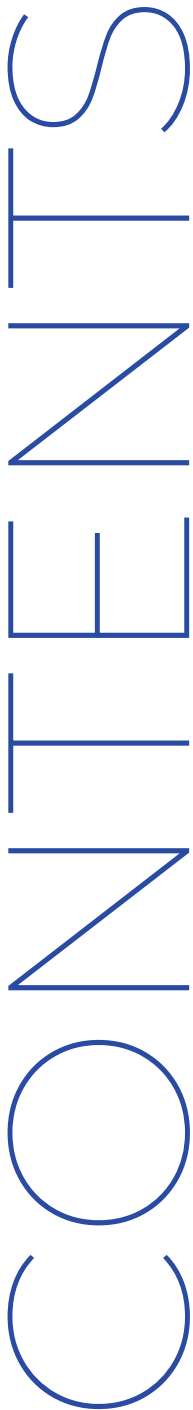


Vision 2030 and Action Plan in Türkiye's Sustainable Healthcare Journey:

Early Diagnosis, Preventive Healthcare and Data Governance



Whitepaper
September 2024



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The Movement Health 2030 Project is an initiative to examine the future of the healthcare industry and this report provides potential pathways and recommendations for the transformation of healthcare services. The advice of relevant institutions and experts should be sought before making final decisions on healthcare policies, decisions, and practices. The content of this report is based on the most up-to-date information and is consistent with the conditions and data prevailing at the approximate date. Changes and developments that may occur at later dates should be taken into account.

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PREAMBLE



Ufuk Eren
Volitan Global
Founding CEO

It is important to always keep the three fundamental factors of the healthcare sector—accessibility, quality, and cost—in balance. However, maintaining this balance is becoming increasingly difficult. The growing population and particularly the rapid aging of our country indicate that our healthcare system is under significant pressure. Moreover, as we age quickly, we are also facing challenges in maintaining a healthy lifestyle; we are aging unhealthily.

Turkiye's healthcare system is at a critical turning point in ensuring sustainability. The crucial steps in this transition include preventive healthcare and early diagnosis approaches, as well as effective data governance policies. These two elements, which shape the future of our healthcare system, are discussed in detail in the report.

Healthcare expenditures place a heavy burden on the national budget and, unfortunately, appear to be continuing to rise at an uncontrollable pace. There are many factors driving this increase. The rising number of chronic patients, the risks of infectious diseases, the growing demand for healthcare services, the rapid advancement of technology, and its integration into the healthcare system all contribute to making this issue more complex. However, the most significant factor that will affect healthcare costs is the rapidly aging population's unhealthy aging.

Turkiye's healthcare system achieved great success with the first Health Transformation Plan, particularly writing an international success story in terms of accessibility. However, serious steps need to be taken regarding the efficiency of healthcare expenditures. To address this, gradually transitioning to a value-based healthcare system is essential. While significant progress has been made in terms of quality, more work and actions are required to establish a sustainable, value-driven healthcare system.

At this point, preventive healthcare and early diagnosis serve as the cornerstone of the healthcare system. Identifying and preventing health issues in advance not only protects individuals' health but also reduces healthcare expenditures. Therefore, Turkiye must focus more on preventive healthcare and early diagnosis methods as a starting point for making its healthcare system more sustainable. This will contribute to the overall health of the population and help control healthcare costs in the long term. As we move forward, focusing on data governance policies is crucial for ensuring the sustainability of Turkiye's healthcare system.

INTRODUCTION:

Sustainable Value-Based Healthcare System



A Sustainable Value-Based Healthcare System aims to maximize the efficiency and effectiveness of healthcare services while improving individuals' quality of life. This approach ensures that patients receive the right care at the right time, thereby enhancing the quality and accessibility of healthcare services. It promotes coordination and communication between patients and healthcare providers, leading to better health outcomes and greater efficiency and effectiveness within the healthcare system. This sustainable value-based system plays a key role in improving the overall health and well-being of society.

The sustainability of the healthcare sector is a concern for all countries. The greatest threat facing Türkiye in this regard is its rapidly and unhealthily aging population. Effective healthcare management is essential to reduce this disease burden, and this can be achieved through a gradual yet rapid transition to a value-based healthcare system. Preventive healthcare and early diagnosis, as the first critical steps on the journey toward a sustainable value-based healthcare system, will help create a healthier aging population, reduce the economic burden, and make significant strides toward a sustainable, healthy society.



The main focus of today's healthcare systems is to treat diseases and alleviate symptoms. This means intervening at a stage when the disease has already manifested. However, for the sustainability of health, there is a need for an approach that prevents diseases at their onset. A common misconception about health is that treating diseases is the sole purpose of healthcare systems.

However, the real question should be: Why are we trying to treat people after they become ill, instead of protecting them from getting sick in the first place? Türkiye's Vision and Action Plan for a Sustainable Healthcare Journey: Early Diagnosis, Preventive Healthcare, and Data Governance report focuses precisely on this question. This report has been prepared with the support of Roche as part of the Health Movement 2030 Türkiye project.



Movement Health 2030 operates with the mission of creating sustainable and integrated healthcare ecosystems worldwide. With a unique approach focused on building local ecosystems and connecting partners across regions, the project is developing a network to accelerate scalable solutions.



