Organizational Inertia as a "Double-Edged Sword" for Employees' Digital Performance: A Mediation Model based on Bootleg Innovation

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Abstract. In the era of the digital economy, the digital transformation of traditional enterprises has produced subversive changes in human capital structure and capabilities. Considering the dual role of organizational inertia in employee digital performance from the perspective of employees' resources and cognition is key for enterprises to achieve steady change. Based on resource preservation and cognitive evaluation theory, this study constructs a theoretical model of the impact of organizational inertia on employees' digital performance through bootleg innovation and examines the situational role of organizational self-esteem in this process. It opens the 'black box' between organizational inertia and employee digital performance and provides reasonable practical guidance on how companies can use organizational inertia to improve employee digital performance.

Keywords: Organizational inertia, Employee digital performance, Bootleg innovation, Organizational self-esteem.

1 Introduction

With the rapid development of the digital economy, the digital transformation of enterprises has become the key to enhancing competitiveness[1]. However, in adapting to the process of digital change, employees face the contradictory effects of organizational inertia: on the one hand, structural inertia and cognitive inertia may impede innovation and lead to path dependence; on the other hand, organizational inertia also provides stability and resource advantages for enterprises and creates conditions for change[2]. Existing studies have mostly focused on transformation at the technological or organizational level, neglecting the role of employees' endogenous factors.

Based on resource conservation theory and cognitive evaluation theory, this paper explores how organizational inertia affects employees' digital performance through bootleg innovation[3]. Bootleg innovation, as a kind of "legal ends, illegal means" behavior, can bypass the constraints of organizational inertia, use idle resources to promote innovation, and thus enhance digital performance[4]. In addition, organizational self-esteem, as employees' perception of self-worth, moderates this mechanism:

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employees with high organizational self-esteem are more inclined to positively evaluate organizational inertia and are more motivated to implement bootleg innovation, which ultimately contributes to digital performance improvement[5].

The study reveals the double-edged sword effect of organizational inertia, which provides a new perspective for enterprise digital transformation. Enterprises should make reasonable use of the stability of organizational inertia, while encouraging employees' bootleg innovation behaviors, and enhance employees' motivation to innovate by boosting organizational self-esteem, so as to achieve a steady improvement in digital performance.

2 Theoretical Framework and Hypotheses

2.1 Organizational Inertia and Employee Digital Performance

Moderate organizational inertia can effectively promote employee performance in digital task execution and innovation activities by providing stable resource support, standardized operational processes, and enhanced organizational identity[6]; however, when organizational inertia exceeds the critical threshold, the path-dependence effect, resistance to change, and solidified thinking will significantly inhibit employees' effective use of digital technology and innovative practices, ultimately leading to a digital performance decline[7]. Based on the double-edged sword effect of organizational inertia, this hypothesis integrates the advantages of operational stability brought by structural inertia and the risks of competence traps caused by cognitive inertia, and reveals the theoretical mechanism by which organizational management needs to seek a dynamic balance between maintaining operational stability and facilitating innovation and change in the context of digital transformation[8].

H1. An inverted U-shaped relationship exists between organizational inertia and employee digital performance.

H1a. An inverted U-shaped relationship exists between structural inertia and employee performance on digital tasks.

H1b. An inverted U-shaped relationship exists between cognitive inertia and employee performance on digital tasks.

H1c. An inverted U-shaped relationship exists between structural inertia and employee digital innovation performance.

H1d. An inverted U-shaped relationship exists between cognitive inertia and employee digital innovation performance.

2.2 Organizational Inertia and Bootleg Innovation

Bootleg innovation is an innovative behavior that employees insist on implementing despite organizational opposition, which is both rebellious and loyal[9]. Organizational inertia has an inverted U-shape effect on bootleg innovation: moderate inertia provides stable resources, strengthens the sense of identity and resource surplus, and encourages employees to regard inertia as a challenging opportunity, which stimulates their risk tolerance and innovation initiative; whereas excessive inertia solidifies thinking,

strengthens rule constraints, and generates threatening evaluations among employees, which may inhibit innovation due to the fear of punishment for failure, the lack of support, or resting on the status quo. Therefore, organizational inertia may either promote bootleg innovation through resource security or impede innovation due to rigid procedures, with a non-linear relationship of facilitation followed by inhibition.

H2. An inverted U-shaped relationship exists between organizational inertia and bootleg innovation.

H2a. An inverted U-shaped relationship exists between structural inertia and bootleg innovation.

H2b. An inverted U-shaped relationship exists between cognitive inertia and bootleg innovation.

