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## Examining the Impact of Digital Control on Grassroots Civil Servants' work stressors: Evidence from the 12345-hotline in China

Xinyu Teng

*School of Management, Huazhong University of Science and Technology, Wuhan, 430074, China*

Ling Zhao

*School of Management, Huazhong University of Science and Technology, Wuhan, 430074, China,*  
lingzhao@hust.edu.cn

Yaobin Lu

*School of Management, Huazhong University of Science and Technology, Wuhan, 430074, China*

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# Examining the Impact of Digital Control on Grassroots Civil Servants' work stressors: Evidence from the 12345-hotline in China

Xinyu Teng, Ling Zhao and Yaobin Lu

School of Management, Huazhong University of Science and Technology,

Wuhan, 430074, China

lingzhao@hust.edu.cn(Ling Zhao, corresponding author)

## 1. INTRODUCTION AND RESEARCH QUESTIONS

In the context of government digital transformation, enhancing the governance capacity of grassroots society is crucial for modernizing national governance capabilities. In practice, the government's incorporation of digital control technology has been altering the way that organizations set work rules, streamlining workflow processes, and cultivating organizational transparency. Accordingly, the grassroots civil servants are constantly confronted with initiatives to digitize their work driven by the need for enhanced governing efficiency and effectiveness.

It is evident that digital control introduces indetermination factors for government, not only in terms of the efficacy of digital control in influencing civil servants' behavior but also regarding their potential impact on their well-being (e.g., stress and challenge). In this regard, previous studies have comprehensively synthesized abundant experiential qualitative evidence from two perspectives: the enablement thesis and the curtailment thesis. While in fact, the predominant reaction among grassroots civil servants is to express opposition towards digitized government control[1]. Additionally recent research has increasingly explored the potential negative consequences of relying on digital control to implement workflows from the perspective of the curtailment thesis[2,3]. However as viewed through the enablement thesis, there is a dearth of empirical studies substantiating the potential positive impact of digital control on civil servants' work perception and motivation. This research perspective is insufficient and too one-sided, as it fails to explore the behavioral mechanisms through which digitalization positively influences grassroots civil servants empirically. Besides, the two thesis presented above suggest that digital technologies exert both constraining and enabling effects on grassroots bureaucrats[4]. And further research is expected to foster a fruitful dialogue between these two distinct subfields of public administration [4]. For this, scholars emphasize the imperative empirically investigate the positive and negative impact of digital control on different bureaucratic behaviors by systematically disaggregating the technological characteristics of digital systems[3,4].

In order to bridge the research gap mentioned above, we respond to the call for further research. This research is motivated by the inherent tension that arises from governments using digital control mechanisms to monitor and regulate grassroots civil servants[5], while also considering the positive and negative implications of such control on civil servants well-being. Specifically, we have arranged this article in an attempt to address the following questions: 1) How does grassroots government utilize specific technological characteristics to achieve work control on civil servants? 2) How do technological characteristics induce different stressors in civil servants through government digital control, thereby influencing their levels of work engagement?

For better providing a global view for our research, we employ a mixed-methods approach that consists of quantitative and qualitative stages. This study chooses the 12345 hotline system as a typical instanced application scenario. We first conducted semi-structured interviews with 16 grassroots civil servants who are actively engaged in the workflow of the 12345-hotline system. And we systematically conceptualized and encoded the digital characteristics inherent to the control functioning of the 12345-hotline workflow. Then, we employed the qualitative findings to formulate hypotheses and subsequently tested through quantitative analysis. On the basis of the transaction-based model of stress, we integrate the control and technostress literatures to

empirically test how these digital characteristics of the 12345-hotline impact their both their stressors and engagement. Consequently, we uncover how grassroots civil servant are either besieged or motivated by digital technology in the context of grassroots governance. From a practical standpoint, our research offers valuable insights for government organizations responsible for designing and implementing digital governance.

