

(Biotechnology | Robotics | Artificial Intelligence | Nanotechnology | Space | Strategic Services)

BRAINS² TÜRKİYE* IMPLEMENTATION PROGRAM

DISRUPTIVE INNOVATION BLOCKCHAIN TECHNOLOGY

“Internet of Governance (Blockchain)
and Crypto Assets Strategy”



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(2022-2024, Türkiye)

* **BRAINS² TÜRKİYE** is a brand/initiative with multi-programs based in Türkiye which develops market, ecosystem and capacity in the 'Biotechnology', 'Robotics', 'Artificial Intelligence', 'Nanotechnology', 'Space' and 'Strategic Services' fields. The programs planned through identical visions and strategies for each main fields which transforms the new business models and multidimensional power distribution in the global economy, are implemented under the common title of **BRAINS² TÜRKİYE**.

BRAINS² TÜRKİYE Programs, titled "**Building International Comparative Vision, Strategy, Ecosystem and Market**", aims to explore and understand the technologies involved in Türkiye's strategic agenda, within the scope of its current scientific and industrial strength/potential, to examine which of the domains in such technologies may promise the highest potential for future growth, and the **National Sectors** and their advantages that they may have from this growth. The new ecosystems, which is the subject matter of **BRAINS² TÜRKİYE** in this context, grow by ten billion dollars each year with the markets emerging in various domains, ranging from SMEs to main contractors and technology companies or startups, creating huge markets, which have not matured yet but have the potential to create new opportunities, and continues to grow with many new technological developments and private sector initiatives. The National Sectors, the boundaries and scale of which become clear as the research efforts to explore the unutilized capacity that boosts both public and private sectors progress through the **BRAINS² TÜRKİYE**'s subject-specific programs with the objective of identifying the most feasible and promising national interest areas, has become a part of the sectors that have the potential of the highest impact on the competitiveness, economic effectiveness and growth. **Disruptive Innovation Blockchain Technology**, the second application program as part of **BRAINS² TÜRKİYE**, will be held under the theme " **Internet of Governance (Blockchain) and Crypto Assets Strategy** ".

Blockchain

With the increase in the use of crypto money, especially Bitcoin, the Blockchain technology in its infrastructure is also becoming an area of interest, and it is observed that this technology is increasingly taking place in other areas. In this direction, Blockchain usage areas are evaluated in three categories: **Internet of Money** (Blockchain 1.0), **Internet of Contracts** (Blockchain 2.0), and its pinnacle, **Internet of Governance** (Blockchain 3.0).

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Internet of Governance in the Context of General Purpose Technology

Blockchain; Although it is generally described over the most popular application of cryptocurrencies (Internet of Money), Blockchain applications defined as “Internet of Governance” are expected to have a significant impact on our entire civilization, especially on Smart Cities.

In this direction, in our work on "democratizing innovation systems based on blockchain platform technologies", which was also published in the Enterprise Information Management magazine in 2020, Blockchain is similar to the internet, electricity, automotive, nanotechnology, etc. Like other technologies, it has been demonstrated that it has the potential of “**General Purpose Technology**”.

Typically, while General-Purpose Technology drives entire cycles of growth, productivity and innovation, it has a major impact not only on the economy but also on society. For example, the emergence of the steam engine as a General-Purpose Technology has not only changed transportation in general but also radically changed the way of life of people by moving rural populations to urban areas. In particular, considering the effects of Blockchain as a disruptive governance innovation, it has been revealed that innovation does not only cover technology-based innovations, but also process and governance innovations.

Innovation in Transformation of Traditional Institutional Structures

Blockchain is expected to affect the old central institutional structures, especially "**citizen**", "**state**", "**academy**", "**private sector**", and even transform communication among themselves.

