

## Enhancing E-Participation Through Citizen-to-Citizen Interactions: Evidence from a Government-sponsored Forum in China

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### Abstract

*Citizen participation is a crucial challenge for government departments, and the potential of citizen-to-citizen (C2C) interactions to enhance government governance remains under-explored. This paper examines the impact of citizens' online social capital in C2C interactions on e-participation behaviour. The findings show that interaction frequency, trust and shared topics in C2C interactions can positively influence citizens' e-participation, with interaction frequency having the most significant impact. This study contributes to the literature on citizen social capital and e-participation and provides guidance for the construction of government e-participation platforms.*

**Keywords:** Citizen-to-citizen interactions; E-participation; Civic social capital

### 1. Introduction

With the rapid development of digital technology, e-government has become an integral part of modern governance (Torres et al., 2005). Through e-government platforms, governments can interact more efficiently with citizens, facilitating the delivery of public services and the implementation of policies (Sun et al., 2015). As a particular type of e-government service (Hiller & Belanger, 2001), e-participation applications provide citizens with diverse channels to participate, ranging from simple online consultations to highly interactive online platforms and social media services (Lee & Kim, 2018). These tools not only enhance the transparency and fairness of public affairs but also improve the quality and efficiency of government governance (Irvin & Stansbury, 2004).

The rise of Web 2.0 technology has injected new momentum into e-participation platforms, as user-generated content and social networks have become increasingly important (Scott, 2006). The core of Web 2.0 technology lies in promoting interaction among users, enabling citizens to share opinions and exchange information, thereby creating vibrant online

communities (Meijer et al., 2009b). This interaction is not limited to citizen-to-government (C2G) interactions but also includes citizen-to-citizen (C2C) interactions, which are playing an increasingly significant role in e-participation (Saylam & Yıldız, 2022). Government-sponsored platforms (e.g., Yizheng Forum; see Figure 2) are typical examples of this, providing citizens with an efficient channel to directly offer governance feedback to the government while also fostering connections among citizens through large-scale social network interactions (Chun et al., 2010).

In the context of e-governance, C2C interactions are defined as online interactions aimed at achieving common goals (Meijer et al., 2009b). These interactions can be categorized into three types: policy-related (aimed at supporting or opposing government policies), political (involved in decision-making and agenda-setting processes), and social (focused on creating and enhancing social capital) (Meijer et al., 2009b). While the existing literature often treats C2C interactions as a form of co-production and e-participation, mainly covering the policy-related and political types (Linders, 2012; Nabatchi et al., 2017; Nieuwenhuizen & Meijer, 2021), the social aspect—how social capital developed through C2C interactions impacts e-governance—remains underexplored. This study addresses this gap by examining how the social capital from C2C interactions influences e-participation, specifically assessing whether it promotes or hinders citizens' participation behaviors.

To answer this question, we focus on two streams of research. First, e-participation literature has offered meaningful insights on why citizens use e-participation platforms to engage in policy decision-making processes. Research has examined the influence of demographics (Vicente & Novo, 2014), personal perceptions (Alarabiat et al., 2021), personal habits (Naranjo-Zolotov, Oliveira, Casteleyn, et al., 2019), and digital skills (Vicente & Novo, 2014). However, these studies tend to focus on the individual level, overlooking the potential influence of social

interactions among citizens. Second, this research also considers the possibility that social capital literature can provide a useful theoretical framework to better understand e-participants' behaviour. Some studies have examined citizens' offline interaction network, research has demonstrated the positive impact of various dimensions of citizens' offline social capital, including trust in government (Naranjo-Zolotov, Oliveira, Cruz-Jesus, et al., 2019), offline social networks (Lee & Kim, 2018), and civic norms (Gil de Zúñiga et al., 2012). However, with the evolution of information technologies such as Web 2.0, citizens have formed close-knit online networks, necessitating an expansion of the social capital research perspective from offline to online interactions.

To address this research gap, we embarked on a study that incorporates C2C interactions within the framework of social capital to investigate their impact on e-participation. Grounded in social capital theory, we developed a model to examine the impact of social capital in C2C interactions on e-participation. By leveraging citizens' behavioural data from a government-sponsored forum in China, we demonstrated that interaction intensity (structural capital), interpersonal trust (relational capital), and shared topics (cognitive capital) in C2C interactions all contribute positively to citizens' e-participation.