Movement Health 2030 aims to achieve systemic change through two complementary approaches:

1. Implementing policy changes that enable better utilization of resources through technologies that positively impact health outcomes. This ensures the adoption of innovations and improves healthcare efficiency.
2. Addressing healthcare system issues in countries or regions with limited access to innovation by promoting policy changes through pilot projects and tangible proof-of-concept models.

The Movement Health 2030 project is led by Volitan Global with sponsorship from Roche. Since 2023, under the theme of “Data Policies for Early Diagnosis and Preventive Healthcare,” Volitan Global has been working with public entities, healthcare leaders, and private and third-sector organizations to prepare healthcare systems for future demands, make a meaningful difference, and establish action plans and policy changes necessary to ensure the sustainability of healthcare systems. This action report has been prepared as a result of these efforts.



This report was developed in collaboration with over 25 experts and leaders from the government, business sector, academia, non-governmental organizations, and key stakeholders in the healthcare and health technology industries. The participants proposed an action plan aligned with the 2030 vision. As a result of the discussions, three priority action areas were identified for Türkiye to achieve its 2030 vision:

1. Building and Expanding a Wellness Industry
2. Establishing the Right Policy and Infrastructure for Performance-Based Payment Systems in Preventive Healthcare
3. Ensuring the Integration of Health Data/Information Systems and Related Policies.

Each area reinforces the others. In this context, this report can be seen as a framework to guide the development of strategies for early diagnosis, preventive healthcare, and data governance, tailored to the country's unique circumstances and needs. The framework includes specific recommendations to ensure the practicality of each area.

This action plan seeks to highlight common priorities and accelerate collaboration, investment, innovation, and agile policy solutions in specific areas, with the aim of uniting all stakeholders in the industry.

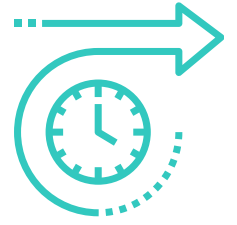
In summary, this action plan is designed to strengthen early diagnosis and preventive healthcare services in alignment with Türkiye's 2030 vision. The proposed actions will enhance the effectiveness, accessibility, and quality of healthcare services, contributing to Türkiye's progress toward becoming a global leader in healthcare.



Reducing the rate of sickness not only protects our health, but also improves the sustainability of healthcare systems and contributes to the wellbeing of societies.

Dr. Şuayip Birinci
Deputy Ministry of Health Türkiye

THE 2030 VISION THROUGH THE EYES OF HEALTHCARE INDUSTRY LEADERS



The 2030 Health Movement has launched an initiative in Türkiye aimed at strengthening data governance to establish a sustainable healthcare system. This is part of a larger vision that seeks to enable individuals to live longer, healthier, and more fulfilling lives. The core principle of this movement is the belief that everyone, regardless of age, gender, economic status, or geographic location, has the right to equal access to the best healthcare services.

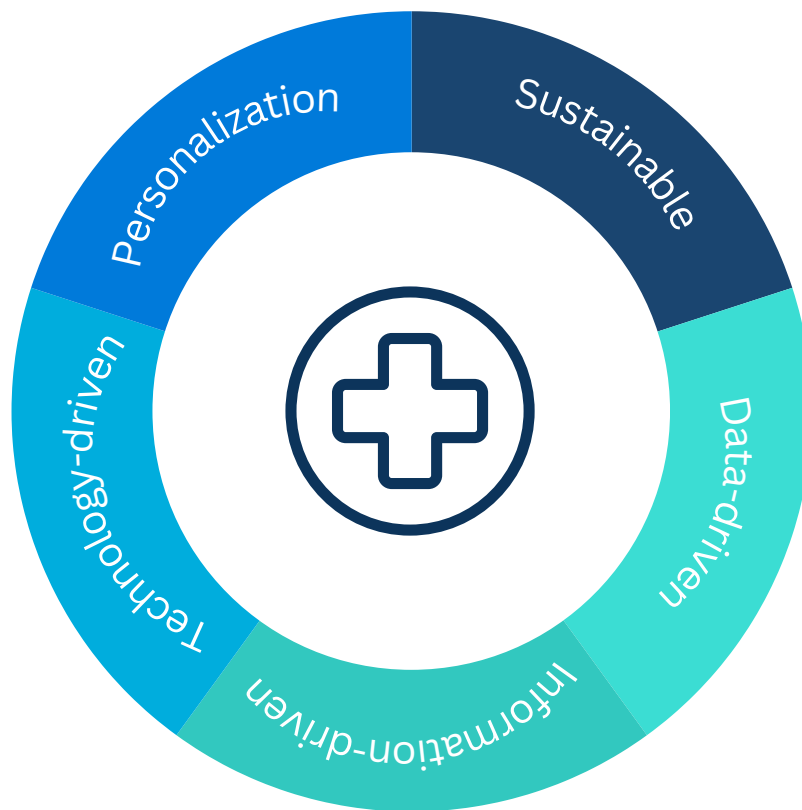
During the workshop held as part of this project, the leading figures of the industry gathered to articulate a shared vision for Türkiye's healthcare sector in 2030, as follows:



First and foremost is the personalization of healthcare. Personalized healthcare involves developing tailored approaches for individuals by considering factors such as their genetic data, lifestyle, and medical history. Key priorities in this area include personalized health applications, personal health scores, and genetic predisposition analyses. The second vision is the active and effective use of technological innovations in the healthcare system, ensuring these technologies work in coordination. Innovative solutions such as wearable technologies, the Internet of Things (IoT), and smart pillboxes stand out in this field. It also includes examples like enhancing collaboration between family physicians and hospitals to provide more coordinated healthcare services. Another vision is the alignment of insurance and payment models with this vision. Additionally, the envisioned 2030 sees technological advancements assisting healthcare personnel. Collaboration between technology and healthcare professionals, strategies like hackathons, and technological developments that improve healthcare personnel's competence will make healthcare services more efficient. Lastly, the vision promotes and encourages the use of data-driven and technology-based healthcare services. Areas such as data reliability and effective use, AI-assisted diagnosis and treatments, sensor technologies, and home health monitoring contribute to making healthcare services more data-driven and efficient. The vision of the 2030 Health Movement project aims for the future management of the healthcare sector to be more data-focused and sustainably managed.



At the core of this vision is the indispensable role of public health and awareness. Enhancing public health not only improves individual well-being but also contributes to the sustainability of healthcare systems. Supporting public health and health awareness in Türkiye is crucial because it helps prevent health issues, optimizes access to healthcare, reduces health inequalities, and controls healthcare expenditures. Additionally, improving public health supports social and economic development and encourages preparedness for crisis situations.



In conclusion, the 2030 Health Movement Türkiye Project places significant importance on public health and awareness as an initiative aimed at transforming healthcare services. By bringing together all stakeholders in the healthcare sector, it aims to create a sustainable healthcare system and empower every individual to step into a healthier future. Personalized healthcare services, technological innovations, data-driven approaches, and the support of public health are key to building a healthier, more informed, and more sustainable healthcare system. The 2030 Health Movement Türkiye Project continues its efforts in alignment with this vision, aiming to build a healthier Türkiye by the year 2030.



ACTION PLAN 1: ESTABLISHING AND EXPANDING A WELLNESS INDUSTRY

The concept of the “Wellness Industry” is still a new approach for Türkiye.

Although the term “healthy living” has been used for many years, the industrialization of healthy living is becoming a much broader and more comprehensive vision in the face of accelerating and automated lifestyles. Within this vision, healthcare systems should be guided toward a shift from profiting from illness to profiting from health. This way, both healthcare providers and individuals receiving healthcare will benefit.



Establishing a wellness industry is an important and challenging goal for Türkiye, requiring efforts to address individual habits and raise overall public health awareness. The current state of the wellness industry in Türkiye and the barriers in this area should be thoroughly analyzed. Initiatives should be launched to develop counterproductive habits in society, considering factors such as the cost of chronic diseases and loss of workforce, and individuals should be encouraged to make more informed choices.

If the establishment of the wellness industry in Türkiye can reduce the burden of chronic diseases, it will greatly benefit both society and the state. Chronic diseases impose a burden on society and the government due to workforce loss and long-term treatment requirements. However, many chronic diseases, such as hypertension and obesity, can be delayed or even prevented from affecting individuals through lifestyle changes, as well as early diagnosis and treatment, in addition to genetic factors. To achieve this, preventive health should not be confined to the boundaries of public health physicians; instead, it must be integrated into every aspect of life, starting from the family, to schools, culture, and neighborhoods. An approach we can call "integrated health" should be developed.

Within this framework, concrete and feasible action proposals are presented for the creation and development of a wellness industry. These proposed actions are aimed at increasing the general health awareness of the public and the growth of the wellness industry:

01 Identifying the factors that prevent wellness and taking counter actions

02 Raising awareness of wellness in society

03 Putting individuals in charge of monitoring and advocating for their own health

First, current health indicators in Türkiye should be analyzed in detail; the impact of criteria such as disease types, age groups, costs, and vaccination rates on the health index should be monitored. It is also important to determine the economic burden of chronic diseases and the share of these diseases in total costs and to calculate the loss of labour force. The loss of labour has a direct impact on the budget.

When discussing action proposals for this goal, it is important to consider what needs to change from the widest perspective. Regular exercise and a balanced diet are essential for a healthy lifestyle. However, including many environmental factors such as air pollution, stress, pesticides, and fresh water in this discussion would open up space for longer-lasting and effective changes. Making the world more sustainable will also lead to healthier habits by providing societies with healthier living spaces.

In the field of health, the primary action emphasized by experts is to raise public awareness through early education in healthy living. An important aspect of this is enhancing the health awareness of preschool teachers, who play a crucial role in the initial stages of education. This approach also establishes a reverse learning model from child to parent. Teachers should be as knowledgeable about healthy eating as a dietitian and serve as healthy living consultants. From this perspective, the education system should become the most important tool for increasing health awareness. Furthermore, it is essential to continue this awareness through education at the primary, secondary, high school, and university levels, reinforcing and promoting healthy living behaviors. Additionally, a more comprehensive and holistic program should be developed for older age groups, covering topics from sexual health to obesity and other chronic diseases commonly seen in Türkiye.

It will be beneficial to raise awareness of issues to be identified by the Ministry of Health through public service announcements, traditional media, social media, and collaborations with prominent public figures. In Türkiye, the "Smoke-Free Zone" project is one of the successful policy change campaigns that has changed the understanding and habits of society regarding health.



