

WHY INVEST IN TURKISH PHARMACEUTICAL INDUSTRY?



REPUBLIC OF TURKEY
PRIME MINISTRY
INVESTMENT
SUPPORT & PROMOTION
AGENCY

- **Executive Summary**
- Turkish Pharmaceutical Industry Outlook
- Growth Drivers in Turkey
- Opportunities in Turkish Pharmaceutical Industry
- Success Stories





Robust growth in the industry

- Turkish pharmaceutical market grew by 16.5% in 2016 and sales reached 20.7 billion TL , with 7.6 % CAGR during 2011-2016.
- The real growth in the industry has been 5.5% CAGR in the past six years, reaching 2.23 billion of boxes by the end of 2016.

Favorable Growth Drivers

- Strong macroeconomic growth with increasing income per capita
- Increasing life expectancy and healthcare spending
- Skilled labor force with cost advantage in manufacturing and R&D
- Strong government support through incentives for manufacturing and R&D
- Government policies to increase access to healthcare services; heavy investment into healthcare infrastructure (Building dozens of city hospitals across Turkey)

Opportunities

- Turkey wants to reduce import dependency and increase local production
- Turkey is emerging as an ideal location for clinical trials with potential treatment-naive patients and a favorable regulatory environment aligned with international standards.
- Turkey has a benign R&D ecosystem with its developed education institutions and incentives
- Biopharmaceuticals have been rapidly increasing with double-digit growth rates
- Strategic location with increasing export opportunities

Strong international presence

- Global pharma giants have been present in Turkey, engaging in both manufacturing and R&D
- A well-developed direct and contract manufacturing by multinationals

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Top 20 Pharmaceutical Markets

(Index: US Market=100, based on constant US\$)

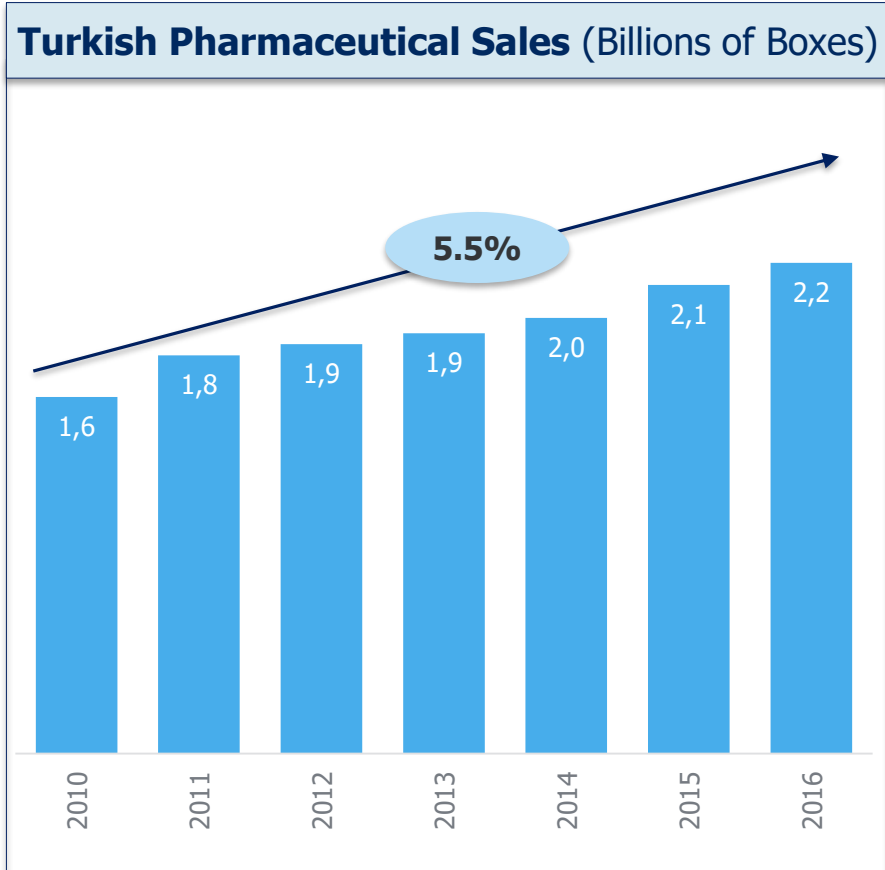
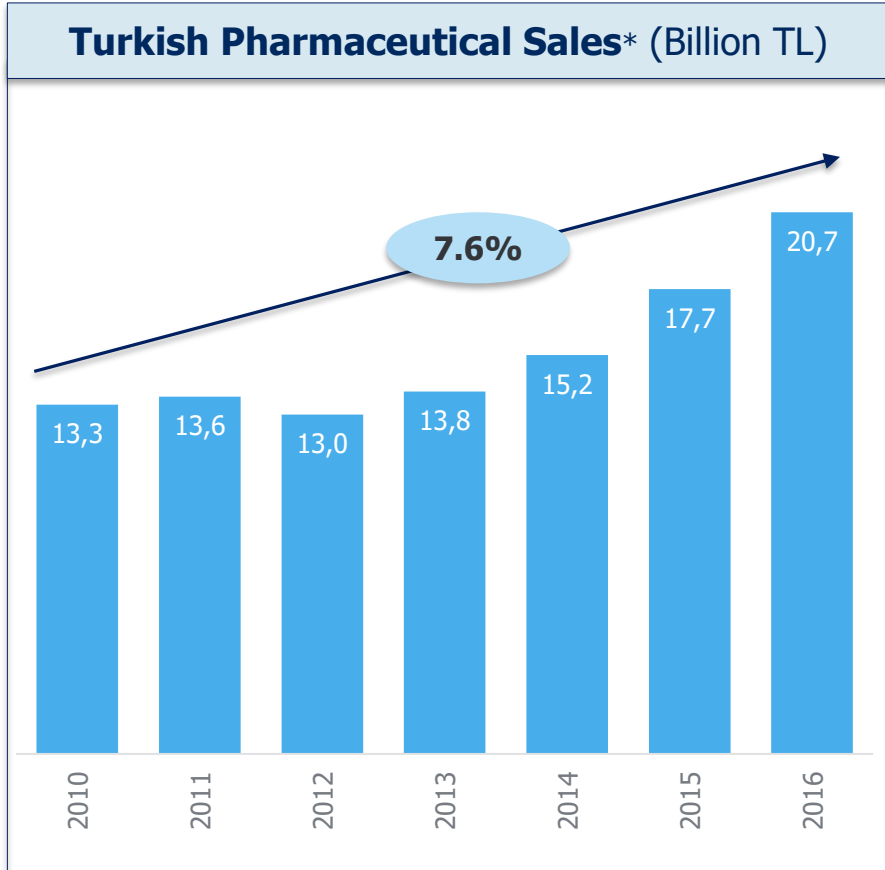
Rank	2011	Index
1	USA	100
2	Japan	24
3	China	20
4	Germany	11
5	France	10
6	Italy	7
7	UK	6
8	Spain	6
9	Canada	5
10	Brazil	5
11	South Korea	3
12	Australia	3
13	India	3
14	Mexico	2
15	Russia	2
16	Poland	2
17	Argentina	2
18	Netherlands	2
19	Belgium	2
20	Switzerland	2

Rank	2016	Index
1	USA	100
2	China	26
3	Japan	19
4	Germany	10
5	France	7
6	Italy	6
7	UK	6
8	Brazil	6
9	Spain	5
10	Canada	4
11	India	4
12	Australia	3
13	South Korea	3
14	Russia	3
15	Mexico	2
16	Turkey	2
17	Poland	1
18	Saudi Arabia	1
19	Argentina	1
20	Switzerland	1