This study delves into the significant impact of C2C interactions on citizen e-participation, revealing their considerable value in the field of e-governance. Firstly, it presents innovative evidence on how C2C interactions foster and enhance social capital, thereby promoting and integrating into the e-governance value chain. Secondly, by meticulously analyzing the structural, relational, and cognitive dimensions of social capital, we have developed new metrics to measure the drivers of citizen e-participation. This approach not only extends the application of social capital theory from traditional offline settings to online environments but also enriches its explanatory power in delineating the mechanisms of citizen engagement. Furthermore, this study provides fresh perspectives on understanding the complex determinants of e-participation by thoroughly examining the specific effects of C2C interactions. Our findings offer valuable insights for the design and implementation of e-participation platforms, highlighting how effectively harnessing the potential of C2C interactions can enhance the overall value and effectiveness of e-governance services.

## **2. Theoretical back ground and hypotheses**

### **2.1 Citizen-to-citizen interactions in e-government**

While C2C interactions are not a novel phenomenon, they have received relatively little attention in e-government studies. Meijer et al. (2009a) defined C2C interactions in e-government as "the interactions on the internet [that] are used to facilitate various forms of participation which are all efforts to realize common goals, either through bringing forward demands to the political and administrative system or by creating forms of mutual support." Scholars believe that this type of citizen-to-citizen interaction can promote democratization and enhance the efficiency of government governance because the flow of information allows citizens to form autonomy through cooperative means (Saylam & Yıldız, 2022). However, there are also various challenges, including the need for appropriate opinion leaders to guide citizens and the government's need to strengthen data mining applications to translate C2C interactions into useful insights (Saylam & Yıldız, 2022). This study considers that there may be another aspect of the potential of C2C interactions, where the intangible social capital accumulated in citizen interactions may contribute to citizens' online participation.

Although there is a lack of empirical evidence demonstrating the direct impact of social capital in C2C interactions on citizens' e-participation, some literature does suggest a link. Hampton et al. (2011) found that users who accessed Facebook multiple times a day were 2.5 times more likely to attend political meetings. Similarly, Wakabi and Grönlund (2015) compared citizen-to-citizen (C2C) participation with citizen-to-government (C2G) participation and found that C2C participation resulted in higher levels of citizen engagement on government platforms. The impact of user interaction on participation has also been observed in other categories of online platforms. In healthcare communities, Huang et al. (2019) found that social capital, as measured by user interaction, facilitated user engagement in social support and companion activities. In business communities, the effect of structural capital on user engagement has also been observed, with studies showing that network centrality has a positive effect on user engagement (Wang et al., 2020).

Overall, although scholars recognize the potential of C2C interactions to transform digital government,

the direct impact of social capital in C2C interactions on citizens' e-participation may not yet be fully understood. Our research aims to explore the potential of C2C interactions for social capital accumulation and to identify strategies for promoting active citizen participation in governmental governance in the digital environment.

## 2.2 Social capital theory

Social capital is the presence of social relationships in social interactions and the relational assets caught up in them (Lin et al., 2001), which can increase the benefits for connected individuals, such as access to useful information and mobilization of social action (Nahapiet & Ghoshal, 1998). Scholars usually analyze social capital in three dimensions: relational, structural, and cognitive (Wasko & Faraj, 2005). Structural capital refers to the configuration of an individual's social relationships, relational capital concerns the quality and nature of social relationships, and cognitive capital refers to the resources that promote shared understanding and interpretations among connected individuals.

Social capital theory places the factors that influence citizens' online participation at the individual level in a broader social context. Recent studies have explored the relationship between social capital and e-participation (Choi & Song, 2020; Komito, 2005; Naranjo-Zolotov, Oliveira, Casteleyn, et al., 2019), with a focus on citizens' social ties, trust with the government, and identification with the organization or society. These studies suggest that social capital built through social networks generates socialization benefits that enable citizens to cooperate in the pursuit of common goals and engage in political activities.

