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ARAŞTIRMA MAKALESİ / RESEARCH ARTICLE

STRATEGIC DIMENSIONS AFFECTING TO INNOVATION PERFORMANCE IN THE HEALTHCARE SECTOR: A SYSTEMATIC LITERATURE ANALYSIS*

SAĞLIK SEKTÖRÜNDE İNOVASYON PERFORMANSINI ETKİLEYEN STRATEJİK BOYUTLAR: SİSTEMATİK LİTERATÜR ANALİZİ

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ABSTRACT

The study systematically analyzes the literature's reflections to determine the dimensions and criteria affecting innovation performance in the healthcare sector and healthcare organizations. In order to achieve this goal, studies published between 2018 and 2022 in the Web of Science and Google Scholar databases are searched with the keywords "innovation" and "healthcare." Out of 1,103 studies, 52 that met the screening criteria are included in the research analysis. The results show that the dimensions affecting innovation performance in the health sector and health institutions can be grouped as organizational culture, leadership, human resources, organizational structure, knowledge acquisition and knowledge sharing, cooperation, policy and management support, and technology. As a result of the study, explanations of the scope of each dimension are given, and suggestions are presented as to which areas healthcare organizations that want to increase their innovation performance should focus on improving. It is thought that healthcare organizations that want to evaluate their current innovation performance can also measure and assess within the scope of the exact dimensions.

Keywords: Innovation in Health, Innovation Management, Innovation Management in Health, Innovation Performance, Innovation Performance in Health.

JEL Classification Codes: I18, I19, L53, O30, O39.

ÖZ

Bu çalışma, sağlık sektöründe ve sağlık kuruluşlarında inovasyon performansını etkileyen boyutları ve kriterleri belirlemek için literatürdeki yansımaları sistematik olarak analiz etmektedir. Bu amaca ulaşmak için Web of Science ve Google Scholar veri tabanlarında 2018-2022 yılları arasında yayınlanan çalışmalar "inovasyon" ve "sağlık hizmetleri" anahtar kelimeleri ile taranmıştır. Tarama kriterlerini karşılayan 1103 çalışmadan 52'si araştırma analizine dahil edilmiştir. Sonuçlar, sağlık sektöründe ve sağlık kuruluşlarında inovasyon performansını etkileyen boyutların organizasyon kültürü, liderlik, insan kaynağı, organizasyon yapısı, bilgi edinme ve bilgi paylaşımı, işbirliği, politika ve yönetim desteği ve teknoloji olarak gruplandırılabileceğini göstermektedir. Çalışma sonucunda her bir boyutun kapsamına ilişkin açıklamalara yer verilmekte ve inovasyon performansını artırmak isteyen sağlık kuruluşlarının hangi alanları geliştirmeye odaklanması gerektiğine ilişkin öneriler sunulmaktadır. Mevcut inovasyon performansını değerlendirmek isteyen sağlık kuruluşlarının bu boyutlar kapsamında ölçüm ve değerlendirme yapabileceği düşünülmektedir.

Anahtar Kelimeler: Sağlıkta İnovasyon, İnovasyon Yönetimi, Sağlıkta İnovasyon Yönetimi, İnovasyon Performansı, Sağlıkta İnovasyon Performansı.

JEL Sınıflandırma Kodları: I18, I19, L53, O30, O39.

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GENİŞLETİLMİŞ ÖZET

Amaç ve Kapsam:

Sağlık sektöründe ve Sağlık kurumlarında inovasyon performansı geliştirme çalışmalarının farkındalığı ve gündemi giderek artan öneme sahiptir. Bu kapsamda, sağlıkta inovasyon performansını geliştirmek amacıyla hem akademik hem de sektörel çeşitli çalışmalar sürdürülmektedir. Performans geliştirilmesi kapsamında gerçekleştirilen çalışmaların etkin olabilmesi için öncelikli olarak sağlıkta inovasyon performansını etkileyen boyut ve kriterlerin doğru tespit edilmesi gerekmektedir. Bu boyut ve kriterlerin doğru belirlenmesi sayesinde hem mevcut durum tespiti daha doğru yapılabilecek hem de gelişmeye açık alanların doğru tespit edilmesi sayesinde stratejik planların yapılması kolaylaşacaktır. Yapılan ön araştırmalar sonucunda, literatürde sağlıkta ve sağlık kurumlarında inovasyon performansını konu alan çok sayıda çalışma bulunduğu görülmüştür. Bu çalışmalar incelendiğinde her birinin inovasyon performansını farklı bir konu kapsamında (liderlik, örgüt yapısı ve inovasyon uyumu, kurum kültürü, insan kaynağı vb. açılardan) ele aldığı dikkatimizi çekmiştir. Tüm çalışmaları birlikte değerlendirmek ve her biri kendi içinde kıymetli çalışmalardan bütünsel bir anlam çıkarabilmek için bu çalışma planlanmıştır. Bu çalışmada, sağlık sektöründe ve sağlık hizmeti sunan kurumlarda inovasyon performansına etki eden boyutları belirlemek için literatürde yer alan çalışmaların sistematik olarak analizlerinin yapılması amaçlanmıştır.

Yöntem:

Çalışma amacına ulaşabilmek için Web of Science ve Google Scholar veri tabanlarında 2018-2022 yılları arasında yayınlanan çalışmaların "innovation" "healthcare" anahtar kelimesi ile taraması yapılmıştır. Özellikle güncel çalışmalara ulaşabilmek için yıl aralığı son 5 yıl olarak seçilmiştir. Tespit edilen 1103 çalışma "uygunluk kriterleri" ne uygunluğu açısından değerlendirilerek analiz edilmiştir. Ön yargıdan kaçınmak için, seçilen makalelerin referansları da kontrol edilerek, çalışmamızın uygunluk kriterlerini sağlayan araştırmalar incelemeye dahil edilmiştir. İlaveten seçim kriterleri doğrultusunda yeni yayınlanan makalelerden haberdar olmak ve yeni çıkan yayınları takip edebilmek için çevrimiçi bir arşiv e-posta uyarı sisteminden yararlanılmıştır. Tam metinlerine erişim sağlanan çalışmalar araştırma yazarları tarafından detaylıca okunarak analiz edilmiştir. Çalışma seçim süreci PRISMA yöntemi çerçevesi takip edilerek yapılmıştır. İncelenen çalışmalar vurguladıkları ana tema açısından ele alınarak gruplandırılmış ve çalışmaların vurgu yaptığı boyut sınıflaması yapılmıştır.

