

Analysis of the factors and mechanism that influence the senior manager's support to informatization

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Abstract: senior manager's support has always been considered as the most important factor affecting the success of informatization. However, few studies have paid attention to the issue why senior managers of different enterprises show different levels of support in the process of informatization. This study will study this issue. The results show that technical usefulness, technical complexity, organizational readiness, and organizational information density are positively correlated with the senior manager's support to informatization. Environmental competitiveness, as a moderator variable, moderating the relationship between organizational information density and dependent variables.

1. Introduction

The support of senior managers has long been considered to be the most important factor affecting the success of informatization. Around the role of senior manager, there has been a lot of research at home and abroad. These studies have proved the correlation between the support of senior managers and the success of informatization. However, few researchers have noticed the following question: Why do the senior managers of different enterprises in the informatization process show different support. Therefore, until now we do not know which factors have affected the support of senior managers for informatization. This research is based on this reason. We will study what factors affect the support of senior management and what is the specific impact mechanism. The purpose of the research is to provide theoretical support for the informatization practice of enterprises.

2. Models and assumptions

The support of senior managers for informatization itself as an attitude and behavior is actually reflected in the cognition of senior managers. In the discussion about the cognition of senior managers, Hambrick (2007) believe that the influence of environment on organizational strategic actions is realized by influencing the cognition of senior managers and the subsequent strategic decisions [1]. According to this study, the external environment will not directly affect the strategic performance of the organization, but will further affect the strategic performance of the organization by influencing the relevant subjective cognitive results and strategic decision-making behaviors of the senior managers. Therefore, the cognition and attitude of senior managers are to some extent the products of the objective environment.

On the whole, informatization is also a process of organization scanning, recognizing the change of the external environment and adapting to the external environment by adopting information technology. According to the relevant theories mentioned above, whether and how an organization's informatization is carried out is largely based on the cognition of senior managers about the internal and external environment. So, the characteristics of technology, organization and external environment will affect the senior manager's attitude towards informatization. Therefore,

the research needs to be carried out in three dimensions: technology, organization and external environment. Based on the above research, we established the following theoretical model.

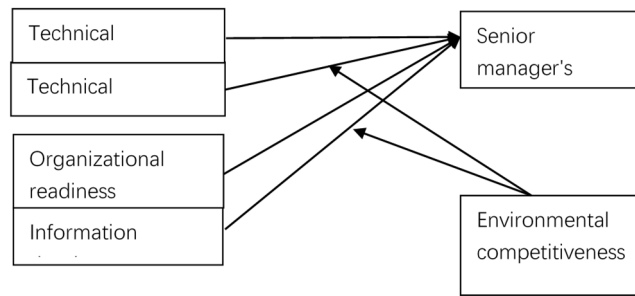


Figure 1. factors that influence a senior manager's support

Technology adoption theory holds that whether a technology can be adopted depends on the perceived usefulness of the recipient. The more useful, the more it will be adopted. Senior managers will first examine the strengths and weaknesses of information technology as a whole and consider what benefits it can bring to the organization. In particular, the application of information technology and organizational development strategies will be considered together to decide if it can promote the implementation and realization of corporate strategies and whether it can improve its competitiveness. Therefore, we have the following assumptions:

H1: Technical usefulness is positively correlated to the senior manager's support for informatization

Technical complexity refers to the complexity of deploying and using technological innovation. For some complex information systems, such as ERP and CRM, their deployment and application are relatively complex. Enterprises need to make full use of various resources to design and implement systems according to their own needs. The more complex the technology, the more difficult it will be to organize, implement and promote it. In order to ensure the success of the implementation, senior managers are bound to take more necessary measures to support it. So, there is the following assumption:

H2: Technical complexity is positively correlated to the support of senior managers for informatization

Information density is the degree to which enterprises need to process information for providing products or services [4]. Information density of different enterprises is different. The higher the information density, the higher the need for organizations to adopt information technology, because the use of information technology will bring great benefits. In this case, the enthusiasm of the organization to adopt information technology is bound to be higher. Therefore we have the following assumptions:

H3: Organizational information density is positively correlated with the senior manager's support for information technology

Organizational readiness is the readiness of an organization for informatization in terms of financial resources, information technology facilities and knowledge. Rai, Paul & Tang (2009) believes that organizational readiness is mainly composed of financial and technical aspects [2]. For any organization, informatization will consume a large number of resources, and will also affect the normal operation of the organization. If the organization is well prepared, informatization will not cause an obvious negative impact on the normal operation of the organization. In this case, senior managers will be very supportive to the informatization. Otherwise, high-level managers' attitudes toward informatization may change dramatically. So, we have the following hypothesis:

H4: Organizational information readiness is positively correlated with high-level support.

The competitive pressure of the environment will affect the impact of technological advantages on the senior manager's support. When the competitive pressure from the external environment is relatively low, even if the advantages of information technology are obvious at this time, enterprises may not try to promote informatization. Lower competitive pressure will reduce the enterprise managers' perception of the usefulness of information technology, making them unable

to feel the necessity of informatization, thus reduce their efforts to promote informatization. Therefore, we have the following assumptions:

H5: External environment competitiveness positively moderates the relationship between technical usefulness and senior manager's support

Similarly, when the environmental competition pressure is relatively low, the impact of organizational information density on senior managers' support will be relatively low. Under the pressure of low environmental competition, even if an enterprise is an enterprise with high information density, it will not feel the pressure of information processing brought by high information density, and it will not promote informatization actively. When the environmental competitive pressure is high, the information processing pressure brought by the high information density will also be high, which will lead to the active promotion of information technology. Therefore, we have the following hypothesis:

H6: external environment competitiveness positively moderates the relationship between organizational information density and senior manager's support.