Past research has validated the theory of social capital in organizational or offline communities and has neglected public virtual communities. In his classic work on social capital, Putnam (2000) argues that in modern societies, the decline in the amount of social interaction people engage in has led to a loss of social capital and thus a decrease in political participation. This also triggers the need to explore online environmental social capital, particularly in the context of C2C interactions in online platforms.

Based on the context of C2C interactions in online platforms, our study extends the social capital theory's explanation of citizen participation from offline to online. In C2C interactions, structural capital is reflected in the frequency of interactions between citizens, which indicates the amount of time they spend together and the degree to which they influence each other (Karahanna & Preston, 2013). Tsai and

Ghoshal (1998) argue that social interaction plays a crucial role in providing individuals with channels for the exchange of information and resources. As interaction deepens, individuals who engage in more interaction are more likely to quickly realize the information needs of other community members, thereby increasing political awareness and becoming opinion leaders in the platform (Park, 2013). In addition, community members who invest time and effort in developing structural capital often consider the benefits of staying in the community to outweigh the costs of leaving (Bateman et al., 2011), so they are more likely to stay and provide support for the government. Based on the above discussion, we propose the first hypothesis:

H1: The interaction intensity among citizens positively affects the level of citizens' e-participation.

Relational capital refers to emotional and intimate relationships between individuals and is related to their emotional commitment and positive evaluations of the group (Bolino et al., 2002). Trust is a crucial relational asset that we focus on in C2C interactions. It has been shown that the interpersonal trust built by social networks enables citizens to cooperate in the pursuit of common goals, create expectations about the group (Fukuyama, 1996) and promote pro-social behavior (Bergami & Bagozzi, 2000). In addition, trust is positively correlated with a person's sensitivity to the needs of others and their concern for the welfare of others (Huang et al., 2019). Therefore, citizens in trusting relationships are more likely to provide advice or suggestions to the government (Naranjo-Zolotov et al., 2018). Therefore, we consider the level of trust in citizen-to-citizen interaction as a key element in facilitating online government participation in an online environment. Based on the above discussions, we hypothesize:

H2: The level of citizens' trust in online groups positively affects the level of citizens' e-participation.

Cognitive capital is a resource that provides shared understanding and meaning (Wasko & Faraj, 2005). In C2C interactions, the discussion of shared topics is the primary source of cognitive capital, promoting citizens' understanding and mastery of social information. Shared topics are considered a bonding mechanism that helps integrate the different parts of an organization and connect social networks and community members together (Xiang et al., 2013). Shared values have also been shown to promote a shared understanding of goals and facilitate user behaviour in virtual communities (Warren et al., 2015). Moreover, shared topics can also be seen as a resource to promote online participation (Verba et al., 1995), as one is more likely to engage in government governance feedback when one has a good

understanding of social issues and understands the needs of citizens. Therefore, we consider shared topic in citizens' online interactions as an influential element in facilitating citizens' e-participation. Based on the above discussions, we hypothesize:

H3: The number of shared topics of citizen engagement positively affects the level of citizens' e-participation.

The overall research model is shown in Figure. 1.

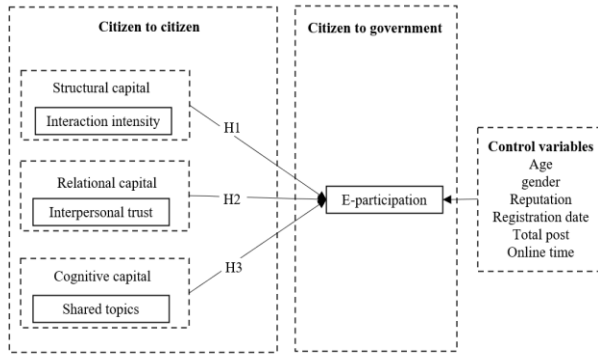


Figure 1. Research model

### 3. Research method

#### 3.1 Data collection

Existing studies on citizens' social capital have used self-reported questionnaires to capture social relationships among citizens (Lee & Kim, 2018; Warren et al., 2014), which are susceptible to subjective bias because individuals may not objectively evaluate their social interactions (Collopy, 1996). To address this issue and to complement the evidence collected from past research, we use content analysis to generate objective data regarding online civic behaviours.

