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## ORIGINAL ARTICLE

### Factors Affecting Organizational Secrecy in Knowledge-Based Companies Based on the Interpretive Structural Model

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#### EXTENDED A B S T R A C T

##### Introduction

Knowledge-based companies, due to their innovative and knowledge-oriented nature, have very sensitive and confidential technical, scientific and technological information, the disclosure of which can cause irreparable financial and competitive losses to the company. Organizational secrecy and confidentiality are important mechanisms for protecting valuable and private information in knowledge-based companies. Working on emerging technologies, along with the prominent role of knowledge in the activities of knowledge-based companies, has made organizational confidentiality, protection of intellectual property, and adoption of an appropriate intellectual property strategy an important priority for them. Trade secrets include designs, methods, formulas, processes, and technical know-how that maintain a company's competitive advantage. Protecting these secrets helps maintain a brand, the organization's value, and product development, and is a vital requirement for knowledge-based companies. Therefore, identifying the factors affecting organizational secrecy in these organizations is of utmost importance. Given the importance of this issue, the purpose of this research was to identify the most key, most dependent and most independent factors affecting organizational secrecy and to draw its hierarchical cause-and-effect relationships in knowledge-based companies in Tehran province.

##### Methodology

The present study is applied in terms of purpose; exploratory in nature. The data were analyzed through interpretive structural modeling and using MATLAB 9 and MiMac 2 software. The statistical sample was managers and expert experts of 6 knowledge-based companies in Tehran province. Interpretive Structural Modeling (ISM) is an exploratory method for identifying and ranking indicator relationships based on an interpretive paradigm and has five stages. Using this method, it is possible to identify the pattern of causal and complex relationships between a set of factors. Interpretive structural model design (ISM) is a method for examining the effect of each variable on other variables. This method is a type of structural analysis. Its goal is to classify factors and identify relationships between criteria. It is a qualitative-quantitative method that has many applications in various sciences. MICMAC analysis can also be used in this method. This method is included in the multi-criteria decision-making techniques and is suitable for management and social science studies. In Mi'kmaq analysis, factors (variables) are divided into four groups: autonomous, dependent, linked (interacting), and independent. Autonomous factors are factors that have minimal dependency and are relatively separate from the system and have few connections to other elements of the system. Dependent factors are factors that have weak development potential, but are highly dependent on other criteria. Independent factors have low dependence and high directionality; high impact and low impact are characteristics of these variables. Linking factors (connected or connected) are factors that have high power and

high guiding power and dependence. The impact and influence of these criteria are very high and any small change in these variables causes fundamental changes in the system. To identify the factors affecting organizational secrecy, first, articles, theses, books, and other related sources were studied and examined using a systematic literature review method. The systematic literature review consisted of five consecutive stages: formulating the research question, applying criteria for inclusion and exclusion of sources, identifying relevant studies, evaluating and selecting the literature, and synthesizing the results. This systematic review, in accordance with the purpose of the research, focused on the main question: What are the factors affecting organizational secrecy? In this stage, 20 sources were identified. Then, the identified articles were evaluated according to their scientific credibility, title, abstract, and content, and finally 15 sources were selected for use in the research. In the next stage, the abstract sections and findings of the selected sources were carefully examined, and in this way, appropriate codes were extracted from each source. After that, the identified codes were reviewed and revised, and while removing duplicate codes and combining and integrating similar codes, 15 final codes were identified as factors affecting organizational secrecy in knowledge-based companies. These identified codes were categorized according to semantic and conceptual commonalities. The output of this process was in the form of three dimensions of individual, organizational, and environmental factors and 15 final codes. After identifying the factors affecting organizational confidentiality and based on these findings, a semi-closed questionnaire was prepared and distributed among 18 managers and experts from six knowledge-based companies located in Tehran province. The purpose of selecting managers and experts in this study was to collect data from individuals who have complete knowledge of the policies, processes, and confidentiality requirements in the organization. Managers, due to their decision-making role and access to strategic information, and expert experts, due to their practical experience and direct exposure to privacy enforcement issues, are considered the best representatives to provide credible and accurate perspectives in this field. The six companies studied were selected based on the official list of knowledge-based companies introduced by the Presidential Vice President for Science and Technology and the Iranian Technology and Innovation Network. The criteria for their selection, in addition to having a knowledge-based certificate, were activity in technological fields and possession of confidential information and sensitive intellectual property, as well as the availability of managers and expert experts to participate in the research. Therefore, the selection of samples was done through purposive sampling method and in accordance with the research objectives. Then, the data were analyzed through interpretive structural modeling using MATLAB 9 and MiMac 2 software. The Lavashe method was used to measure the content validity of the questionnaire, and the test-retest method was used to measure its reliability, and both were confirmed.