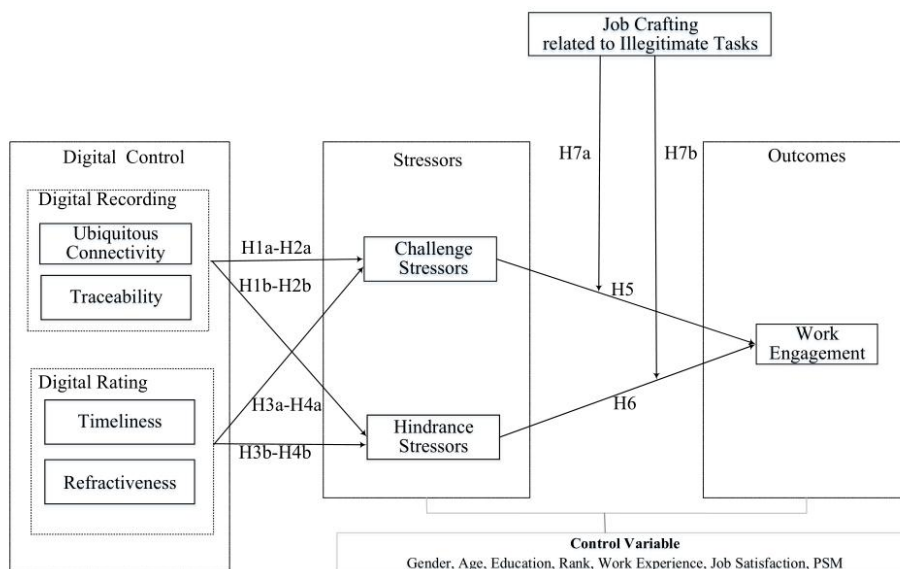
**2. THEORY AND RESEARCH MODEL**

Our study drawn on past research from two foundational areas: digital control and the transaction model of stress. In stage 1, the qualitative study was conducted. We have cycled between qualitative coding and consultation with the relevant literature.

**Table 1. Details of data coding procedure**

First-order Categories	Second-order Themes	Aggregate Dimensions
<ul style="list-style-type: none"> <li>• Diverse connectivity channels</li> <li>• 24*7 all-day service to listen and record concerns from people</li> <li>• Almost no threshold for the 12345-hotline service</li> <li>• Directly engaging with the masses</li> <li>• Transforming grassroots masses into omnipresent eyes of the government</li> </ul>	Ubiquitous connectivity	Digital Recording
<ul style="list-style-type: none"> <li>• Comprehensive information and detailed work proof</li> <li>• Master the stages of the process for dealing with workflow sheets</li> <li>• Clear responsibility positioning and supervision</li> <li>• Workflow sheets can be assigned, delegated, and distributed online visually</li> </ul>	Traceability	
<ul style="list-style-type: none"> <li>• Enable citizens to provide instant evaluations</li> <li>• Timely follow-up and feedback online</li> <li>• Stay promptly updated on the performance of the work</li> <li>• Swift accountability</li> </ul>	Timeliness	Digital Rating
<ul style="list-style-type: none"> <li>• Satisfaction ratings reflect an individual's work ability and efforts</li> <li>• Ratings are closely linked to individuals' job bonus and promotions</li> <li>• Online reviews has influence on the leader's impression of your work abilities</li> <li>• Quantification of work performance on the basis of Satisfaction evaluations</li> </ul>	Refractiveness	

The coding results demonstrated that the 12345 hotline process achieves workflow control through digital recording and digital rating[6], which fall under the control mechanism of digital evaluation[6]. And the specific technological characteristics of digital control were manifested by the second-order themes, which were generalized by existing concepts. The details of interpretative qualitative analysis were shown in Table 1.



**Figure 1. Research model**

In stage 2, We conducted a quantitative study on the basis of stage 1 to develop hypotheses and test them. Our research model was shown in Figure 1. It should be noticed that we also tested whether job crafting serve as an effective intervention measure for managing different stressors.

### 3. MATERIALS, RESULTS AND MAJOR FINDINGS

The population studied was those grassroots civil servants who have dealt with 12345-hotline complaints with 12345 hotline systems. The data were collected through online questionnaires, using the WenJuanXing (<https://www.wjx.cn/>), during November 2023 online. 658 questionnaires were distributed to grassroots public employees from several counties across the country, and after eliminating invalid questionnaires, 603 valid questionnaires were finally returned. We utilized partial least squares structural equation modeling (PLS-SEM) to test our research model, as it is more suitable for exploratory research. Our findings revealed that ubiquitous connectivity of digital recording and timeliness of digital rating were linked to hindrance stressors, while traceability of digital recording was associated with challenge stressors. Additionally, there was a positive relationship between the refractiveness of digital ratings and challenge stressors but a negative relationship with hindrance stressors. Furthermore, job crafting helped mitigate adverse effects caused by hindrance stressors on work engagement.

### 4. MAIN CONTRIBUTIONS

The present study validates the pivotal role of digital control in effectively promoting challenging stressors, thereby providing robust empirical evidence for the enablement thesis of government digital governance and fostering its further development. Moreover, this article aims to integrate the fundamental perspectives of the enablement thesis and the curtailment thesis into a consolidated framework by incorporating digital control with a two-dimensional stress model. In reality, these two debates are not mutually exclusive or contradictory. Our research findings have revealed both favorable and unfavorable consequences associated with technological control. The perception of civil servants towards digital technology control are not simply dichotomous, but rather establish a complex relationship characterized by both affection and aversion, enabling a simultaneous acknowledgment of their advantages and disadvantages. It is suggested that future studies in public administration should strive to synthesize these two perspectives in order to achieve a more comprehensive understanding of government's digital governance.

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