
IRAN 2025
Science, Technology, and Innovation in IRAN: A Brief Review




بسم الله الرحمن الرحیم

IRAN 2025 | Science, Technology, and Innovation in IRAN: A Brief Review

Acknowledgement

Given its mission in the field of international cooperation in science, technology, and innovation (STI) and with the aim of introducing the country's STI ecosystem and technological capabilities, IRI Presidential Center for Progress and Development (CPDI) has prepared the present book on Feb. 2025. It contains several sections including a brief review on the country's capacities and capabilities (socio-economic indicators, investment opportunities, STI statistics, e-commerce status etc.) and technological capacities as well as its potential in industrial exports.

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- The Vice Presidency for Science, Technology and Knowledge-based Economy
- Ministry of Science, Research and Technology
- Iran Nanotechnology Innovation Council
- Headquarters for the Development of Knowledge-Based Economy in Medicinal Plants and Traditional Medicine Sciences and Technologies
- Pardis Technology Park
- University of Tehran

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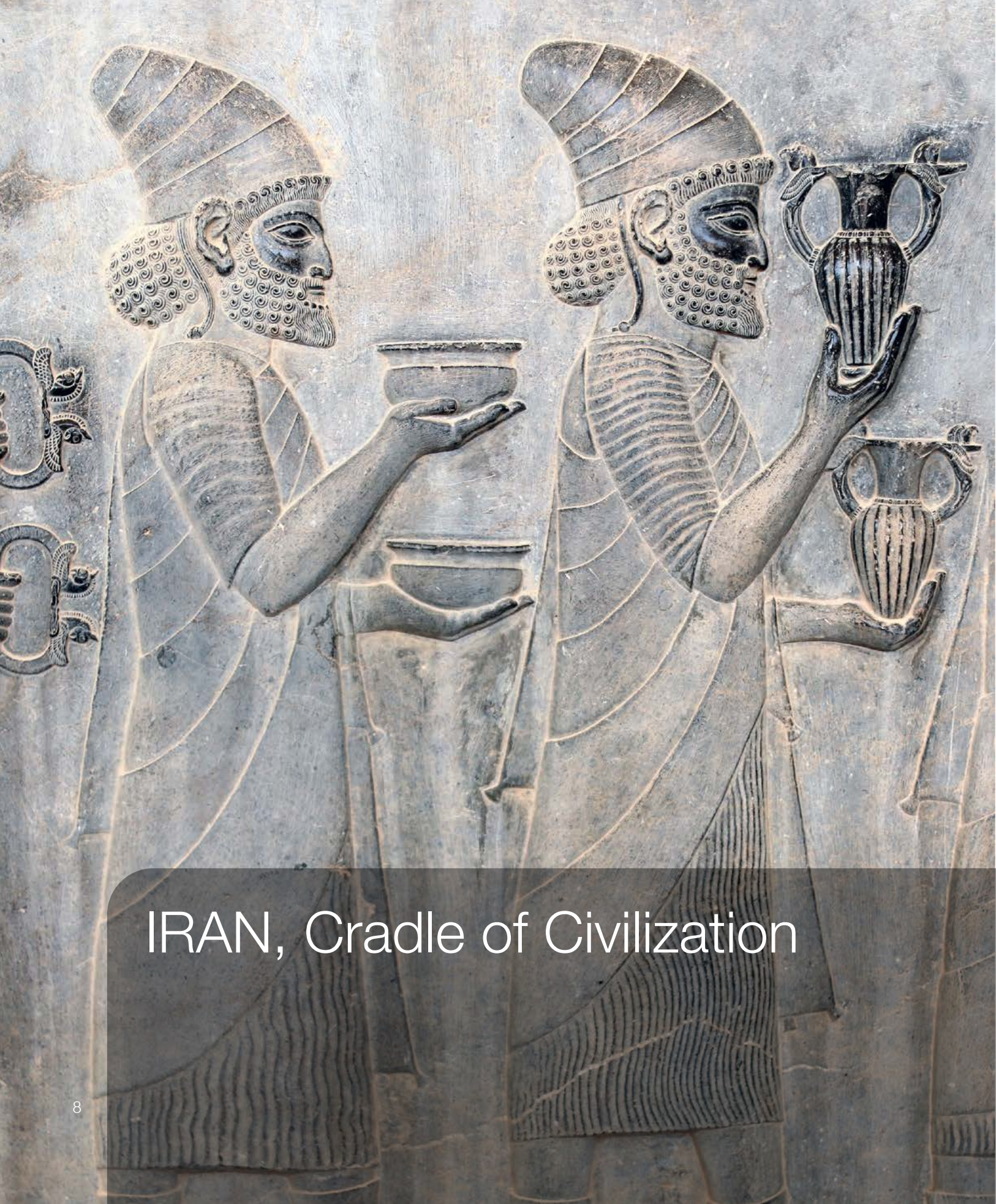
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1 Iran at a Glance





IRAN, Cradle of Civilization

The Islamic Republic of Iran is a nation that embodies the enduring legacy of ancient Persia characterized by a rich tapestry of history and culture rooted in its diverse ethnic groups including Persians, Azeris, Kurds, Bakhtyari, Lurs, and other smaller minorities. Islam is the predominant religion, practiced by over 90 percent of the population of 89.2 million people as of 2023. Located in Southwest Asia, Iran is the 18th largest country by area, extending from the northern borders with Armenia and Turkmenistan to the southern shores of the Persian Gulf. Its strategic geopolitical location with 5,800 km of coastal strips has historically positioned Iran as a crucial transit path for east-west and north-south corridors, enhancing its potential as a regional hub for commerce and political influence.

Iran is also a great tourist destination boasting one of the rarest natures with four distinctive seasons. In the north, the lush evergreen forests adjacent to the stunning tranquil waters of the Caspian Sea create a particularly pleasant springtime climate. The southern borders along the Persian Gulf with gorgeous Hara (Mangrove) forests offer memorable experiences for winter and autumn tourism. In contrast, in the eastern and central areas, one can find arid deserts characterized by sand dunes and starry nights -ideal for stargazing and desert safari. Last but not least, the mountainous regions in the north and west with ski slopes just a short drive from Tehran and 20 mountain resorts cater to the needs of winter sports enthusiasts from beginner to pro. As a cradle of civilization, Iran is best known for its cultural heritage with 19 UNESCO World Heritage sites, including the 2,500-year-old ruins of the Persepolis from the Achaemenid Empire, the exquisite gardens of the Bagh-e-Eram Palace in Shiraz, Naqsh-e Jahan Square in Isfahan, and several Persian Caravanserais (roadside inns), just to name a few. Additionally, Iran is honored to be home to Imam Reza's holy shrine, an esteemed pilgrimage center for Shia Muslims worldwide.





The country is also endowed with a wealth of natural resources, holding the second-largest reserves of natural gas and fourth-largest reserves of oil globally. Iran is well poised to exert a significant influence in basic materials sectors, including stone, steel, and especially cement, where the country is already the world's top cement exporter. Other main mineral deposits of the country are copper, lead, and zinc. Iran is also renowned for its agricultural products such as pistachios, saffron, and caviar; it ranks among the top five producers of various crops including eggplant, onions, quince, figs, and watermelons too.



According to the World Bank, Iran's economy has been growing for four consecutive years, despite ongoing economic sanctions. Real Gross Domestic Product (GDP) growth reached 5% year-on-year between April and December 2023, primarily driven by oil recovery and services growth. The oil sector alone accounted for 8.6% of GDP during this period and expanded by 16.3% year-on-year due to a tighter global oil market. The non-oil sector also experienced growth at 3.5% year-on-year, aided by increasing domestic demand and exports to neighboring countries.



Socio-Economic Indicators

Population (Million, 2023) 89.2

Annual Population Growth (%, 2023) 1.2

Life Expectancy at Birth, Total (Years, 2022) 74.6

GDP (Current US $, Billion, 2023) 478.4

GDP per Capita (Current US $, 2023) 5,364.7

GDP Growth (%, 2023) 5

Internet Users (Million, 2023) 120

Mobile Phone Subscriptions (Per 100 Inhibitants, 2023) 166

Human Development Index (Rank, 2022) 78

Sources: https://www.worldbank.org/en/country/iran
https://datahub.itu.int/data/?e=POL&i=11624&c=DEU
https://hdr.undp.org/data-center/human-development-index#/indicies/HDI
https://datahub.itu.int/data/?e=POL&i=178&u=per+100+people&c=DEU

Investment Opportunities in Iran

• Investment Advantages

Iran is strategically located at the heart of South West Asia and connects Central Asia, China, and Europe along the Silk Road. Considering its geographical location, continental features, and well-developed infrastructure, Iran can play a crucial role in international trade and serve as a powerful regional hub for commerce. The country is therefore promising for foreign direct investment or partnership investment reinforced by several incentives and supportive laws, including the "Law on Encouragement and Protection of Foreign Investment" (No. 16,709 of 2002).

The favorable investment ecosystem in Iran boasts several advantages over the neighboring countries including the following:

Strategic Location: Iran's geographical position allows it to play a powerful role as a trade hub, connecting major regions;
Sound Demographics: The country boasts a young population with a high level of education, offering a skilled workforce;
Low Debt and Resource-Rich: Iran has a low national debt and is rich in oil, gas, and mineral reserves;
Diversified Economy: Opportunities exist in sectors like aerospace, automotive, consumer electronics, pharmaceuticals, petrochemicals, tourism, mining, and ICT;
Stock Market Performance: the Tehran Stock Exchange (TSE) with 380 listed companies has been among the best performers since 2016;
Infrastructure: Developed transportation, telecommunications, and energy infrastructure supports business operations;
Cost Advantages: Lower utility and production costs, along with lower labor costs;
Market Access: Large domestic and regional markets provide significant opportunities for growth; and
Incentives: Numerous tax and customs incentives are available for foreign investors.

• Incentives for Foreign Investors

The Organization for Investment, Economic and Technical Assistance of Iran (OIETAI) provides economic and technical assistance for governments and foreign international institutions willing to invest in Iran. It offers various incentives to foreign investors including, but not limited to, the following:

- No foreign stockholding limits;
- Registering an Iranian company with 100% foreign capital;
- Free capital transfer, including principal capital, dividends, and profits in foreign currency or goods;
- National treatment; foreign-owned companies are treated the same as domestic firms;
- Open investment regime for all foreign investors, including Iranian diaspora;
- Strong foreign investment Protection; guarantees against nationalization and expropriation with compensation;
- Quick approval process; efficient processing of foreign investment applications;
- Visa and residence permit; three-year multiple entry visas and residence permits for foreign investors and their families; and
- Export freedom; goods produced by foreign investors can be exported with proceeds transferable abroad.



• Science, Technology, and Innovation Statistics

Science, Technology, and Innovation Statistics

Tertiary Graduates		Tertiary Graduates by Level of Study				
Total (2023)	Females (%)	Post-Secondary Diploma	Bachelor's Degree	Master's Degree	PhDs	Professional Doctorate
526,520	48.2%	96,898	308,117	95,965	15,409	10,131
					25,540	

Note: Within each field of study, the share of tertiary graduates refers to the share of all tertiary graduates in all fields accounted for by both sexes in that field of study. The share of females refers to the female share of total graduates within that field.
Source: https://irphe.ac.ir/

R&D Indicators		
GERD as Percentage of GDP (2021)	Researchers (in Fulltime Equivalent) (per Million Inhibitants, 2021)	Female Researchers (in Fulltime Equivalent) (%, 2021)
0.73	2249.3	29.4

Source: https://data.uis.unesco.org/

Patents Granted by the Top Five Patent Offices (IP5)	
Number of patents (2023)	World Share of IP5 patents (%)
44	0.003

Source: https://www3.wipo.int/

Scientific Publications	
Number of Publications (2023)	Average of Relative Citations (Citation per document)
73,545	1.1

Source: https://www.scimagojr.com/countryrank.php?year=2023

Scientific Publications Resulting from International Collaboration		
Total Number of Publications (2023)	Number of Publications with International Co-authors	Share of Publications with International co-authors (%)
73,545	25,564	34.76

Source: https://www.scimagojr.com/countrysearch.php?country=IR

Iran's International Status in Scientific Productions (2023)

Rank	Country	Region	Documents	Citable documents	Citations	Self-citations	Citations per document	H index
1	China	Asiatic Region	1043131	1018423	1094503	768786	1.05	1333
2	United States	Northern America	714412	609674	654637	270853	0.92	3051
3	India	Asiatic Region	306647	269183	252299	113231	0.82	858
4	United Kingdom	Western Europe	238568	201255	272435	66276	1.14	1928
5	Germany	Western Europe	202397	179861	202876	56510	1.00	1690
6	Italy	Western Europe	155258	137096	170158	54453	1.10	1333
7	Japan	Asiatic Region	134358	124330	102180	26579	0.76	1301
8	Canada	Northern America	128502	113461	137877	27662	1.07	1562
9	Spain	Western Europe	122876	111563	125846	29830	1.02	1215
10	France	Western Europe	122302	110009	121557	26658	0.99	1514
11	Australia	Pacific Region	119770	105340	156522	32458	1.31	1377
12	Russian Federation	Eastern Europe	107056	102298	48808	21776	0.46	753
13	South Korea	Asiatic Region	101414	97487	103479	23822	1.02	934
14	Brazil	Latin America	88827	82091	61621	17292	0.69	789
15	Türkiye	Middle East	75305	69669	72639	18811	0.96	601
16	**IRAN**	**Middle East**	**73545**	**70828**	**81200**	**23941**	**1.10**	**490**
17	Netherlands	Western Europe	72640	64918	88906	16478	1.22	1373
18	Saudi Arabia	Middle East	61900	59908	98077	31772	1.58	568
19	Indonesia	Asiatic Region	58224	56604	24340	10294	0.42	318
20	Poland	Eastern Europe	58169	53917	54714	13549	0.94	738

Source: https://www.scimagojr.com/countryrank.php?year=2023

Iran's Global Ranking in Different Fields of Technology in terms of Publications

Technology	Nanotechnology*	Biotechnology	Bioengineering	Aerospace Engineering
Date	2024	2023	2023	2023
Number of Articles	10,241	1,226	1,027	705
Rank	6th*	11th	10th	9th

Agricultural and Biological Sciences	Biochemistry, Genetics, and Molecular Biology	Energy Engineering and Power Technology	Computer Science	Ocean Engineering
2023	2023	2023	2023	2023
800	981	2,285	2,291	475
18th	21th	9th	19th	13th

Energy	Renewable Energy, Sustainability and Environment	Fuel Technology	Cognitive Neuroscience	Water Science and Technology
2023	2023	2023	2023	2023
783	2,283	922	132	1,594
17th	11th	12th	22th	6th

Sources:
*https://statnano.com/country/iran
https://www.scimagojr.com/countryrank.php: updated January 2025



Key Centers in Science, Technology and Innovation

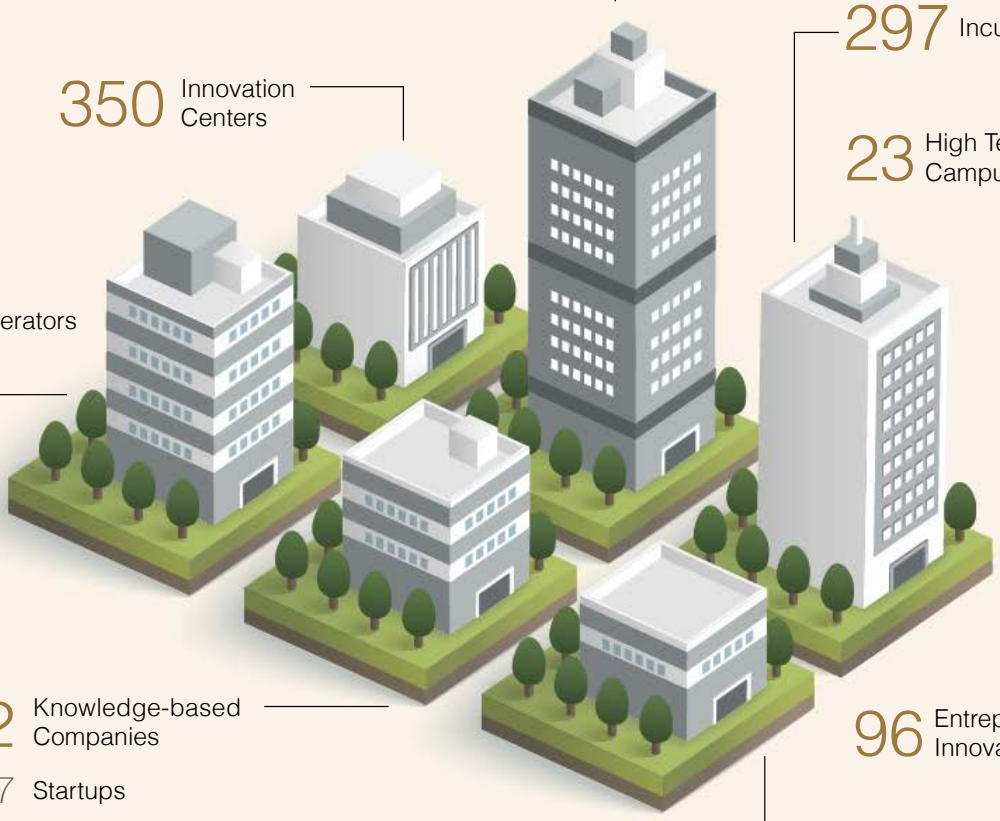
59 Science and Technology Parks

297 Incubators

350 Innovation Centers

23 High Technology Campuses

170 Accelerators



10,012 Knowledge-based Companies

- 6,667 Startups
- 979 Technology
- 2,366 Innovative
- 2,556 KBF Companies Located at Parks and Incubators