Most of the recommended actions in this regard require effective data management. It is crucial for individuals to be able to monitor their health status more transparently, as this contributes significantly to both increasing health awareness and enabling them to track their own health. It is important to build a structure where health systems and citizens can receive feedback from the same platforms. Data should inform both the patient and the physician, reducing the asymmetry between them. During this process, a communication network that the healthcare sector can benefit from should be established.

Most of the recommended actions in this regard require effective data management. It is of great importance for individuals to be able to monitor their health status more transparently, both to increase health awareness and to enable them to monitor their own health. Data should inform both the patient and the physician, reducing the asymmetry between them. During this process, a communication network that the healthcare industry can benefit from should be established. This network should expand from health counseling for patients to monitoring citizens' health status, providing healthy living recommendations, and informing policy development based on these recommendations.

Finally, actions that enable individuals to monitor and advocate for their own health will be a big step towards building a wellness industry. Individuals need to be encouraged to think about their health all the time, so that in the next step, they can start tracking certain conditions at home and use hospitals only to receive treatment. This will help reduce the burden on hospitals.

The building and exponentially growing wellness industry is a multi-layered and long-term process. The establishment of a wellness industry will be facilitated and accelerated if various actors such as the private sector, public sector, municipalities, and foundations act in synchronization towards the same goal. This integrated and coordinated effort is key to creating a wellness ecosystem on an industrial scale. Furthermore, steps to build a wellness industry will only be possible if the other action areas proposed in this report are implemented simultaneously and prioritized.

Stakeholders

This transformation requires stronger policy integration, implementation, and oversight of the concept of multi-stakeholder health responsibility. The prominent stakeholders are as follows:

- Public
- Municipalities
- Foundations
- Ministry of Health
- Social Security Institution
- Ministry of National Education
- Private insurance companies
- Ministry of Environment, Urbanization and Climate Change
- Ministry of Agriculture and Forestry
- Universities
- Other educational institutions
- Directorate General for Health Improvement
- Family Practice



1 ACTION PLAN

Identification of Factors Hindering Healthy Living and Promoting Interaction

1.1. The current conditions in Türkiye should be analyzed in detail.

Establishing a system to measure and monitor the impact of criteria such as disease types, age groups, cost and vaccination rate on the health index.

1.2. External factors that prevent wellness should be identified and actions should be taken against them. Reducing environmental factors such as air and water pollution, stress, pesticides, etc. and including it in the wellness industry.

1.3. Adopting a multi-stakeholder responsibility for wellness and making changes to build wellness habits in all areas.

Raising Awareness of Wellness in Society

2.1. Expanding the scope of Wellness Centers, using them for their intended purpose with better promotion and playing an active role in raising awareness of demanding wellness in society.

2.2. Providing wellness education at a young age and continuing it at a later age. Further informing and training kindergarten teachers on health awareness.

2.3. Raising awareness by the Ministry of Health through public service announcements, traditional means of media, and social media.

Putting Individuals in Charge of Monitoring and Advocating for Their Own Health

3.1. Raising awareness by the Ministry of Health through public service announcements, traditional means of media and social media.

3.2. Establishing a structure for physicians, different healthcare service providers (such as family practice, private hospitals and public hospitals) and citizens to receive feedback.
- Utilizing wearable technologies specifically for this structuring.

3.3. Establishing a health score system to measure and promote healthy behaviors of individuals. Health scores may encourage positive changes by providing individuals with feedback on their health behaviors. Assessing health factors such as exercise regularity, dietary habits, tobacco and alcohol use, by means of these scores.

3.4. Establishing wellness centers and improving counseling services. Increasing the popularity of existing centers and expanding their scope of services.

3.5. Selecting a pilot region and a specific demographic for awareness-raising efforts and progressing this process in layers.



ACTION PLAN 2: ESTABLISHING THE RIGHT POLICY AND INFRASTRUCTURE SYSTEM FOR PERFORMANCE- BASED PAYMENT (INCENTIVE) SYSTEMS FOR PREVENTIVE HEALTHCARE



Preventive healthcare emphasizes strategies to prevent the occurrence of diseases and guides individuals to adopt healthier lifestyles.

This includes promoting healthy lifestyles, adopting regular health check-ups, and helping individuals to effectively manage their risk factors. However, preventive healthcare is not the only responsibility of individuals; it should also form the basis of health policies and systems.



Performance-based payment systems are a financing model aimed at increasing the quality and efficiency of healthcare services. In these systems, healthcare providers are rewarded based on the quality and effectiveness of their services. Systems that incorporate preventive healthcare into performance criteria assign a mission to the healthcare system that goes beyond merely treating diseases, focusing also on preventing illnesses and promoting healthier lifestyles. Proper implementation of performance-based payment systems in preventive healthcare can improve public health and reduce the financial burden on the healthcare system. However, establishing the right policy and infrastructure is essential for the effective implementation of these systems.