### Findings

Based on the research findings, 15 variables were identified in the form of 6 levels.

The first level factors include: "bravery", "locus of control", "self-efficacy", and "silence and ignorance". Brave employees perform their duties with care and honesty, and adhere to their commitment to their work and professional principles and ethics. The control center can also be effective in organizational secrecy by creating a safe environment for employees and encouraging them to perform tasks correctly with high creativity. Employees with high self-efficacy work with good quality, share their knowledge and experiences, are aware of the importance of confidentiality and knowledge preservation in the organization, and contribute to the organization in this direction. Also, organizational silence, if timely and reasonable, can be effective in organizational secrecy.

The second-level factors include: "leader-member exchange", "organizational sociability-acceptance", and "transparency-secrecy balance". When leader-member exchange, as interpersonal communication between leaders and their followers in the organization, is of high quality, employees receive more comprehensive support from their supervisors, which in such circumstances provides space for maintaining organizational confidentiality. In socialization, the goal is to maintain core values, including organizational confidentiality, by employees. Regarding the balance between transparency and confidentiality in the organization, it can also be said that if managers and employees of an organization consider transparency as an important principle in their work behaviors in the organization and do not keep necessary information hidden from each other for greater efficiency, it will lead to greater success of the organization; however, a balance must be established between the level of transparency and the level of confidentiality in the organization.

The third level factors include: "Security Monitoring" and "Organizational Resilience". Security monitoring in the organization can support the implementation of various security policies and measures in the organization and ensure the maintenance of the organization's security and confidentiality. Knowledge-based organizations can also increase

organizational resilience by being secretive about organizational innovation capabilities. The fourth level factors include: "organizational support", "concentration of power", and "organizational culture". Support includes communicating with employees, providing resources, and providing necessary training to individuals in the organization. Undoubtedly, providing training and education to employees can increase their awareness of the importance of maintaining and respecting the confidentiality of information. Concentration of power and decision-making authority in organizations can affect organizational confidentiality. However, excessive concentration of power can lead to damage to organizational confidentiality and increase security risks. An effective organizational culture maximizes the values, norms, and dos and don'ts perceived by employees, and in such circumstances, behaviors are directed towards secrecy in the organization.

The fifth level factors include: "Protection of intellectual property" and "Privacy protection". Protecting intellectual property, by creating appropriate infrastructure and policies to preserve and protect intellectual property rights and confidential information, can help increase confidentiality in the organization and prevent access to and misuse of confidential information and intellectual property rights. Privacy also refers to the protection of personal and sensitive information of individuals associated with the organization, and this information includes data about customers, employees, business partners, and other individuals associated with the organization.

The sixth level includes "rules and regulations". The existence of strong and effective rules and regulations in the organization can help create a culture of confidentiality in the organization. Also, the existence of rules and regulations as a guide to action helps employees avoid inappropriate or unethical behavior in their activities.

The findings also show that environmental factors (laws and regulations, protection of intellectual property and privacy protection) are the most key; Individual factors (bravery, self-efficacy, locus of control, silence, and lack of information) were identified as the most dependent; organizational factors: security monitoring, organizational resilience, organizational support, concentration of power, organizational culture; and environmental factors: protection of intellectual property and laws and regulations were also identified as the most independent factors with the greatest influence and impact and the main driver of the formation of organizational secrecy; so that any action to create and promote secrecy in the organization requires reforms in these factors.

### **Discussion and Conclusion**

The results of this study can be very effective as a basis for managers of knowledge-based companies in the field of organizational secrecy and lead to institutionalization of secrecy and its development at the organizational level. By using the results of this study in identifying the power and influence of each of the factors affecting organizational secrecy, managers of knowledge-based companies can take effective steps to increase the competitiveness and information security coefficient in knowledge-based organizations. Also, the results of this research and the obtained model can provide appropriate direction to training programs in the field of organizational confidentiality in knowledge-based companies and increase the effectiveness of the aforementioned programs. This model can be useful for managers of knowledge-based companies, because it shows them which groups of factors are more fundamental and paying attention to them can pave the way for the development of other factors.

### **KEY WORDS**

Organizational Secrecy, Knowledge-Based Company, Interpretive Structural Modeling.