Bulgular:

Daha önceden belirlenen anahtar kelimelerle veri tabanlarında yapılan taramada toplamda 1103 yayına ulaşılmıştır. Tekrarlanan ve tam metnine ulaşılamayan yayınlar çıkarıldıktan sonra kalan 950 yayın üzerinden başlık ve özet incelemesi yapılmıştır. İncelenen çalışmalardan başlık ve özet incelmesinde uygun görülen 201 yayın tam metin incelemesine alınmıştır. Tam metin analizine alınan 201 yayın K3-K4 ve K5 uygunluk kriterlerine uygunluğu açısından değerlendirilmiş ve yalnızca 114 yayının bu kriterlerce uygun olduğu görülmüştür. Tam metinlerin bir kez daha K1 kriterince uygunluğu açısından değerlendirilmesi ile 62 (114-52) yayın araştırmanın dışında tutulmuştur. Sonuç olarak 52 yayın bu araştırmaya dâhil edilmiştir. Analizler sonucunda, sağlık sektöründe ve sağlık kurumlarında inovasyon performansına etki eden boyutların; organizasyon kültürü, liderlik, insan kaynağı, organizasyon yapısı, bilgi edinme ve bilgi paylaşımı, işbirliği, politika ve yönetim desteği ve teknoloji olarak sınıflandırılabileceği görülmüştür.

Sonuç ve Tartışma:

Yapılan araştırmalar sonucunda sağlıkta ve sağlık kurumlarında inovasyon performansını ele alan akademik çalışmaların her birinin inovasyon performansının geliştirilmesinde etkili olan farklı bir unsura odaklanmasının yanında, ortak amaç kapsamında yapılan tüm çalışmaların birlikte değerlendirilmesi suretiyle ortaklıklar içerebileceği ve kendi içinde gruplanabileceği görülmüştür. Bu çalışma sonucunda sağlık sektörü ve sağlık hizmeti sunan kurumlarda inovasyon performansını etkileyen boyutlar; i) organizasyon kültürü, ii) liderlik, iii) insan kaynağı iv) organizasyon yapısı, v) bilgi edinme ve bilgi paylaşımı vi) işbirliği vii) politika ve yönetim desteği ve viii) teknoloji olarak belirlenmiştir. İnovasyonu destekleyen bir kurum kültürünün performans geliştirmede temel oluşturacağı görülmüştür. İlaveten organizasyon yapısının inovasyonu, yenilikçi düşünmeyi ve bilgi paylaşımını destekleyecek şekilde kurgulanmasının avantajları dikkat çekmektedir. Yönetim desteği ve uygun liderlik stillerinin de inovasyon performansında insan kaynağı unsuruyla olan olumlu ve destekleyici etkileri bulunmaktadır. İnovasyonu destekleyecek politika ve prosedürlerin mevcudiyeti ile teknolojinin inovasyon geliştirmeye olanak verecek şekilde kullanılmasının da inovasyon performansı ile uyumu görülmüştür. Bu boyutların kombinasyonlarının inovasyon için gerekli olduğu vurgulanmıştır. Örneğin inovasyonu destekleyen bir organizasyon kültürü kurumdaki insan kaynağının yenilikçi fikirlerini rahatça beyan edebileceği bir ortam sağlamaktadır. Yönetimin etkin liderliği sayesinde yenilik geliştirme konusunda uygun işbirlikleri sağlanabilecektir. Kurum kültürü, liderlik, yönetim desteği, politika ve prosedürler ile desteklenen bilgi paylaşım ve fikir geliştirme ortamının uygun teknolojilerin varlığı ile sağlanacak dijital bilgi paylaşım platformları ile desteklenmesi ise inovasyon performansını doğrudan olumlu yönde etkileyecektir. Çalışma sonucunda her bir boyut kapsamının açıklamalarına yer verilerek inovasyon performansını artırmak isteyen karar vericilerin hangi alanlarda gelişime odaklanmaları gerektiği yönünde öneriler sunulmuştur. Çalışma sonucunda vurgulanan boyutların, sağlık sektöründe inovasyon performansını geliştirmek ve sürdürülebilir bir yenilik yönetim sistemi tasarlamak isteyen yöneticilerin stratejik kararlarına yön vereceği düşünülmektedir. Ayrıca çalışmada bu boyutlar arasındaki ilişki vurgulanmış ve her bir boyutun geliştirilebileceğine dair önerilerde bulunulmuştur. Mevcut inovasyon performansını değerlendirmek isteyen sağlık kurumlarının da yine aynı boyutlar kapsamında ölçüm ve değerlendirme yapabileceği düşünülmektedir.

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1. INTRODUCTION

In today's world, marked by globalization, knowledge accumulation is rapidly increasing and this is also reflected in technological developments; An organization's ability to innovate becomes a driving force that underpins competitiveness, continuity and success. (Karaman, 2019; Marques et al., 2022). It is known that innovation helps to obtain economic and social value by producing more and higher value-added outputs with the same resources (Ayçin & Çakın, 2019; Elmacı & Yalçın, 2013). The increasing competitive environment and shortening product life cycles push organizations to innovate to survive. Therefore, businesses focus on innovation as a way to increase efficiency and achieve sustainable competitive advantage (Göker, 2001; Hancıoğlu & Yeşilaydın, 2016). Let's assume that organizations do not constantly strive to innovate. In this case, over time, they will lose their competitive advantage in the face of new consumer trends and developing technologies and lose their chance of survival. In order for organizations to keep up with the changes in the environment, an innovation that adds value to the organizational culture must be defined as the pioneer of organizational understanding and used as a benefit of keeping up with the ongoing changes in the internal and external environment (Ahmed, 1998).