The research data selected for this research comes from the China Yizheng Government Forum,

Yangzhou City, Jiangsu Province, China, which has 354,000 members, 1.2 million posts, and more than 20,000 daily active users, making it one of the more active local online government forums in China. The platform has set up sections for citizens to communicate with each other, such as housing transactions, rental requests and job hunting (referred to as “C2C sections”, as shown in Figure 2, Part B), as well as a section for citizens to communicate with the government and make suggestions for the development of the society (referred to as “C2G sections”, as shown in Figure 2, Part A). For social media such as Twitter and Weibo, it is difficult to isolate the sheer impact of citizens' online interactions on e-participation because of the heterogeneity and enormity of their messages, and the data from this platform provides us with such a research opportunity.

We developed a web crawler in Python to collect the data. To address possible endogeneity issues caused by reverse causality or omitted variables, we performed data collection in two rounds. In the first round of data collection, we selected citizen users who had continuous online activities between January 2021 and June 2021 as the study sample. We captured their basic information in the platform as well as online interaction data (including posts as well as replies received), and we also collected data on their participation in governance feedback. Six months after the first round of data collection, in December 2021, this study collected data on citizen users' online political participation and online interactions between citizen users during the interval between the two rounds of data collection to address the endogeneity question. After removing those citizen users who had no online activity during the lag period, the study finally collected 1011 citizen users as the study sample.



Figure 2. Yizheng Forum homepage

### 3.2 Variable measures

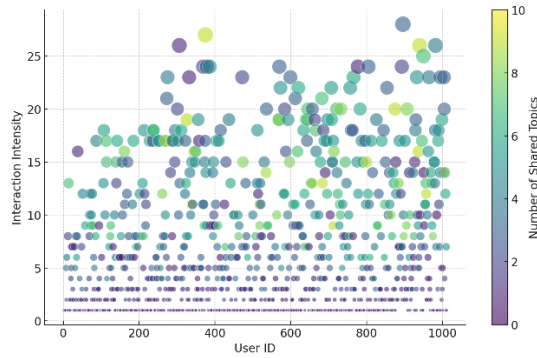
**3.2.1 Dependent variables.** Our dependent variable is the level of citizens' e-participation. On Yizheng Forum, the local government established C2G sections in which citizens can post directly to interact with the government, inquire about government affairs, and make suggestions. This aligns with the concept of e-participation, which involves influencing public governance and policy-making through citizen-government interactions (Choi & Song, 2020; Lee & Kim, 2018). Therefore, we measured the dependent variable by total number of posts and replies made by citizens in the C2G sections.

**3.2.2 Independent variables.** The independent variables in this study are the three dimensions of social capital. We characterize them in terms of citizens' interaction intensity, trust, and shared topic, respectively. For citizen interaction intensity, we used the total number of posts and replies by citizens in C2C sections (excluding self-replies) as a measure.

For the measurement of trust, we refer to the measurement method of Huang et al. (2019) and use LIWC (Linguistic Inquiry and Word Count) software to perform textual analysis on the content of citizens' postings. LIWC is a research tool for shrinking text documents and counting the frequency of occurrence of predefined words (Pennebaker et al., 2015). The term self-disclosure indicates a person's willingness to risk disclosing personal and sensitive information and is often used to measure the level of trust (Callaghan et al., 2013). LIWC categories including first-person

singular pronouns (e.g., I, my), first-person plural pronouns (e.g., we, our), family (e.g., husband, mom), friends (e.g., neighbor, roommate), positive emotions (e.g., love, happiness), and negative emotions (e.g., hurt, insult) were used to identify self-disclosing words in online messages (Köljalg et al., 2013). We therefore measured the level of trust of citizen users in the online group by identifying the average frequency of self-disclosure words in the content of citizen users' postings.