Therefore, this area of action focuses on recommendations aimed at establishing the necessary policies and infrastructure systems to develop performance-based payment systems for preventive healthcare. These include:

01 Creating individual and corporate financing and incentive mechanisms

02 Utilizing health data and evaluation infrastructure

03 Allocating budget and resources

The action recommendations outlined in this area, when considered alongside the sub-actions included within, aim to establish the policies and infrastructure necessary for the implementation of performance-based payment systems, thereby enabling more effective financing and management of healthcare services. This will enhance the sustainability of healthcare services and encourage the adoption of a preventive healthcare approach.

Among the challenges faced by performance-based payment systems in Türkiye are data integrity and access, financing issues, patient engagement and education, as well as policy and legal barriers. Additionally, the ability of healthcare professionals to share health data within this ecosystem is critical. The data transfer process must be addressed in a detailed and careful manner. Emerging technologies, particularly artificial intelligence, sensor technologies, and interconnected technological solutions, have made significant strides in alleviating the burden of data transfer and will continue to do so in the future. These advancements present the potential to facilitate the secure, rapid, and efficient sharing of health data, making the healthcare ecosystem more effective and collaborative. This is an important step towards helping both healthcare professionals and patients achieve better outcomes. Failure to address these issues could hinder the effective implementation of performance-based payment systems aimed at improving the quality of healthcare services and achieving cost-effectiveness. Standardizing health data sources from different origins and creating a centralized data repository is essential to ensure data integrity and ease of access to information.

Furthermore, financing models should be reviewed to incentivize preventive healthcare practices, public health education and awareness programs should be organized, health policies and laws should be reassessed, and collaboration among relevant stakeholders should be encouraged. Overcoming these challenges should be viewed as a significant step towards making healthcare systems more sustainable, effective, and patient-centered.

Some of the core characteristics of performance-based payment systems are as follows:



Quality-driven: These systems focus on improving the quality of healthcare services when healthcare providers are awarded when they achieve certain health indicators or obtain specific results.

Cost Efficiency: Performance-based payment systems aim at improving cost efficiency in healthcare services, encouraging healthcare providers to obtain better outcomes with lower costs, which helps control healthcare expenditures.

Patient Outcomes: Performance-based payment systems focus on patient outcomes by incentivizing healthcare providers to help patients achieve better health outcomes.

Data-driven: Performance-based payment systems aim to improve healthcare services and define best practices based on comprehensive data to measure the quality and effectiveness of healthcare services.



Rewards and Penalties: Healthcare providers are rewarded if they meet targets and may face sanctions if they fall short of targets; this incentive system encourages continuous improvement of healthcare services.

Long-term Consideration: Performance-based payment systems aim to contribute to long-term health outcomes and focus on long-term health goals, such as disease prevention and chronic disease management.



Stakeholders

This transformation requires stronger policy integration, implementation, and oversight of the concept of multi-stakeholder health responsibility. The prominent stakeholders are as follows:

- Government and Ministries of Health
- Insurance Companies and Healthcare Plans
- Bank Funds and Health Savings Funds
- Healthcare Service Providers / Hospitals and Healthcare Facilities
- Ministries of Economy and Finance
- Representatives of the Business World
- International Funds
- Foreign Investors and Medical Tourism
- Technology Companies and Data Analytics Professionals
- Healthcare Informatics and Information Technology Companies
- Academic Institutions and Research Centers
- Patient Representatives and Non-Governmental Organizations (NGOs)



2 ACTION PLAN

Creating Individual and Corporate Financing and Incentive Mechanisms

- 1.1.** Developing incentive mechanisms for individual private health insurance to expand health coverage across society. For example, providing special tax reductions and other benefits.
- 1.2.** Ensuring greater participation of private insurance companies and bank funds in healthcare services through cooperation with the public health system. Provision of a wider range of health services to individuals by private health insurers.
- 1.3.** Supporting privatization and innovative approaches to make the public healthcare system more effective and efficient. Privatization of certain services of the public healthcare system by transferring them to the private sector or opening them up to private healthcare service providers.
- 1.4.** Developing a plan on how to link healthcare financing and incentives to economic growth. Assessing the contribution of healthcare services to the economy and working on policy changes to achieve greater economic benefits.

Establishing Health Data Utilization and Evaluation Infrastructure

- 2.1.** Establishing standards for aligned collection and sharing of health data, enabling more effective management of healthcare systems and monitoring of health outcomes.
- 2.2.** Developing new performance measurement methods and metrics to assess the efficiency and quality of healthcare services.
- 2.3.** Establishing a performance-based payment model that includes how much will be paid when performance indicators are achieved, as well as reward/sanction mechanisms.

Allocating Budget and Resources

- 3.1.** Increasing the budgets allocated by general insurance organizations, private insurance companies and the Ministry of Health. Implementing preventive health policies, improving infrastructure and making payments based on performance criteria within this increased budget.
- 3.2.** Calculating the environmental impacts and costs of healthcare expenditures and informing policy makers.
- 3.3.** Encouraging the more active participation of local governments in healthcare services and increasing the coordination of healthcare at the local level. Optimizing city designs and municipal policies to promote healthy living. This includes creating exercise areas in cities, conducting awareness campaigns (billboards and advertisements) to raise health consciousness, and organizing awareness events (conferences, activities at cultural centers, etc.). Additionally, allocating a portion of local government budgets to healthy living activities and promoting preventive healthcare practices in this way. Urban planning should include walking paths, sports areas, and outdoor spaces for exercise to support healthy living.
- 3.4.** Piloting the introduction of chain of referral in selected areas (such as surgical services, obstetrics and gynecology, psychiatry) to improve primary healthcare services and ensure their management by family physicians in terms of preventive healthcare. Assessing the political acceptability of this step and gradually expanding the referral system.