96 Entrepreneurship and Innovation Centers

13,360 Technology Units

140,000 Total Employment Rate in Technology Units

2,131 Creative Companies

114 Creative and Innovation Houses

Sources:
https://daneshbonyan.isti.ir/, last update: Jan, 8, 2025
https://isti.ir/, last update: Jan, 8, 2025
https://irost.org/, Last update: Sept. 5, 2024
https://creativehousenet.ir/web/, last update: December 18, 2024

• e-Commerce

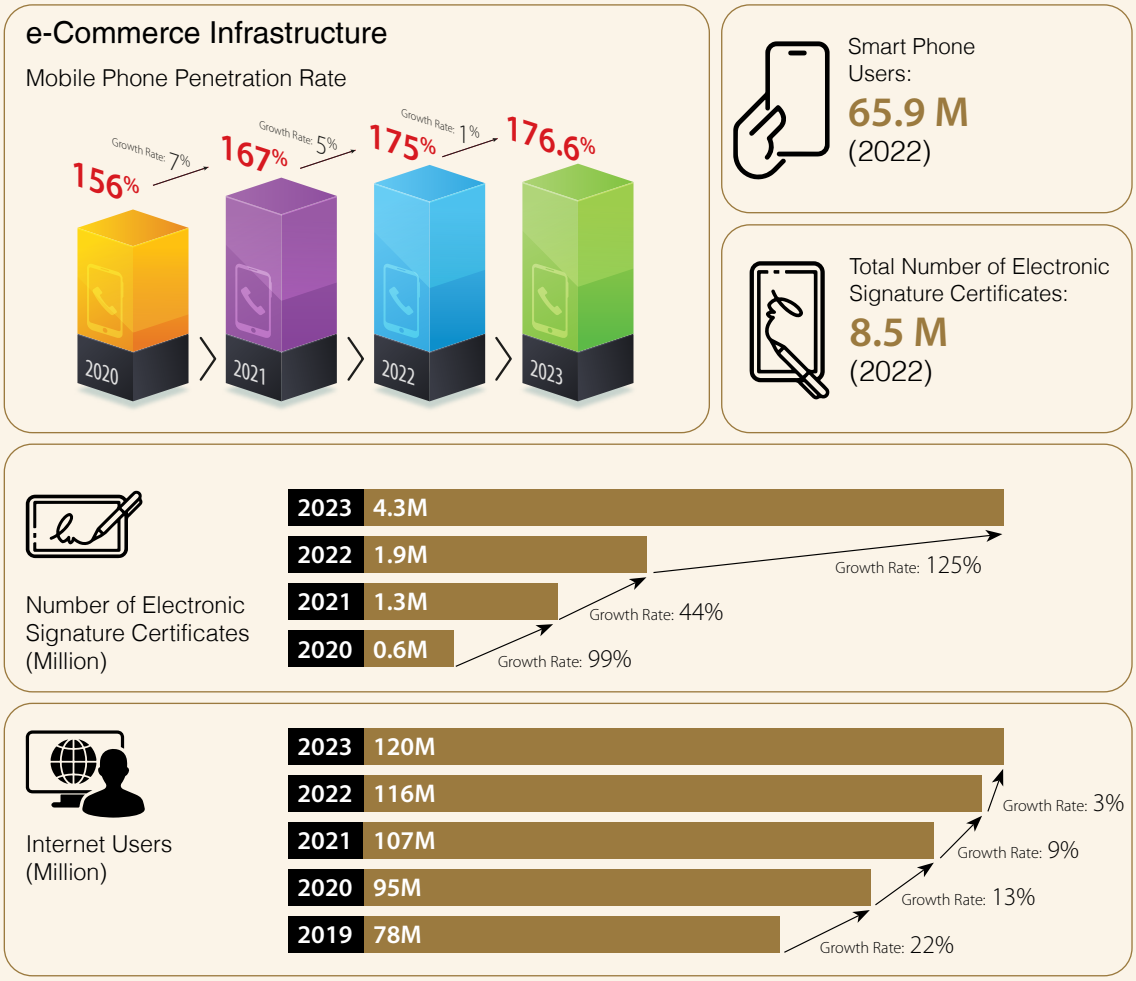
e-Commerce, as an integral component of the digital economy, significantly contributes to the economic development of countries and has a profound impact on the global economy that cannot be overlooked. It is heavily influenced by technological innovations and, in turn, triggers further technological advancements.

As e-Commerce continues to evolve globally, its role in fostering economic growth, improving market access, and enhancing productivity will remain crucial for countries like Iran aiming to leverage digital technologies for sustainable development.

Iran has witnessed a notable growth trend in e-Commerce in recent years. According to UNCTAD report from 2020, Iran ranked 44th out of 152 countries in the e-Commerce sector.

The following figure provides an overview of Iran's annual e-Commerce report, covering key aspects such as infrastructure, market size, investment methods, and demographic data.

Annual e-Commerce Report, 2023

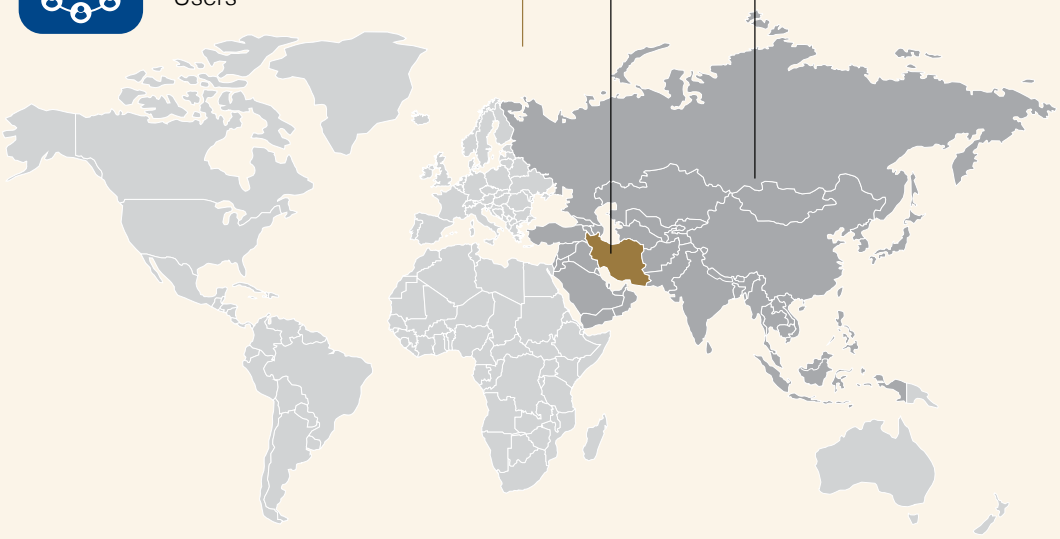


Social Network Penetration Rate **54%**

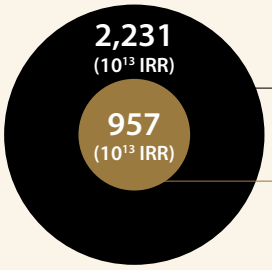
Number of Social Network Users **48 M**

Internet Penetration Rate (%)

Iran	West Asia	World
140.7	73.9	67.5



e-Commerce Market Size



- Value of Transactions via IPG (Internet Payment Gate)
- Total Value of COD (Cash on Delivery) and Other Payment Methods

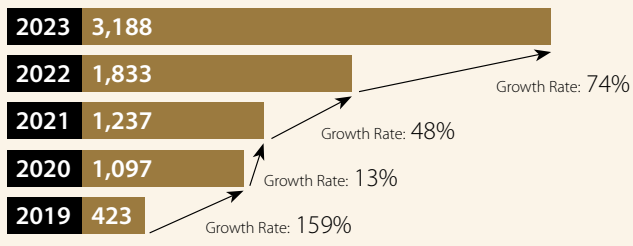
e-Commerce Turnover
3,188 x10^{13} IRR

Average Transaction Value (ATV)
815 (10^{4} IRR)

Total Number of e-Commerce Transactions
39 (10^{9} IRR)

Growth Rate
31%

Value of e-Commerce Transactions (10^{13} IRR)

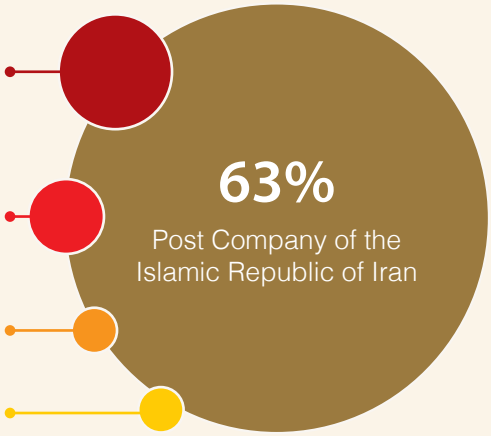


e-Commerce Methods

Social Networking Apps	Mobile Phones	Messenger Apps	Mobile Applications
43%	25%	22%	10%

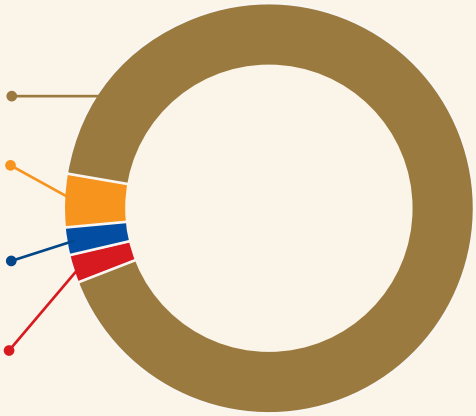
Share of Social Commerce in e-Commerce (in addition to Websites)

e-Commerce Shipping



- 15% Private Post Companies
- 10% Intercity Freight Companies
- 6% Distribution System of the Company
- 6% Private Delivery Companies

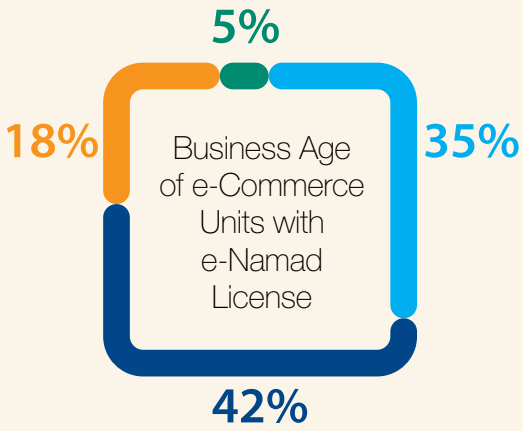
e-Commerce Finance Sources



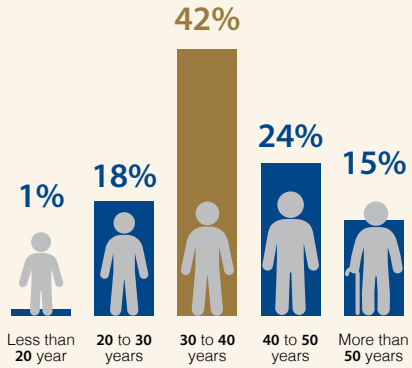
- 87% Personal Savings
- 4% Accelerators, Angel Investors, and Venture Capital Funding
- 2% Government Grants and Funds
- 2% Crowdfunding

e-Commerce Demography

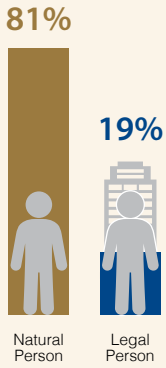
- More than **8** years
- Less than **1** year
- **1** to **4** years
- **4** to **8** years



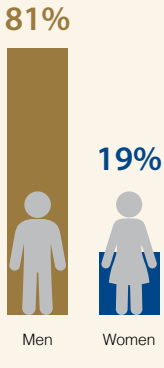
Owners of e-Commerce Units with e-Namad License by **Age Group**



e-Commerce Units with e-Namad License by **Type of Ownership**



Owners of e-Commerce Units with e-Namad License by **Gender**

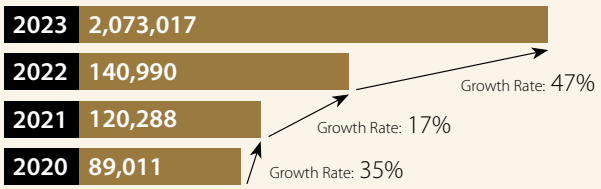


e-Commerce Units with e-Namad License by **Type of Activity**



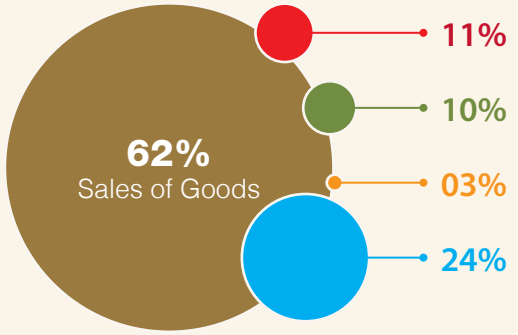
- 63% Goods
- 03% Goods & Services
- 34% Services

e-Commerce Units with e-Namad License, **Cumulative Number**



470,000	Number of e-Commerce Units
207,317	Number of e-Commerce Units with e-Namad License
Over 11,000	Number of e-Commerce Units with Gray e-Namad License (increase since 2022)

Top Business Categories of e-Commerce Units with e-Namad License



- 11% — IT and Communication Services
- 10% — Education/Culture/Art Services
- 03% — Backup and Business Development Services
- 24% — Others including: Health, Sports, Travel, Finance, Agriculture Services

Number of e-Commerce Units with e-Namad License per Province, 2023

Tehran	93,550	46%
Isfahan	15,622	7.5%
Razavi Khorasan	14,096	6.8%
Fars	10,221	4.9%
Alborz	8,220	
East Azerbaijan	7,914	
Mazandaran	5,788	
Gilan	5,011	
Khuzestan	4,759	
Qom	4,282	
West Azerbaijan	4,183	
Yazd	3,364	
Hormozgan	3,114	
Kerman	2,807	
Golestan	2,355	
Bushehr	2,292	
Kurdistan	2,261	
Qazvin	2,194	
Markazi	2,017	
Hamedan	1,844	
Kermanshah	1,679	
Zanjan	1,446	
Ardabil	1,360	
South Khorasan	1,250	
Semnan	1,227	
Lorestan	1,083	
North Khorasan	939	
Chaharmahal and Bakhtiari	810	
Sistan and Baluchestan	737	
Kohgiluyeh and Boyer-Ahmad	454	
Ilam	439	



Sources:
https://ecommerce.gov.ir/fa/pdf?file=/uploads_old/Report_Ec1402.pdf
https://ecommerce.gov.ir/fa/pages/315/show
https://www.statista.com/statistics/269329/penetration-rate-of-the-internet-by-region/



• Startup ecosystem

Over the past decade, Iran's startup ecosystem has experienced a remarkable growth, driven by several key factors, including a large pool of educated young people, increased internet access, government support for entrepreneurship, and sizable investments in the tech sector. As a result, the number of startups in Iran has surged, with many focusing on developing local solutions to address challenges in areas such as transportation, e-Commerce, and healthcare.

The ecosystem is further bolstered by the presence of numerous startup accelerators, venture capital firms, and incubators, which play a crucial role in facilitating the growth and success of startups. Despite facing international economic sanctions, the rise of Iran's startup ecosystem serves as a testament to the country's entrepreneurial orientation and its potential for innovation. Iranian startups are making their mark on the global tech landscape, with notable examples including Cafe Bazaar, Digikala, ZarinPal, and Snapp. These companies exemplify the dynamics and adaptability of the ecosystem. As the landscape continues to thrive, it is evident that the future of Iran's startups holds great promise, offering a glimpse into a vibrant economy that remains resilient in the face of external pressures.