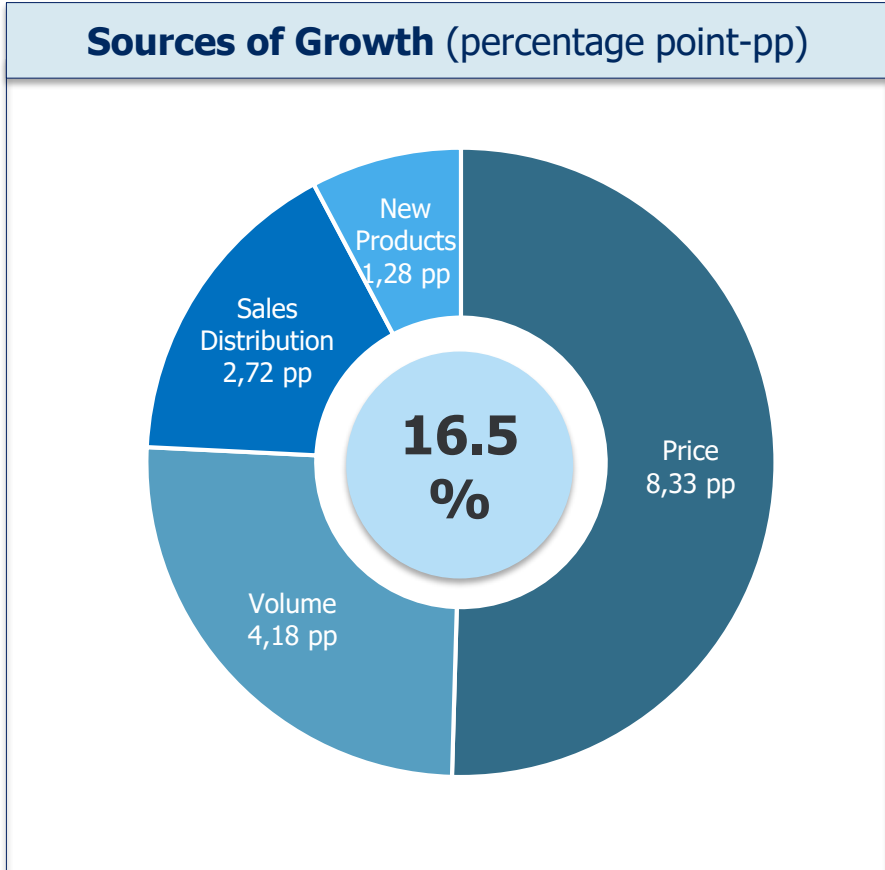
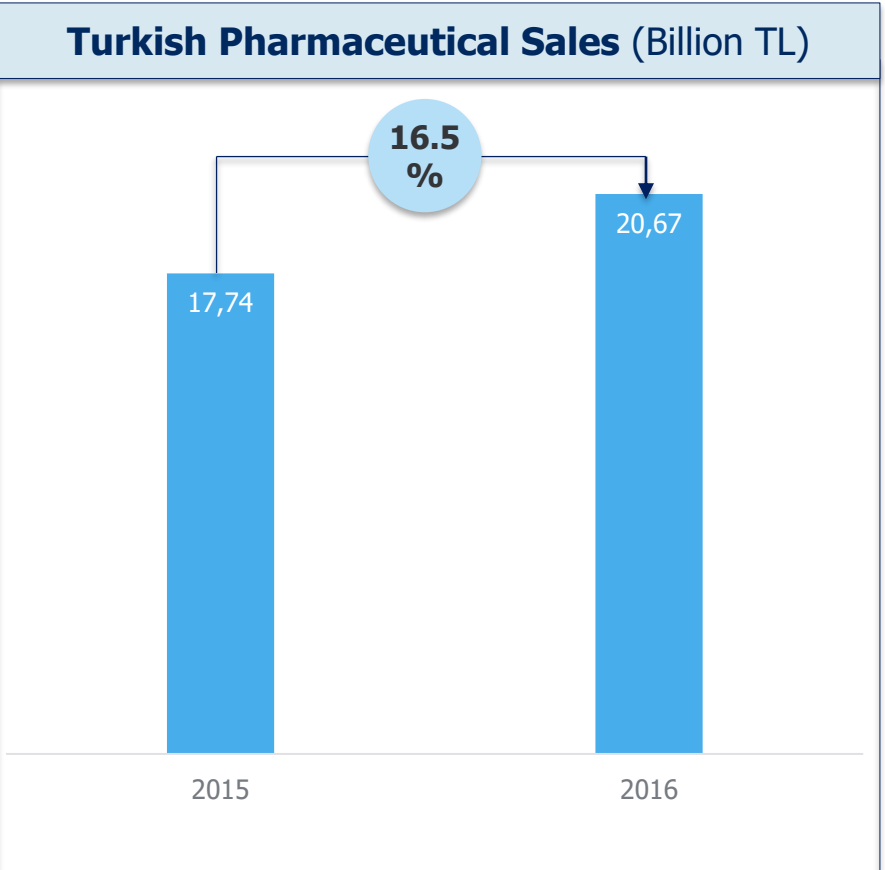
Rank	2021	Index
1	USA	100
2	Japan	25
3	China	14
4	Germany	8
5	Brazil	6
6	UK	6
7	Italy	5
8	France	5
9	India	5
10	Spain	4
11	Canada	4
12	South Korea	2
13	Russia	2
14	Turkey	2
15	Australia	2
16	Mexico	2
17	Saudi Arabia	1
18	Poland	1
19	Argentina	1
20	Egypt	1



CAGR



Source: Pharmaceutical Manufacturers Association of Turkey (IEIS) *ex-factory prices

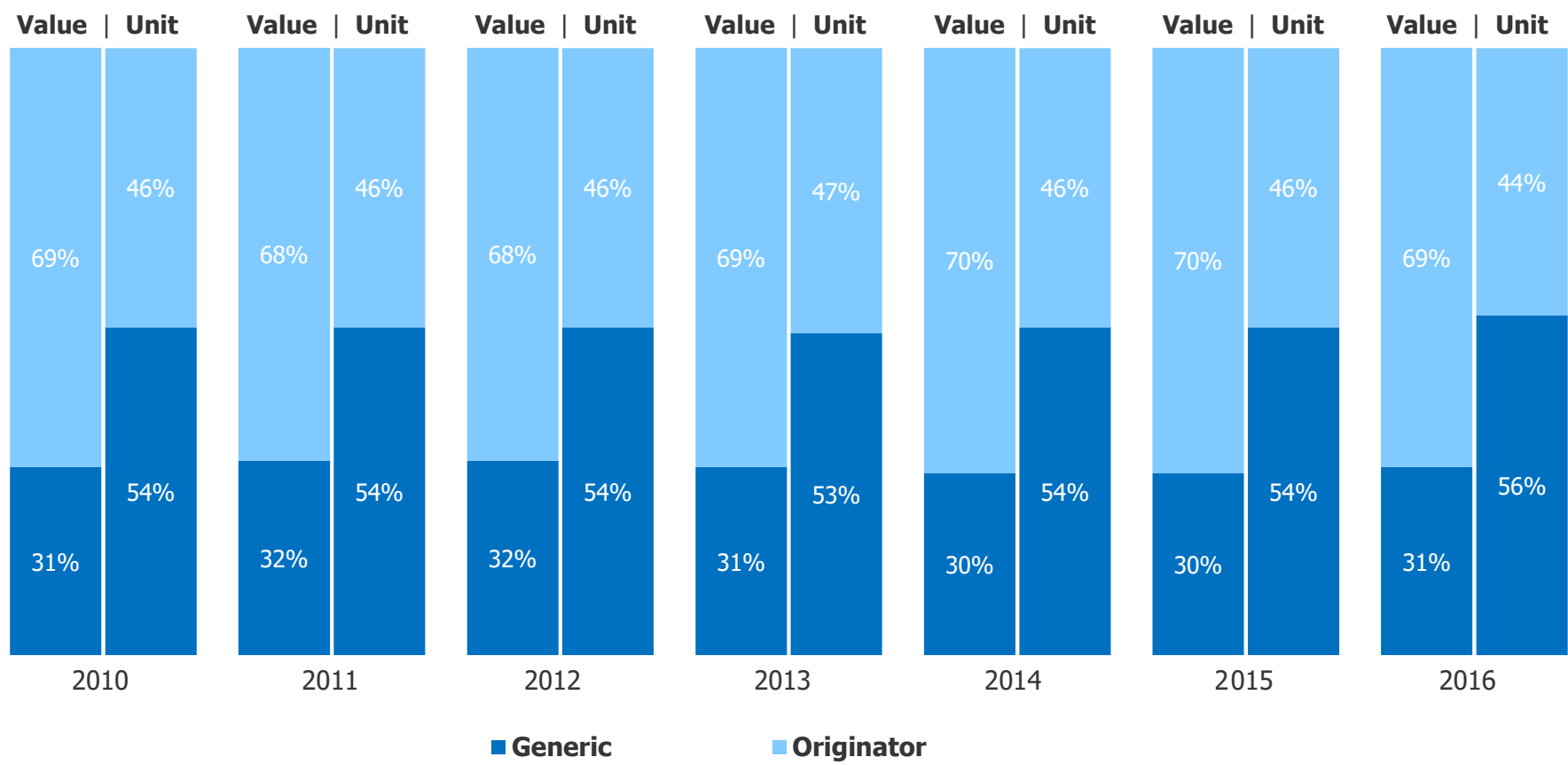


Turkish Pharma Market

While originator drugs dominate pharma sales in terms of value with 70%, their share in unit sales is 44%..



