

The Position of Knowledge-Based Companies in Relation to Measuring Creativity in Science and Technology

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Abstract

Introduction: The importance of fostering knowledge-based companies has become a top priority on the global agenda, with global incentives in place to accelerate the growth and development of nations through innovation and technology. Creativity, a crucial ability of industrial designers, can aid in designing and bringing to life innovative products. Additionally, the ability to create knowledge encompasses knowledge integration, sharing, and co-creation, and conceptualizes both internal and external dimensions of knowledge creation capability, along with the elements that connect these dimensions, such as management coordination and innovation projects. Therefore, knowledge sharing plays a pivotal role in advancing technology in strategic industries through the exchange of knowledge resources and fostering collaborative innovation. Innovation also plays a significant role in organizations and greatly influences organizational performance and professional activities. Work processes that prioritize innovation and creativity lead to increased productivity, and utilizing innovative capabilities within organizations strengthens their foundation. Consequently, the importance of bolstering knowledge-based companies has become a global trend, with emerging countries recognizing their crucial role as drivers of growth and development based on innovation and creativity. The information presented indicates that innovation effectively enhances the operations of knowledge-based companies and can lead to their development and growth. The main goal of this research is to identify the readiness to use brainstorming techniques for innovation in knowledge-based companies at Kerman Science and Technology Park.

Methodology: The research method is a survey-descriptive one. The statistical population includes employees of knowledge-based companies under the University of Postgraduate Education in Kerman, including managers and experts. In this study, 55 individuals were selected as the survey sample based on availability and willingness to participate. A researcher-made questionnaire was used as the data collection tool. The brainstorming questionnaire is comprised of 5 items: the manager's knowledge and understanding (22 questions), budget (11 questions), innovation (17 questions), technology (12 questions), and human resources (14 questions). The manager's knowledge and understanding pertains

to their expertise and professional skills. The budget is determined based on the availability of financial resources. Innovation involves selecting appropriate ideas and effectively implementing the process of converting them into a valuable service or product. Technology encompasses software, hardware, information systems, infrastructure, and applications. Human resources refer to a specialized, efficient, and capable workforce that carries out professional activities. The validity of the questionnaire was assessed using the face validity method, and reliability was determined through Cronbach's alpha test and split-half test.

Main findings: The research findings indicated favorable conditions in key components such as cognition and knowledge, finance and budget, technology, innovation, and the Practical use and human resources. The organization's readiness to implement brainstorming techniques in knowledge-based companies at Kerman Science and Technology Park was also found to be favorable. It has been discovered that innovation plays a crucial role in shaping the knowledge structure. Innovation is significant for various reasons, as it helps in identifying the best ideas and executing suitable methods, techniques, and specialized processes to turn them into profitable services or efficient products, thereby fostering economic growth. Moreover, knowledge management and knowledge sharing are instrumental in enhancing brainstorming sessions and bolstering the competitive edge of knowledge-based companies. Additionally, organizational knowledge has been shown to boost creativity and can be harnessed for the future strategies of companies. Within the framework of the technology-organization-environment model, it is evident that recognition and knowledge are key factors in organizational innovation when it comes to adapting to new technologies. Additionally, software, hardware, infrastructure, tools, information systems, networks, applications, social networks, and high-speed internet lines can all contribute significantly to enhancing knowledge bases within companies. The utilization of brainstorming techniques is crucial for the advancement of knowledge-oriented companies, as it facilitates the generation of creative ideas and the effective implementation of specialized processes and methods to deliver high-quality services or products.

Discussion and conclusions: The results of the research indicate that, according to the technology-organization-environment model, factors such as applied utilization and financial issues play a positive role in fostering innovation and advancing companies. However, their effectiveness is perceived to be lower compared to other components. It is important to recognize that financing and investment opportunities often encounter challenges due to currency restrictions and monetary policies. Adequate financial resources are always necessary for investment, and these should be prioritized within the activities of knowledge-based companies. In light of the significant investment volume in knowledge-based companies affiliated with the Kerman Science and Technology Park, which has been executed at a satisfactory level with a focus on product production and development, it is crucial to ensure that senior managers approve the adequacy of capital and value created. Recommendations include involving organization members in decision-making, establishing a suggestion system, conducting training courses to foster creativity and innovation, creating a knowledge base to share professional experiences, and utilizing financial and moral incentives in companies. Given the important role of brainstorming in fostering innovation and creativity within knowledge-based companies, this research is significant as it offers new insights in this area. One of the advantages of this research is the use of the Technology-Organization-Environment framework model to assess brainstorming readiness in Iran.

Keywords: Shahid Bahonar University of Kerman; Central Library; Digital Information Resources; Value Engineering