The diagram provides a comprehensive overview of the diverse activity areas within Iran's startup landscape, highlighting its complexity and potential for further growth and development.


content
E-book
Microblogging
Social media
Video platforms
service and platforms
Ed-Tech
Advertisement
Messengers
retailer
booking
Fin-Tech
crypto
Insure-Tech
payment
lend-Tech
reg-Tech
E-hailing
Health-Tech
App stores
infrastructure
Data centers and Cloud service
Cloud
Data centers
Telecom and Internet Service
Devices and terminals

2 Technological Capacities



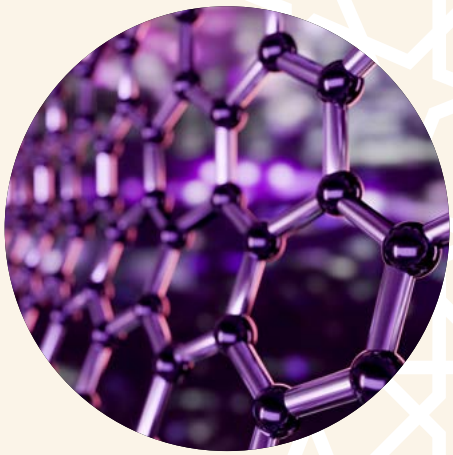


Nanotechnology

Nanotechnology has emerged as a pivotal and rapidly growing field in Iran, leveraging the country's rich natural resources and highly skilled workforce. As of 2023, Iran ranked 5th globally in nanotechnology, with approximately 12,000 ISI-indexed articles, underscoring its position among the world's leading nations in this field.

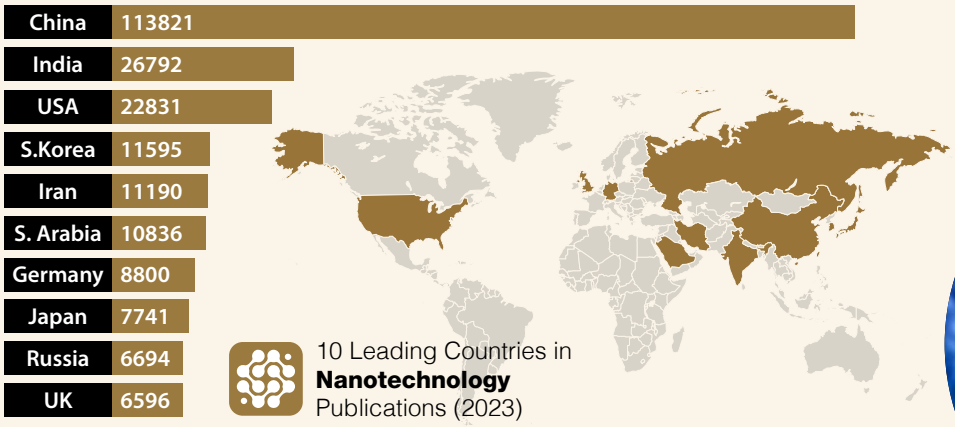
The nanotechnology boom in Iran owes to strong government support and a robust ecosystem for innovation and development; the Iran Nanotechnology Laboratory Network expanding to 80 centers provides over 9 million services for the researchers. The emergence of 178 nanotechnology startups across 12 industrial sectors underscores the enabling nano ecosystem in Iran.



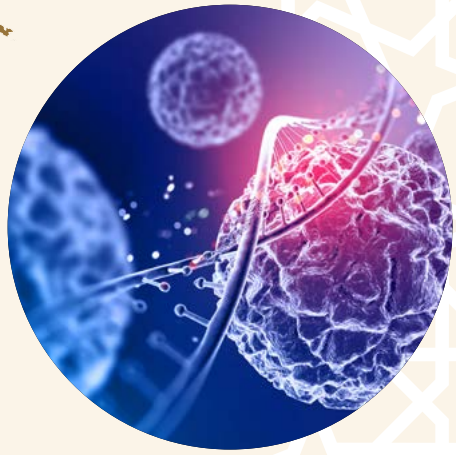


Iran's Nanotechnology Achievements

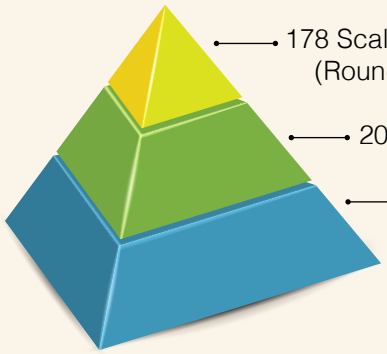
- 324 patents in nanotechnology, mid-2024;
- Nanoproducts increased from 11 in 2008 to nearly 1,700 in 2024;
- Domestic market value surpassed US $1.6 billion in 2023;
- Exports value reached US $145 million in 2023; and
- One of the top five countries in nanotechnology standardization in 2023.



10 Leading Countries in **Nanotechnology** Publications (2023)



Nanotechnology Startups



178 Scaled up Startups (Round 1)

207 Startups

324 Projects

Sectors

- Health and Medicine
- Paint, Coating and Polymer
- Agriculture & Food Industry
- Nanomaterials
- Energy & Petroleum
- Electronics
- Industrial Necessities
- Textile and Clothing
- Construction

ICAN[1]

Nano-Medicine Fab

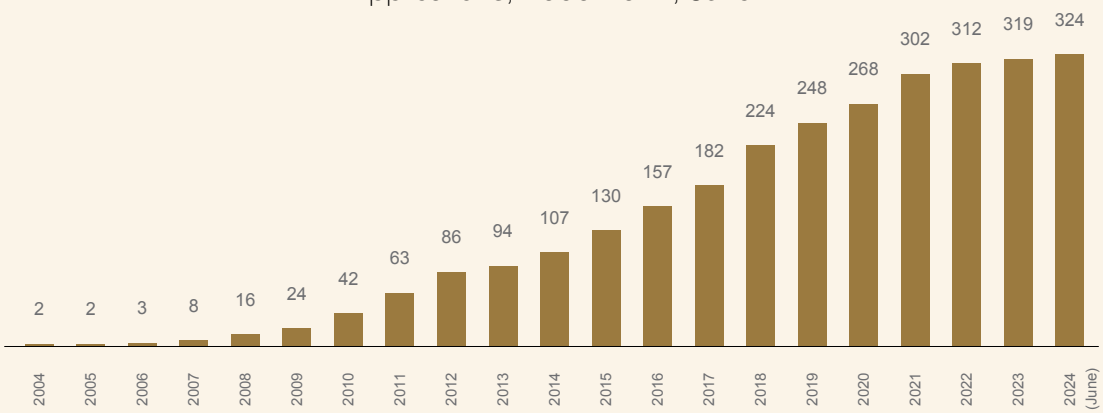
Accelerator Infrastructures

Battery Fab

Polymer Fab

1 Industrialization Center for Applied Nanotechnology

Number of Iran's Nanotechnology Published Patent Applications, 2006-2024, June



Iran Nanotechnology Patents- By the End of June, 2024

Iran Nanotechnology Patents

%33.33 of Iran Patents

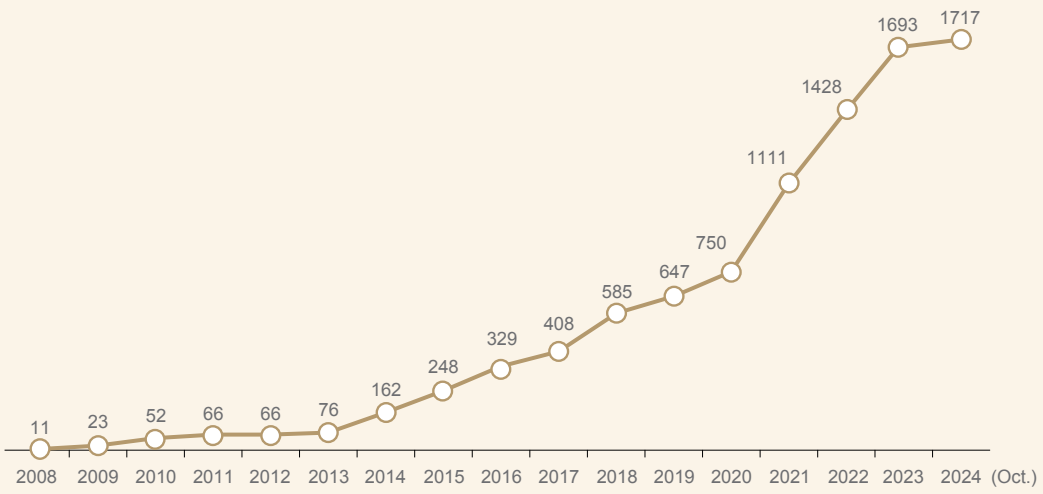
%0.12 of Worldwide Nanotechnology Patents

201

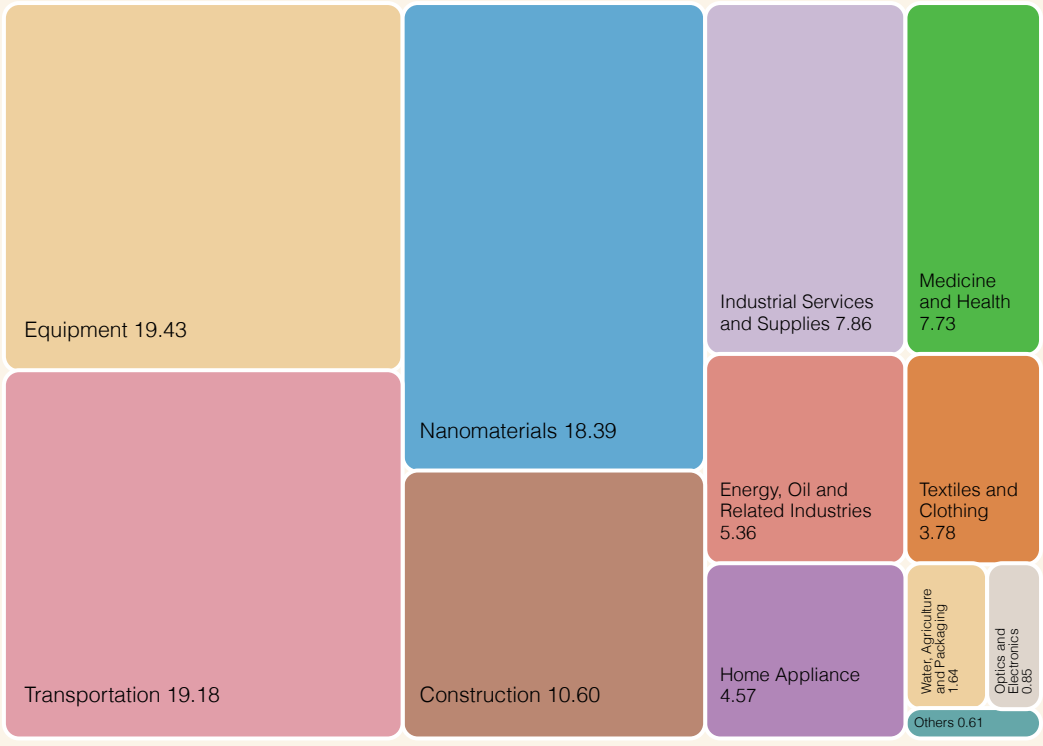
324

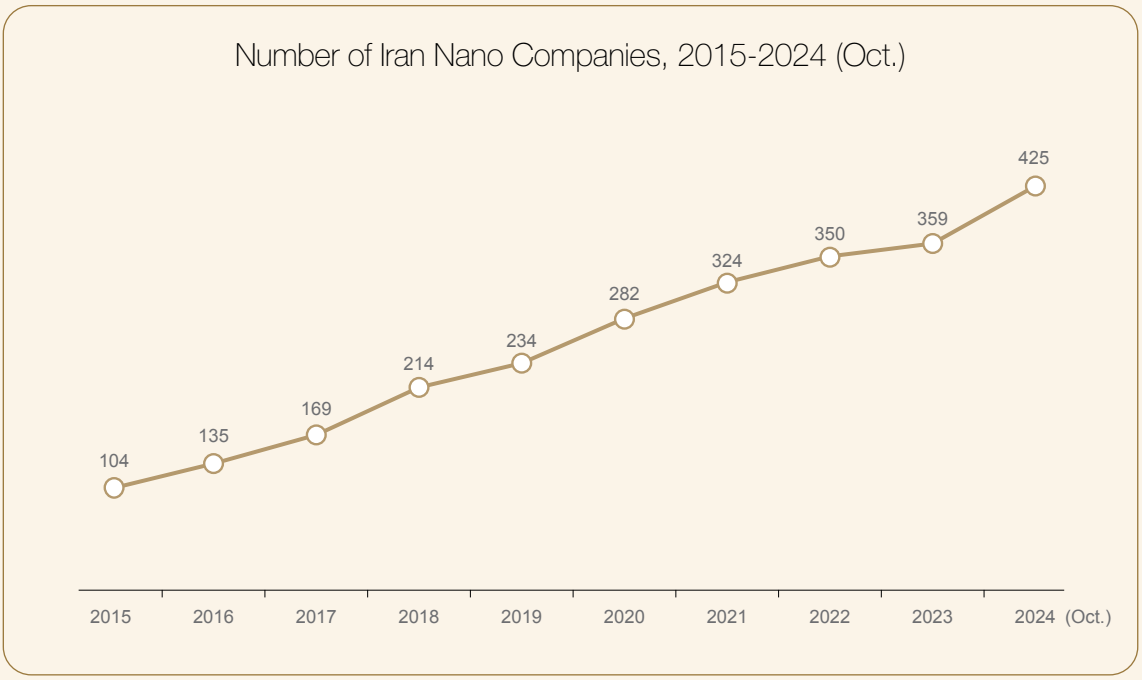
Iran Nanotechnology Published Patent Applications

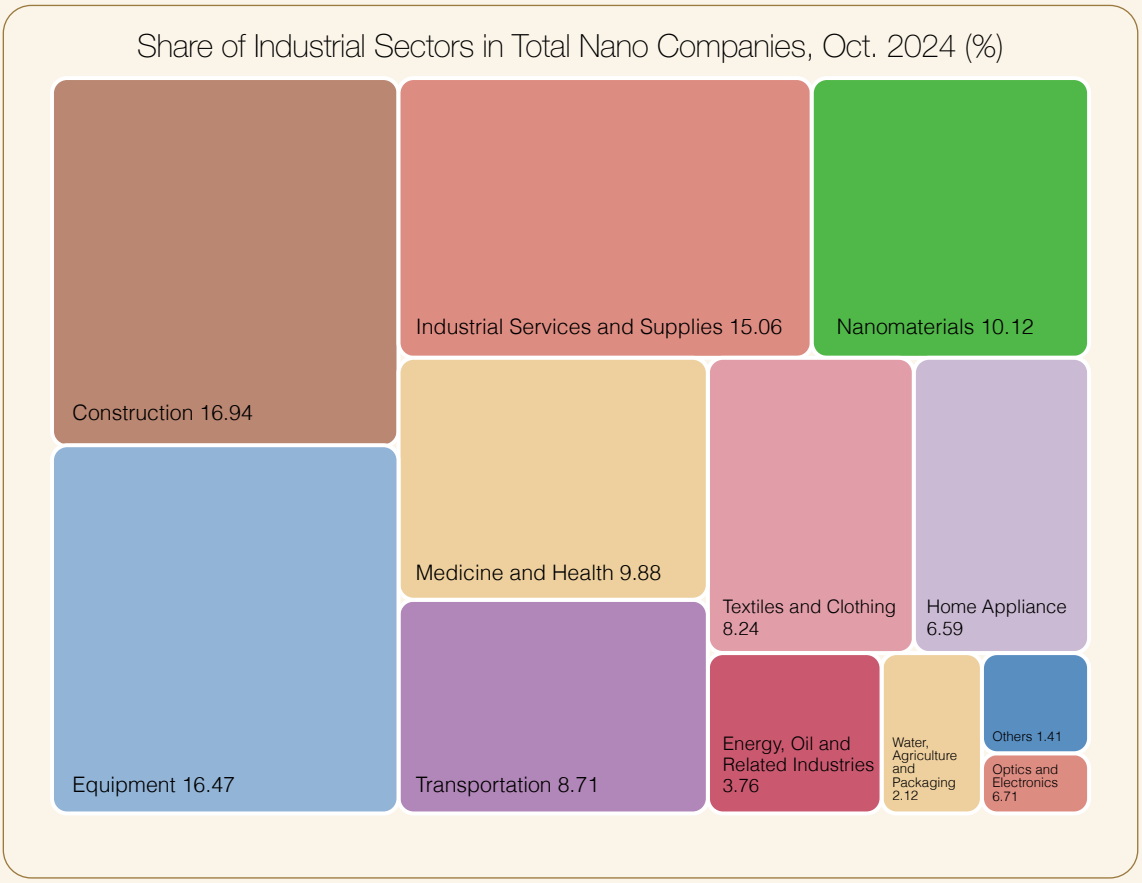
Number of Iran Nanoproducts, 2008-2024 (Oct.)