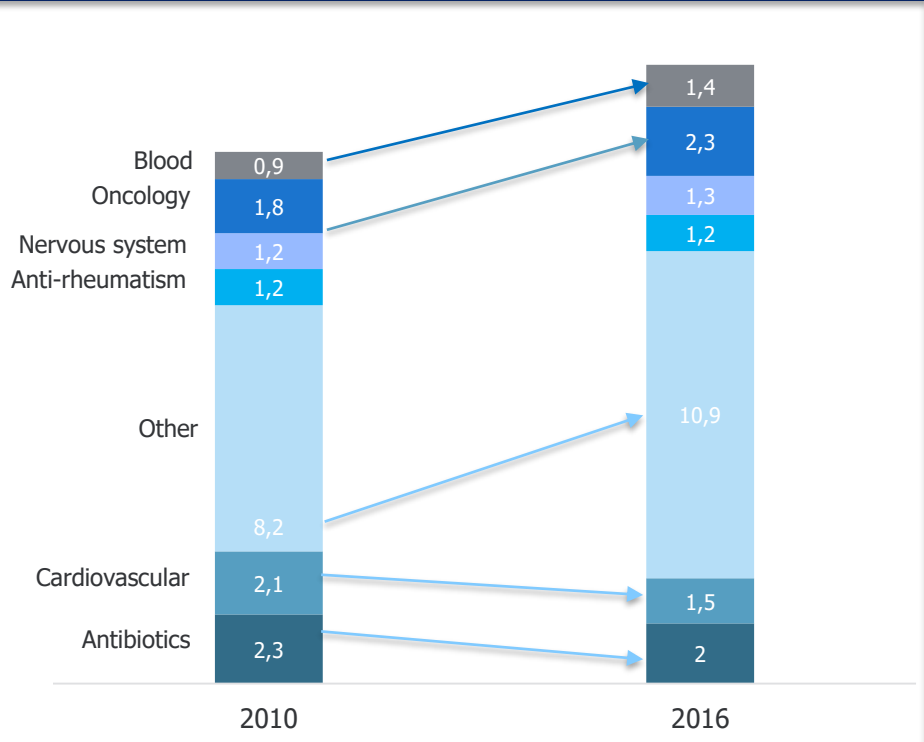
Turkish Pharmaceutical Market



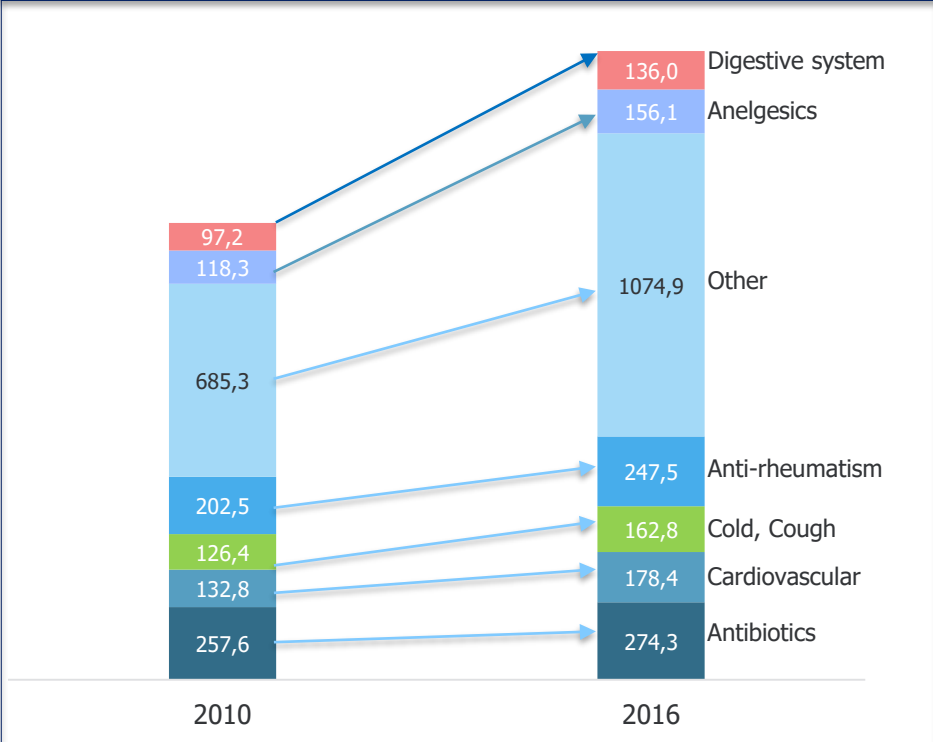
Source: IMS, IEIS



Therapeutic Groups (Billion TL)



Therapeutic Groups (Million of Boxes)

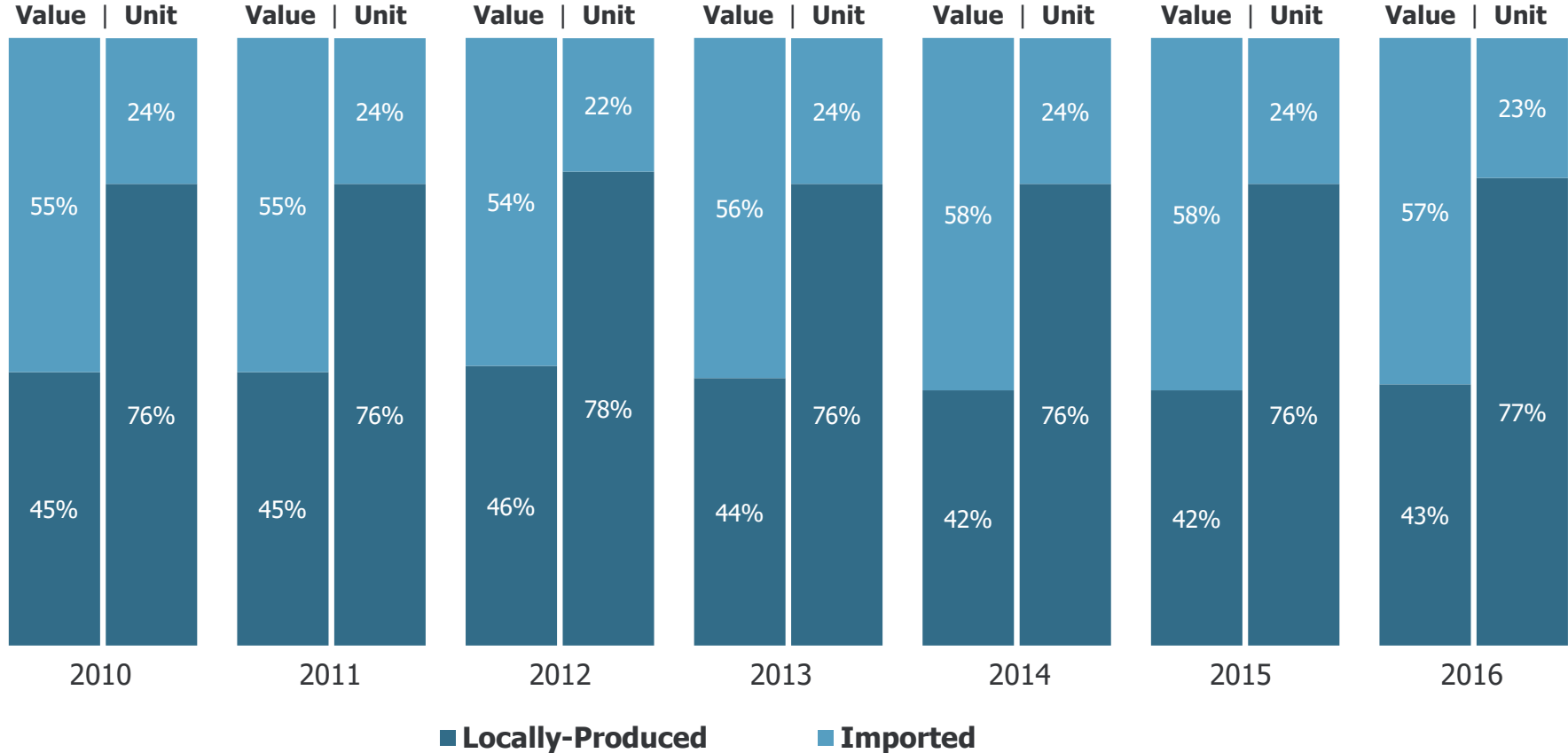


Turkish Pharma Market

While locally-produced drugs constitutes 43% of the sales value, they have a dominant position in unit sales with 77%