Referring to Wu (2013), we use the diversity of information in citizen postings to measure the shared topic of citizens. First, we use Latent Dirichlet Allocation (LDA) to analyse the discussion topics in the government platform. LDA is a generative probabilistic model that extracts topics from a corpus of documents (Wen & Lin, 2010). We processed the collected citizens' posting data by word separation and constructed LDA models. By calculating the perplexity and coherence score of the results with different parameters, the study statistically inferred 20 topics. The topic distribution is shown in Figure 3, where each topic is a set of word vectors that are statistically related to each other. Then we start counting how many public discussion topics each citizen's posting contains in total, and the higher the number of topics it contains, the higher the level of shared topics.



**Figure 3. Distribution of Shared Topics Among Participants**

**3.2.3 Control variables.** In the study, we controlled for several variables to ensure accurate analysis. Firstly, individual differences in socioeconomic characteristics such as age and gender were controlled, as these factors significantly influence the socioeconomic relations and skills necessary for effective citizen participation (Vicente & Novo, 2014). Secondly, the reputation of users on the platform was considered, recognizing its role as a motivational factor for participation (Werner, 2015). The platform's reputation system rewards users based on their interaction, such as post ratings and peer recognition, which in turn affects their experience and skill level in participation. Additionally, we took into account the lifecycle of user engagement on the platform by controlling for variables such as registration duration and total number of posts, acknowledging potential impacts on participation consistency. Lastly, the amount of time users spent on the platform during the observation period was controlled, given that time is a crucial resource for citizen engagement (Rosenstone & Hansen, 1993). These controls helped us isolate and understand the key drivers of citizen participation more effectively.

### 3.3 Econometric Model

We established our research models based on the hypotheses as follow:

$$Participation_i = \beta_0 + \beta_1 Interactionintensity_i + \beta_2 Trust_i + \beta_3 Sharedtopic_i + \sum \gamma_k Controls + \varepsilon_i$$

Among them,  $i$  represents the user,  $\beta_0$  is the constant term,  $\beta_1 \sim \beta_3$  are the estimated coefficients of the independent variables. *Controls* is a set of control variables at the individual citizen user level, the subscript  $k$  represents the number of control variables.  $\varepsilon_i$  represents the random disturbance term of the model

## 4. Empirical results

### 4.1 Base regression analysis

This study conducted a hierarchical regression analysis of the research hypotheses. First, we conducted a multicollinearity test by calculating the variance inflation factor (VIF) for each variable in the regression model. All VIF values ranged between 1 and 5, well below the critical threshold of 10 suggested by (Lin, 2008), indicating that multicollinearity is not a concern in our regression analysis.

The independent, moderating, and control variables were first entered in the base model, and the results of the study are shown in Table 1 (1). The results show that the three dimensions of social capital, structural capital, relational capital, and cognitive capital, all have significant effects on citizens' e-participation ( $\beta_1 = 0.076, p < 0.01; \beta_2 = 3.118, p < 0.05; \beta_3 = 0.127, p < 0.05$ ).

To further study the higher level of citizen's e-participation, we screened the dependent variable for posts in the category of recommendations related to future government policies, and re-regressed the model. Because these engagements can influence government policy changes, and imply higher public value. The regression results are shown in Table 1 (2). The results show that the interaction intensity, trust, and shared topic can still significantly enhance e-participation ( $\beta_1 = 0.029, p < 0.01; \beta_2 = 1.427, p < 0.05; \beta_3 = 0.065, p < 0.05$ ). Accordingly, our research hypotheses H1, H2, H3 were validated supportively.

**Table 1. Results of multiple regression model analysis**

DV	(1) Basic model		(2) Filtered posts	
	Coef.	St.Err	Coef.	St.Err
Interactionintensity	0.076***	0.021	0.029***	0.010
Trust	3.118**	1.206	1.427**	0.584
Sharedtopic	0.127**	0.063	0.065 **	0.031
Age	0.026	0.029	0.011	0.014
Male	-0.763***	0.253	-0.418***	0.122
Female	-1.689***	0.423	-0.775***	0.205
Group	0.337***	0.087	0.103**	0.042
Registrationtime	0.005***	0.002	0.002 **	0.001

Totalpost	0.002	0.003	0.004***	0.001
Onlinetime	0.003	0.005	0.002	0.002
_cons	-0.083	1.359	-0.294	0.657
R2	0.226		0.175	
N	1011		1011	