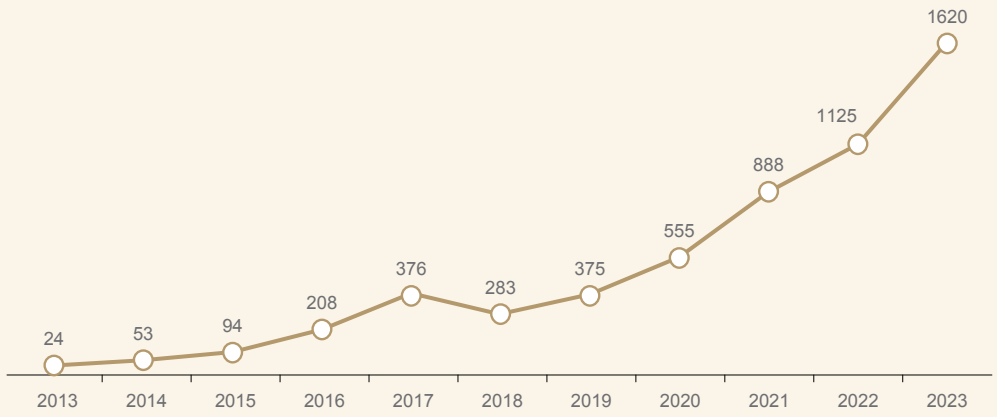
Share of Industrial Sectors in Total Nanoproducts, Oct. 2024 (%)



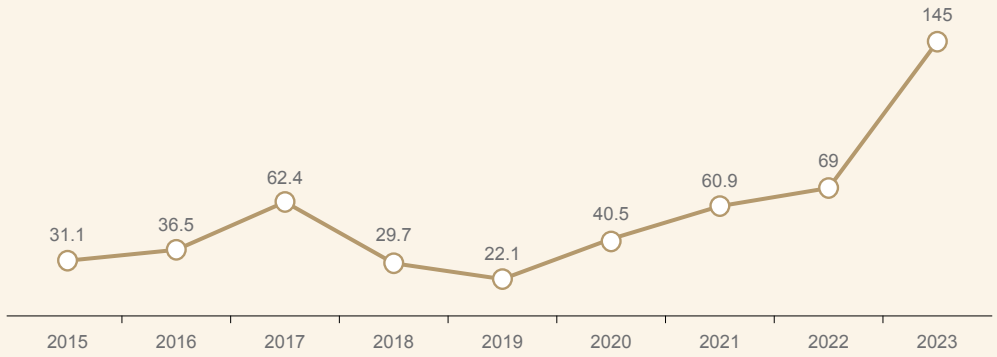

Number of Iran Nano Companies, 2015-2024 (Oct.)
104
135
169
214
234
282
324
350
359
425
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024 (Oct.)


Share of Industrial Sectors in Total Nano Companies, Oct. 2024 (%)
Construction 16.94
Industrial Services and Supplies 15.06
Nanomaterials 10.12
Medicine and Health 9.88
Textiles and Clothing 8.24
Home Appliance 6.59
Equipment 16.47
Transportation 8.71
Energy, Oil and Related Industries 3.76
Water, Agriculture and Packaging 2.12
Others 1.41
Optics and Electronics 6.71

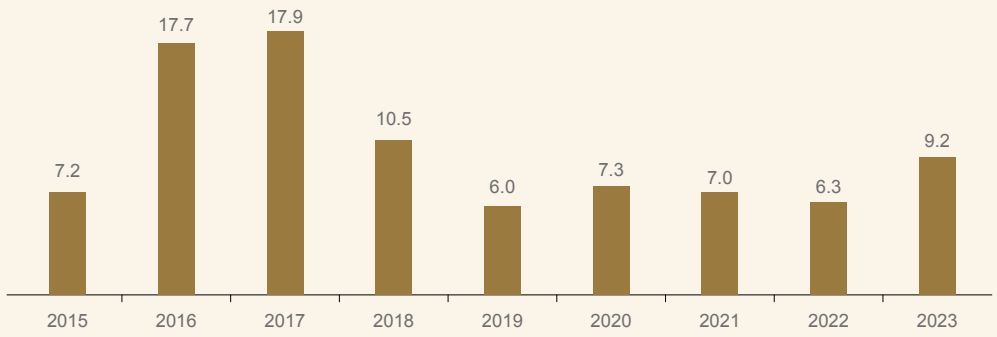
Iran Nanoproducts Market Size, 2013-2023 (Million $)



Iran Nanoproducts Export Size, 2015-2023 (Million $)



Share of Nanoproducts Export in Total Market, 2015-2023 (%)



2006

Establishment of Iran Nanotechnology Standardization Committee

Developing national nanotechnology standards in collaboration with the National Standard Organization of Iran and experts from universities, research institutes, and industrial companies through specialized sessions.

A Member of ISO Technical Committee on Nanotechnologies

Iran participates in international nanotechnology standardization by establishing a national committee aligned with ISO-TC229, becoming one of the top ten countries responsible for developing international standards.

ISO/TC 229

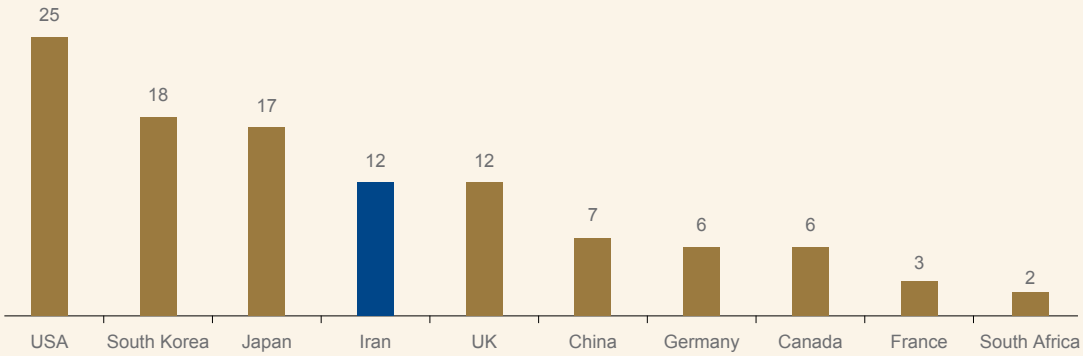
Nanotechnology Standards



National Standards

International Standards

10 Leading Countries in International Nanotechnology Standards, 2023







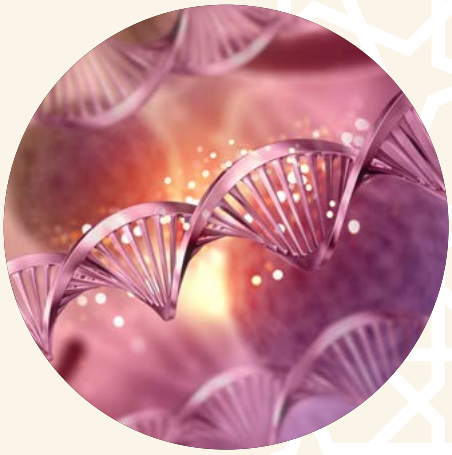
Biotechnology

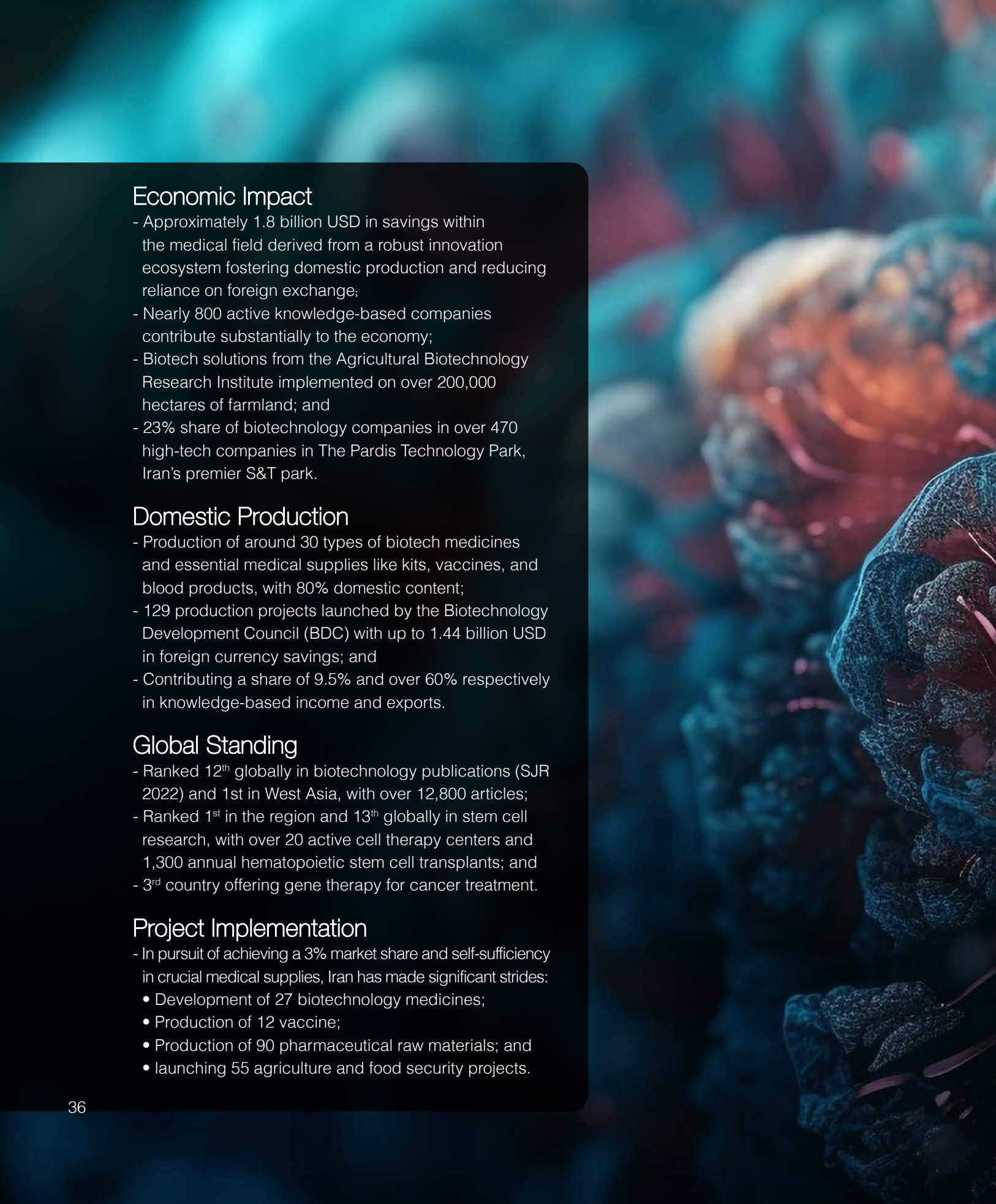


Iran's engagement with modern biotechnology has a rich history, dating back to the early 20th century. The devastating influenza pandemic of 1918-1919 prompted the establishment of research centers focused on microbiology and immunology. This period marked the beginning of Iran's journey in modern biotechnology, particularly with the founding of the Pasteur Institute in 1920 and the Razi Institute in 1925, both instrumental in vaccine production.



Iran is recognized as a fast-evolving innovator in the Asian biotechnology landscape. The country boasts numerous research centers actively involved in biotechnology, including the National Institute for Genetic Engineering and Biotechnology, Pasteur Institute, and Razi Institute. Iran's biotechnology sector witnesses a surge in groundbreaking advancements, solidifying its position as a key player in the global arena. Its remarkable achievements paint a vibrant picture of Iran's thriving biotechnology sector actively contributing to global progress in various fields, from tackling chronic diseases to improving fertility treatments and offering cutting-edge cancer treatments. Here's a closer look at some of the sector's recent milestones:





Economic Impact

- Approximately 1.8 billion USD in savings within the medical field derived from a robust innovation ecosystem fostering domestic production and reducing reliance on foreign exchange;
- Nearly 800 active knowledge-based companies contribute substantially to the economy;
- Biotech solutions from the Agricultural Biotechnology Research Institute implemented on over 200,000 hectares of farmland; and
- 23% share of biotechnology companies in over 470 high-tech companies in The Pardis Technology Park, Iran's premier S&T park.

Domestic Production

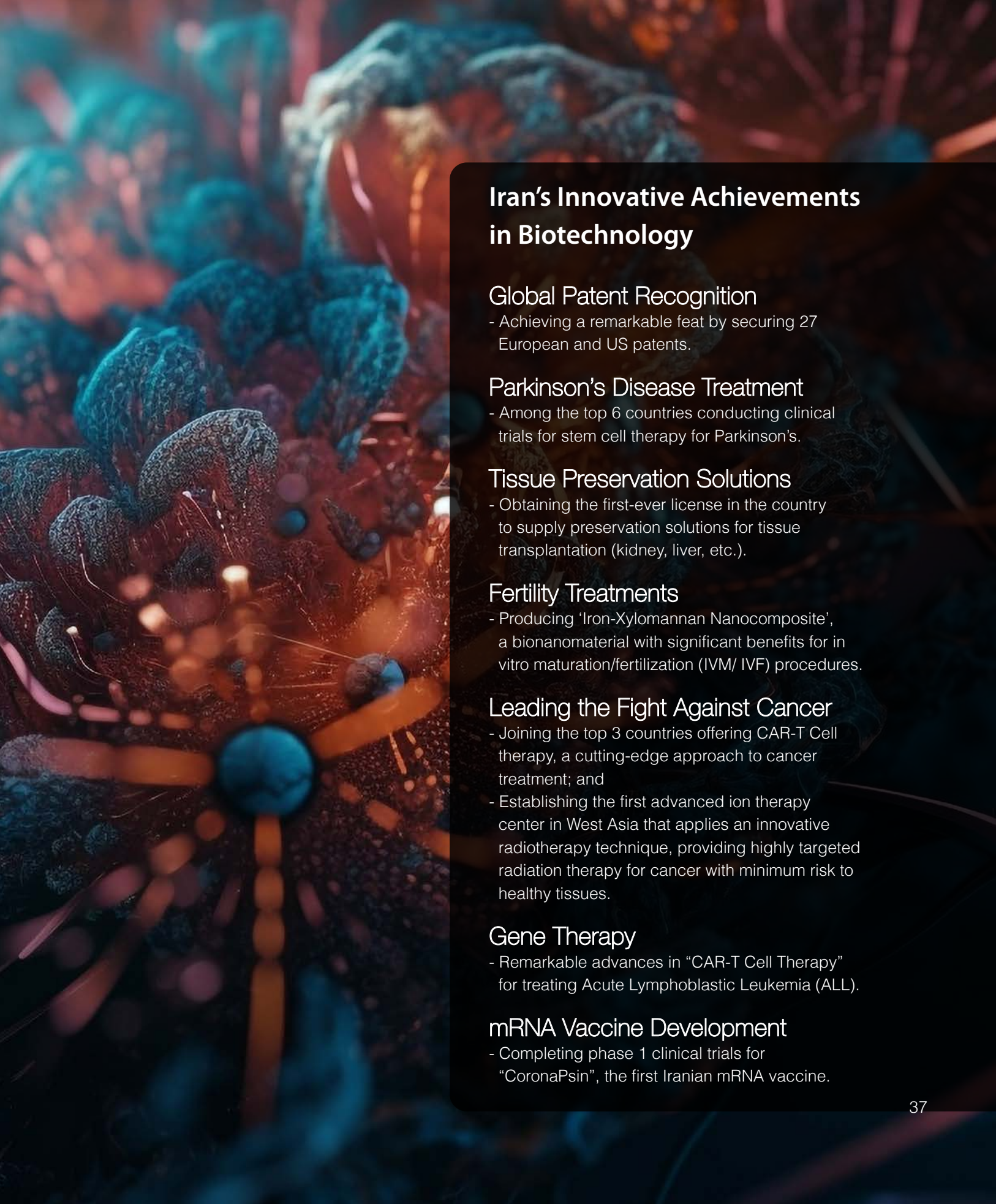
- Production of around 30 types of biotech medicines and essential medical supplies like kits, vaccines, and blood products, with 80% domestic content;
- 129 production projects launched by the Biotechnology Development Council (BDC) with up to 1.44 billion USD in foreign currency savings; and
- Contributing a share of 9.5% and over 60% respectively in knowledge-based income and exports.