Turkish Pharmaceutical Market

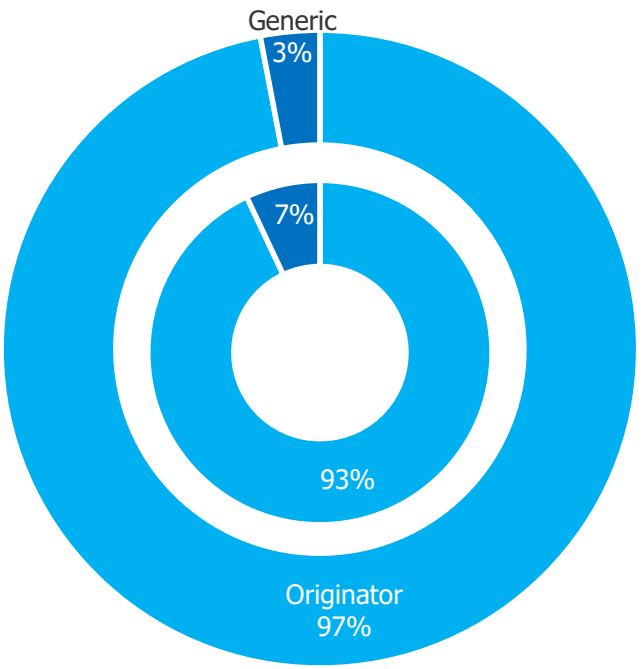


Source: IMS, IEIS

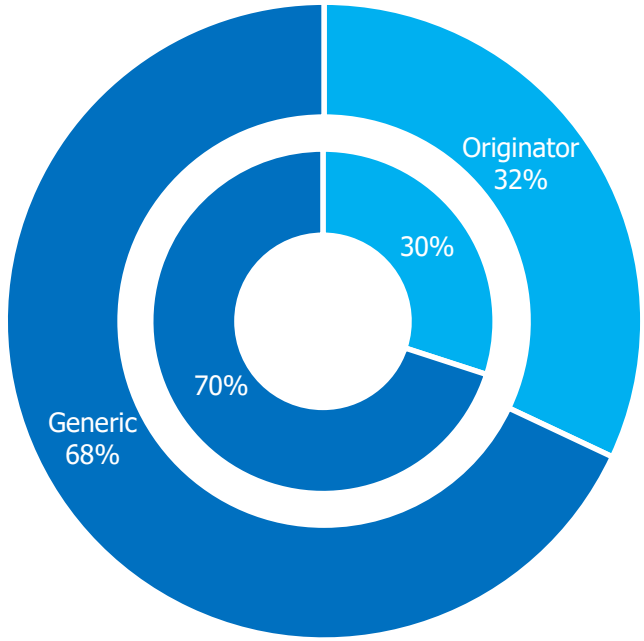


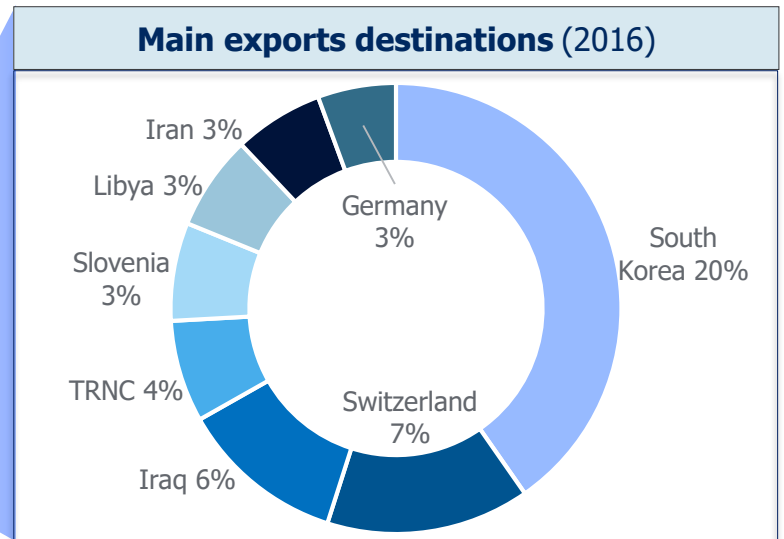
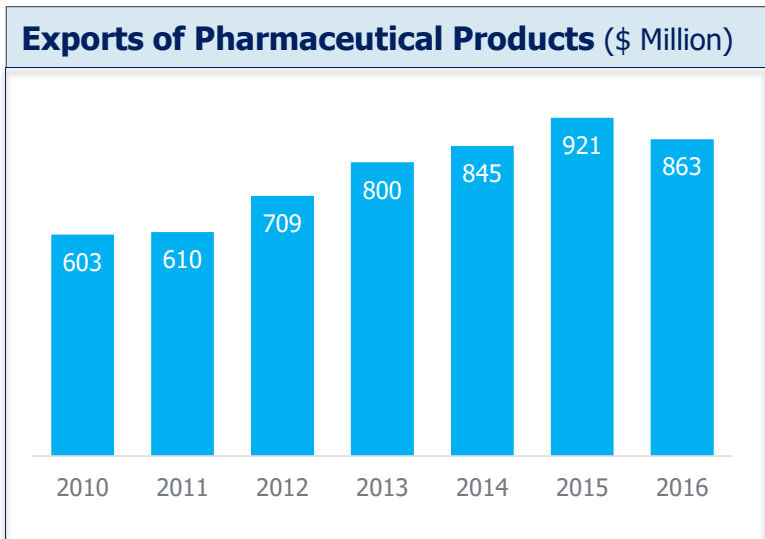
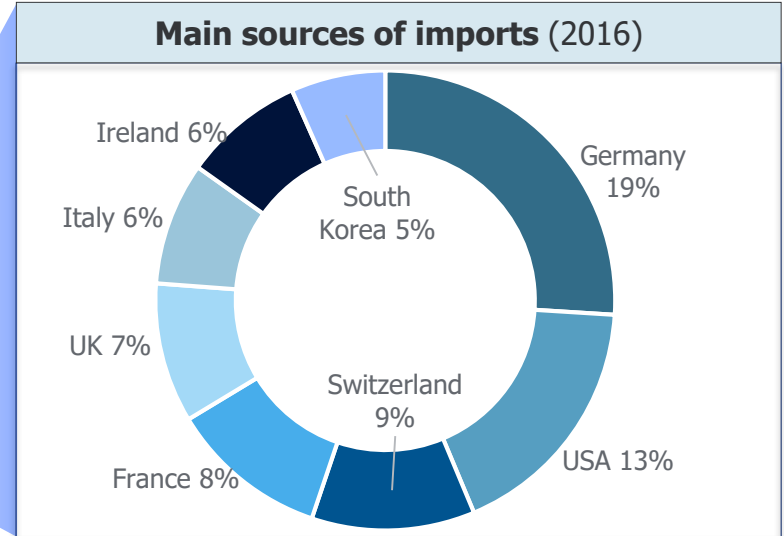
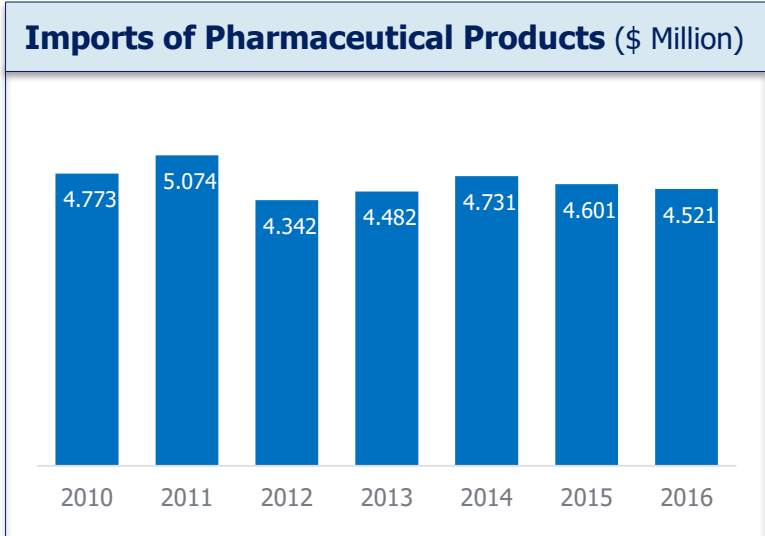
Outer circle: Breakdown of Sales Value
Inner circle: Breakdown of Unit Sales

Imported Products, 2016



Locally-produced Products, 2016







69

Manufacturing Companies



15

Multinational Companies (Manufacturing)



10

Raw Material Producing Companies (3 multinational)



25













R&D Centers



Major Players

Both local & multinational companies are active in pharma manufacturing in Turkey; locals are also significant subcontractors to multinationals..



Manufacturer	2016	
	Production (Millions of TL)	Net Sales (Millions of TL)
 ABDIİBRAHİM	833	1,583
 EastPharma  DEVA [†]	589	669
 KOÇAK FARMA	531	531
 NOBEL	421	443
 *	*	*
 İbrahim Etem <small>MENARINI group</small>	205	415
 aris <small>ali raif ilaç sanayi</small>	204	315
 *	*	*
 Santa Farma	267	297
 Biofarma [†]	146	171
 ADEKA	140	153

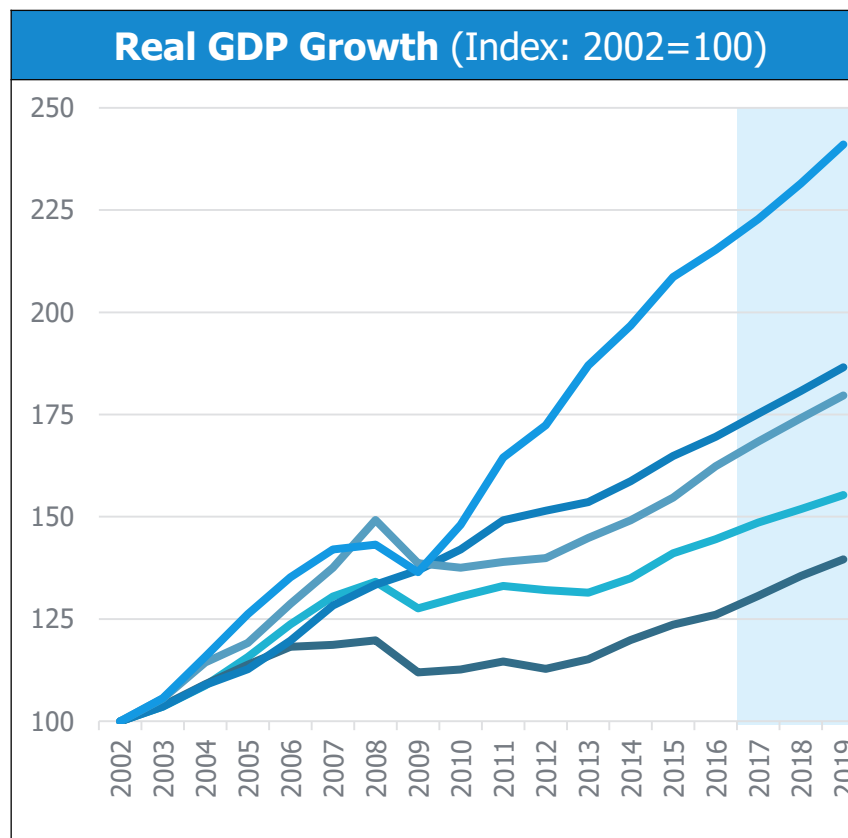
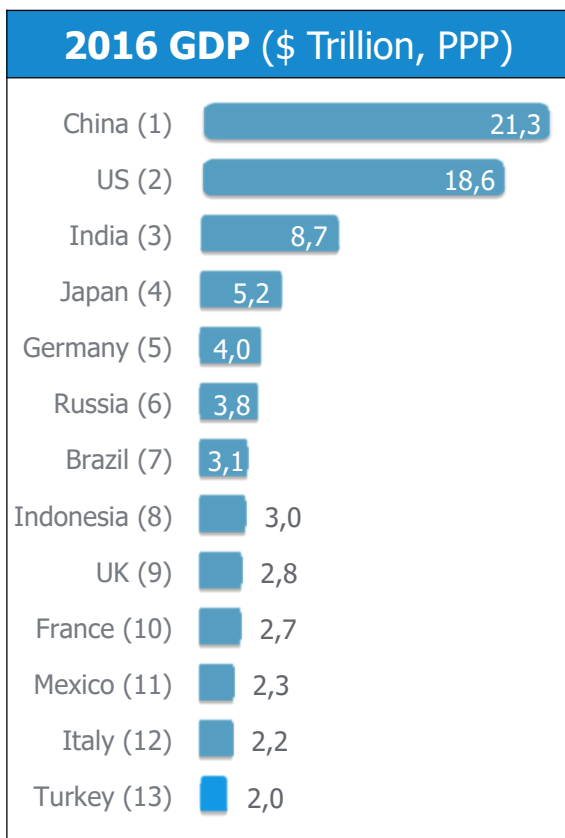
Source: Istanbul Chamber of Industry (ISI). The list is based on companies that voluntarily took part in the ISI survey, hence non-participant companies are not included. *Suppressed to avoid disclosure of companies †Foreign partnership

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13th largest economy in the world



Average Annual GDP Growth 2003-2016 %

5.6

3.7

3.5

2.6

1.8

Turkey

Poland

Romania

Czechia

Hungary



The government introduced the Health Transformation Program in 2003 to provide universal healthcare services.



