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# Developing IT Ambidexterity: Insights from Knowledge Interaction between CIO and TMT

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## 1. INTRODUCTION AND RESEARCH QUESTIONS

In today's changing business environment, firms need to have the ability to explore and exploit IT resources and practices simultaneously (i.e., IT ambidexterity) to meet the ever-changing business requirements under the dynamic environments<sup>[1-2]</sup>. The pursuit of IT ambidexterity is a highly complex process that involves tremendous uncertainty and thus requires adequate information processing by top management teams to mitigate the complexity and tension underlying IT exploration and IT exploitation. The top management of firms must integrate and understand business and IT knowledge to enhance the common understanding of the role of IT in the organization<sup>[3-4]</sup>. In particular, the CIO (chief information officer), as the leader of a firm's IT department, has more prominent IT knowledge than other senior executives, while the TMT (top management team, TMT), especially the CEO (chief executive officer), is responsible for the business operation. They are well versed in firms' business strategies and objectives, and thus their business knowledge is extensive. As the main body of firm IT strategy planning and implementation, both CIO and TMT should thus participate in the decision-making process of IT ambidexterity and their knowledge should be integrated to process information and mitigate the uncertainties. Thus, in this study, we propose that the knowledge sharing and integration mechanism (i.e., knowledge interaction mechanism) between the CIO and TMT will inevitably affect the cultivation of IT ambidexterity.

Our research questions are as follows: (1) How do the two mechanisms of knowledge interaction between the CIO and TMT (structural and social systems of knowing) affect firm's IT ambidexterity? (2) How does the interactive dimension of knowledge interaction mechanisms between the CIO and TMT affect firm's IT ambidexterity? (3) Can the environmental dynamism moderates the relationship between systems of knowing and IT ambidexterity?

## 2. THEORY AND RESEARCH FRAMEWORK

This paper aims to explore the potential influence of CIO-TMT knowledge interaction mechanism on IT ambidexterity, and constructs a three-way interaction model of structural SK, social SK, environmental dynamism and IT ambidexterity, as shown in Figure 1. The model emphasizes the influence of structural SK, social SK and their interaction effects on IT ambidexterity under different environmental dynamism.

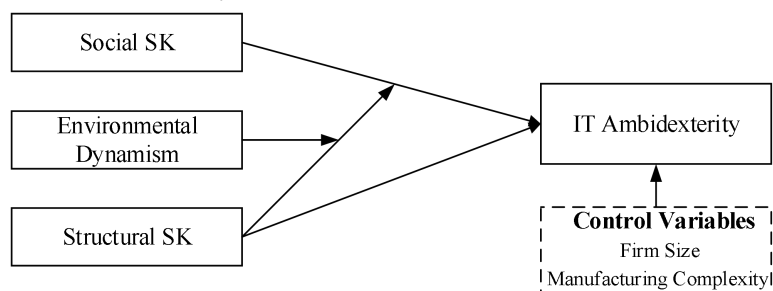


Figure 1. Research framework

Our study was tested using a matched-pair survey of business-IT executives from 347 Chinese shipbuilding companies.

### **3. RESULTS AND MAJOR FINDINGS**

In this paper, we examine the effects of structural and social SK and their interaction on IT ambidexterity under different environmental dynamism. The results support most of our hypotheses and lead to the following conclusions. First, both structural and social SK can positively affect IT ambidexterity and have a substitution effect, that is, under the high degree of structural SK, the positive influence of the social SK on IT ambidexterity will be weakened. Second, environmental dynamism positively moderates the relationship between social SK and IT ambidexterity, but has no moderating effect on the relationship between structural SK and IT ambidexterity. Third, the results of the three-way interaction show that the substitution effect between structural SK and the social SK will be weakened in the dynamic environment. That is, the substitution effect between structural and social SK only exists in the stable environment. As the dynamics of the environment improve, the substitution effect diminishes.

### **4. CONTRIBUTIONS**

By exploring the causal relationship between SK and IT ambidexterity, examining the moderating effect of environmental dynamism, we have contributed to the IT ambidexterity literature. From a management perspective, firms should consciously improve and provide different types of communication mechanisms to strengthen the knowledge interaction and sharing between the CIO and TMT. In addition, firms should also consider the influence of external environment to avoid the negative impact caused by the substitution effect between structural and social knowledge interaction mechanism. The data are from Chinese shipping industry, and economic or environmental factors in the same industry may limit the generalizability of the findings.

### **ACKNOWLEDGEMENT**

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