Global Standing

- Ranked 12th globally in biotechnology publications (SJR 2022) and 1st in West Asia, with over 12,800 articles;
- Ranked 1st in the region and 13th globally in stem cell research, with over 20 active cell therapy centers and 1,300 annual hematopoietic stem cell transplants; and
- 3rd country offering gene therapy for cancer treatment.

Project Implementation

- In pursuit of achieving a 3% market share and self-sufficiency in crucial medical supplies, Iran has made significant strides:
  - Development of 27 biotechnology medicines;
  - Production of 12 vaccine;
  - Production of 90 pharmaceutical raw materials; and
  - launching 55 agriculture and food security projects.



Iran's Innovative Achievements in Biotechnology

Global Patent Recognition

- Achieving a remarkable feat by securing 27 European and US patents.

Parkinson's Disease Treatment

- Among the top 6 countries conducting clinical trials for stem cell therapy for Parkinson's.

Tissue Preservation Solutions

- Obtaining the first-ever license in the country to supply preservation solutions for tissue transplantation (kidney, liver, etc.).

Fertility Treatments

- Producing 'Iron-Xylomannan Nanocomposite', a bionanomaterial with significant benefits for in vitro maturation/fertilization (IVM/ IVF) procedures.

Leading the Fight Against Cancer

- Joining the top 3 countries offering CAR-T Cell therapy, a cutting-edge approach to cancer treatment; and
- Establishing the first advanced ion therapy center in West Asia that applies an innovative radiotherapy technique, providing highly targeted radiation therapy for cancer with minimum risk to healthy tissues.

Gene Therapy

- Remarkable advances in "CAR-T Cell Therapy" for treating Acute Lymphoblastic Leukemia (ALL).

mRNA Vaccine Development

- Completing phase 1 clinical trials for "CoronaPsin", the first Iranian mRNA vaccine.



Energy

Iran has substantial energy resources, possessing second-largest natural gas reserves and third-largest oil reserves globally. The country also has significant potential for renewable energy, bolstered by its unique geographical position, which enhances its role as a key player in the global energy landscape. The energy sector is the cornerstone of Iran's economy and development strategy. However, integrating renewable energy sources into the national energy mix remains limited, primarily consisting of hydropower, with solar and wind energies contributing to a lesser extent.



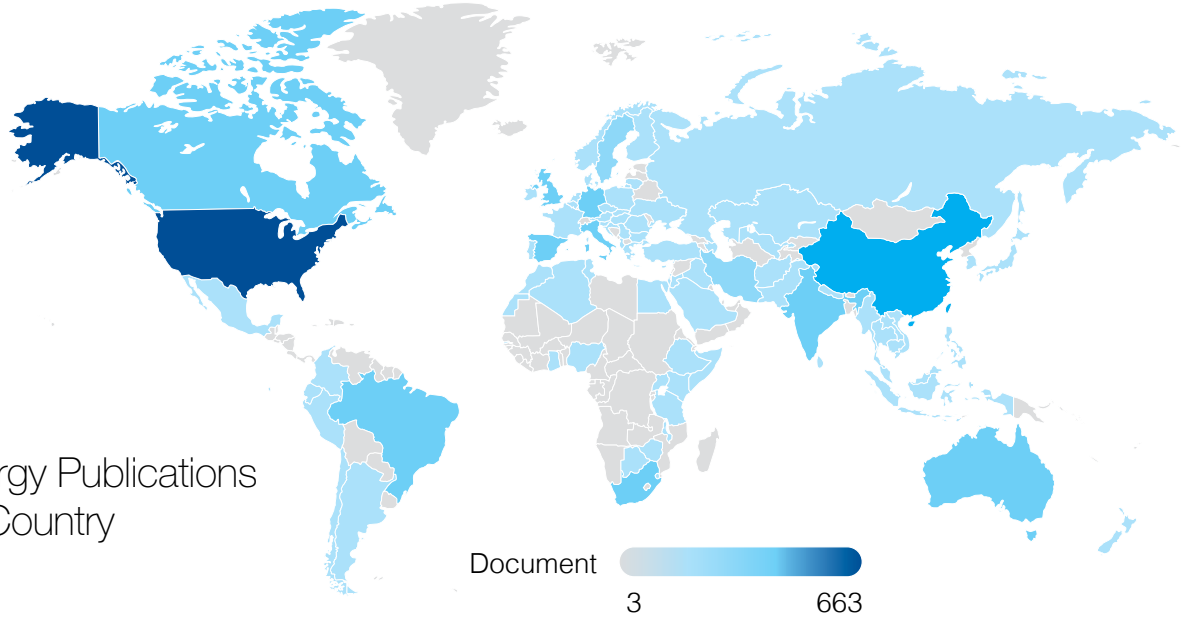
• Global Standing

Iran holds a prominent position in the global energy landscape, largely due to its abundant hydrocarbon reserves. It ranks **second globally in natural gas reserves** and **third in crude oil reserves**, establishing itself as one of the top energy suppliers. Iran stands among the leading electricity-generating nations in West Asia, with an installed capacity over **93,400 MW** in 2024. Despite having immense potential for renewable resources, such as solar and wind energy, renewables contribute less than 1% to the country's energy mix, highlighting a critical need for diversification.

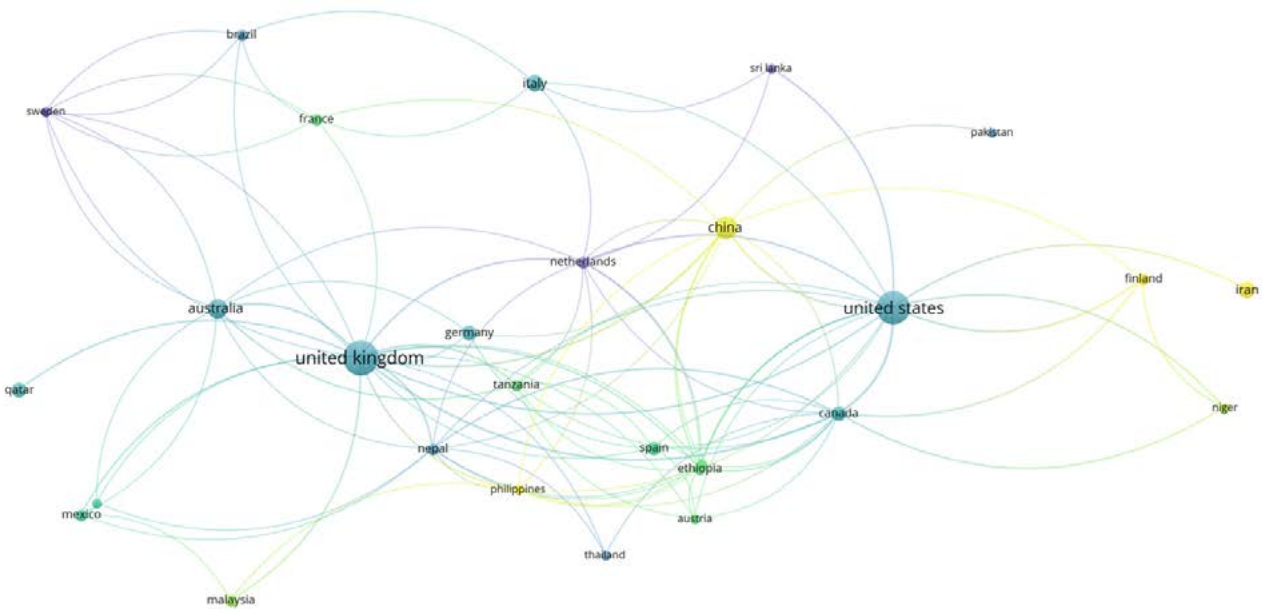
Iran also ranks **highly in energy research publications**, especially in oil, gas, and renewable technologies, reflecting its thriving academic and research ecosystem.







Energy Publications by Country



Leading Nations in Renewable Energy Research

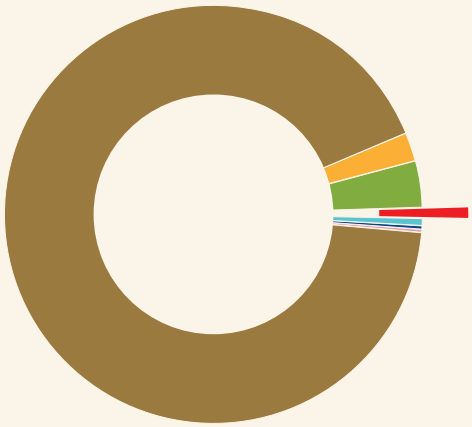


• Energy Mix

Iran energy mix is predominantly reliant on fossil fuels with a modest contribution from renewable sources. In 2024 natural gas was the primary source for electricity supply, accounting for approximately 85% of the country's electricity generation, while oil contributed around 8%. Renewable energy sources, including small-scale hydro, wind, and solar, collectively represent less than 1% of total electricity generation capacity.

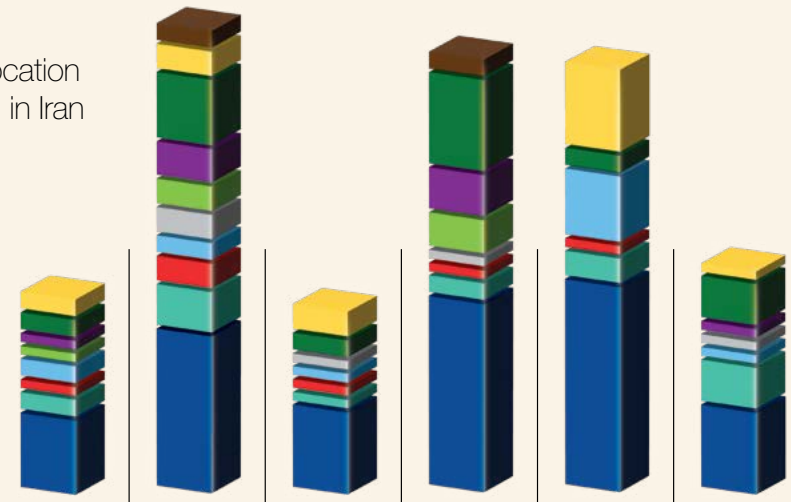
Despite the heavy reliance on fossil fuels, efforts to diversify energy sources are gaining momentum.

Electricity Mix by Source of Energy in Iran



Fossil Fuels (Oil & Natural Gas)	93.3%
Nuclear Energy	2.1%
Hydropower	3.9%
Renewable Energy	0.7%
Solar	
Wind	
Biomass	
Small Hydropower	
Solar	0.60%
Wind	0.29%
Biomass and Others	0.11%

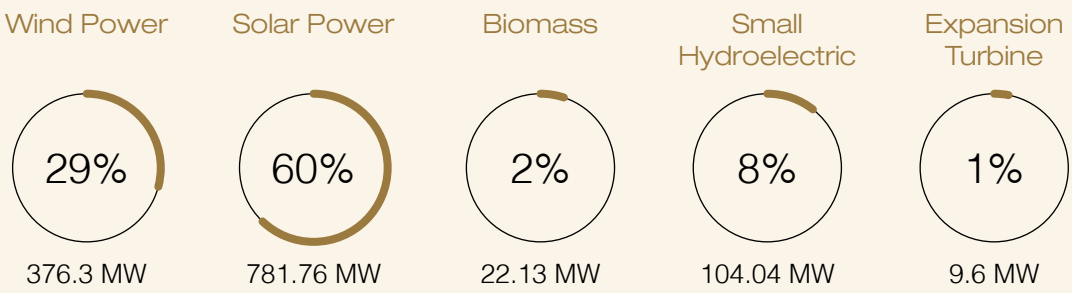
Number and Location of Power Plants in Iran



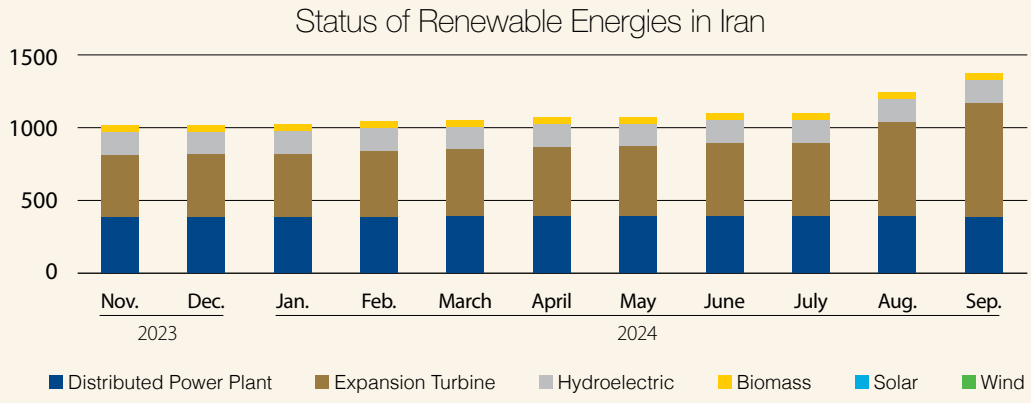
	Heater	Gas	Combined Cycle	Diesel	Hydropower	Other
Center	9	19	10	23	25	10
Northwest Border	2	5	1	2	3	5
Western Border	1	3	1	1	1	0
Southwest Border	2	2	1	0	8	1
Persian Gulf Border	0	3	1	1	0	1
South Border	1	3	0	4	0	0
Southeast Border	1	4	0	5	0	1
Northeast Border	2	8	2	11	2	5
Caspian Border	2	3	3	0	10	1
Island	0	2	0	2	0	0

Aggregation		Dec. 2024
13581	Electricity Generated from Renewable Energy Sources (Million kilowatt-hours)	169
3773	Saving Fossil Fuel Consumption (Equivalent to million cubic meters of natural gas)	46
2988	Water Conservation (Million liters)	37
8410	Non-emission of Greenhouse Gas CO2 (Thousand tons)	94
57.5	Non-emission of Local Pollutants (SPM, NOx, SOX...) (Thousand tons)	0.7

Share of Various Renewable Power Plants in Iran's 1520.52 Megawatts of Renewable Electricity (Dec. 2024)

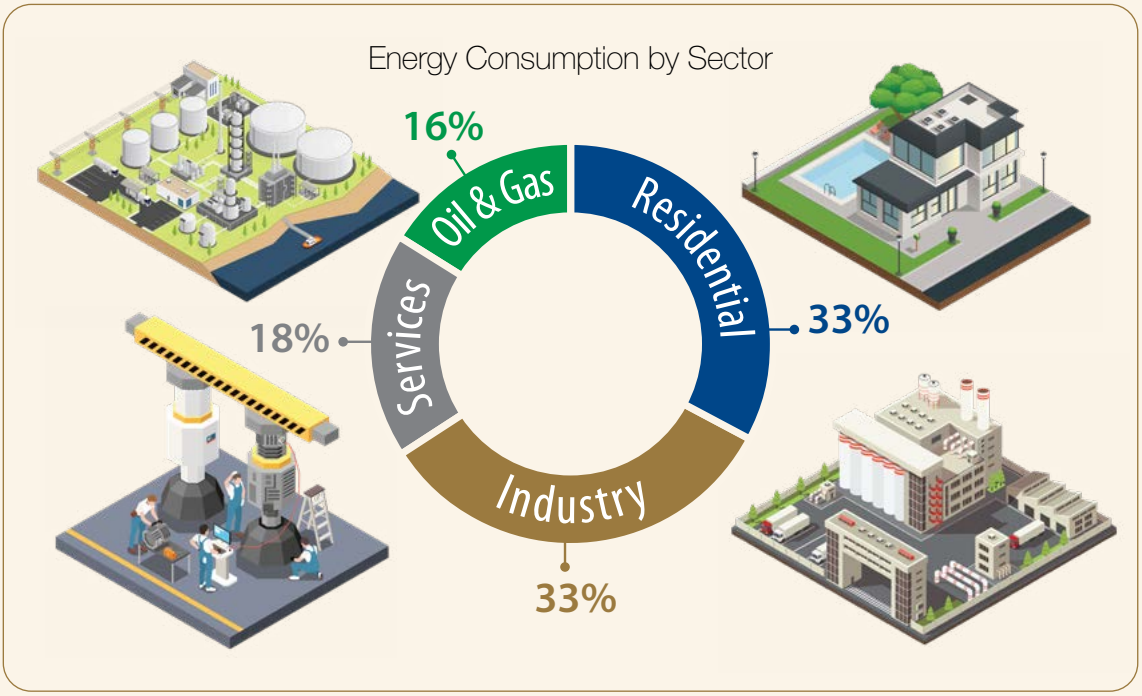


The number of generators limited to a connection capacity 26,440 units
The total capacity of the generators limited to a connection capacity 226.68 MW



• Energy Consumption

In 2023 Iran's total energy consumption reached approximately 276 Mtoe. The country's electricity consumption has been on a steady upward trajectory; increasing by 4% annually since 2010, and stood at 292 TWh in 2023. However, the per capita energy consumption is notably high, reflecting heavy domestic reliance on fossil fuels and significant energy subsidies. The residential sector and industry each account for 33% of electricity consumption, followed by services at 18%, with the remaining 16% consumed by the oil and gas sector.