2.3 Bootleg Innovation and Employee Digital Performance

Bootleg innovation behaviors significantly improve employees' digital task performance and innovation performance. Employees with bootleg innovation capabilities usually have stronger technical competence, motivation to change, and ability to seize opportunities (AMO model). In terms of capability, they are good at breaking out of the routine and integrating fragmented resources; in terms of motivation, they are altruistic and highly autonomous, and take the initiative in exploring digital work styles; and in terms of opportunity, they are able to flexibly respond to environmental changes and seize digital technology opportunities. In addition, bootleg innovation enhances innovation performance through exploratory learning, resource integration, and delayed disclosure strategies that help employees reduce risk, optimize information utilization, and avoid premature exposure in digital innovation[10]. Therefore, off-track innovation behavior has a positive impact on both digital task performance and innovation performance.

H3. A positive correlation exists between bootleg innovation and employee digital performance.

H3a. A positive correlation exists between bootleg innovation and employee performance on digital tasks.

H3b. A positive correlation exists between bootleg innovation and employee digital innovation performance.

2.4 The Mediating Role of Bootleg Innovation

In the era of digital economy, bootleg innovation becomes an effective way to balance autonomous innovation and organizational constraints. Employees break through inertial constraints through covert exploration and utilize the value-added spiral of resources to acquire digital technologies and enhance digital performance. Challenging evaluations motivate employees to innovate actively, while threatening evaluations inhibit attempts[11]. Bootleg innovation can not only circumvent inertia obstacles, but also form a demonstration effect through small-scale trial and error to promote organizational digital transformation and ultimately enhance individual and organizational performance.

H4. Bootleg innovation mediates organizational inertia and employee digital performance.

2.5 The Moderating Role of Organizational Self-Esteem

Employees with high organizational self-esteem are better able to cope with organizational inertia and strengthen digital performance through the resource gain effect; those with low organizational self-esteem are prone to fall into resource depletion and weaken the impact of organizational inertia[12]. Organizational self-esteem positively moderates the relationship between organizational inertia and digital performance.

H5a. Organizational self-esteem positively moderates the inverted U-shaped relationship between organizational inertia and digital employee performance.

Organizational self-esteem is a key psychological underpinning of employee bootleg innovation: high self-esteem individuals see organizational inertia as an opportunity and innovate proactively[13]; low self-esteem individuals are risk-averse and inhibit change. Psychological resources determine challenging or threatening evaluations of inertia and influence innovation resilience.

H5b. Organizational self-esteem positively moderates the inverted U-shaped relationship between organizational inertia and bootleg innovation.

Figure 1 presents the study's theoretical framework and hypotheses.

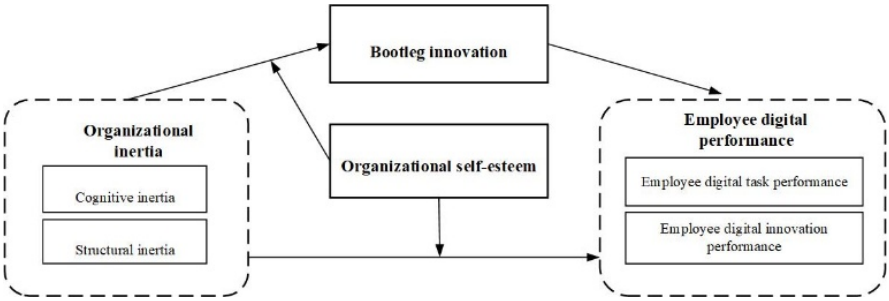

Fig. 1. Theoretical framework and hypotheses.

3 Design and Methodology

This study conducts interviews and a questionnaire survey to obtain data. Respondents are selected via three Internet companies and two communication companies. As respondents required some awareness of organizational inertia, it is necessary to screen eligible research subjects. To this end, we obtain support from the head of the human resources department of the enterprise by explaining the purpose of the study and ensuring that the data would only be used for aca-demic research purposes. With the assistance of the person in charge, the employees interested in participating in the study are numbered and a questionnaire related to organizational inertia is distributed. Based on the results of this preliminary questionnaire, employees who have some perception or awareness of organizational inertia are identified, selected as the subjects of the formal research, and re-coded.

4 Analysis and Results

This study uses SPSS25.0 to test the reliability and validity of the study variables. According to results, every variable has a Cronbach's α coefficient greater than 0.7, AVE value greater than 0.5, and CR value greater than 0.7. These values meet the standard requirements, indicating that the questionnaire had good reliability. This study then uses Amos 23.0 to conduct a validated factor analysis, table 1 shows the results, and test the discriminant validity of the six variables: structural inertia, cognitive inertia, bootleg innovation, employee digital task performance, employee digital innovation performance, and organizational self-esteem. To this end, this study constructs one-, two-, three-, four-, five-, and six-factor structural models, respectively.