ACTION PLAN 3: ENSURING INTEGRATION OF HEALTH DATA/INFORMATION SYSTEMS AND RELATED POLICIES

In the healthcare sector, various organizations at different scales, such as outpatient clinics, health centers, and large hospital networks, serve as significant data sources.

As the masses of data are constantly expanding and diversifying, it has become imperative that this information be extracted in a meaningful way and presented to the right targets.



This situation has made the concept of big data inevitable in healthcare services. Among this vast health data are various types of information, including diseases, injuries, and physical and mental disorders. Türkiye possesses significant potential in this regard. The health data collected through e-Nabiz and other health applications can lead to a serious technological leap in the healthcare sector. Currently, the General Directorate of Health Information Systems has publicly accessible data portals. Access is available to data on diseases such as malaria, cancer, and AIDS, as well as various statistics from before 2021. It is crucial to update this data and analyze the existing big data using appropriate methods. To achieve this, prioritizing data integration is essential.

Analyzing and addressing the data integration processes and policy-related issues in Türkiye will pave the way for new opportunities and innovations. This will initiate a process that transforms the health industry in areas such as information technology, artificial intelligence, and diagnosis and treatment.

Three fundamental processes must be considered to ensure integration: First, data storage; second, data processing; and finally, data analysis. Throughout this process, several topics need to be addressed, including how data will be collected, where it will be stored, how it will be anonymized, how data security will be ensured, how access to data will be provided, how data quality will be improved, and which institutions will oversee all these processes.

However, achieving progress in completing the aforementioned processes such as storage and analysis presents several significant challenges. Among these are political sensitivities regarding data storage, infrastructure weaknesses, and interoperability. Additionally, each healthcare provider may use its own specific data format, leading to data incompatibility and difficulties in system integration. Moreover, privacy and security are other critical factors that complicate data integration. Given that health data is extremely sensitive, it is essential to protect it properly and guard against unauthorized access.

In this action area, technological and policy action proposals necessary for the integration of health information/data systems are presented:

01 Accessing and storing health data and establishing the infrastructure by ensuring data security

02 Identifying stakeholder roles and acting in accordance with policies

03 Effective management of data on an individual and community basis

As a result of the integration of health data/information systems, great improvements will be achieved for all stakeholders, especially patients in the healthcare system, and it will be possible to take actions that will facilitate the lives of many patients and doctors and improve healthcare processes. Integrated systems will enable real-time data sharing, speed up decision-making processes, and save costs and time. There will be many benefits, such as predicting diseases in advance, and doctors will be able to analyze patients better. In addition, if government bodies, such as ministries, monitor the demand for healthcare services in the country, health strategies may be formulated more effectively.

Stakeholders

This transformation requires stronger policy integration, implementation, and oversight of the concept of multi-stakeholder health responsibility. The prominent stakeholders are as follows:

- Technology companies and healthcare information systems providers
- Patient rights associations and non-governmental organizations
- Universities and Research Institutions
- Ministry of Interior and Legal Institutions
- Patients and Patient Representatives
- General Directorate of Public Hospitals
- Data Security and Personal Data Protection Institutions
- Businesses and Insurance Companies
- State Supply Office
- Turkish AI Initiative (TRAI)
- Public Health Institutions and Specialists
- Ministry of Health



3 ACTION PLAN

Accessing and storing health data and establishing the infrastructure by ensuring data security

- 1.1.** Measuring the adequacy of the storage of data in the data warehouse of the Ministry of Health and identifying actions for improvement.
- 1.2.** Determining where the storage will be kept and the roles of stakeholders in this storage process.
- 1.3.** Analyzing the existing and ever-growing data pool, evaluating and measuring it with a high-capacity artificial intelligence infrastructure and developing predictions in line with this data to establish a robust infrastructure.
- 1.4.** Providing training on data security to employees and healthcare service providers.
- 1.5.** Providing encryption methods and access controls required for data security.
- 1.6.** Allocation of budget for data security by health organizations and public institutions.
- 1.7.** To enable smarter and faster sharing of individuals' medical histories, institutions holding health data, including the Social Security Institution (SGK), should transfer this data to a secure, integrated system that will be established.

Identifying stakeholder roles and acting in accordance with policies

- 2.1.** Aligning any existing healthcare regulations to use data.
- 2.2.** Establishing clear and comprehensive legal regulations on the sharing, storage and access to health data.
- 2.3.** Establishing a policy to encourage different healthcare systems and organizations to use the same data formats.
- 2.4.** Establishing a national health data standardization and integration strategy to effectively integrate health data and increase the interoperability of health information systems.
- 2.5.** Anonymization of data is required for the Law on the Protection of Personal Data (KVKK) and other data privacy policies.
- 2.6.** Establishment of an NGO or other institution where the Ministry of Health, other ministries and private health institutions can come together so that the Ministry of Health is no longer the sole responsible body and many stakeholders can benefit.
- 2.7.** Preparing a concept report based on health data, with the aim of becoming a global player. It is possible to submit this report directly to the Vice President or to the Economic Coordination Board.
- 2.8.** Establishing and investing in large data centers where data on specific diseases will be collected and analyzed.
- 2.9.** Establishing a central health data authority by setting national standards for the collection, storage and use of health data.
- 2.10.** The development of a clean and standardized data policy at the national level.