3. Research design and data test

3.1 Scale design and data collection

The questionnaire adopts Richter's 7-point questionnaire. The design of the questionnaire is described in detail below.

(1) manager's support: This study tried to integrate the existing and new research results when designing the scale of senior manager's support. Specifically, we refer to the research results of Liang (2007).

(2) The superiority of information technology: Thong (1999), have conducted a measurement on this variable, mainly from the perspective of technology support for business operations and strategic realization. This study refers to the measurement items of it when designing the scale.

(3) Technical complexity. Thong (1999) and other studies have a special description and measurement of technical complexity. This study mainly refers to these studies and conducts measurement from dimensions of implementation and application.

(4) Organizational readiness: Rai, Paul & Tang (2009) have described and measured this variable specifically, mainly from the aspects of capital and technology. This study refers to the relevant measurement scales of it.

(5) Organizational information density. Thong (1999) described and measured this variable specifically. Here, we mainly refer to the measurement scale of this study.

Finally, the variable environmental competitiveness refers to Thong (1999) and Zhu (2005).

This study takes the enterprises that have implemented ERP in China as the research object. We sent questionnaires to nearly 200 enterprises that met the requirements of our survey. 101 questionnaires were eventually returned. The questionnaire is required to be completed by middle and senior managers who are familiar with and fully involved in enterprise informatization. This will ensure the validity of the questionnaire. Finally, 82 valid questionnaires were obtained. The effective recovery rate of the questionnaire was 41%. It meets the demand of general empirical research.

3.2 Reliability and validity

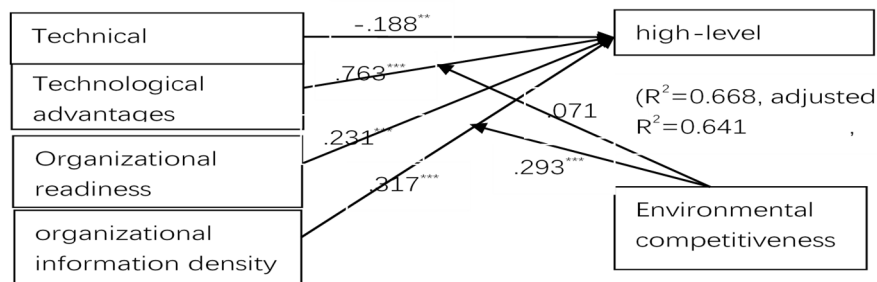
The reliability was measured by measuring the Cronbach Alpha coefficient of each measurement. The requirement for this parameter in management research is generally above 0.7. The study of each variable in this study showed that the Alpha coefficients were all above 0.7. So, the results of questionnaire measurement are credible.

Convergent validity and discriminant validity are two important indexes in validity measurement, which reflects the consistency between abstract concepts and measurable indexes at the theoretical level. Here, we first monitor these two indicators by using SPSS for confirmatory factor analysis. The analysis results show that the factor loads of the measured items on the

corresponding first-order latent variables are basically above 0.7, indicating that the corresponding variance of more than 50% can be explained by the corresponding first-order latent variables. However, the cross loads on other latent variables are relatively low, which indicates that there is good differentiation among latent variables. Therefore, scale design has a good validity.

4. Results

SPSS software was used to test the model. The results show that the model has good explanatory effect and significance ($R^2=0.668$, adjusted $R^2=0.641$, $F =25.154$, $P=0.000$). There is a significant positive correlation between information technology advantages and high-level support, and $B1=0.763$ ($T=10.227$, $P=0.000$). Information density was also found to be significantly positively correlated with high-level support, with $B2=0.317$ ($T=4.025$, $P=0.00$). Organizational Information Readiness has been shown to be positively correlated with high-level support, with $B3=0.231$ ($T=3.335$, $P=0.001$). Technical complexity has been shown to be positively correlated with the top management's support, with $B4=0.188$ ($T=2.588$, $P=0.012$). Therefore, the advantages of information technology and organizational information density will positively affect the attitude of high-level to information technology. Hypothesis 1, hypothesis 2, hypothesis 3 and Hypothesis 4 are proved respectively. At the same time, the results show that environmental competitiveness positively regulates the relationship between organizational information density and high-level support. Correlation coefficient $B6=0.293$ ($T=3.430$, $P=0.001<0.05$). Thus, hypothesis 6 is demonstrated. However, hypothesis 5 is not proven ($B5=.071$, $T=0.931$, $P=0.355>0.1$). at last, we get such a model (figure 2)



*** means significant at the level of 0.01, and ** means significant at the level of 0.05

Figure. 2. Influencing factors model of high-level support

5. Conclusion

In this study, we studied the relevant factors affecting high-level support in the process of informatization. It is found that technical usefulness, technical complexity, organizational readiness, and organizational information density directly affect top manager's support, while environmental competitiveness serves as a moderator to regulate the relationship between organizational information density and dependent variables. However, in addition to the above three factors, there are many other factors that affect high-level support. Top Leaders' own characteristics, such as personality and knowledge characteristics, may also affect their support for information technology. However, this study does not cover these issues. We will do further research in the future.

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