Innovation is an important indicator that increases the productivity, welfare and competitiveness of countries as well as businesses (Karaata, 2012). Countries and institutions that want to benefit from the value-creating power of innovation are giving increasing importance to innovation management studies. Although awareness of innovation is increasing day by day, it is misleading to assume that innovation is a one-time tool or ready-to-use at the time of need. It is not possible to develop innovation without providing appropriate conditions, and innovation development efforts that are not sustainable do not have any permanent benefits. Because every innovation is bound to lose its essentially periodic superiority after a while due to reasons such as the emergence of similar ones, the disappearance or change of the need. The way to maintain the superiority provided by innovative products and services and the advantages brought by this superiority is to make innovation a sustainable business function and to make it a corporate culture in businesses. For this, it is necessary to establish a healthy innovation management system. In order to implement the innovation management system in a healthy way, a methodology is required to manage the measurement, incentive, strategy and action process (Elmacı & Yalçın, 2013; Karaata, 2012; Taşgit & Torun, 2016). One of the priority steps is to measure the innovation performance of the business, as it will be considered essential in determining the first and perhaps the later ones among these processes (Elverdi & Atik, 2020; İnel & Türker, 2016; Karaata, 2012; Süt & Çetin, 2018). This measurement helps determine not only the change in innovation performance, but also whether the resources allocated for this are used effectively (Ayçin & Çakın, 2019; Kalender et al., 2014). Based on Drucker's principle "You cannot control anything you cannot measure; you cannot manage anything you cannot control", planning in line with the data obtained as a result of measurement is important in establishing a successful innovation system and ensuring the sustainability of the system (Drucker, 2014). In this respect, it is important to measure performance and identify areas that need improvement through current situation assessment to ensure effective innovation management. What is also important for performance measurement is that the measurement criteria are determined in accordance with the needs of the sector and the institution.

Innovation, which has become increasingly important, has taken its place in the health sector by becoming one of the main determinants of social welfare and quality of life with the innovations and advances it brings. The health sector has a dynamic structure, and the institutions in this sector should be included in the innovation process, considering the variable and uncertain factors that threaten them (Aksay & Orhan, 2013; Avcı, 2017; Ökem, 2011).

Innovative products and services provided by innovation increase the possibilities of early diagnosis and treatment and prevent future costs. As the healthcare system's efficiency improves, alternative solution options can be developed in the long term. Better quality and more effective services can be provided through advanced technology in the health sector and the complementarity of a qualified workforce. Health service performance is increasing thanks to new treatments, pharmaceutical and medical technology devices, and technological advances in this sector, among the essential intermediate inputs in health service delivery (Ökem, 2011; Şengün, 2016). More particularly, innovation improves the accessibility of health services while also improving the performance, efficiency, and effectiveness of healthcare providers.

In addition to positively impacting healthcare providers and many health-related sectors, innovation brings with it many difficulties and risks in practice due to the nature of the health sector. A short delay or a small mistake that may occur in health care can have dangerous consequences for human life. The fact that developments in the health sector are directly related to human life emphasizes the massiveness and impact of risks (Aksay & Orhan, 2013).

To successfully manage innovation, healthcare providers must overcome various challenges, including human resource issues, a lack of collaboration with internal and external stakeholders, financial difficulties, and various other obstacles. To increase institutions' innovation power, it is critical first to identify the compelling and facilitating factors that influence innovation performance and then develop strategies and policies in this direction (Demirdöğen, 2019; Yaxuan, 2017). A better understanding of the factors influencing innovation performance will lead to a better understanding of institutional innovation activities and policy priorities.

For institutions to increase and sustain their innovation performance, they need to plan their systems and strategies accordingly, knowing well the dimensions that affect innovation performance. One of the critical research areas on the agenda related to innovation is the performance evaluation needed for the effective maintenance of innovation management (Karaata, 2012). To determine whether the resources allocated to innovation are used effectively or not, countries and institutions should regularly evaluate their innovation performance (Ayçin & Çakın, 2019; Kalender et al., 2014).

Indicators that will reveal the current situation are the most needed tool in policy and strategy development processes. Indicators become a tool to convey information to decision-makers. As a matter of fact, decision-makers use this data while making strategic decisions and include it in the decision processes by analyzing it. It is essential to choose the variables that reflect innovation performance in the analysis to make the right decisions and direct the incentives correctly. For this reason, it is essential to determine the current situation with indicators that accurately represent innovation.

Many studies in the literature examine the factors affecting innovation performance in health institutions (Al-Kade, 2019; M. Khallouk et al., 2022; Kim & Kim, 2018; Mitchell & Boyle, 2019; Sharma, 2020). However, when these studies are examined, it is seen that each study mostly takes place in the form of a detailed examination of a single or a few dimension (corporate culture, human resources, organizational structure, etc.). This study aims to analyze and evaluate the academic studies in the literature that deal with innovation performance in the health sector and institutions providing health services and ''determine the dimensions that affect innovation performance in the health sector and health institutions''. It is thought that the dimensions emphasized as a result of the study can guide the strategic decisions of managers who want to increase innovation performance in the health sector and provide sustainable innovation management.

2. METHOD

2.1. Purpose of the Research

This research is aimed to determine the factors (dimensions and criteria) that affect innovation performance to provide more effective innovation management in the health sector and institutions providing health services.

In order to achieve this aim, a systematic review of the studies in the literature dealing with innovation performance in the health sector and health institutions has been made.

In the studies examined, answers were sought to the following questions;

- What are the aims of the research?
- What are the important conclusions drawn from the findings of the studies?
- What is the main dimension emphasized in the results of the studies?
- What is the type of research?

Examined studies are presented in terms of similarities and differences and grouped in line with their main emphasis.

2.2. The Pattern of the Research

In this study, a systematic literature review was made to achieve the research purpose.

Systematic review studies examine a clearly defined problem using systematic and explicit methods to identify, select, and critically evaluate relevant research and collect and analyze data from included studies (Alkan, 2017; Littell et al., 2008).

Systematic compilation studies should be carried out by following certain steps (Millar, 2004).

In a systematic review study, it is necessary to:

- Clearly defining the purpose
- Selecting the articles included in the research according to the determined criteria,
- Identifying the main features of the selected articles and
- To make inferences with the information obtained from the articles.

The structure of this research was formed in this context by paying attention to the specified rules. The reporting framework provided by the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analysis) guide was followed in the review, and the report was presented (Moher et al., 2009).

