

Innovation and Entrepreneurship: Driving engine of the medical product industry

Mirmohammad Seyednouri¹, Mehdi Farzpourmachiani²,
Mehrdad Fojlaley³, Snjezana Baroness Rajacic⁴

¹Member of the Club of Innovative Minds of the European Academy of Sciences, PhD. in Entrepreneurship, Technofest Institute of Technology University (TITU), Erquelinnes, Belgium

²Academician of the European Academy of Sciences, Assistant Professor in entrepreneurship, department of entrepreneurship, Technofest Institute of Technology University (TITU). Erquelinnes, Belgium

³Academician of the European Academy of Sciences, Professor in entrepreneurship, department of entrepreneurship, Technofest Institute of Technology University (TITU). Erquelinnes, Belgium

⁴Academician & President of the European Academy of Sciences, Professor in entrepreneurship, department of entrepreneurship Technofest Institute of Technology University (TITU). Erquelinnes, Belgium

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ABSTRACT

The medical device industry, as a dynamic and growing sector, is severely influenced by innovation and entrepreneurship. In this article, the pivotal role of innovation and entrepreneurship in the progress of this industry is discussed. Focusing on the challenges in the healthcare sector and the growing needs of patients, it emphasizes the importance of developing new technologies and entrepreneurial solutions to provide more efficient and cost-effective medical products and services. This article examines the concepts of innovation and entrepreneurship in the healthcare sector and then analyzes how these two factors affect the medical device industry. Also, the obstacles and challenges faced by entrepreneurs in this field are investigated and solutions are provided to solve these obstacles. Finally, considering the importance of investing in the health sector, the role of investors in supporting startups in the field of medicine and the development of new technologies is discussed. The results of this research show that innovation and entrepreneurship not only help the growth and development of the medical product industry, but also, they also lead to improving the quality of medical services and increasing patients' access to new technologies. Supporting the entrepreneurial ecosystem in the field of health, through investment, appropriate policies and the creation of the necessary infrastructure, can help the evolution of this industry and improve the health status of the society.

Keywords: Innovation, Entrepreneurship, Medical Products Industry, New Technologies, Health, Investment, Startup

I. INTRODUCTION

The medical product industry is a dynamic and evolving field that is directly linked to human health and well-being. Significant advances in the field of medicine and increased life expectancy have greatly increased the demand for new medical products and services. In the meantime, innovation and entrepreneurship as two main driving forces play a decisive role in the formation of this industry.

Innovation in the medical product industry refers to the creation of new or improved products, processes, or services that help diagnose, treat, or prevent disease. On the other hand, entrepreneurship, as the process of transforming new ideas into successful businesses, plays a key role in commercializing these innovations and bringing them to patients. In this article, we will examine in depth the role of innovation and entrepreneurship in the medical device industry. We will see how these two factors jointly help to improve the quality of human life, reduce medical costs and develop the health economy. Also, the challenges and opportunities facing entrepreneurs in this field will be examined, and solutions will be presented for further development of this industry.

II. LITERATURE REVIEW

Previous studies in the field of empowering innovation in knowledge-based medical equipment companies have provided valuable perspectives. Salami and his colleagues have divided the path of formation of innovation capability into four key stages: focusing on

customer needs, strengthening technical and engineering knowledge, improving managerial functions and creating organizational discipline by examining the start-up technology companies in Fars's province. On the other hand, Zakari and his colleagues in a study on Iranian knowledge-based companies active in the field of medical equipment, have pointed out the importance of technological knowledge and market knowledge in the internationalization process of these companies. The findings of this research show that companies mainly acquire this knowledge through direct experience and learning from others. However, internationalization knowledge, as a key knowledge area, is not sufficiently developed in many of these companies. To strengthen this area, suggestions such as strengthening consultants, creating cooperation networks and attracting managers with international experience have been proposed (1).

Tavakoli and his colleagues by examining the condition of medical equipment maintenance in Pastor Bam Hospital, concluded that although the overall condition of this hospital has been assessed as good, there is still room for improvement. Khatami Firouzabadi and his colleagues have presented a model to evaluate and analyze this capability by emphasizing the importance of human reliability in medical equipment and emphasized the necessity of reducing hidden failures and cooperation between designers and users of medical equipment.

On the other hand, Mohammadian and his colleagues have identified the factors affecting this management by examining the supply chain management of medical equipment in military hospitals and emphasized the importance of choosing the right suppliers and creating integrity in the system. These studies show that to improve the performance of medical equipment maintenance and repair systems, it is necessary to pay attention to various factors, including the technical condition of the equipment, human reliability, supply chain management, and creating an integrated and efficient system (2).

Localization and Development of the Medical Equipment Industry in Iran

The medical equipment trade, with a range of activities including exports, imports, distribution, and government activities, is an important part of every country's economy. In Iran, this business has been facing many challenges. For example, Cheraghfar and Delaram point to expensive infrastructure and lack of production

technicians as the main obstacles to domestic production.

Yousefi Hajior and colleagues also emphasize the importance of training human resources as a solution to solve these challenges. Ziaei also considers the improvement of the supply chain as a key factor in removing the obstacles in this industry.

Globally, research shows that blockchain technology can create tremendous changes in the field of trade. Pal et al. point to the high potential of this technology in creating paradigmatic changes in the performance of businesses. However, the acceptance and implementation of this technology is associated with challenges (3).