Universal Coverage

In 2006 Universal Health Insurance introduced to cover all citizens



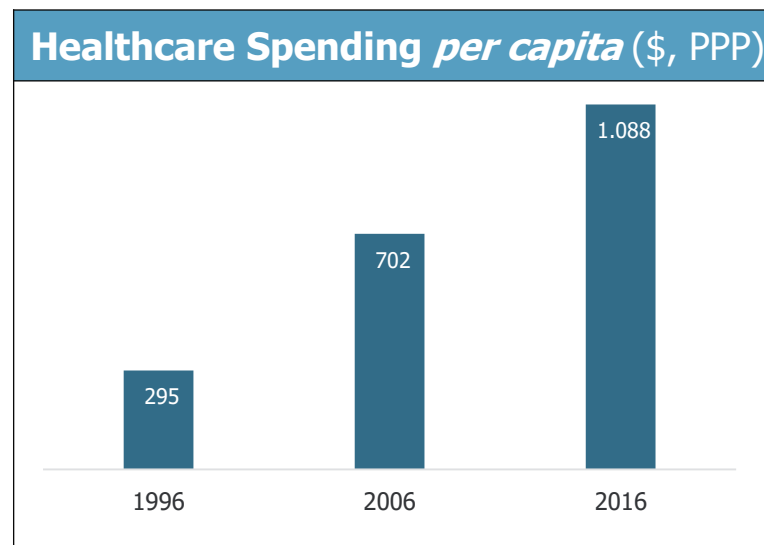
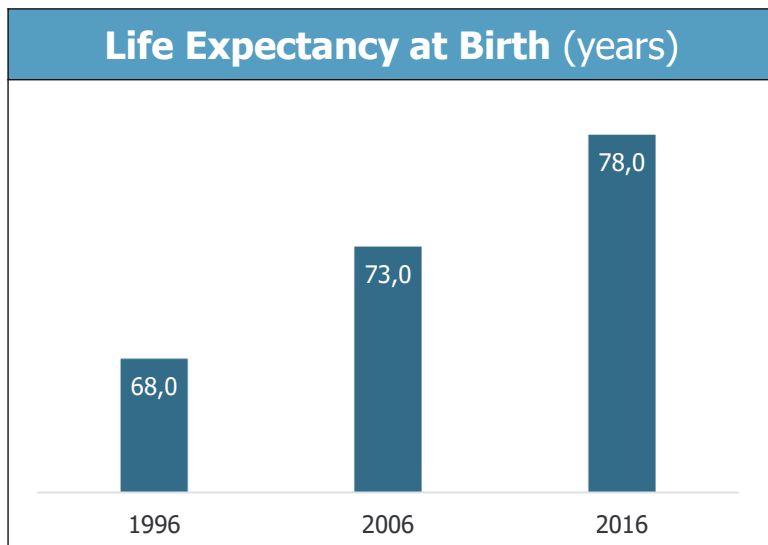
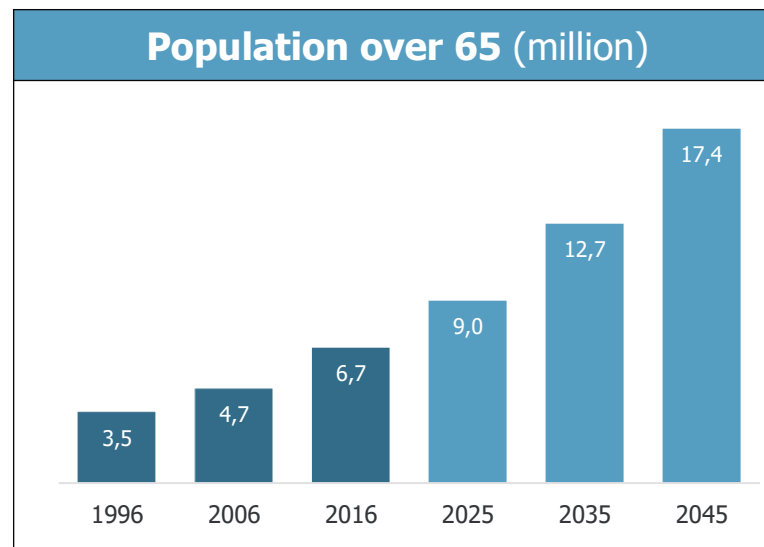
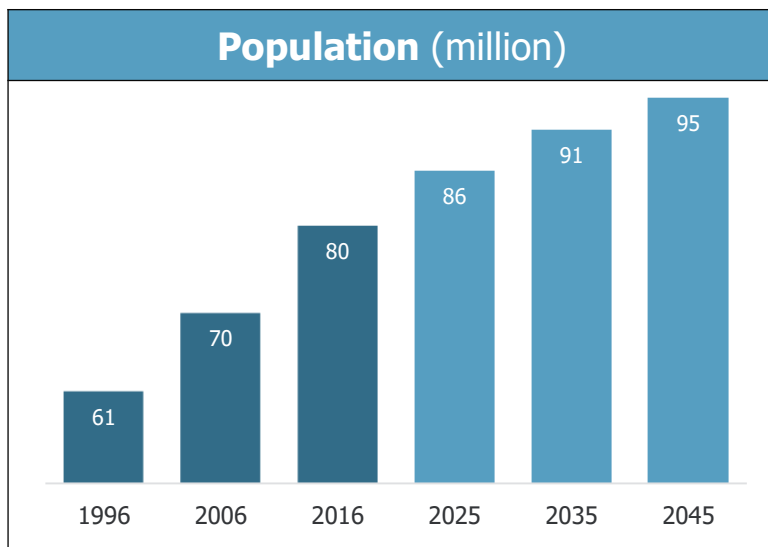
Improving Infrastructure

Number of Hospital increased from **1156** in 2002 to **1546** in 2016 (bed capacity 165K to 220K)



Increasing Healthcare Professionals

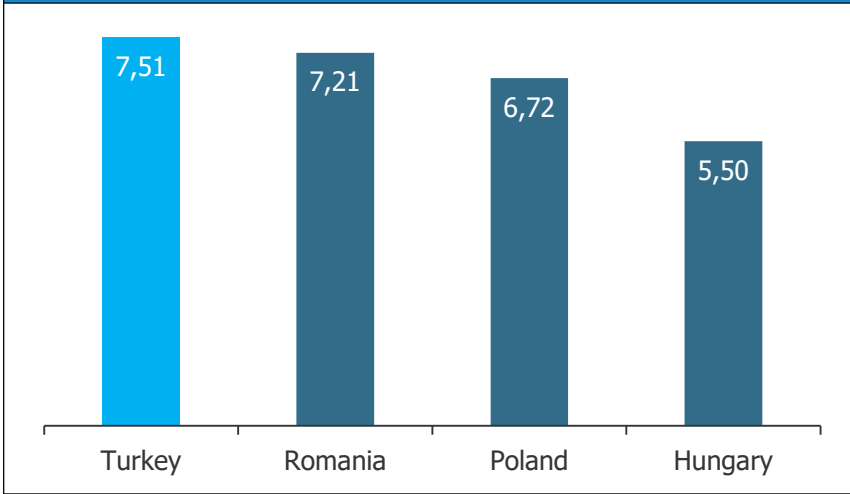
Number of Doctors increased from **92K** in 2002 to **145K** in 2016 (from 1.4 to 1.8 per 1000)





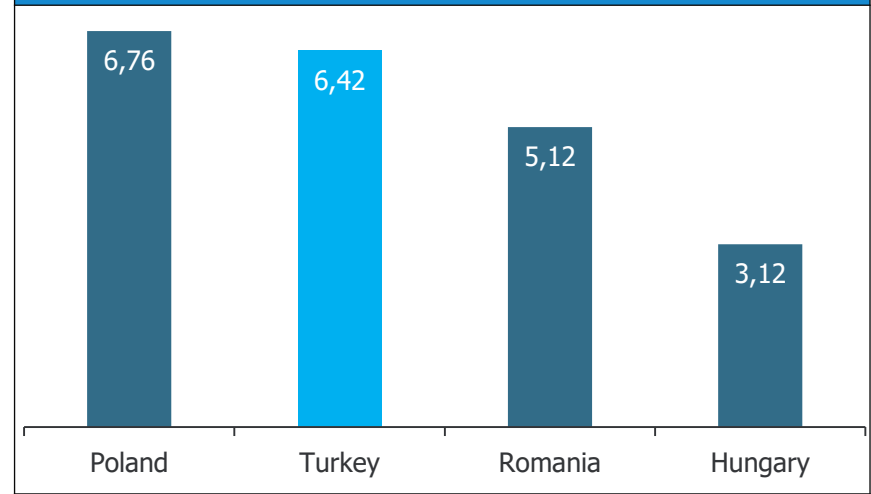
Availability of Qualified Engineers, 2016

(10=Available; 0=Unavailable)