2.3. Information Sources and Data Collection Process

The studies were conducted in the Web of Science and Google Scholar databases. Studies published in the relevant databases between 2018 and 2022 were searched with the keywords ‘‘innovation’’ and ‘‘healthcare’’. The studies we came across as a result of the search were evaluated in terms of their compliance with the ‘‘suitability criteria’’ and were selected for examination. The year range has been chosen for the last 5 years, especially to reach current studies.

In order to avoid bias, the references of the selected articles were also checked, and the studies that met the eligibility criteria of our study were included in the review. The cited articles discussed were also checked, and the appropriate ones were included. In addition, an online archive email alert system was used to be informed about newly published articles and follow new publications in line with the selection criteria.

2.4. Eligibility Criteria

Compliance with the following criteria is sought for the studies included in the review.

- Studies should directly address innovation performance in health. (C1)
- Studies between 2018-2022 should be included in the review. (C2)
- As part of the pragmatic approach to gathering literature, only studies written in English were considered. (C3)
- Only studies which full text can be accessed should be reviewed. (C4)
- All of the studies to be included in the review must have been peer-reviewed. (C5)

2.5. Study Selection

As a first step, the researchers (AE, ET) evaluated the titles and summary of all the articles they came across as a result of the search and conducted a conformity review. In the first review, the studies were separated with the markings of ‘‘completely handled’’, ‘‘inspect’’, and ‘‘ask’’. The decision to include studies marked ‘‘ask’’ was made in consultation with other researchers.

After the first two phases of the examination (title and summary), studies that were not considered directly related to our research scope were eliminated. In the title and abstract review, the articles were evaluated for compliance with the "K1: Studies should directly address innovation performance in health" criterion. In the article selection and elimination processes "2.4. The eligibility criteria specified under the title "Eligibility Criteria" have been complied with.

Full-text studies were examined in detail by AY, ET and ŞG, analyzed and tabulated. Studies that did not meet the eligibility criteria were excluded. All remaining studies were included in a second review, the ‘‘full text’’ review. The suitability of the included studies in terms of eligibility criteria was repeatedly evaluated by different authors to ensure quality control. For review, the research was transferred to a Microsoft Excel® (Microsoft 365) table. The elimination and inclusion stages were reviewed and approved by all authors. The study selection process is presented in detail in Figure 1 using the PRISMA flowchart.

3. FINDINGS / RESULTS

Studies to be included in the review were categorized in terms of publication year and author, title, purpose of study, study group, main findings, theme, and type of study. In addition, the studies examined were grouped in terms of the main theme they emphasized.

The steps of the screening process according to the PRISMA method are shown in Figure 1. A total of 1103 publications were reached in the database search using predetermined keywords. After removing duplicate and inaccessible publications, title and abstract analysis was performed on the remaining 950 publications. As a result of this analysis, 201 publications found to be appropriate were re-evaluated in terms of their compliance with K3-K4 and K5 eligibility criteria. The full texts of 114 publications that met these criteria were re-examined in detail by all authors within the scope of K1 criterion. The suitability of the included studies in terms of eligibility criteria was evaluated repeatedly by different authors to ensure quality control. The quality control list followed is presented under the heading "2.4. Eligibility Criteria".

As a result, 52 publications that met all eligibility criteria were included in the analysis. The elimination and selection stages of the 52 publications included in the research, according to the eligibility criteria, are summarized in detail in Figure 1 below.