## 4.2 Relative importance analysis

To further explore the relative importance of the three dimensions of social capital, we use the method of Relative Importance (RI) analysis that has been widely used recently in management, psychology, and sociology (Israeli, 2007). The RI method is based on the principle of isolating the contribution of each explanatory variable to the  $R^2$  of the entire model, thereby facilitating a comparison of the relative importance of different explanatory variables. By identifying the unique contribution of each variable to the model's explanatory power, this method allows for an assessment of their relative significance. Table 2 presents the results of the RI analysis, which indicate that cognitive capital has a marginal contribution of 0.047 to the  $R^2$  goodness of fit, exceeding that of structural and relational capital. This suggests that interaction intensity is the most important determinant of social capital among citizens.

**Table 2. Relative importance (RI) analysis**

DV	Dominance Weight	Standardized Weight	Ranking
Intensity	0.035	0.369	2
Trust	0.014	0.141	3
Sharedtopic	0.047	0.490	1

## 5. Discussion

This study analyzed citizens' online behavioral data to explore how civic social capital within C2C interactions influences e-participation. The findings highlight the critical role of three forms of social capital—structural, cognitive, and relational—in fostering online participation, indicating that social C2C interactions, through the accumulation of social capital, effectively enhance citizen-government engagement. Additionally, the study found that structural and cognitive capital have a stronger impact on e-participation than relational capital. Active engagement (structural capital) and knowledge accumulation (cognitive capital) play a more significant role in promoting e-participation than the development of close relationships (relational capital). This aligns with the work of Huang et al. (2019), who argue that structural capital provides more opportunities for participation, while cognitive capital enhances citizens' capacity to engage.

This study extends our understanding of C2C interactions within e-governance by exploring their role in creating and enhancing social capital, which in turn raises the level of citizen participation in digital governance. Although C2C interaction is not a new phenomenon, it has been relatively overlooked in the realm of e-governance research (Saylam & Yıldız, 2022). Existing studies have typically positioned C2C interactions as a model or tool for electronic participation, investigating their value creation and production processes and how they integrate into the provision of e-governance services (Linders, 2012; Nabatchi et al., 2017; Nieuwenhuizen & Meijer, 2021). However, such discussions have been limited to the role of C2C interactions in making demands on administrative and political systems (Saylam & Yıldız, 2022). This research goes further, providing fresh evidence on how C2C interactions contribute to and integrate within the e-governance value chain by fostering or enhancing social capital, thereby offering a new perspective on enhancing digital participation.

Moreover, this study constructs the drivers of e-participation and its measurement indicators from three dimensions of social capital, prompting the expansion of social capital theory to explain citizen participation from offline to online, complementing the application of social capital theory in explaining the mechanisms of civic engagement. Previous research has focused primarily on offline social capital, such as citizens' social relationships (structural capital) (Warren et al., 2015), trust in government (relational capital) (Lee & Kim, 2018), and identification with the community (cognitive capital). In contrast, our study highlights the significant differences in the social capital dimensions of online and offline interactions. Building on the definitions of structural, relational, and cognitive capital, we examine the intensity of citizen interactions, trust in online groups, and shared topics within the context of online citizen interactions. Our findings respond to Putnam (2000)'s concern that the reduction in offline social interaction due to information technology is not necessarily detrimental to the development of democratic politics, and that social capital in online interactions can also play a positive role in e-participation. Unlike previous literature, which emphasizes the importance of all three dimensions of social capital (Choi & Song, 2020), we identify the dominant role of structural capital in promoting civic

engagement, with relational and cognitive capital playing a relatively minor role. This also validates the findings of Huang et al. (2019) that structural capital derives from relational capital and cognitive capital. Our findings suggest that the quantity of interactions is more critical than the quality in C2C interactions, and this has important implications for understanding and promoting online civic engagement.

By focusing on C2C interactions and their impact on public e-participation, this study also contributes to the literature on e-participation. Scholars have presented much mixed evidence of individual-level influences on e-participation. The literature falls short in explaining the nature and outcomes of C2C interactions in online participation. As a participatory behaviour rooted in information technology, it is essential to pay attention to the changes in interactive resources that new technologies bring to citizens. The emergence of Web 2.0 technologies has ushered in a second generation of changes focused on the use of social media and citizen interaction (Toots, 2019). The results of this study indicate that the presence of C2C interactions can promote e-participation by enhancing social capital among citizens, thereby improving the government's governance effectiveness. This study sheds light on the potential of C2C interaction in promoting government democratization and social stability (Saylam & Yıldız, 2022), providing new ideas and directions for online participation research and filling gaps in the existing literature.