Verma et al. emphasize the importance of decision support systems and algorithmic approaches in improving business performance. Also, Jajuka points out the importance of data analysis training to deal with various risks such as climate change and cyber-attacks (4).

The experience of the Covid-19 pandemic showed that the quality of management in the field of health and treatment is of great importance in facing crises. Pal et al. and Sriharan et al. point to the widespread effects of this pandemic on the global economy and the importance of managers adapting to changing conditions. Liu et al. also emphasize the importance of innovation in crises (5-7).

Value creation in the configuration of products is a new way of managing businesses, especially in the online space, which focuses on the internal resources of companies. Companies are always trying to improve the quality of their products and services. However, research in the United States has shown that companies face serious challenges when they resort to franchising to overcome their resource constraints.

Increasing work maturity in artisans is another example of how to overcome challenges and limitations in corporate management. Argentinian researchers have shown that companies that have improved their process management are more prepared to face the challenges of new technologies; technologies that mean the complete digitalization of production and distribution systems (8).

Integrating business management processes can also be effective in overcoming challenges; provided that it has advantages such as strong internal communication, clear definition of employee duties and appropriate databases (9).

Jiang et al. have emphasized the importance of value creation in the configuration of

products as a new approach. This approach, by focusing on the internal resources of companies, can help to continuously improve the quality of products and services (10).

Overall, the researches show that in order to be successful in today's competitive world, companies should look for ways to improve their internal processes, use new technologies and create integration in management systems.

III. FINDINGS

But unforeseen events may also occur in the path of businessmen and industrialists in countries and companies; For example, natural disasters such as earthquakes, tsunamis, floods or political events such as coups and changes of governments or the outbreak of war in neighboring countries (11).

The lack of management planning is always of great importance at all stages and in the evolution of the various layers of a medical complex. Even the absence of a manager and technical supervisor related to the management of hospital waste and residues can have irreparable consequences to a large extent. Let.

Preservation of management know-how and transfer of management experiences can play a multifaceted role in removing barriers and constraints (12).

Healthcare organizations, as a legal entity, have a multifaceted role in creating constraints that having agile management in response to problems such as lack of personnel, lack of space, and also lack of equipment can solve the mentioned problems to a large extent.

However Today, with the development and expansion of technologies based on machine learning or artificial intelligence, many challenges and limitations have been reduced. In Iran, there has also been progress in the industry. Smart hospitals have been developed for several years, and even in the field of remote surgeries, the Sina robot has appeared successfully Hosseinzadeh Zibad, Iman and Moaddab Bilondi, Fazel, which shows that; The growth of health technology has created a great change in the growth and promotion of hospital managers and leaders and has caused a new transformation in the industry of medical equipment specialists (13, 14).

In a research and case study in the Netherlands, researchers have proposed the use of a business model in university medical centers to overcome the limitations and challenges, which can easily solve the complex structures and systems.

The types of medical equipment companies in Iran

For example, export, import, distribution, production, quality control, third party, etc. should be explained. Medical equipment companies are divided into different types, including; companies that operate in the field of export and import. Also, the distribution companies that work in the field of sales and trade are among the important activities of this line of work. The country is taken into account; the calibration function is one of their most important functions.

Inability of internal managers

The traditional structure of management in Iran, as well as influential political factors in managerial positions and settling people in positions that do not belong to them, always cause many damages and high costs for the industrial sector. It is a market. Many changes can also be made in administrative positions; Another one of the inabilities of managers in Iran. Some of the managers without the necessary training and with non-technical qualifications are busy working in positions in the country's medical equipment management system, which have created numerous problems for the health sector activists; the most important of which is the payment of time costs.

Empowering Internal Managers

Increasing work maturity is one of the important principles in management organizations that should be given special attention, especially in medical equipment companies. Empowering managers and increasing work maturity requires creating an environment where employees feel trusted, valued, and can meaningfully participate in the organization's success. Empowering managers and increasing work maturity includes a multifaceted approach that includes both the empowerment of individual employees and the collective maturity of the organization's service delivery capabilities. Empowering employees creates a sense of ownership and pride in their work. This not only motivates people to perform better, but also creates a positive work environment that is characterized by cooperation and innovation.

Empowering leadership behaviors, such as involving employees in decision-making processes and creating an environment for safe expression of ideas, promotes transparency and open communication. These behaviors are fundamental for creating trust and fostering a culture of empowerment. As a result, empowering managers and increasing work maturity is a comprehensive

strategy that not only increases the work environment and employee satisfaction, but also with broader business goals such as improving service delivery, increasing Productivity and increasing customer experience are equal. By adopting strategies that promote a culture of empowerment and continuous improvement, organizations can achieve sustainable growth and success.

IV. CONCLUSION

Research findings show that establishing stable and long-term relationships with medical equipment suppliers is the main key to improving supply chain performance in hospitals. In other words, carefully selecting suppliers and developing relationships with them should be prioritized. Also, weakness in information integration and management has been identified as a serious challenge in the studied hospital. Considering the high importance of maintaining information security in hospital environments, investing in this area can significantly improve the supply chain performance.

The medical equipment business is facing many challenges and opportunities. To improve the performance of this industry, there is a need to invest in training human resources, improve infrastructure, use new technologies and adopt data-based approaches. Also, managers must be able to manage risk and adapt to changing conditions.

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