Figure 1. Publications Included in the Research

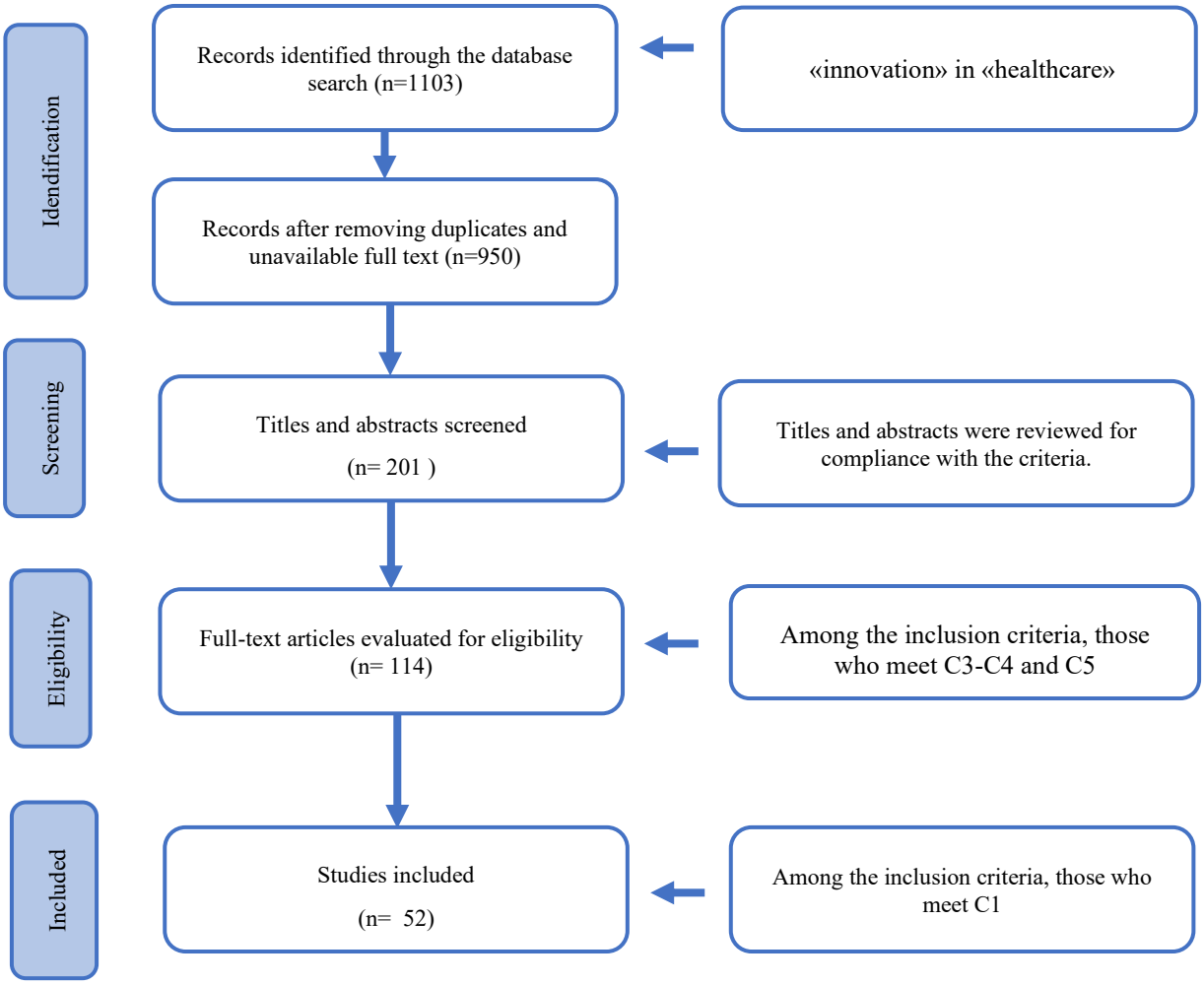

Table 1. Studies Included as A Result of the Literature Review

Dimensions Considered	Authors
Human Resource	(Afsar & Umrani, 2020; Ahmed et al., 2019; el Desoky et al., 2021; Andiappan & Anih, 2022; Ciasullo et al., 2021; Foglia et al., 2018; Hesam Jahanmiri et al., 2021; Khallouk et al., 2022; Liu & Zeinaly, 2020; Lv et al., 2021; Marques et al., 2021; Milella et al., 2021; Mutonyi et al., 2021a; Opoku et al., 2021; Oppi et al., 2019; Palumbo, 2021; Sönmez et al., 2019; Wardan et al., 2020; Zappalà et al., 2020)
Leadership	(Afsar & Umrani, 2020; Ahmed et al., 2019; Andiappan & Anih, 2022; Asurakkody & Kim, 2020; Bagheri & Akbari, 2018; Dias et al., 2018; Gillin & Hazelton, 2021; Marjanovic et al., 2020; Mitchell & Boyle, 2021; Mutonyi et al., 2021b; Naqshbandi et al., 2018; Sharma, 2020; Wang et al., 2019; Zappalà et al., 2020)
Information Acquisition & Sharing	(Al-Kade, 2019; Asurakkody & Kim, 2020; Faugstad Thackery, 2020; Hosseini et al., 2019; Liu & Zeinaly, 2020; Al Jaberi, O. A., 2019; Papa et al., 2018; Secundo et al., 2019; Sharma, 2020)
Organizational Culture	(Andiappan & Anih, 2022; Dahlberg & Wiklund, 2019; Khallouk et al., 2022; Linnéusson et al., 2022; Khodadad-Saryazdi, 2021; Marjanovic et al., 2020; Mutonyi et al., 2021b; Tamer, 2019; Thijssen et al., 2021; Weintraub & Mckee, 2019)
Collaborating with Stakeholders	(Dias et al., 2018; Elabed, 2019; Kim & Kim, 2018; Sharma, 2020; Sooampon et al., 2021)
Organizational Structure	(Ahmed et al., 2019; Mutonyi et al., 2021a; Palm & Persson Fischier, 2021)
Policy And Management Support	(Aburayya et al., 2020; Asurakkody & Shin, 2018; Apostolopoulos et al., 2022; Dias et al., 2018; Marjanovic et al., 2020)
Technology	(Khodadad-Saryazdi, 2021; Lv et al., 2021)

Our systematic analysis observed that the studies we examined were sources pointing to more than one dimension (Table 1).

When the studies pointing to more than one dimension are considered; human resource and leadership dimensions of the study conducted by Afsar & Umrani, 2020; leadership and knowledge acquisition and sharing dimensions of the study conducted by Asurakkody & Kim, 2020; human resource and organizational culture dimensions of the study conducted by Khallouk et al., 2022; organizational culture and technology dimensions of the study conducted by Khodadad-Saryazdi, 2021 ; human resource and knowledge acquisition and sharing dimensions of the study conducted by Liu & Zeinaly, 2020; human resource and technology dimensions of the study conducted by Lv et al., 2021; human resource and technology dimensions; Mutonyi et al., 2021a; human resource and organizational structure dimensions; Mutonyi et al., 2021b; leadership and organizational culture dimensions; Zappalà et al., 2020; human resource and leadership dimensions.

Some of these studies were found to address three different dimensions. The study conducted by Ahmed et al., 2019 covers human resource, leadership and organizational structure dimensions; the study performed by Andiappan & Anih, 2022 includes human resource, leadership and organizational structure dimensions; the study performed by Dias et al., 2018 focuses on leadership, collaboration with stakeholders and policy and management support dimensions; the study performed by Marjanovic et al., 2020 encompasses leadership, organizational culture and policy and management support dimensions; the study performed by Sharma, 2020 covers leadership, knowledge acquisition & sharing and collaboration with stakeholders dimensions.

4. DISCUSSION

This research study aims to identify the dimensions that are thought to affect innovation performance in the health sector and health institutions. To achieve this aim, a systematic review of the literature was conducted. Obtained results; It has been shown that the dimensions affecting innovation performance in the health sector and health institutions can be grouped in a total of 8 dimensions ıt is presented (human resources, leadership, obtaining and sharing information, organizational culture, cooperation with stakeholders, organizational structure, policy and management support and technology.) The criterion scopes of each dimension are detailed in the following paragraphs.

Thus, it is thought that managers who want to increase innovation performance can plan strategic studies within the scope of these dimensions. In this context, it is thought that the 8 dimensions identified as a result of the study and the criteria presented within each dimension will be guiding in developing an innovation strategy.

As a result of our study, which made a systematic review of studies dealing with innovation performance in the health system and health institutions, it was seen that the most emphasized dimension was organizational culture. Studies dealing with the culture dimension were examined in detail, and it was seen that the common emphasis was on the fact that "**organizational culture** plays a facilitating and supporting role in innovation performance."