Table 1. Validated factor analysis

Model	χ^2/df	RMSEA	CFI	TLI	IFI
Six-factor model	1.832	0.051	0.953	0.947	0.935
Five-factor model	3.570	0.089	0.852	0.837	0.853
Four-factor model	3.930	0.095	0.830	0.814	0.831
Three-factor model	4.272	0.101	0.808	0.792	0.809
Two-factor model	5.916	0.124	0.710	0.687	0.712
One-factor model	7.213	0.139	0.633	0.605	0.635

Notes: SI = structural inertia, CI = cognitive inertia, DTP = employee digital task performance, DIP = employee digital innovation performance, BI = bootleg innovation, OE = organizational self-esteem, + = combining factors.

The results of the questionnaire are analyzed by hierarchical regression using SPSS 25.0, with sex, age, education, years of work experience, years of business operation, and size of the business set as control variables. As shown in the table 2, the significance between variables proves that the proposed hypothesis is valid.

Table 2. Moderating role of organizational self-esteem

Variable	Employee digital performance			Bootleg innovation		
	M1	M2	M3	M4	M5	M6
Gender	-0.140	-0.135	-0.125	-0.047	-0.041	-0.033
Age	0.006	-0.003	0.000	-0.027	-0.039	-0.036
Educational level	0.103	0.106	0.096	0.085	0.088	0.081
Working experience	0.028	0.034	0.029	0.033	0.041	0.037
Years in business	0.015	0.014	0.012	-0.019	-0.020	-0.022
Enterprise scale	-0.028	-0.031	-0.030	0.042	0.037	0.038
Organizational inertia (OI)	-0.054	-0.099	-0.159	-0.378***	-0.438***	-0.484***
Organizational inertia^2	-0.118*	-0.023	-0.044	-0.184***	-0.058	-0.073
Organizational self-esteem (OE)	0.379***	0.424***	0.434***	0.886***	0.946***	0.954***

Variable	Employee digital performance			Bootleg innovation		
	M1	M2	M3	M4	M5	M6
OI × OE		-0.147*	-0.224**		-0.197**	-0.256***
OI^2 × OE			0.111*			0.086*
F	7.042***	6.849***	6.817***	36.278***	34.648***	32.221***
R^2	0.168	0.180	0.194	0.511	0.526	0.533
ΔR^2	0.155	0.012	0.014	0.495	0.016	0.006

5 Conclusion

5.1 Research Findings

Based on the cognitive evaluation theory and resource conservation theory, this study explores the mediating mechanism and boundary conditions of organizational inertia on employees' digital performance. Results can be summarized as follows. First, organizational inertia has an inverted U-shaped relationship with bootleg innovation and employee digital performance. Second, bootleg innovation can effectively promote employee digital performance. Third, bootleg innovation plays an intermediary role in the relationship between organizational inertia and employee digital performance. Finally, organizational self-esteem positively moderates the inverted U-shaped relationship between organizational inertia and bootleg innovation, organizational inertia, and employee digital performance. These findings have both theoretical and practical implications.

5.2 Theoretical Implications

First, this study focuses on the "double-edged sword" effect of organizational inertia on employees' digital performance in the digital economy, broadening the scope of research on organizational inertia.

Second, this study discerns the factors influencing employees' digital performance from the perspective of employees' resources and cognition.

Third, this study modifies the traditional employee performance research perspective to examine employee performance in a digital context.

Fourth, this study broadens the research on bootleg innovation as a mediating variable.

5.3 Practical Implications

First, enterprises should look at the "double-edged sword" effect of organizational inertia dialectically and give full play to the positive effects of organizational inertia during the shift to digital performance. Second, enterprises should harness the engine conduction role of bootleg innovation to overcome stereotypical inertia. Third, organizational self-esteem is crucial for individuals to develop positive perceptions.

5.4 Limitations and Future Research Directions

The theoretical and practical implications of this study's findings notwithstanding, this study has some limitations. First, the distribution of respondents is centralized. Although this allows for better access to data and controls for the influence of factors such as industry on the findings, the types of enterprises included are not broad enough, restricting the external validity of this study's conclusions. Future research should include different types of enterprises to test the conclusions of this study. Second, this study uses a questionnaire to obtain data on digital task performance and innovation performance metrics. Subsequent studies should use objective methods to measure these two dimensions of employee digital performance, such as data generated from smart devices or archived information regarding the quantity and quality of employee tasks. Third, this study uses cross-sectional questionnaire data to validate the theoretical derivations and could not effectively confirm the long-term causal relationship between the variables. In addition, the respondents may intentionally avoid unfavorable responses and submit answers that do not fully align with the real situation. To address this limitation, future research should adopt a continuous tracking method like dynamic case—a combination of objective and subjective methods—to evaluate employee behaviors.

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