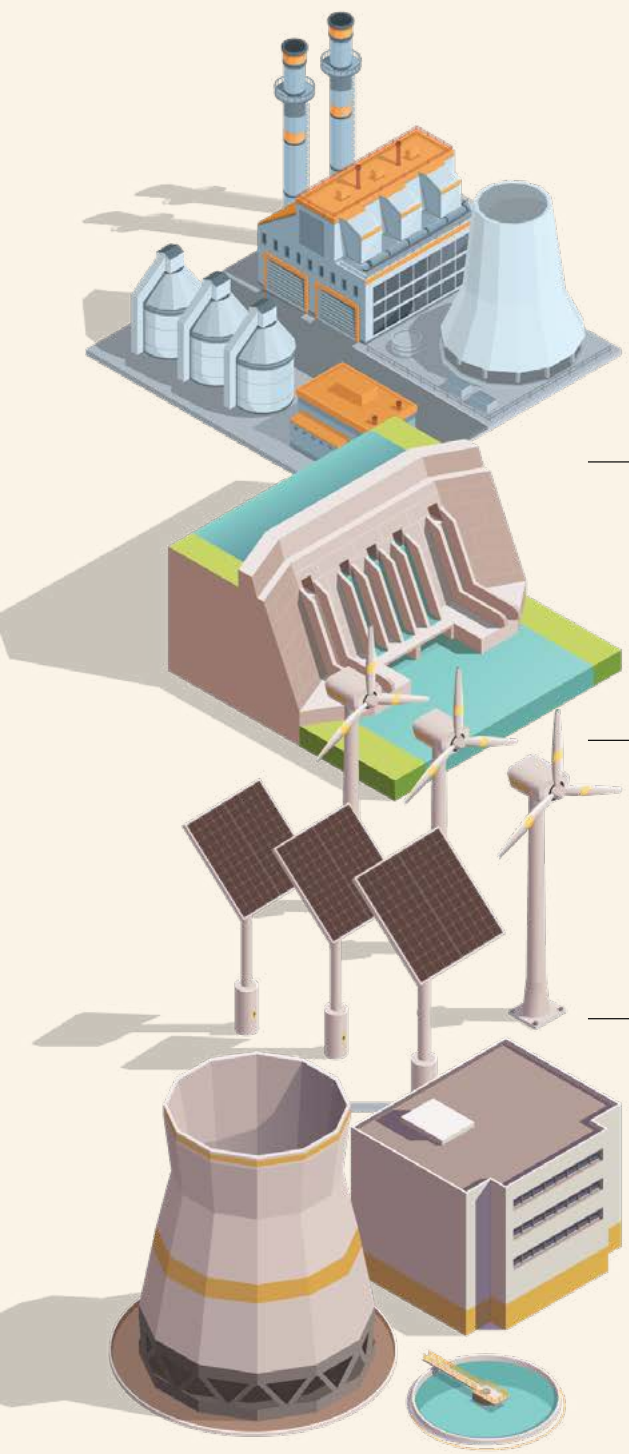
• Energy Infrastructure

Iran's electricity generation is dominated by thermal power plants, primarily fueled by natural gas and oil derivatives. Yet, Iran's power generation infrastructure comprises a variety of energy sources; the country is recently investing in expanding renewable energy capacity. The minimal contribution of renewable energy (0.7%) highlights the nascent stage of its development within the country. Iran's total installed electricity generation capacity is **93.4 GW**, and distribution is as follows:

• Thermal Power Plants (Oil & Gas)	82.1 GW
• Hydropower Plants	3.54 GW
• Renewables	1.43 GW
• Nuclear Power Plant (Including Bushehr)	1.85 GW

Recent upgrades have improved grid efficiency, yet some challenges persist. To address these challenges, the Energy Ministry has initiated programs aimed at improving existing facilities and promoting the development of renewable energies. These initiatives reflect Iran's commitment to enhancing energy security, reducing greenhouse gas emissions, and meeting domestic electricity demand sustainably.

Energy Infrastructure



Iran's total installed electricity generation capacity

93.4 GW

Thermal Power Plants (Oil & Gas)

82.1 GW

Hydropower Plants

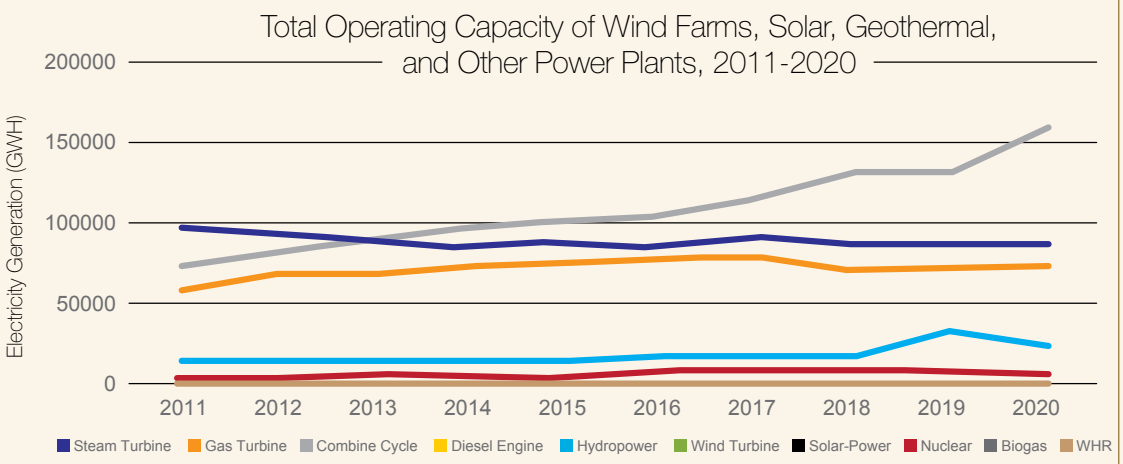
3.54 GW

Renewables

1.43 GW

Nuclear Power Plant

1.85 GW



• Renewable Energy Status and Potential

Iran's geographical landscape presents immense opportunities for renewable energy development, particularly in solar and wind energy. Apart from these two, the northern regions of Iran, such as Sabalan and Damavand, are rich in geothermal resources. Urban and agricultural waste could also support the development of small-scale biomass facilities, thereby increasing the share of renewable electricity.

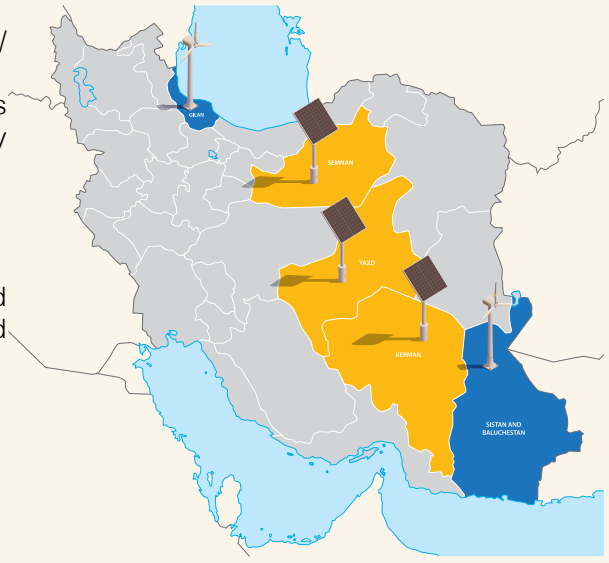
Solar Energy:

- Over 300 sunny days annually;
- Average solar radiation of 4.5–5.5 kWh/m²/day; and
- Yazd, Kerman, and Semnan Provinces (Estimated **60,000 MW** of solar energy potential).

Wind Energy:

- **30,000 MW** of wind energy potential; and
- Manjil and Zabol, Average wind speed exceeding 7 m/s.

Solar and Wind Capacity





Despite legislative efforts to increase the share of renewables in the energy mix, their contribution remains minimal. However, since the end of 2024, the operational renewable energy capacity stands at approximately 1520 MW, contributing less than 1% to the national electricity generation. The government has launched incentive programs to attract private and international investments in renewable energy projects.



Maritime Industries

Maritime transport serves as the backbone of Iran's trade and manufacturing supply chain, with nearly 90% of the country's total export and import cargo passing through its ports. Iran's extensive coastline, spanning 5,891 kilometers, places it among the countries with the longest coastlines globally and shares maritime borders with 10 nations. Iran's Exclusive Economic Zone (EEZ) covers 168,000 square kilometers and allows the country to exert ample influence on regional and global marine transport.

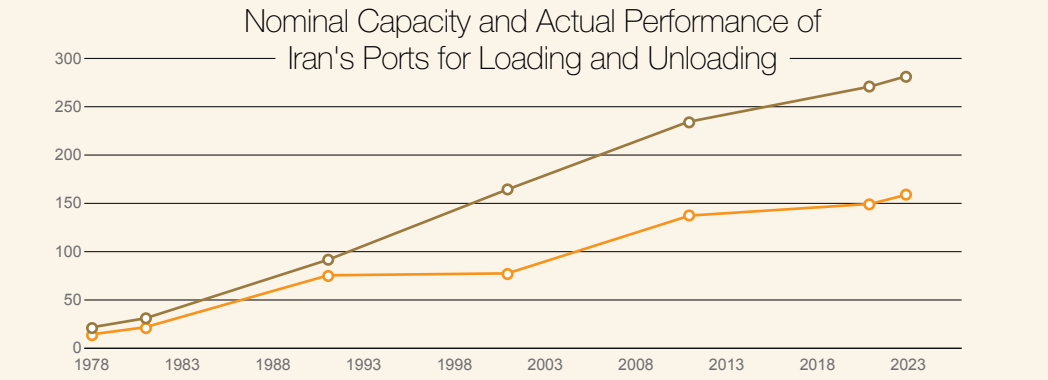


Additionally, Iran has 17 active offshore oil fields and 5 active offshore gas fields which production from these fields accounts for 20 percent of the country's oil output and 70 percent of its gas production, respectively. Iran boasts one of the world's largest tanker fleets, a port capacity of 300 million tons, over four decades of expertise in shipbuilding and repair, and an annual fishing and aquaculture output exceeding 1 million tons.









With over four decades of experience in shipbuilding and repair, Iran's shipyards have a potential capacity of 126,000 Compensated Gross Tonnage (CGT), with 92,000 CGT dedicated to small and medium-sized ships.

Types and Number of Domestically-Built Vessels

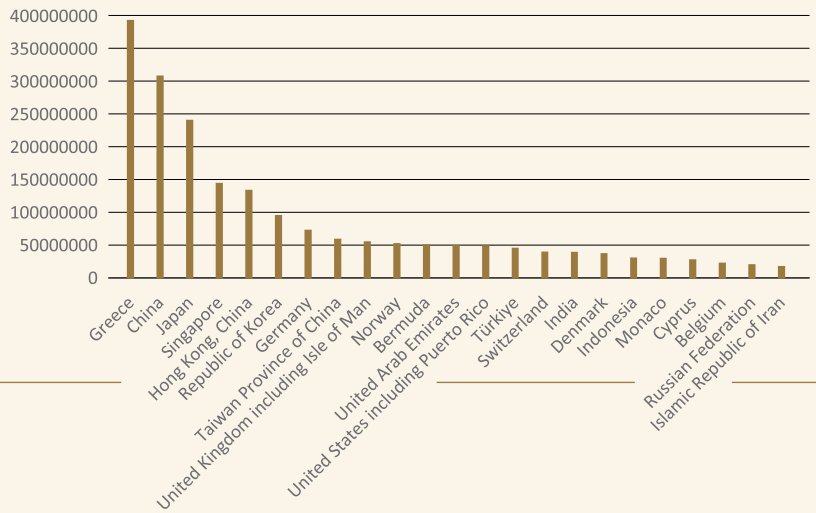
No.	Type	Units
1	Oil tankers	8
2	Container ships	4
3	Landing crafts	20
4	Barges	24
5	Utility ships	8
6	Tugs	18
7	Fishing vessels	18

No.	Type	Units
8	Crew ships	6
9	Passenger ships	10
10	Dredgers	5
11	General cargo vessels	9
12	Small ships	22
13	Special purpose ships	9
Total		**161**

The Islamic Republic of Iran Shipping Lines (IRISL) is a major player in the global shipping industry:

- Ranks as the 18th largest container shipping line;
- Operates 30 container vessels with a combined capacity exceeding 144,000 containers;
- Has a fleet of 137 vessels, including bulk carriers, container ships, multipurpose vessels, and RO-RO ships; and
- Ranks 23rd with a carrying capacity of 19,021,661 dead-weight tons.

World Fleet Ownership by Capacity, 2024
(Dead-weight tones)



Source: UNCTAD's 2024 Review of Maritime Transport



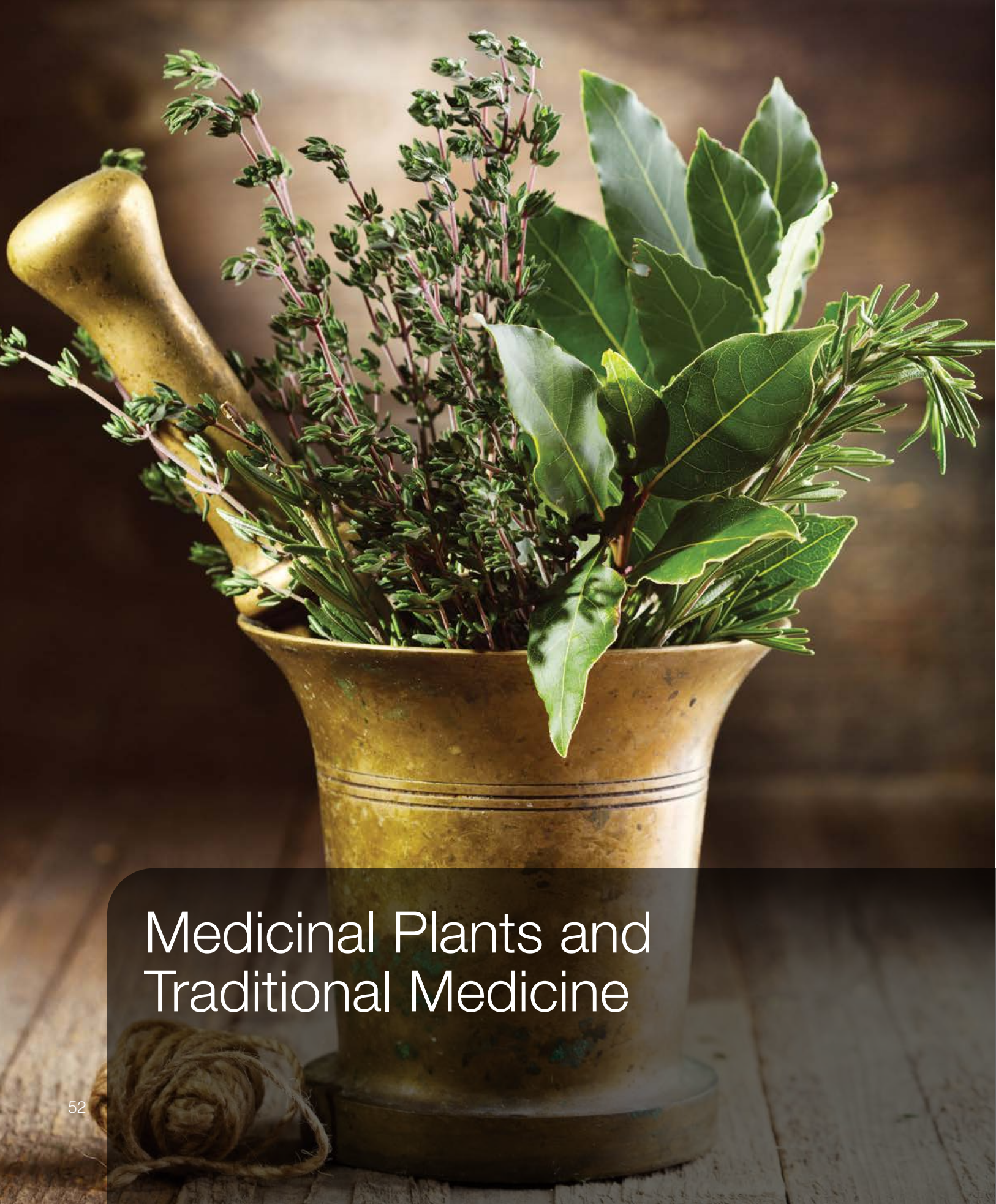




Iran's Maritime Industry Achievements

- **Jamaran;** Iran's first indigenously-built Mowj Class multi-purpose guided missile frigate;
- **Shahid Soleimani;** a multi-role catamaran missile corvette; length 67m, displacement 600 tons;
- **Two container ships** with a capacity of 2,200 containers commissioned by the IRISL Group;
- Two 113,000-ton **Aframax oil tankers** commissioned by Venezuela;
- **Three MPSVs** (multi-purpose support vessels), each with 16,000 horsepower, operating on the semi-submersible platform in the Caspian Sea;
- **The Persian Gulf Explorer measuring** 50 m in length, 10 m in width, and 4 m above sea level in height, travels 3,000 nautical miles, with five advanced labs;
- **National Iranian Marine Laboratory**, the largest facility of its kind in West Asia; featuring a 402-meter-long towing tank capable of conducting resistance, seaworthiness, maneuvering, and propeller tests; and
- **Comprehensive project delivery** from design and engineering to construction, installation, and commissioning of oil platforms, including the semi-submersible Amir Kabir platform with over 15,000 tons in weight capable of drilling up to a depth of 7,000 meters.