As a result of the study, which focused on examining the factors that support corporate innovation performance in private and public institutions, it was emphasized that culture facilitated innovation performance (Dahlberg & Wiklund, 2019). Findings from another study with a similar scope show that organizational culture positively affects the development of innovation practices (I. T. Khallouk et al., 2022). The study's findings, which examine the effects of policy practices on innovation, also, in parallel with other studies, emphasize the important role of culture and behavior in an innovative health system (Marjanovic et al., 2020). Some studies deal with the effects of culture and the leadership dimension. From these studies according to the findings of the study conducted on 1008 hospital employees, it was observed that organizational culture mediated the leadership-supportive climate (Mutonyi et al., 2021b). One of the important highlights of the study, which was carried out to investigate which theories and concepts encourage or hinder innovation's ability to manage innovation processes in the health sector, is that leadership similarly encourages an innovative culture (Weintraub & Mckee, 2019). In another study carried out for a similar purpose, the barriers and facilitators to the implementation of innovation in health services were examined, and facilitating factors included a supportive culture, adequate education, training, and knowledge, and recognition of the expected added value (Thijssen et al., 2021). According to a study conducted in 2022, innovation culture and organizational culture cannot be considered independently of one another and must be intertwined (Linnéusson et al., 2022). As emphasized in the results of all these studies, it is seen that organizational culture supports organizational innovation and has a facilitating effect on adapting to innovation (Khodadad-Saryazdi, 2021; Tamer, 2019).

It was seen that another dimension that was emphasized in the studies examined was **leadership**. Studies that deal with innovation performance and leadership in health care have emphasized that ''leadership has a facilitating and directing effect on innovation performance''.

The findings of a study conducted to determine the factors that enable sustainable innovation in health services emphasized the importance of management and leadership in an innovative health system (Dias et al., 2018). Similarly, the study examines how policies and practices support innovation performance through case studies, confirming the positive effects of governance and leadership on innovation (Marjanovic et al., 2020).

Studies also examine the indirect effects of leadership on innovation by influencing idea generation, knowledge sharing, and innovation. One of these studies shows that a leadership-supportive climate mediates employees' innovative behavior (Mutonyi et al., 2021b). The related study found a direct relationship between leadership's supportive climate and the individual innovative behaviors of employees. Employees' innovative behaviors also help to improve innovation performance (Afsar & Umrani, 2020; Ahmed et al., 2019; Andiappan & Anih, 2022). The study's findings, which examine the relationship between leadership and innovative employee behaviors, also emphasize that leadership styles that make it easier for employees to express their ideas and share the organization's goals should be used to support innovative behaviors (Ahmed et al., 2019). Another study conducted with a similar purpose state that there is a need for healthcare policies and strategies to support a leadership style that facilitates the generation and implementation of ideas (Zappalà et al., 2020). A study carried out in 2022 found that a transformational leader motivates employees to inspire and encourage innovation. It emphasizes that leaders must foster the spirit of teamwork in order to achieve organizational performance and innovation (Mohammed & AL-Abrrow, 2022). However, another study conducted in 2022 highlighted the advantages of adopting servant leadership to support a culture of innovation (Andiappan & Anih, 2022).

A recent study from 2021 discussed appropriate leadership behaviors to support healthcare innovation. In the study investigating the relationship between knowledge sharing and innovative work, it was seen that knowledge sharing affects innovative work behavior in a meaningful and positive way, and self-leadership also mediates this relationship (Asurakkody & Kim, 2020). The findings highlight the importance of co-creation culture and leadership to improve corporate innovation performance. As a result of the study, it was emphasized that the

leadership ability that supports innovation should have an impact on creating a shared vision, providing an environment of trust, fostering collaboration, and, most importantly, supporting knowledge acquiring and sharing (Sharma, 2020).

It has come to our attention that research has been conducted on the relationship between innovation performance and leadership in health care regarding leadership styles such as inclusive leadership, entrepreneurial leadership, and shared leadership.

One of the related studies shows that inclusive leadership positively affects employees' innovative behavior (Wang et al., 2019). Studies dealing with entrepreneurial leadership, on the other hand, say that entrepreneurial leadership has a significant positive effect on the innovative work behaviors of employees. In this regard, it is recommended to develop procedures that support leaders in encouraging other employees (followers) to think creatively, generate and implement new ideas, and take risks (Bagheri & Akbari, 2018). In another study, it was emphasized that entrepreneurial leadership encourages entrepreneurial behaviors and supports the development of innovations in entrepreneurial behavior (Gillin & Hazelton, 2021).

Studies on the scope of shared leadership demonstrate a positive relationship between shared leadership and innovation. It has been observed that this positive relationship occurs because the shared leadership style creates a climate of participation that empowers employees and includes them in relevant decision-making processes (Mitchell & Boyle, 2021; Naqshbandi et al., 2018).

The findings of another study conducted for a similar purpose also emphasize the importance of co-creation culture and leadership to improve corporate innovation performance (Sharma, 2020).

Another dimension emphasized, according to the studies examined, is the **human resource** dimension. Because innovation frequently results in change, the resource that will manage and adapt to this change is the organization's human resources. Human resources is the dimension that should be addressed as a priority to overcome the obstacles to change in the direction of innovation (Milella et al., 2021).

Numerous articles we evaluated within the scope of our systematic research deal with this dimension from different perspectives. In the study, which aims to investigate the effect of organizational innovation climate on innovation behavior and the mediating role of psychological empowerment, the findings emphasize that employees should be encouraged to participate in innovation processes (through open communication, personal guidance, etc.). It has been stated that innovative projects can be created for this participation, and rewards can be provided to encourage employees to adopt new ideas, new practices, and innovative behaviors (Lv et al., 2021). Another study on incentive rewards concluded that employee rewards do not guarantee creativity on their own and that the overall context should be considered for creativity (Opoku et al., 2021). According to another study with similar scope, a statistically positive and significant relationship was observed between encouraging employees' ability to achieve and business innovativeness. It was emphasized that employees should attend conferences, workshops, and training programs to develop innovative behaviors and create an entrepreneurial character, and an innovative working environment should be provided (Wardan et al., 2020). Another study stated the importance of encouraging intrapreneurship for successful innovation outputs (Marques et al., 2021). According to the findings of a study conducted in 2022, it is recommended that employees with an innovative spirit be recruited during the recruitment phase to support the innovation culture (Andiappan & Anih, 2022).