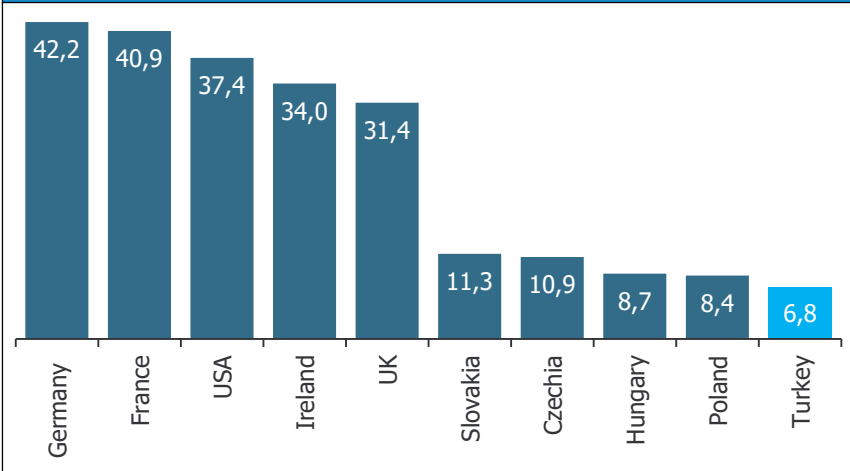


Availability of Competent Senior Managers, 2016

(10=Available; 0=Unavailable)



Labor Cost per hour in Manufacturing (\$) 2015



Labor Cost per hour in Manufacturing Turkey vs. USA (US=100)





Incentive Schemes

Main Incentive Tools	Incentive Schemes						
	General Incentives	Regional Incentives	Incentives for Priority Investments	Incentives for Large Scale Investments	Incentives for Strategic Investments	Project-Based Incentives	R&D Incentives
Corporate Tax Reduction		✓	✓	✓	✓	✓	✓
VAT/Custom Duty Exemption	✓	✓	✓	✓	✓	✓	✓
Social Security Premium Support		✓	✓	✓	✓	✓	✓
Income Tax Withholding Support*	✓	✓	✓	✓	✓	✓	✓
Interest Support**		✓	✓		✓	✓	
Land Allocation		✓	✓	✓	✓	✓	
Partnership (Equity Investment by Govt.)						✓	
Guarantee of Purchase by Govt.						✓	
Energy Cost Support						✓	

*Provided that investments, except R&D, are made in Region 6,

**Provided that investment, except R&D, are made in Regions 3, 4, 5 or 6 within the frame of the Regional Incentive Scheme

Source: Ministry of Economy, MSIT

Main Incentive Tools

Tax Deduction: Reduced tax rates for investor's income (50-90 %) until the total deduction reaches a certain percentage of capex. (15-65 % of capex; in the case of project based incentives up to 200% of capex). For R&D investments, all R&D expenditures are deducted from tax base.

VAT Exemption: Investment machinery and equipment imported and/or locally provided within the scope of the incentive certificate will be VAT exempt.

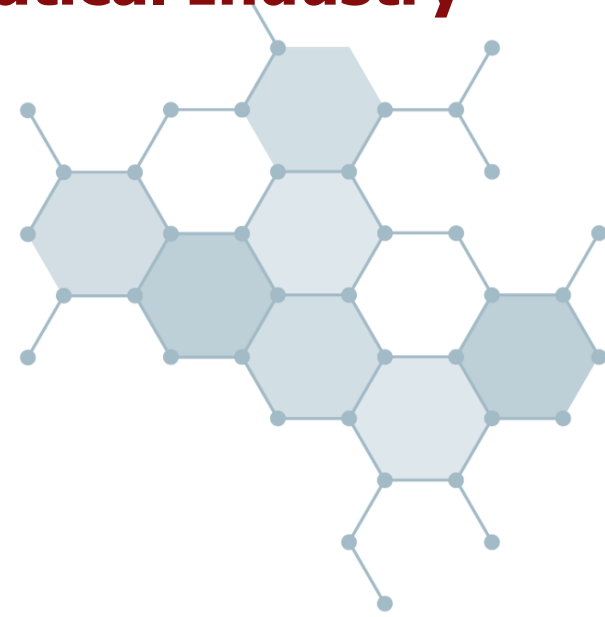
Customs Duty Exemption: Investment machinery and equipment imported within the scope of the incentive certificate will be customs duty exempt.

Interest Rate Support: For investment loans, a certain portion of the interest share will be covered by government. (3-7 % points for TL-denominated, 1-2% points for forex-denominated loans) (500K-900K TL).

Land Allocation: Government land will be allocated for the investments, if no land is available in Organized Industrial Zones (OIZs).

Income Tax Withholding exemption will provide exemption from income tax withholding. (only for Region 6).

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Number of Private Sector R&D Personnel in Pharma: 1.112 (2015)



Number of University Students Enrolled in Related Fields: +205K (2017)



Field	Associate Degree*	Undergraduate	Post-graduate	Total
Medicine	17.123	78.671	6.026	101.820
Chemistry	13.413	26.219	8.105	47.737
Biology	6	19.406	10.308	29.720
Pharmacy	2.378	10.905	627	13.910
Biochemistry	108	4.416	7.714	12.238
TOTAL	33.028	139.617	32.780	205.425

*vocational training school

Number of Accredited Private R&D Centers in Pharma: 25 (Aug 2017)



Number of University Research Centers in Life Sciences: 31 (2016)



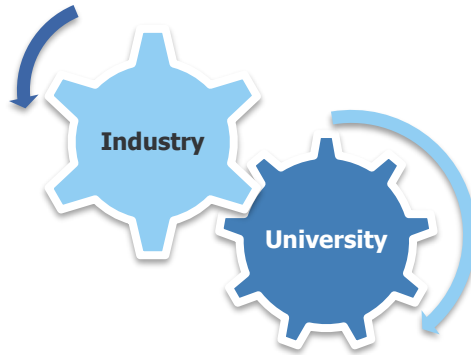
Private Sector R&D Spending in Pharma: ₺234 Million (2015)





R&D and Innovation Support

- ✓ 100% deduction of R&D expenditure from the tax base
- ✓ Income withholding tax exemption
- ✓ 50% social security premium exemption for employers
- ✓ Stamp duty exemption
- ✓ Customs duty exemption



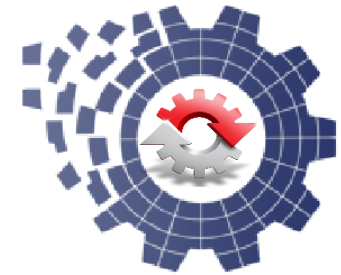
Technology Development Zones

- ✓ Corporate tax exemption
- ✓ Income withholding tax exemption
- ✓ 50 % social security premium exemption for employers
- ✓ Stamp duty exemption
- ✓ Customs duty exemption



TÜBİTAK Incentives by Scientific & Technological Research Council of Turkey

- ✓ Customized incentives according to project
- ✓ 1501 - **Industrial R&D Projects Grant Programme;**
 - Up to 60% of R&D projects could be financed through financial grant.
 - no budgetary limit
- ✓ ... and more grant programmes



TECHNOINVESTMENT Program

- ✓ Mass production of products developed out of R&D are incentivized through partial funding of;
 - ✓ machinery and equipment
 - ✓ rent and energy cost
 - ✓ labor cost
- ✓ interests on loans for small & medium size companies.



Turkey has been accepting patent applications since 1996, in compliance with the WTO's Trade-Related Aspects of Intellectual Property Rights (TRIPS) agreement.



The New Law on the Protection of Industrial Property Rights (2017)

- ✓ Simplifies proceedings, adopting tighter regulations for the protection & enforcement of IPR.
- ✓ Aligns the Turkish patent regime with its obligations as part of the European Patent Convention



As a candidate country, Turkey has significantly aligned its technical and IPR legislations with the European Union *acquis communautaire*

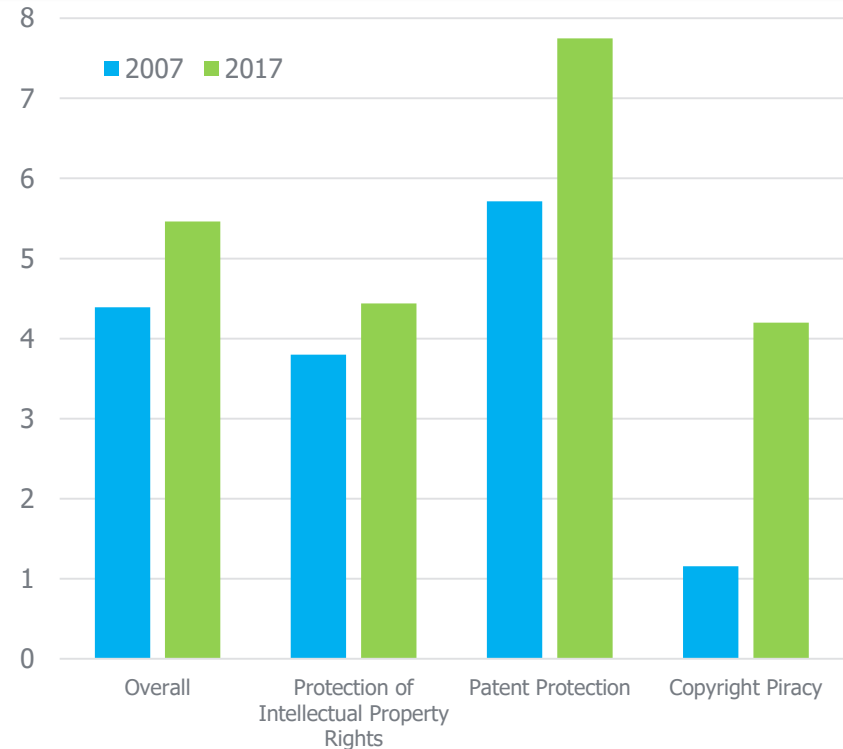


Specialized Courts on IPR

- ✓ There are 9 criminal and 13 civil specialized IP courts functioning in Ankara, İstanbul and İzmir.