The impact of blockchain technology in terms of “**citizens**” can be evaluated in the focus of citizens, especially consumers, individual investors and the poor segment of the population. Blockchain, especially the poor section of the society, is negatively affected, land registry records, digital identity, easy access to financial resources and even costly banking transactions, etc. addresses key challenges. Blockchain technology is also expected to affect entrepreneurship. Blockchain has the potential to democratize access to opportunities at the global level for entrepreneurs and even entrepreneur candidates who had difficulties in accessing financial instruments before. In this way, individual investors, as well as professional and accredited investors, will be able to invest in projects and initiatives. This also means a radical increase in the number of entrepreneurs.

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Blockchain has the potential to enable efficient and transparent government processes for “**government**” institutions. Today, many governments are already experimenting with various Blockchain-based government services, including digital identity, custody of judicial decisions, e-voting, business licenses, passports, criminal records and even tax records. In addition, projects are carried out to transfer citizen data, which is normally found in more than one database, to a single Blockchain-enabled platform.

The blockchain can transform “**academic**” institutions into members of the global academic network, thereby: It has the potential to enable the more effective and democratic realization of "organizing, reviewing and publishing academic studies", "managing scientific data" and "intellectual property", "democratizing decision processes in science" and “enabling a reward mechanism for the research community”.

On the other hand, it also provides the opportunity to determine the source and validity of the certificates offered by public education institutions, especially 'open universities, which have played a vital role in lifelong learning processes that are becoming increasingly widespread today. This means that the existing structures of universities will change radically soon.

When the impact of blockchain technology is evaluated in the focus of the “**private sector**”, current studies; exemplifies how it can transform different existing industries, including aerospace, insurance, entertainment, energy and real estate. On the other hand, it is determined that the traditional functions of businesses such as accounting, auditing, sales and marketing, production, R&D, logistics and supply chain will also be transformed.

These studies also show that businesses that have integrated Blockchain technology can be more competitive by reducing their operating costs. For example, Blockchain technology makes the middleman redundant, ensures transparency, transactions that cannot be manipulated, etc. features; It makes the energy market more efficient and functional by paving the way for new solutions to strengthen the position of consumers and small-scale energy producers.

In this direction, it is expected that the energy sector will gradually turn into a sharing economy and it is seen that it will enable new market models, in other words, the democratization of energy.

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Disruptive Innovation Blockchain in National Security Strategy

When a very effective disruptive innovation such as blockchain is evaluated especially in the focus of "security", one of the highlights is the National Defence Authorization Act of 2022 signed by US President Joe Biden in the last days of 2021 and the national defence budget of 770 billion dollars associated with it. On this occasion, Joe Biden is leading the Department of defence to develop a digital defence strategy for many disruptive technologies, including Blockchain. The aim here is to raise the cyber security level of the USA to a higher level.

For example, the cyber defence strategies of the countries include the supply chains that need to work in harmony with different elements in the global sense, especially the critical industrial branches. Blockchain, with its unique features, now occupies an important place in the security strategies of states. In this context, the findings obtained from patents; On a state basis, it shows that some important countries, especially China and the USA, have concentrated their R&D capacities on Blockchain technology. On the other hand, private organizations such as Huawei, IBM, MasterCard, Walmart, Samsung, Siemens, NEC, British Telecom and Alibaba are also active in the blockchain space.

There is a transition from traditional business models to new types of business models (such as Airbnb or Uber), especially with the triggering of some important megatrends such as the sharing economy and big data. Aware of this, countries such as China and the USA have focused on disruptive "General Purpose Technology" such as Blockchain to make the most of this change.

As it can be understood from the examples in question, it is essential to approach the issue from the focus of the Internet of Governance (Blockchain 3.0) rather than the Internet of Money (Blockchain 1.0) focus while creating the policies related to Blockchain. Because Blockchain will change modern economic policies in many ways, especially innovation policies.