Effective management of data on an individual and community basis

- 3.1.** Establishing a health portal, similar to e-Nabiz, with personalized recommendations and estimations that can be viewed both by the patient and the doctor.
- 3.2.** Using cloud-based systems to not only continue to improve healthcare processes, but also to analyze public health. Ensuring that government organizations and other private health industries benefit greatly from the use of such analyses. These analyses will provide guidance on the direction in which capacity increases should take place and which areas of expertise will be needed.
- 3.3.** Integrating wearable technologies with the e-Nabiz platform to ensure personal health monitoring and management.
- 3.4.** With the current infrastructure, the Ministry of Health has sufficient data. However, in addition to efforts to improve storage processes, there is no structured process or area of application for analysis. The development of processes regarding how this data will be analyzed and by whom is necessary.

CONCLUSION

This report has been prepared to guide the steps to be taken to enhance the sustainability of the healthcare sector and improve public health. In this context, the 2030 Vision for Türkiye's Sustainable Health System journey focuses on early diagnosis and preventive health, emphasizing the importance of data governance for success in this area. Technology and digitalization present a fundamental opportunity for many sectors, including healthcare. However, advancing without collaborations that direct and support digital transformation in the healthcare sector will not be sustainable.

Accelerating digital transformation will require the participation and support of all stakeholders in the healthcare sector. The public sector has the potential to utilize technology-driven solutions for the health and well-being of society. Next-generation technologies and innovations are valuable tools for overcoming the greatest challenges faced by the healthcare sector. With these technologies and innovations, it will be possible to manage access to healthcare services, costs, and quality more effectively.



The report addresses the necessity for behavior change within society and emphasizes that this begins with educating and raising awareness about "Healthy Living." Suggestions have been made for this movement to start in kindergartens and continue through to universities. Additionally, the opportunities presented by technology in the healthcare sector have been evaluated. Technologies such as digitalization and data analytics play a significant role in disease prevention and early diagnosis. Therefore, Türkiye needs to improve and enhance its healthcare services by utilizing these technologies.

Another important point emphasized in our report is that strategic and flexible policies, as well as public and private sector collaboration, are vital for progressing toward digital health ecosystems based on smart and sustainable policies and investment decisions. The establishment and implementation of data governance policies are essential for the sustainability of the healthcare system and require the participation of all stakeholders. The public sector should work alongside the private sector to promote data sharing and collaboration.

Additionally, it is important to develop a comprehensive data governance strategy at the national level. This strategy should provide a framework that guides the secure collection, storage, analysis, and sharing of data. At the same time, it should ensure that individuals are educated about data privacy and security issues.



Based on the findings of our report, we propose the following key strategic steps for Türkiye to follow in building a sustainable health system:

1. Public Health and Awareness: Disease prevention and protective health activities should be increased through education and awareness campaigns aimed at public health. Comprehensive training programs on healthy living should be organized in schools and universities to instill healthy lifestyle habits from a young age. Additionally, public service announcements and social media campaigns should be conducted to raise community awareness about healthy living.

2. Value-Based Healthcare System: To provide sustainable healthcare services to a rapidly aging and unhealthy population, a gradual yet swift transition to a "Value-Based Healthcare" system is necessary. The key stakeholders in this transition are the Ministry of Health, the Social Security Institution (GSS), and relevant stakeholders from the private sector. These stakeholders must work together to implement the necessary regulations and strategies.

3. Healthy Living Incentives and Sustainable Financing Models: The development of performance-based payment and incentive systems that promote disease prevention and healthy living should be aimed at both healthcare professionals and patients. Furthermore, various financing models and resource generation strategies should be established to ensure the sustainability of preventive healthcare services, particularly supported by mechanisms such as performance-based payments and incentives for private health insurance.



4. Technological Infrastructure and Digitalization: Strengthening technological infrastructure is essential for a sustainable health system. Digitalization tools such as electronic health records, data analytics, and cloud-based solutions can support the effective implementation of data governance policies.

5. Public and Private Collaboration: Collaboration between the public and private sectors is crucial in the establishment and implementation of data governance policies. Healthcare providers, health technology companies, and the government must work together on data sharing and integration.

6. Fundamental Principles of Data Governance and National Data Strategy: Türkiye should adopt fundamental principles regarding the quality, collection, storage, security, and access of health data. These principles should include aspects like data security and privacy protection, data standardization, and compliance. Additionally, Türkiye should develop a national data governance strategy that provides a guiding framework for data collection, analysis, sharing, and security. It is also crucial to raise awareness among healthcare professionals and the public about data governance policies. Training programs on data privacy and security should be organized, and integrating expertise in data collection and processing into healthcare providers' operations would be beneficial.

In conclusion, data governance policies are vital for Türkiye to achieve its goal of establishing a sustainable health system. These policies can enhance the quality of healthcare services, optimize healthcare spending, and improve the overall health of the community. Preventive health and early diagnosis become more effective when based on accurate and reliable data, making them a critical component in safeguarding the health of the population. The guidelines and strategies provided in this action plan are designed to guide Türkiye in achieving this objective.