Medicinal Plants and Traditional Medicine



Iran is renowned for its diverse climate, encompassing 11 out of the 13 recognized global climates. This climatic variety contributes to the country's rich plant diversity; Iran is home to approximately 8,000 plant species, significantly higher than the diversity found in Europe. Notably, over 2,300 plant species in Iran possess medicinal, aromatic, culinary, and cosmetic properties. Among these, about 1,728 species are endemic to Iran, making them a unique and invaluable resource for the country.



Acknowledging the crucial role of this sector in economic diversification and leveraging Iran's brilliant legacy in traditional medicine, the Iranian government has introduced several supportive measures aligned with the Comprehensive Scientific Map, that prioritizes medicinal plants and traditional medicine. Consequently, there are currently 15 higher education institutions offering education and research services in traditional medicine and traditional pharmacy. Additionally, over 40 healthcare centers across the country provide traditional medicine services for the public.



Initiatives to Promote Medicinal Plants and Traditional Medicine

Preservation of Traditional Knowledge: A comprehensive plan implemented to identify, collect, and compile old medical texts and manuscripts, resulting in the production of over 200 traditional medicine manuscripts.

Gene Bank Expansion: The gene bank strengthened and expanded to protect over 2,000 medicinal species being at high risk of extinction.

Sustainable Cultivation: Over 100 medicinal species domesticated and cultivated to reduce the pressure on natural resources.

Comprehensive Medicinal Plant Atlas: A detailed atlas (scale: 1:250,000) developed to document the properties of plant species across all provinces aiming to enhance conservation and management of plant species.

Botanical Data Documentation: Botanical data and distribution patterns for more than 3,000 plant species from Iran's flora identified and documented to help better conservation and sustainable utilization of natural resources.

Entrepreneurship Development: Over 50 entrepreneurship packages prepared to foster employment and entrepreneurial opportunities within this sector.

Job Standardization: 180 job standards developed across 9 key sectors of the medicinal plant value chain, including research, production, processing, packaging, and marketing.

Iran's Key Achievements in Medicinal Plants and Traditional Medicine

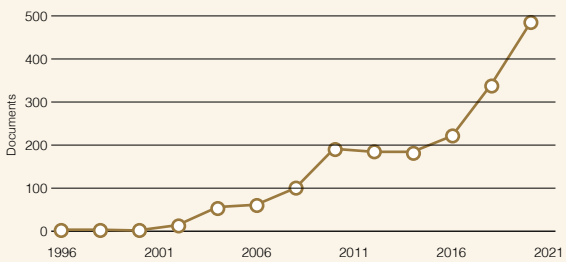
Knowledge-Based Industry: Over 200 knowledge-based companies specializing in medicinal plants, herbal medicines, natural products, and traditional medicine.

Product Development: Over 1,000 knowledge-based products for human and animal medicines (including herbal medicines, supplements, and healthcare products) are produced and commercialized.

Quality Assurance: More than 3,000 licenses issued for the production of human and animal medicines and natural products, all adhering to rigorous international quality control standards.

Research Output: Over 4,500 research articles published in reputable ISI-indexed journals and other scientific databases.

Upward Trend in the Publication of Traditional Herbal Medicine Articles Indexed in Scopus



Academic Engagement: Over 150 university faculty members and more than 1,000 students actively involved in studying and researching traditional medicine and traditional pharmacy.



3 Industrial Exports





Industrial Exports

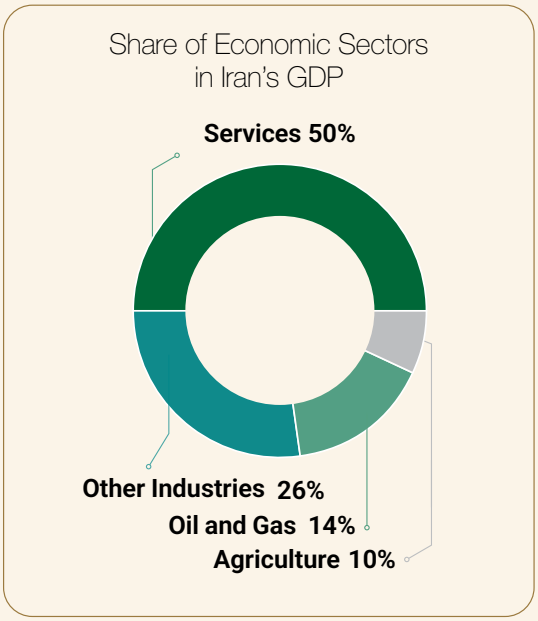


Industrial development holds significant importance in the strategic plans and policies of the Islamic Republic of Iran, as its impact extends over the whole economy and results in higher value-added, more job opportunities, increase in exports, reduction of imports, and transition from a resource-based economy to one focused on industrial and manufacturing sectors. The transition inevitably involves the integration of new and advanced technologies. Currently, the services sector contributes 50% to Iran's gross domestic product (GDP), while the remaining 50% is derived from the agriculture and industrial sectors. This latter half is divided into 10% from the agriculture and food industry, %14 from the oil and gas industry, and 26% from other manufacturing industries.



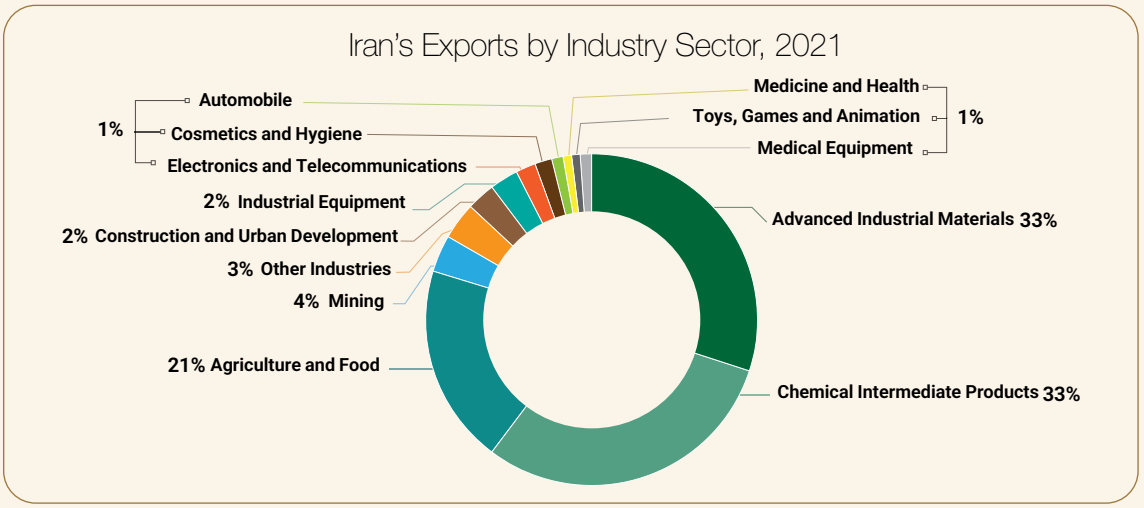






Pharmaceuticals, medical equipment, construction, communications and telecommunications, energy, mining, and chemicals are other major contributors to Iran's GDP. The production of these sectors not only meets a substantial portion of the country's domestic needs, but has also penetrated international markets.

According to the World Customs Organization (WCO), Iran's exports in 2021 totaled US $75 billion, with nearly half of which attributed to non-oil and processing industries. Advanced industrial materials, intermediate chemicals, and agro-food products are other major exports that play a vital role in diversifying Iran's economy and enhancing its global competitiveness.



Iran's top export destinations are China, India, Indonesia, Russia, Uzbekistan, Ghana, Germany, and South Africa, as well as neighboring countries including Iraq, Türkiye, the UAE, Afghanistan, Pakistan, Oman, Turkmenistan, and Azerbaijan.

Iran's Top Export Destinations

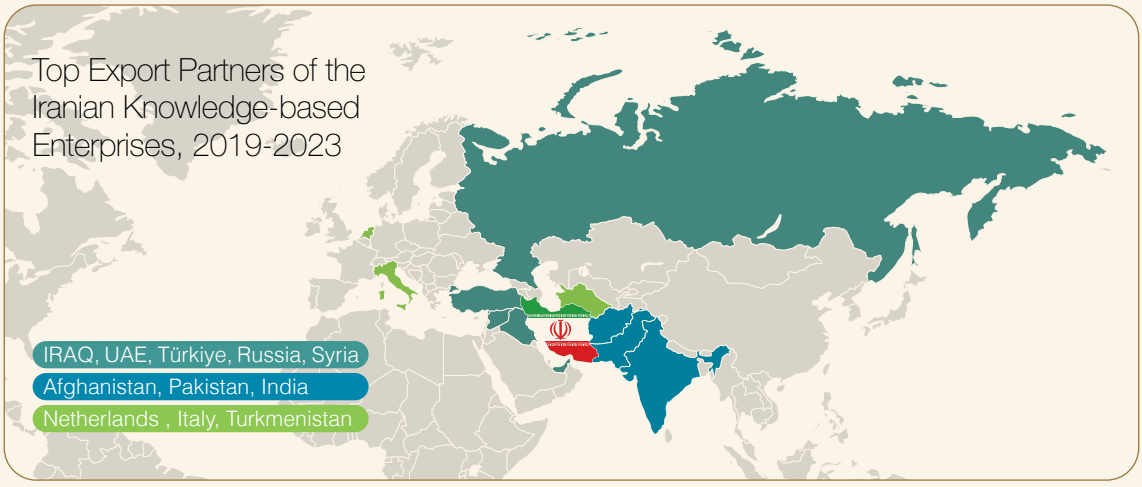


• Knowledge-Based Enterprises (KBEs)

The development and commercialization of new technologies have always been a focal point for Iranian authorities, leading to growing advancement and the flourishing of knowledge-based enterprises (KBEs). By definition, a KBE is a private company that manufactures products or offers services characterized by the following criteria:

- A high or medium to high level of technological sophistication (technology level condition);
- Development based on domestic research and development (R&D) or technology transfer (design condition); and
- Readiness for market introduction (production condition).

In recent years, Iran's knowledge-based firms have experienced ample growth and accomplished to extend their market reach beyond national borders. These firms presently account for about 2% of the country's non-oil exports. This expansion reflects the growing competitiveness and innovation within the sector, highlighting the emergence of Iranian KBEs as notable players in the global marketplace.





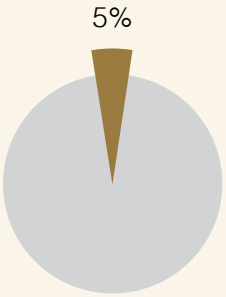
• Agriculture

Agriculture, including animal husbandry, plays a pivotal role in Iran's economy, which together with the food industry, covers 10% of the country's GDP. These industries (agriculture and food) generated more than US $7.5 billion in exports, making them the third major contributors to export following advanced materials and chemical intermediates industries.
Recently, agriculture and animal husbandry have extensively undergone industrialization through the adoption of modern machineries aimed at enhancing productivity, improving product quality and safety, as well as reducing overall costs. Modernization has enabled the sector to supply over 600 products through approximately 400 KBEs. Furthermore, agriculture and livestock KBEs account for around 2% of employment and annual income within the Iranian KBE landscape. In the last five years, these companies have exported products valued at US $55 million.

Top Export Destinations for Iranian Agriculture and Livestock KBEs



Agriculture and Livestock KBEs as a Share of Total KBEs





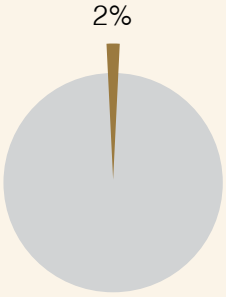
• Food

As mentioned before, the food industry and agriculture in combination cover 10% of GDP and generate more than US $7.5 billion in exports, making them the third largest contributors to exports.
In recent years, Iranian enterprises have made significant strides in developing the technical knowledge of their products by incorporating cutting-edge technologies, such as human enzymes, starters, and human probiotics, along with modern food processing, packaging, and storage equipment and machines. The government's strong emphasis on the improvement of value-added in the food industry, coupled with increasing public and private investments, has raised expectations for considerable growth in both the production and quality of products and export value. Over the past decade, Iranian food KBEs which amount to 300 companies with over 300 products, have successfully doubled their production capacity and workforce.
In the last five years, the export value of food KBEs has reached a total of US $47 million targeting a variety of destinations, including neighboring countries like Iraq and the UAE, as well as regions in Africa and South America, such as Somalia and Bolivia.

Top Export Destinations for Iranian Food KBEs



Food KBEs as a Share of Total KBEs



• Energy

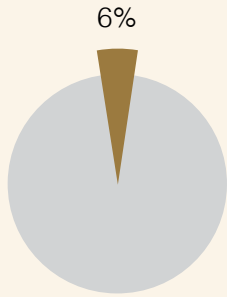
The energy sector encompasses the production, distribution, and utilization of various forms of energy, including fuels, electricity, water, and other renewables, all of which are essential drivers of the industrial and social growth in the country.

At present, energy industries account for more than 8% of Iran's GDP. The enormous size of the industry and variety of the related industries, along with heavy public investments, have facilitated the development of knowledge-based enterprises (KBEs). There are now over 480 energy KBEs with more than 800 products, accounting for more than 6% of Iran's knowledge-based production and employment. These companies have achieved exports totaling US $390 million in the last five years.

Top Export Destinations for Iranian Energy KBEs



Iranian Energy KBEs as a Share of Total KBEs





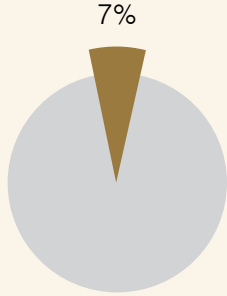
• Oil, Gas & Petrochemicals

The oil, gas, and petrochemicals industries form the backbone of the Iranian economy and the latter has exhibited the highest value-added creation over the last few years. These industries presently account for a total of 14% of Iran's GDP and contribute about half of the country's exports, totaling US $40 billion.
The sector hosts more than 600 Iranian knowledge-based enterprises that produce and supply over 1100 products. These companies account for more than 12% of Iran's knowledge-based production and employment and their export value has reached US $390 million over the past five years.

Top Export Destinations for Iranian Oil, Gas, and Petrochemicals KBEs



Iranian Oil, Gas, and Petrochemicals KBEs as a Share of Total KBEs







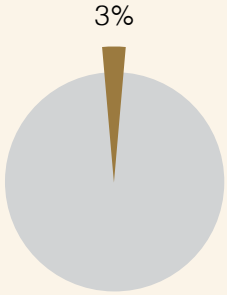
• Electricity

As already mentioned, the share of energy sector including electricity industry in GDP is around 8.2%. Electricity industry holds a strategic importance in the economy due to its widespread applications across all sectors.
Iran's electricity market, including power and control engineering, is large and dynamic, consuming most of the domestic production. The export value of the electricity industry is hence relatively low; with US $260 million worth of export in the last five years, it accounts for only 0.5% of Iran's total exports.
The vast consumer market has also provided a booming ecosystem and plenty of opportunities for the development of knowledge-based activities. Today, there are over 950 electricity KBEs with more than 1600 products.
These companies have a good share of %12 of Iran's knowledge-based production and employment and have exported US $210 million over the past five years.