Almost every change to be realized within the scope of the organization will directly affect the employees of the organization, as well as the attitude of the employees of the organization, which will directly affect the organizational change. Many changes will be implemented directly through employees of the organization (human resources). For this reason, it is seen that organizational innovation depends on the development and progress of employees. Accordingly, many studies have focused on the relationship between variables that affect employees' abilities at the center of innovation. The study's findings, which deals with the relationship between talent management and organizational innovation performance, show that organizational performance depends on the development and progress of employees. For this reason, it was emphasized that talent management should be focused on to increase employees' innovation ability (Hesam Jahanmiri et al., 2021). In similar studies, it was observed that the employees' innovative behaviors significantly triggered the innovative outputs. It was stated that managerial support should be provided to increase the employees' innovative behaviors (Khallouk et al., 2022; Opoku et al., 2021; Sönmez et al., 2019).

Creativity and innovative thinking ability of human resources are seen as another criterion under the dimension of human resources. It is emphasized in many studies that individual creativity positively affects innovation (Liu & Zeinaly, 2020; Oppi et al., 2019). It is recommended to provide creative and innovative problem-solving training to employees to support individual creative thinking (el Desoky et al., 2021). At the same time, it is recommended to inspire useful ideas to encourage innovative thinking and to develop mechanisms and procedures that facilitate changes in traditional task performances (Oppi et al., 2019). Furthermore, in order to support the innovation of employees, idea generation should be supported, time and resources should be provided, their participation in decision-making processes should be supported, innovative efforts should be responded to positively, and job security should be felt by encouraging and motivating them (Ahmed et al., 2019; el Desoky et al., 2021; Foglia et al., 2018; Liu & Zeinaly, 2020; Opoku et al., 2021).

The importance and necessity of managerial support in supporting employees' individual innovativeness are supported by various studies (Afsar & Umrani, 2020; Palumbo, 2021; Zappalà et al., 2020). According to a study conducted on nurses, it is recommended to develop a mentoring program in which experienced nurses act as models and mentors to empower and motivate new nurses in the profession (el Desoky et al., 2021). Although this study was carried out on nurses, it can also be considered for specialist doctors and intern doctors or specialist health personnel and new health personnel. Another study carried out in 2022 shows that the feedback received from citizens contributes to the emergence of innovative initiatives that will overcome the difficulties in the system. For this contribution, it proposes policy and management interventions to support citizen participation (Ciasullo et al., 2021).

Organizational commitment is another factor that promotes individual innovation. Employees' innovativeness is related to organizational commitment, and employees with a high level of commitment exhibit more innovative behaviors (I. T. Khallouk et al., 2022; Mutonyi et al., 2021a). In the study investigating the effect of innovative behaviors on job engagement, it was emphasized that job engagement supports employees' willingness to participate in improving organizational processes and practices (Palumbo, 2021).

When we evaluate the studies, we have examined within the scope of human resources, it has been seen that the human resource in the focus of innovation emphasizes talent management, creative thinking ability, job, and organizational commitment, and in addition to these, the importance of a culture that will provide an environment for innovation, the managerial climate, and the organizational structure that supports innovation (Ahmed et al., 2019; Oppi et al., 2019).

Notably, some of his studies dealing with the support of innovative work behaviors are also related to the **organizational structure**. It is seen that an organizational structure that supports the generation of ideas and the transfer of ideas is related to the innovative work behaviors of the employees. Similar study findings also point to this point, referring to the same outputs as levers to improve innovative work behavior. It has been emphasized that the organizational structure supports the formation of innovative ideas (Mutonyi et al., 2021a; Palm & Persson Fischier, 2021). Another study emphasized that employees should be open to their suggestions by giving them the responsibility of solving problems on their own and that a good relationship between supervisors and employees should be supported. The same study suggested an organizational structure that facilitates employees' expressing their ideas and sharing organizational goals and responds positively to motivating and innovative efforts (Ahmed et al., 2019). The study's findings, which investigated the facilitators for promoting an innovation culture, suggested that adopting a flat structure where power is structurally more evenly distributed and is open to failure will facilitate the innovation process (Andiappan & Anih, 2022).

Another frequently recurring dimension in studies dealing with innovation performance in health institutions and health systems is **acquiring and sharing knowledge.**

In the findings of the study, which state that innovation performance can be improved through knowledge acquisition, it is emphasized that knowledge acquisition is positively related to innovation performance (Papa et al., 2018). The studies discussed in this context demonstrated that knowledge-sharing behavior affects innovation positively (Liu & Zeinaly, 2020). As emphasized in the study, which deals with the relationship between knowledge sharing and innovative work, knowledge sharing affects innovative work behavior positively and significantly, and self-leadership plays a mediating role in this affirmative effect (Asurakkody & Kim, 2020). In the findings of another study, which was examined in a similar context, it was stated that entrepreneurial orientation and knowledge management positively affected innovation performance. Consequently, it is emphasized that knowledge acquisition practices, knowledge sharing, and entrepreneurial behaviors should be encouraged in health institutions (Al-Kade, 2019). According to the

findings of a different study, which frequently include the role of knowledge sharing in the formation of healthcare innovation, creating an environment for knowledge sharing and encouraging knowledge sharing could provide a foundation for innovation (Al Jaberi, O. A, 2019; Sharma, 2020). A related study, which provides a framework for knowledge transfer by focusing on how knowledge should be transferred, mentioned the importance of creating motivation for knowledge sharing and use. (Secundo et al., 2019). Studies examining the effect of knowledge management strategy (knowledge dissemination, planning, and coordination roles) on service innovation performance show that knowledge management practices are a good mediator between knowledge management strategy and innovation performance, consistent with other study findings (Faugstad Thackery, 2020; Hosseini et al., 2019).

In today's conditions, where knowledge is the essential power, acquiring, sharing, and using knowledge from both the internal and external environment is very important. This is also the case in terms of innovation. Especially since the health sector is knowledge-intensive, "knowledge" becomes much more substantial. As frequently and jointly emphasized in the study mentioned above findings that deal with innovation performance in healthcare services, priority should be given to the requirements mentioned within the scope of knowledge sharing to improve innovation performance and provide an environment suitable for innovation. Health managers, who aim to improve innovation performance in health services, should provide an appropriate environment for acquiring, sharing, and using knowledge. Employees with knowledge should be willing to develop innovative ideas and be in an environment where they can share their ideas without hesitation.