This plan will serve as a roadmap, contributing to the initiation of essential discussions between the public and private sectors. The necessary dialogue will identify common priorities and direct resources, investments, and innovations to the most critical areas of development.

This policy change project will invite the government, international organizations, and business partners to a series of roundtable meetings throughout 2024 and 2025, where common priorities for value creation and investment will be established.

The method of this report ensures that it is detailed, balanced, and information-packed, and that there is an extensive and productive dialog between industry leaders, experts, and other stakeholders. The method consisted of four stages.

1. Identifying an action plan area

Within the scope of Movement Health 2030 Türkiye, the results of previous roundtable discussions were evaluated, and critical areas of opportunity and development for Türkiye in the process of creating an Action Plan for 2030 were analysed. As a result of this analysis, the areas of early diagnosis, preventive healthcare, and data governance were highlighted.

2. Workshop

The main objective of the workshop was to strategize an effective action plan in line with Türkiye's 2030 vision.

Industry leaders were brought together to develop action plan recommendations for the identified focus area. The workshop process was solution-oriented and inclusive, considering the diverse perspectives and suggestions of the participants.

The participants were selected based on their sectoral expertise and diversity of experience.

The workshop participants consisted of 17 experts from various industries and disciplines, including nine health industry executives and leaders, four academics in health and/or economics, two health researchers and consultants, and two healthcare services administrators. These participants made significant contributions to the study and provided valuable insights.

Workshop Format:

- **Phase One:** Participants were asked to share Türkiye's vision for 2030 and discuss the strategic steps required to achieve this vision. Strategic steps, potential initiatives, and policy changes needed to achieve this vision were discussed.
- **Phase Two:** The groups developed specific action plans on three main issues that were identified and prioritized by vote. These are the action areas presented in this report.



The method of this report ensures that it is detailed, balanced, and information-packed, and that there is an extensive and productive dialog between industry leaders, experts, and other stakeholders. The method consisted of four stages.

3. One-on-one Interviews

The results of the workshop were evaluated in depth and elaborated on for a more effective implementation strategy through one-on-one interviews with public administrators and other industry leaders.

In one-on-one interviews, a total of nine people were interviewed, including three academics in health and/or economics, one health investigator and consultant, two healthcare services administrators, and three healthcare industry executives. The participants came from a wide range of areas of expertise and provided rich perspectives and valuable contributions to the study process.

4. Analysis

The results of the workshop and interviews were analyzed in detail, the objectives were categorized and the recommendations from all groups were combined. Based on the summarized results of the action plan, semi-structured question sets were designed for individual interviews.

As a result of this approach, the report provides concrete and actionable recommendations to help Turkiye reach international standards in early diagnosis, preventive healthcare, and data governance by 2030.

ANNEX 1

Advances in genetic data and health technologies	Improvements in healthcare services	Management and sharing of health data	Healthcare financing and payment systems	Training and human resources
Tissue banking and genetic data retention	Establishing preventive healthcare infrastructure and providing necessary incentives	Integration of health information systems	Healthcare payment and data management	Education and manpower training in healthcare
Building infrastructure to collect genetic data	Improvements in patient-oriented healthcare services	Use of block-chain technology in health information systems	Demonstrating that total expenditure on health will decrease	Improving health literacy of the public
Processing and analysis of medical records with neurolinguistic programming and artificial intelligence	Technological transformation in health systems	Increased sharing of data and anonymization of data use	Using "Permanente HMO" payment systems	Education and training of data scientists and health professions
Using personal devices for multiple data collection	Ensuring individualization and people-oriented approaches in healthcare	Use of cloud systems	Free for service and outcome-oriented payments for service	
Studies in genetic science and epigenetics	Patient incentive systems and management	Ethical and legal basis of health data and data use	Fair pay and pricing for healthcare professionals	
Ecosystem design integrated with other industries	Technological transformation of hospital beds	Determining the purpose of the data request. Data management and sharing ethics	Patient incentive systems and management	
	Improvements in home care services	Data source and quality management		
	Transition to value-based healthcare services	Making health artificial intelligence infrastructure available to researchers		

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Roche was founded in 1896 in Basel, Switzerland, with the aim of finding better ways to provide sustainable contributions to society in the diagnosis, treatment, and prevention of diseases. With over 125 years of history, Roche is one of the world's largest biotechnology companies, developing groundbreaking therapies in oncology, hematology, immunology, infectious diseases, ophthalmology, rare diseases, and neurology. Additionally, it is one of the leading companies in in vitro diagnostics (external body diagnostics), tissue-based cancer diagnosis, and diabetes management.



As Volitan Global, we operate with the mission of implementing innovative approaches that shape the future of the healthcare sector at a global level. Volitan is a company committed to providing innovative and effective solutions in technology, management, and investment within the Health and Life Sciences sectors to support global sustainable development. In this regard, Volitan aims to create a strong knowledge base and experience pool worldwide, as well as to develop a broad ecosystem consisting of expert professionals and scientific and innovative networks. Operating in three main areas—consulting, innovation management, and investment—Volitan has a significant international presence. With activities conducted across three continents and ten different countries, it adds value to the healthcare sector and leads the way.

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