Top Export Destinations for Iranian Electricity KBEs



Iranian Electricity KBEs as a Share of Total KBEs





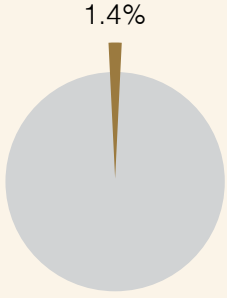
• Mining

With rich mineral resources accounting for 7% of the world's total mineral reserves, Iran ranks among the top 15 countries in terms of mineral wealth. Iran is endowed with 68 types of minerals, including iron ore, copper, coal, gold, and decorative stones, boasting 57 billion tons of proven reserves and 6,000 active mines. According to data from the Central Bank, extraction of minerals has a share of 1.3% in Iran's GDP, which increases to 4% when adding the share of related industries. With about US $1,250 million worth of exports, the mining industry also accounts for 2% of Iran's total exports.
Iranian policymakers advocate reducing the export of raw minerals in favor of expanding value-added export, which requires a robust mineral processing industry and related downstream sectors. In response, 110 mineral KBEs have emerged that produce over 200 products for the domestic and international markets; they have exported US $6.5 million knowledge-based products over the past five years.
These companies account for around 2% of Iran's knowledge-based production and employment, showcasing their growing significance in the national economy.

Top Export Destinations for Iranian Mining KBEs



Iranian Mining KBEs as a Share of Total KBEs



• Construction

The dynamic Iranian construction industry owes its rapid growth to a strong demand for housing, infrastructure development, and overall growth of the economy. According to statistics from the Central Bank, the housing sector alone accounts for about 4.6% of GDP. The construction industry is also a major exporter; in recent years, the value of exports from this sector averaged US $850 million, representing 12% of Iran's exports.

The construction sector is rich with opportunities for knowledge-based activities, as almost all industries are in need of products and services from the building industry. Favorable conditions and supportive government policies have paved the way for the growth of over 550 knowledge-based enterprises that provide around 840 products. These enterprises are responsible for 7% of Iran's knowledge-based production and employment and have exported US $615 million over the five past years.

Top Export Destinations for Iranian Construction KBEs



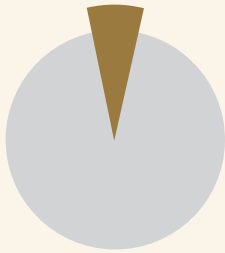
1. UAE 2. Iraq 3. Italy 4. Afghanistan 5. Türkiye



6. Turkmenistan 7. India 8. Armenia 9. Azerbaijan 10. Syria

Iranian Construction KBEs as a Share of Total KBEs

7.2%





• Metals and Ceramics

Metals and ceramics are materials widely used in the production processes of a range of industries such as electricity, steel, construction, oil and gas, etc. Iran has a relative advantage in the metals and ceramics industries, as its mature mining and other related parent industries provide the required raw materials at low costs. These industries, hence, have a special position in Iran's exports; in recent years, they have secured about US $11,500 million in exports, accounting for 15% of total exports.

The metals and ceramics industries are of multiple opportunities for the growth of knowledge-based activities, benefiting from the country's huge natural resources and the supportive government policies. Currently, there are around 400 knowledge-based enterprises with more than 600 products that comprise about 6% of Iran's knowledge-based production and employment. These companies have also contributed a total of US $830 million to Iran's knowledge-based exports over the past five years.

Top Export Destinations for Iranian Metals and Ceramics KBEs



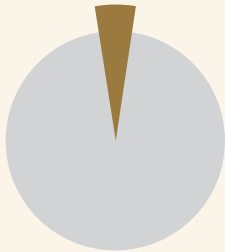
1. Türkiye 2. UAE 3. Italy 4. Iraq 5. Netherlands



6. Thailand 7. Nigeria 8. Oman 9. Belgium 10. Afghanistan

Iranian Metals and Ceramics KBEs as a Share of Total KBEs

5.2%







• Chemical Intermediates

Thanks to Iran's well-established oil industry and the central policy longing for higher value-added products, the manufacturing of chemical intermediates, including polymers and polymer composites, plastics and synthetic rubbers, paints, and resins has a comparative advantage and enjoys an incremental growth.

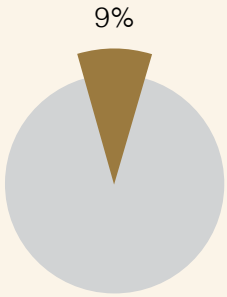
Recently, this industry, with around US $11,500 million in exports, has secured a 15% share of the country's annual export.

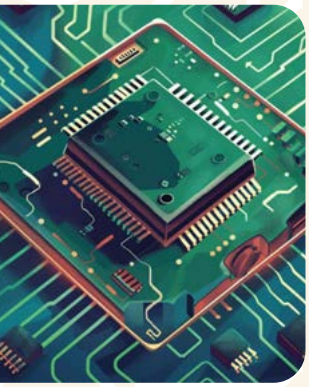
The supportive domestic ecosystem has led to the emergence of more than 650 knowledge-based enterprises (KBEs) that produce over 1,100 products. These KBEs account for around 10% of Iran's knowledge-based production and employment, contributing a total of US $845 million to exports over the past five years.

Top Export Destinations for Iranian Chemical Intermediates KBEs



Iranian Chemical Intermediates KBEs as a Share of Total KBEs





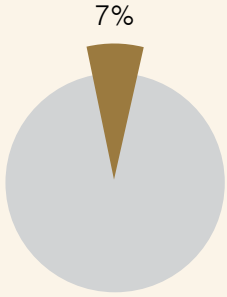
• Electronics

Manufacturing electronic equipment and components is of paramount importance due to its wide range of applications across various industries. Over the past decade, Iran's electronics manufacturing has witnessed great growth, driven by the development of infrastructure and government support. Iranian electronics knowledge-based enterprises (KBEs) with a share of 7% in total KBEs, have succeeded in exporting approximately US $210 million over the past five years. Their primary export destinations include Iraq, China, Uganda, Turkmenistan, Türkiye, The UAE, Kazakhstan, Afghanistan, Armenia, and Russia.

Top Export Destinations for Iranian Electronics KBEs



Iranian Electronics KBEs as a Share of Total KBEs



• Machinery

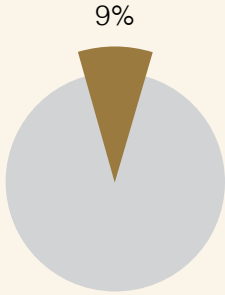
The machinery industry serves as the driving force for various industries and plays a significant role in revitalizing, developing, and promoting the economy and technology of the country. Development of the local machinery industry is thus a pivotal strategy that promotes the state's policy of self-sufficiency. This industry, however, is not yet large enough to meet domestic needs, and with an estimated annual export volume of around US $50 million, it only has a share of 1% of Iran's exports.

But the vast domestic market, along with supports from the government, provides an environment with multiple opportunities for the development of the knowledge-based enterprises. With a share of 20% in knowledge-based production and employment, 600 machinery KBEs are now operating in the market that produce over 1,100 products. These companies have exported a total of US $100 million over the past five years. The leading markets for Iran KBE machinery exports are the UAE, Pakistan, Iraq, Afghanistan, Türkiye, India, the Netherlands, Azerbaijan, Armenia, and Uzbekistan.

Top Export Destinations for Iranian Machinery KBEs



Iranian Machinery KBEs as a Share of Total KBEs





• Laboratory Equipment

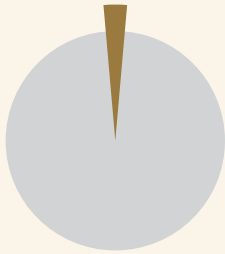
Increasing research and development (R&D) activities in all fields of science and technology heightens the demand for quality labware which is essential for ensuring accurate and reliable results in scientific research, testing, and analysis. R&D activities are gaining a solid foothold in Iran's industry as the country recognizes the inevitable role of innovative technology and science in keeping pace with the developed economies. This urgent need for R&D has given rise to demands from the health sector and industry for quality laboratory equipment. Market players thus are expanding their presence, yet estimating the share of this industry in GDP is challenging due to its fragmented structure that is interwoven with so many other industries. Nevertheless, machinery, including laboratory equipment, is estimated to contribute US $800 million to Iran's exports, which accounts for 1% of total annual export.

It is also estimated that more than 250 Iranian labware knowledge-based enterprises supply over 750 labware products to domestic and international markets. They have at least a share of 1% of Iran's knowledge-based production and employment and their total exports valued at US $2 million over the last five years.

Top Export Destinations for Iranian Labware KBEs



Iranian Labware KBEs as a Share of Total KBE







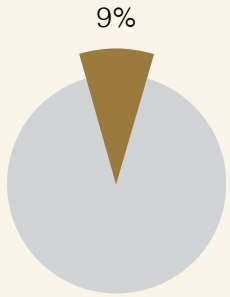
• Pharmaceutical and Healthcare

The pharmaceutical and healthcare industry in Iran, with 80 years of experience, is of a special position in the national economy. This sector plays a crucial role in creating value-added products and jobs while having a significant share of non-oil exports in a highly competitive pharmaceutical market. The strong presence of domestic pharma companies in the fight against the coronavirus pandemic and their role in supporting the implementation of the Health Transformation Plan (HTP) indicate that the Iranian pharma ecosystem is well-developed and mature. In the last few years, Iranian pharma companies have annually exported an average of US $250 million.
Pharma ecosystem of Iran is also home to over 600 pharmaceutical KBEs which produce more than 1,500 products. These companies account for more than 10% of Iran's knowledge-based production and employment, collectively exporting knowledge-based products valued at US $815 million over the past five years.

Top Export Destinations for Iranian Pharmaceutical KBEs



Iranian Pharmaceutical KBEs as a Share of Total KBEs





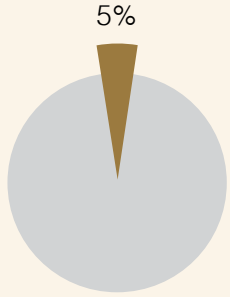
• Medical Equipment and Devices

Iran's medical equipment and devices industry is booming, driven by government funding and incentives. The recent reform of the health system known as the Health Transformation Plan (HTP), implemented in May 2014, tends to facilitate access to universal health coverage and financial protection for households. This initiative serves as a catalyst for the medical industry and market in Iran. Hence, it is expected that the supportive policies yield an enhancement of the export share of the medical equipment and devices industry. The COVID-19 outbreak presented an opportunity for the medical companies to demonstrate their capabilities, as they proved critical in helping tackle the situation by supplying a good share of the country's healthcare demands during this crisis.
Achieving around US $20 million in annual exports in 2021, the nascent medical industry of Iran still has great potential for growth. This industry has more than 450 knowledge-based enterprises that produce over 750 products, contributing 4% to Iran's knowledge-based production and employment. In the last five years, knowledge-based exports of these enterprises have secured an income of US $130 million.

Top Export Destinations for Iranian Medical Equipment and Devices KBEs

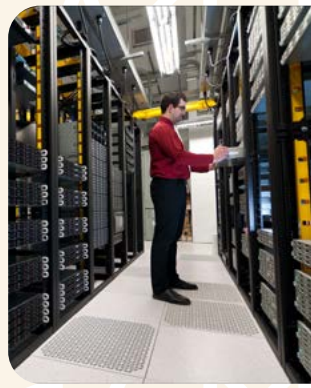


Iranian Medical Equipment and Devices KBEs as a Share of Total KBEs

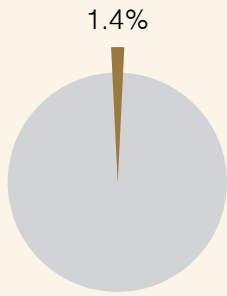


• Information Technology & Software

Information technology (IT) and software are two revolutionary technologies that comprise a vast field of expertise and subfields of specializations, including artificial intelligence (AI), the Internet of Things (IoT), data analysis, application development, etc. In recent years, the Iranian government has placed increased emphasis on these industries, introducing various support initiatives that have fostered a conducive ecosystem for flourishing of domestic IT and software companies. However, calculating the precise contribution of these companies to GDP and exports is quite difficult due to their multi-faceted nature and wide range of applications and, of course, lack of official statistics. Nonetheless, field observations reveal that Iranian companies are targeting European, central Asian, and North American countries for export and international trade in IT and software.
Currently, there are over 1,700 knowledge-based enterprises operating in these industries that produce more than 2,400 products. It is estimated that they account for at least 20% of Iran's knowledge-based production and employment.



Iranian IT and Software KBEs as a Share of Total KBEs



• Telecommunications

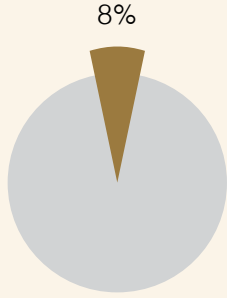
Iran enjoys a well-developed telecommunications infrastructure and market that offer significant opportunities for growth in the telecoms sector. The share of telecommunications and electronics in total export is around 1%, according to 2021 statistics. With one of the largest populations in the Middle East and a high proportion of youthful and tech-savvy users, Iran's telecoms industry benefits considerable demand for both fixed and mobile telecoms products and services. Though international sanctions have hindered the sector's development, the Iranian knowledge-based enterprises (KBEs) have managed to domestically develop a variety of products and services, thanks to government's supportive policies. Currently, telecommunications KBEs with a share of 8% of total KBEs have achieved US $210 million in exports over the past five years. The top export destinations for Iranian telecommunications products and services are Iraq, China, Uganda, Turkmenistan, Türkiye, the UAE, Kazakhstan, Afghanistan, Armenia, and Russia.



Top Export Destinations for Iranian Telecommunications KBEs



Iranian Telecommunications KBEs as a Share of Total KBEs





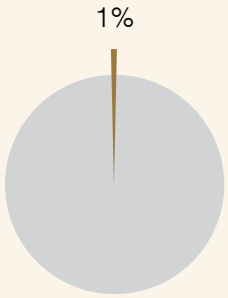
• Gaming & Animation

Games and animated films are multi-billion dollar industries with tremendous annual turnover. Apart from their significant economic impact, they exert cultural influences, both positive and negative, that have drawn the attention of the policymakers, spotlighting them as critical industries requiring immediate and appropriate responses.

A well-developed regulatory system that enables effective oversight of the development and trade of the products is therefore of utmost significance for the Iranian companies striving for development of the domestic gaming and animation industries.

The market is promising and has a bigger capacity yet to be unlocked. There are 60 Iranian knowledge-based enterprises engaged in the development of games and animated films, producing a total of 90 products. These high-potential firms are major actors in the domestic market and have successfully expanded into international markets, including countries in Central Asia, the Persian Gulf, and Africa.

Iranian Gaming and Animation KBEs as a Share of Total KBEs



IRI Presidential Center for Progress and Development

Since its establishment in 1984, IRI Presidential Center for Progress and Development (CPDI) has always tried to identify bottlenecks and neglected affairs in the progress of Iran, especially in the field of high technology, and to contribute to the advancement of these affairs in the country. This role is being played by informing and creating a discourse on the country's key opportunities and threats for progress, and participating in operational actions in order to actively engage with them (such as prototyping and modeling, institution-building, policy-making, and mechanism design).

CPDI believes that the country will not achieve the desired progress, unless a consensus takes place between various stakeholders in the country, and the opportunities for international cooperation are properly exploited. For this reason, CPDI- as a consultant and facilitator- has a close relationship with all stakeholders, including executive agencies, universities and research institutes, private companies, specialists and scientists. This center also tries to identify international cooperation opportunities and establish constructive and continuous interactions with different countries and institutions.

Achieving these goals requires an agile and flexible organizational structure. Accordingly, CPDI, with the help of young elites in an ad-hoc structure, organizes emerging groups focused on various fields of progress to take special missions on the path to progress of the country. At present, the main focus of these groups is on the following axes:

- Identifying and monitoring emerging issues with great potential to create transformation, and trying to involve the country in such areas in a timely manner;
- Identifying opportunities and threats facing the country in resilient economy and knowledge-based economy, and trying to find effective ways of dealing with them; and
- Monitoring and identifying management mechanisms and soft technologies, and trying to benchmark the successful ones and localize them.

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