Another dimension emphasized, according to the studies examined, was **collaboration with stakeholders.** The findings of studies that deal with innovation performance in health from different perspectives show that collaboration with stakeholders has an important role in innovation performance. Although these studies were not initially carried out to investigate the effect of collaboration on innovation performance, it has drawn our attention that results emphasizing the importance of collaboration have been obtained while investigating different factors that impact innovation performance.

According to the findings of the study, which was carried out to determine the factors that enable sustainable innovation, it was emphasized that teamwork and collaboration are two of the factors that enable innovation (Dias et al., 2018). In another study carried out in a similar context, it was stated that for sustainable-oriented innovation, effective collaboration with stakeholders and demand management should be focused on (Elabed, 2019). The study, which examines innovation performance in health care in the dimension of leadership to create value together, emphasizes the importance of co-creation culture and leadership to improve corporate innovation performance. One of the characteristics of creative leadership ability is the ability to facilitate collaboration (Sharma, 2020). Another study, which aims to identify the factors that have a positive impact on the innovation performance of companies in the health informatics industry, confirmed the importance of collaboration with stakeholders, as have previous studies, and emphasized that collaboration with external stakeholders can improve innovation performance (Kim & Kim, 2018). The study's findings, which explores the necessary conditions to foster innovation in healthcare, also show that internal and stakeholder collaboration is important (Sooampon et al., 2021).

The health sector is a specialized and knowledge-intensive sector that includes many actors. In addition to the fact that many professional groups provide health services, the collaboration of many sector stakeholders is required to realize this service provision. For instance, active collaboration is required between the manufacturer of a technological device used during service provision and the user of this technology and software. When the service provider has an idea of what he needs and transfers that idea to the manufacturer, new or innovative products can be developed. This situation will not only be in the form of product innovation but also the form of process, marketing, or service innovation due to different collaborations. In order to seize these opportunities, it is important to encourage internal and external stakeholders to cooperate.

As a result of the systematic analysis, it is thought that one of the dimensions supporting innovation in health services and health institutions can be considered **policy and management support**. The improvement in each dimension mentioned above will be smoothed out and made possible with the support of the administration and policymakers. Findings from one of the studies supporting this proposition show that management-supported activities support sustainable innovation (Dias et al., 2018). Similarly, the results of another study emphasized that policies that support innovation positively support the ability to initiate and adopt innovation (Marjanovic et al., 2020). Studies emphasize that employees will be encouraged through leadership and management (Asurakkody & Shin, 2018) and that senior management support positively affects the development of innovation practices (Aburayya et al., 2020). Another study emphasized that the legal framework and policies should support the

development of innovative projects (Apostolopoulos et al., 2022). The importance of management and policy support is an undeniable fact in bringing together and sustaining all these dimensions that positively support innovation, such as innovation becoming a culture, supporting the innovation of employees, providing an environment of knowledge sharing, establishing collaboration with stakeholders, and bringing together the factors that support innovation. Since the explanations of the studies that can be considered within the scope of this dimension are mentioned above in different dimension contents, they are not repeated here to avoid repetition. In another similar study in 2020, clear procedures, management support, and collaboration are three supporting elements of open innovation (Pikkarainen et al., 2020). The findings of the study conducted in 2018 examining the Indian health service, which has difficulties in health service delivery due to resource scarcity, emphasized that R&D expenditures and financial incentives should be used in this direction with management and policy support that will support innovation in order to build a sustainable health system (Mazumdar-Shaw, 2018).

It is thought that another dimension that supports innovation can be considered **technology**. Although it is not among the most emphasized dimensions within the scope of the studies we have discussed within our systematic analysis, it is considered important in this dimension. One of the studies dealing with the technology dimension emphasized that technology is an enabler in process innovation and should be used according to needs (Khodadad-Saryazdi, 2021). In another study, the importance of information technologies in providing a suitable environment for innovation was mentioned (Lv et al., 2021).

5. CONCLUSION

As a result of this study, the strategic dimensions affecting innovation performance in the health sector and institutions providing health services have been identified. It has been observed that the dimensions affecting innovation performance organizational culture, leadership, human resources, organizational structure, knowledge acquisition and sharing, collaboration, policy and management support, and technology. It has been emphasized that the combinations of these elements are necessary for innovation.

While presenting the dimensions, the criteria determined according to the points emphasized under the dimensions are presented in the findings section with reference to relevant studies. Within the scope of the organizational culture dimension, "organizational culture that supports innovation"; "Leadership types that support innovation" within the scope of the leadership dimension; Within the scope of the human resources dimension, the criteria include "Encouragement of Human Resources to Innovation", "Talent Management", "Providing Managerial Support for Innovative Behaviors", "Creative and Innovative Thinking Ability of Human Resources" and "Institutional Commitment of Human Resources". Within the scope of the Information Acquisition and Information Sharing dimension, there are "Information Sharing Behavior", "Providing and Promoting an Information Sharing Environment" and "Information Management" criteria. "Cooperation with Internal and External Stakeholders" within the scope of the Cooperation dimension; Within the scope of the Policy and Management Support dimension, "Policies and Strategies Supporting Innovation" criteria are included. While only the "technology" criterion is included in the technology dimension; In the organizational structure dimension, only the "Organizational Structure Supporting Idea Generation/Development" criterion is included.

The dimensions and criterion emphasized as a result of the study are thought to guide strategic decisions of managers who want to improve innovation performance in the health sector and design a sustainable innovation management system. Furthermore, the study emphasized the relationship between these dimensions, and suggestions were made on which dimension could be improved. Academics in this field can use the study's perspective to position and advance future theoretical work. Future research and new trends in the field will continue to develop and broaden this perspective.

DECLARATION OF THE AUTHORS

Declaration of Contribution Rate: Şeyma Güner and İlker Köse developed the research design. Şeyma Güner, Enise Topaylı and Ayşe Elif Yıldız enhanced the literature review and constructed the tables in the manuscript. Şeyma Güner made the analysis. The author(s) read and approved the final manuscript.

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