Regarding all the aforementioned issues, the immediate support and timely integration of this technology from a **national security perspective is one of the most important measures that Türkiye can take against the related asymmetric threats.**

Within the **scope of the Implementation Program**, in which studies on **Disruptive Innovation Blockchain technology** are examined, it is based on the evaluation of this technology as a complementary element of the national security umbrella, also considering its security dimension.

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National Blockchain - Crypto Assets Strategy and Action Plan

Compared to many countries in preparation for various regulations regarding blockchain and crypto assets; It is essential for Türkiye to evaluate Blockchain technology through the "Internet of Governance" and to approach it with the innovation system approach, which is already used for various disruptive innovations. Because crypto-assets law should be seen as Blockchain law and must be based on a "National Blockchain - Crypto Assets Strategy and Action Plan" (just like the "National Smart Cities Strategy and Action Plan"). **The Implementation Program**, planned under the theme of "**Internet of Governance (Blockchain) and Crypto Assets Strategy**", also aims to contribute to the legislative process regarding crypto assets that Türkiye is currently working on. To develop a strategy and action plan in this direction, it is extremely timely, important and necessary to present various policy proposals for the development of Blockchain technology by carrying out scientific activities and strategic services with different stakeholders related to Blockchain.

In line with Türkiye's national interests, this source of technological innovation should be evaluated primarily and in-depth in the context of national security as well as social, political and economic aspects, and that it should be brought to Turkish institutions and governance based on public and civil purposes, as well as the private sector.

Main Theme

Internet of Governance (Blockchain) and Crypto Assets Strategy

Sub-Themes

Revolution in General Purpose Technologies and Blockchain

Ecosystem Construction and Actors

Disruptive Innovation Blockchain - Multidimensional National Security Strategy

Internet of Money (Blockchain 1.0)

Internet of Contracts (Blockchain 2.0)

Internet of Governance (Blockchain 3.0)

Crypto Assets Strategy

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IMPLEMENTATION AREAS

Considering how rapidly the approaches and applications for abuse and manipulation, which constitute the basis of dangers, develop and the negative consequences that may result, as well as the ground-breaking opportunities offered by Disruptive Innovation of Blockchain technology; your solution; It is understood that it should be handled in a holistic framework, including the **public, private sector, universities** and **think tanks**, within the scope of both multidisciplinary collective wisdom and expertise and combating speculation and disinformation.

Basic Studies

Ecosystem Inventory

Workshops

Research Reports

International Comparative Strategy Documents

Framework Policies

Economy, Security and Regulation

In particular, crypto-assets and other social blockchain platforms allow **economic and political speculations and manipulations** and cause mass outrages, which are very clearly and measurably defined as “preventing relevant threats” and, at the same time, innovative diversification and “nurturing social and economic developments” regulations. It is necessary to work in **cooperation** with **the private sector - university - think tanks**.

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Education

The fact that people are more and more involved in their lives through many devices that use the internet of things, especially mobile phones, tablets and computers, is increasing the situation of **encountering very different blockchain platforms**. Informing and educating the public about the conscious use of these platforms, **raising awareness against the avalanche of manipulative blockchain threats**, and **gradually disseminating this awareness, especially through educational institutions**, are important in terms of creating a higher sensitivity and awareness.

Standards

There is a **need to develop standardizations** at the **point of governance control of platforms** with innovative blockchain technology and **determination of evaluation criteria of positive/negative developments**. Since the civilian use of technology has a very important place in the new world, there is a risk that unplanned and hasty regulation measures to be implemented in this regard may seriously disrupt technological development and innovation on a national basis. For this reason, the strategy and action plans of the public should be carefully studied in close contact with the **private sector, think tanks and universities**.

Timed Reporting

In close cooperation with **the public-private sector - university - think tanks**, there is a need for regular **review of the disruptive innovation blockchain ecosystem** at the national and international level, and regular reporting that will include evaluations. A special budget should be allocated in this regard and these studies should be carried out meticulously within the scope of combating **speculative and manipulative disinformation**.