IPR protection in Turkey has significantly improved over the past decade

Intellectual Property Right in Turkey (Score: 10=Best; 0=Worst)

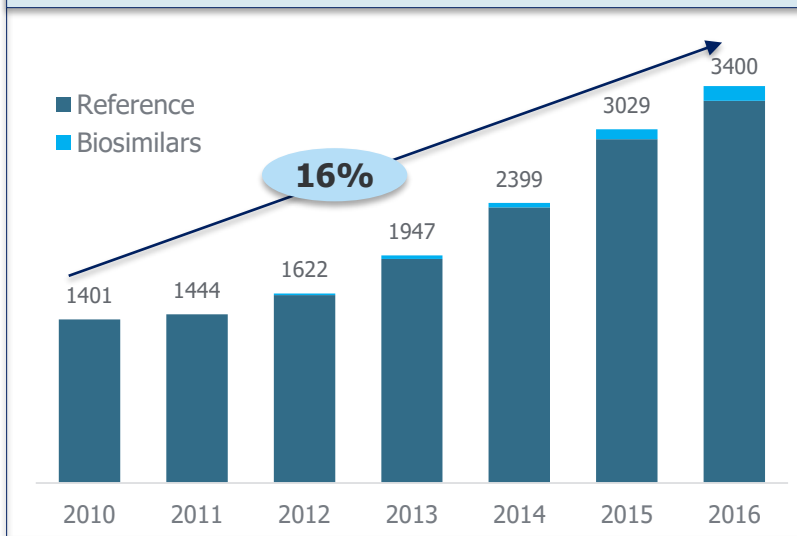


Source: Property Rights Alliance International Property Rights Index, 2017

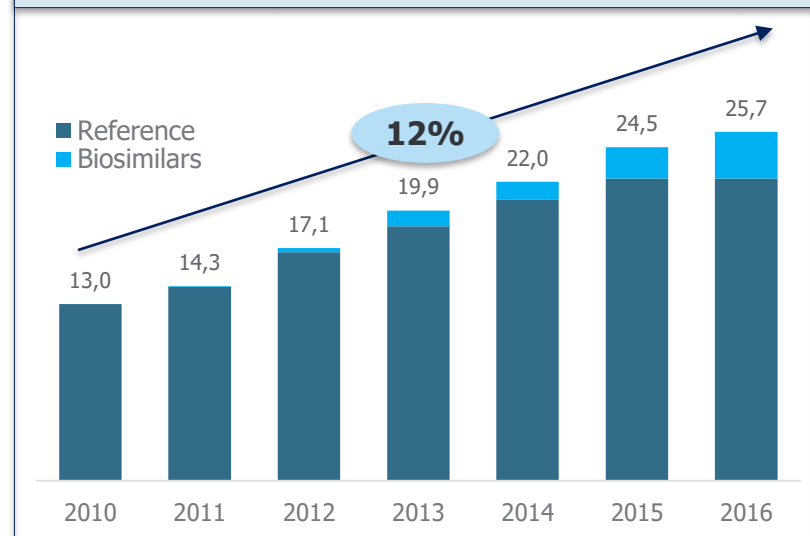


CAGR

Biotechnological Products (Million TL)



Biotechnological Products (Million of Boxes)



Breakdown of Biotechnological Products

		Box (%)		Value (%)	
		2010	2016	2010	2016
Biosimilars	Blood and hematopoietic organs	0	90.24	0	56.59
	Antineoplastics and immunomodulatory agents	100	7.27	100	34.08
	Systematic hormonal preparations (excluding sex hormone and insulins)	0	1.90	0	8.22
	Digestive system and metabolism	0.00	0.59	0	1.11
Reference	Antineoplastics and immunomodulatory agents	8.24	9.41	47.58	45.94
	Digestive system and metabolism	51.11	59.32	24.37	27.53
	Blood and hematopoietic organs	35.08	23.13	17.15	11.27
	Ophthalmological	0.12	1.0	1.49	6.43
	Systematic hormonal preparations (excluding sex hormone and insulins)	1.88	2.43	4.10	2.82
	Genital-urinary system and sex hormones	3.29	3.78	3.73	2.34
	Respiratory system	0.07	0.66	0.35	2.02
	Systematic anti-infectives	0.22	0.24	1.24	1.09
	Dermatological products	0	0.03	0	0.55
Musculoskeletal system	0	0.01	0	0.02	

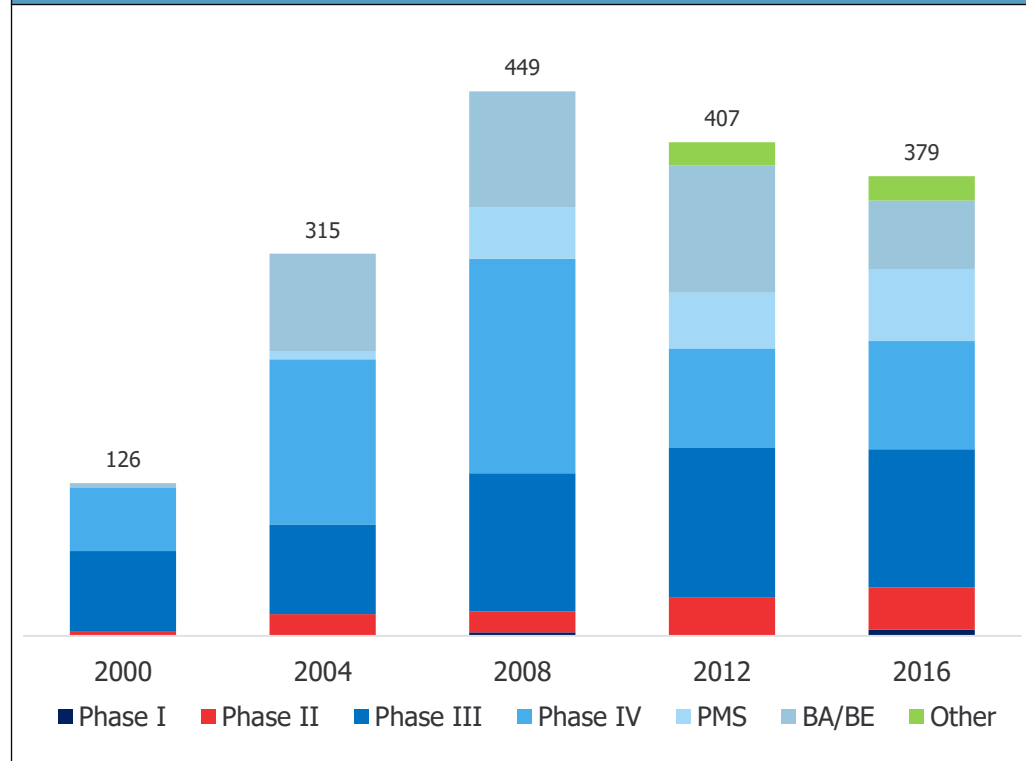


Clinical Trials Ecosystem

- ✓ A developing clinical research profile, supported by new regulations that are in accordance with international standards and European directives
- ✓ A large and diverse patient population of almost 80 million, the majority of whom are treatment-naïve.
- ✓ Consequently, Turkish people are highly motivated to participate in studies, and ready access to them makes for rapid enrolment
- ✓ A high number of sites with the capacity to conduct clinical research: 62 university hospitals, 489 private hospitals and 843 government hospitals
- ✓ Highly motivated research teams trained in GCP, capable of producing high-quality, reliable data
- ✓ Comparatively low costs, relative to EU countries and the US

Source: Pharm-Olam

Number of Clinical Trials in Turkey



Source: Turkish Medicines and Medical Devices Agency
 PMS: Postmarketing Studies; BA: Bioavailability/BE: Bioequivalence



MADE IN TURKEY

Localization

Turkey's dependency on import of pharmaceuticals is unsustainable, hence Turkey is prioritizing local production. Either direct or contact manufacturing will provide multinationals a competitive edge



Track Record

Many multinational pharma companies have already cooperative agreements with the local manufacturers which have shown track record in delivering contracts



Regional Hub

Geostrategic location offers drugmakers entry to European, MENA and Central Asian markets. Turkey has Custom Union with the EU and Free Trade Agreements with 27 countries



Enablers

- ✓ Skilled labor force
- ✓ Low-cost manufacturing
- ✓ Manufacturing incentives
- ✓ R&D and Post-R&D grants

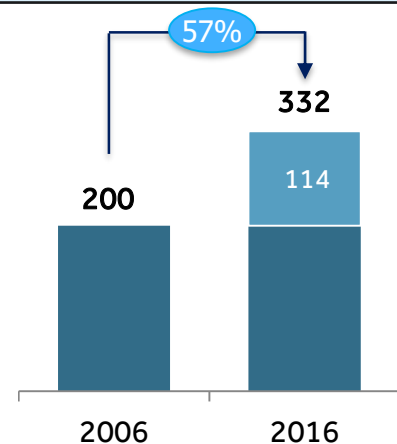


Pharma manufacturers in Turkey can access major markets without any custom restrictions

Turkey may well be used as an export base to grow...

