions remain comparatively underexplored. The analysis indicates that many models are directly or indirectly connected to key concepts of Giddens' Structuration Theory, particularly structure and agency. Nevertheless, components such as reflexivity and time–space-distanciation are less frequently incorporated into existing frameworks.

Overall, Structuration Theory provides a comprehensive lens for integrating the dispersed dimensions of e-participation models. By emphasizing the duality of structure, it enables a dynamic understanding of how institutional arrangements and citizen agency mutually shape and reproduce digital participation processes.

Based on the findings of this review, a preliminary conceptual framework was proposed in which institutional and technological structures, citizen agency, and reflexive processes interact dynamically within digitally mediated time–space contexts. This framework may serve as a foundation for future empirical model development and context-sensitive policy design.

Research Gaps and Future Directions

The review identifies three principal gaps in the literature:
(1) insufficient attention to socio-cultural and contextual dimensions;
(2) limited incorporation of reflexivity and time–space dynamics; and
(3) weak integration and transferability of models across governance domains.
Future research should therefore develop models that incorporate all core dimensions of Structuration Theory, conduct more empirical investigations in developing countries, and design interdisciplinary frameworks capable of application across diverse digital governance contexts.

Practical Implications

From a practical standpoint, the findings highlight the necessity of simultaneously addressing technological infrastructure, institutional transparency, citizen trust, and socio-cultural context in the design of e-participation platforms. Policies should be structured to strengthen accountability, reflexivity, and meaningful engagement; otherwise, digital participation risks remaining symbolic rather than transformative.

The integration of theoretical rigor and practical implementation can transform e-participation into an effective instrument for enhancing democratic legitimacy, governance effectiveness, and sustainable digital transformation.

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