Finally, this study analysed the citizen's online participation data through LIWC and LDA text analysis methods, achieving precise measurement of the driving factors and regulatory variables of citizen participation, providing objective empirical evidence for the study of citizen participation mechanisms based on subjective data such as questionnaires. In previous studies on social capital and online participation, questionnaire methods still dominated. While surveys are reliable, they cover only a narrow subset of citizen experiences. Any understanding of public issues derived from survey data is limited and biased towards known content due to an overemphasis on it (Kowalski et al., 2020). Therefore, decisions based on such data may have adverse effects. In online participation platforms, users are social actors, and their behaviour is largely open and observable by others. We leverage the potential of user-generated content data to gain more insight into C2C interactions and online participation behaviour. This responds to the call by scholars such as Mergel et al. (2016) to use large datasets of digital traces to understand citizen behaviour and more systematically and comprehensively incorporate citizens' voices.

Our study provides insights for the construction of new governmental media. While social media technologies provide innovative means for government agencies to organize the production of e-government value (Meijer, 2012), many local government websites still focus mainly on G2C interaction and lack C2C interaction. To promote the formation of citizens' online social capital and complement offline social capital, platforms like these can introduce C2C interaction. For example, government and platform managers can add a citizen discussion function to public message boards or open up C2C interaction sections to strengthen social connections among citizens.

Furthermore, through the empirical analysis of pure government forums, we can extend the research results to large-scale government social media platforms, such as Weibo, Twitter, and government platforms that introduce C2C interaction. Governments can use the theoretical framework of this study to design platform functions that promote citizens' e-participation. Firstly, our study identifies the dominant role of structural capital in C2C interactions. This finding underscores the importance of encouraging both existing and new members to engage in intensive, frequent, and diverse C2C interactions on the platforms. Managers can refer to interface design guidelines proposed by scholars like Preece and Shneiderman (2009), including creating visually appealing navigation paths, organizing topics that citizens are interested in, and regularly updating content to promote the expansion of social networks on the platform. In addition to intensive interaction, managers also need to guide citizens to participate in more public topic discussions to accumulate cognitive capital. Moreover, cultivating citizens' trust in online communities is also important. On the one hand, managers can strengthen the regulation of public opinion to promote the construction of a harmonious environment. On the other hand, managers can promote the formation of small groups in the platform through some online activities to enhance citizens' connections.

## 6. Limitations and future research

The study was not without limitations. The first main limitation is exemplified by the context of this work. As the sample was drawn exclusively from a government-sponsored forums in China, the applicability of the findings to other political environments remains uncertain. Future research should consider expanding the study to encompass a broader range of geographical and cultural contexts to enhance the generalizability and practical relevance of

the results. Second, while the use of objective data and content analysis methods can mitigate some degree of subjective bias, it is essential to recognize a noteworthy limiting factor: the potential for introducing predictive inaccuracies. The adoption of a mixed-method approach could further validate our findings in the future.

## 7. Conclusion

Lack of citizen engagement is a persistent challenge for government agencies, though the scholarly attention given to C2C interactions has been limited. In this study, we investigated the influence of civic social capital in C2C interactions on e-participation. Drawing on citizen behavioral data from a Chinese government-sponsored forum, we found that the interaction intensity (structural capital), interpersonal trust (relational capital), and shared language (cognitive capital) in C2C interactions all contribute positively to citizens' e-participation. This study may contribute meaningfully to the e-participation literature by delineating the benefits of social capital in C2C interactions, offering insights for the construction of effective digital government platforms

## 8. Acknowledgement

This research was supported by the grants from the National Natural Science Foundation of China (#72034001, #71974044, #72371084), and the Fundamental Research Funds for the Central Universities (Grant No. HIT.OCEF.2022054 and HIT.HSS.DZ201905).

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