Over the past decade, regional trade of pharmaceutical increased by \$236bn, reaching \$532bn in 2016, up from \$296bn in 2006; 48% growth came from the markets around Turkey

Regional Pharma Imports (\$Bn)



Custom Union with EU

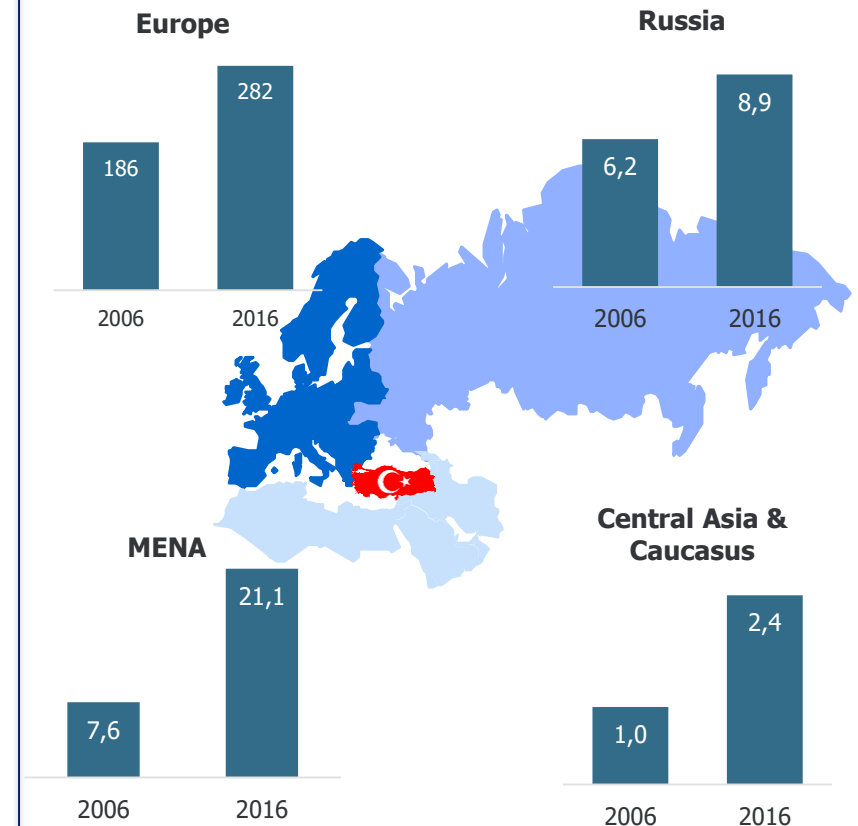


Free Trade Agreements (FTA) with 27 countries

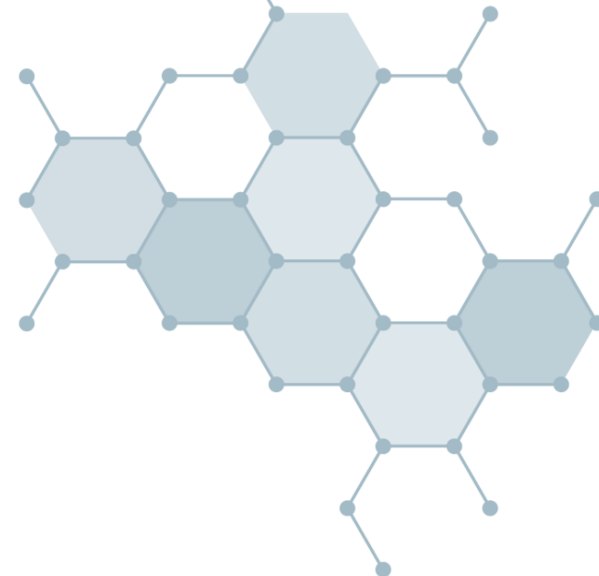
Albania, Bosnia-Herzegovina, Chile, Egypt, Faroe Islands*, Georgia, Ghana*, Iceland, Israel, Jordan, Kosovo*, Lebanon*, Macedonia, Malaysia, Mauritius, Montenegro, Moldova*, Morocco, Norway, Palestine, Serbia, Singapore*, South Korea, Switzerland and Lichtenstein, Syria, Tunisia.

(*to be ratified)

Regional Increase in Imports of Pharma (\$Bn)



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RECORDATI



SANOFI



Medtronic





Novartis has been committed to Turkey for more than 60 years. Today, the Novartis Group has four manufacturing sites in Turkey, producing key products as well as several globally-exported products. The Group employs more than 2,300 qualified people. As Turkey's largest pharma exporter, Novartis exported \$150 million worth drugs to more than 100 countries; a clear indicator of Turkey being used as a manufacturing and export base. To date, Novartis has invested over \$240 million in its four Turkish sites. The facility in Kurtköy, Istanbul, is one of 10 global centers of excellence at Novartis. In 2015, the Kurtköy plant was designated as the main manufacturing center for the anti-malaria drug manufactured for the "Malaria Initiative." The initiative is one of the pharmaceutical industry's largest access-to-medicines programs and it is focused on treatment, access, capacity-building, and R&D. This production transfer shows the Novartis commitment to Turkey as a center for pharmaceutical investments. The drug is being exported across the world, to more than 50 malaria endemic countries. The Kurtköy plant is front and center in the global fight against malaria, with an annual output capacity of 100 million treatments. The Novartis Group is also the leading pharma company in clinical research in Turkey, investing more than \$144 million over the past seven years, accounting for 20% of all clinical trial investments by multinational corporations in Turkey.



Recordati entered Turkey in 2008 through acquisition of the Turkish pharmaceutical company Yeni İlaç. In 2011 Recordati expanded its presence in the country by taking over another local company, Dr. F. Frik. In 2016, Recordati opened a new \$50 million manufacturing facility in Turkey for domestic and regional markets, supplying drugs for various therapeutic purposes at a rate of 80 million packs a year, creating 130 new jobs. The investment significantly upgrades Recordati's manufacturing presence in Turkey to meet growing demand and enable it to better supply markets in Central Asia, the Caucasus and the surrounding region.



Amgen, the world's largest biotechnology company, started its activities in Turkey with the distribution of its products in 2005. In 2010, Amgen İlaç Tic. Ltd. Şti. has opened its head office in Istanbul for sales, marketing and clinical research. In April 2012, Amgen acquired 95.6 percent of shares of Mustafa Nevzat Pharmaceuticals, a leading privately held Turkish pharmaceutical company, for an amount of \$700 million. The transaction significantly expanded Amgen's presence in Turkey and the surrounding region, which are large, fast-growing, priority markets for Amgen. The company is dedicated to make its innovative medicines available to patients in major markets around the world and plans to grow its business with high quality and innovative medicines in Turkey and in neighbouring countries.



Being present in Turkey for almost 60 years, GlaxoSmithKline (GSK) is a science-led global healthcare company with three global businesses that research, develop and manufacture innovative pharmaceutical medicines, vaccines and consumer healthcare products. GSK Turkey is the 6th largest pharmaceutical company in Turkey, operating with a total of nearly 1000 employees working to bring differentiated, high-quality and needed healthcare products to as many people as possible. GSK Turkey is a part of MENA/CIS Region and also the regional hub for 36 countries where GSK operates. GSK has made several large investments in the Turkish market over the past years in line with Government's key strategic targets. GSK has increased its local manufacturing to up to 61% of its pharma products working with 4 local CMOs and established the only Vaccine Clinical Research Center (AKAM) in Turkey, in 2010. Over \$15 million has been invested thus far in partnership with a CMO partner for the establishment of the largest Vaccine Production Facility in Turkey for production of different Vaccines with the capacity of 16-30 million doses per year, and also Vaccines have a capability of production from the formulation level. Being the leader in Vaccines with the largest portfolio, GSK Turkey brings a comprehensive and diversified health solutions with three main business units; respiratory, classical brands and critical diseases.

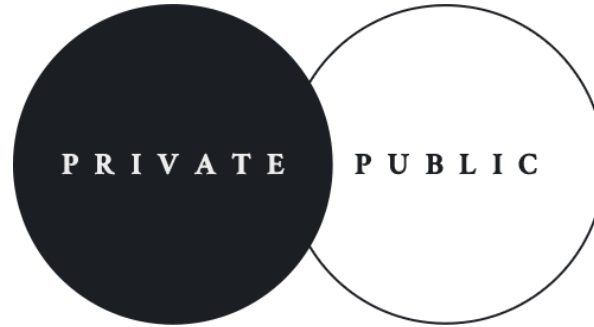


Abdi İbrahim began its operations in 1912. The firm is the largest pharmaceutical company in the country. Abdi İbrahim has the largest product portfolio in Turkey's pharmaceutical sector, with more than 180 brands and approximately 350 products. It produces a wide range of its own products through its R&D activity while also supporting a number of **partners through the licensing of medicines**. The firm currently has 30 licensors which include multinational drugmakers. In 2000, Abdi İbrahim started full operation of a modern high-tech manufacturing facility with an investment of approximately \$100 million. The facility is capable of producing 350 million units per annum. In 2008, the firm opened its first R&D centre. This was followed in 2010 by the firm's Abdi İbrahim Logistics Centre. The firm broke ground on the construction of Turkey's largest biotechnological pharmaceutical manufacturing facility - AbdiBio – (\$225 million) in June 2015, intended for the production of sterile injectable products and oncological products both for the domestic market and export markets, with an investment of \$100 million.

The firm exports to 50 countries worldwide; in the coming years it intends to expand further into the markets of the Middle East and North Africa (MENA) region, the Commonwealth of Independent States and the Balkans. The company has significant operations in Algeria, Kazakhstan, Georgia and Azerbaijan, whilst it also has strategically located business presence in markets such as Iraq, Albania, Bosnia-Herzegovina and Portugal among others. In 2012, Abdi İbrahim acquired a majority shareholder stake in Global Pharm, the largest drugmaker in Kazakhstan, enabling it to realise its strategy of expanding into the region. The move is a strategic expansion into the high growth markets of the CIS to serve both international and neighbouring Central Asia markets. In 2014, the firm formed a joint venture with Algeria-based pharmaceutical firm Remede Phar which will provide the firm with a point of entry to other regional markets. Throughout the past few years, the firm has rapidly expanded its international presence through mergers and acquisitions (M&A) and contract licensing agreements; this is expected to continue in the coming years. In 2012, Abdi İbrahim Otsuka Pharma (AIOP) was founded in collaboration with the Japanese drugmaker Otsuka Pharmaceutical. In February 2013, Bosnia and Herzegovina's Bosnalijek signed four licence agreements to co-operate in extending their product portfolios with Abdi İbrahim. In November 2014, Abdi İbrahim entered into a strategic licensing agreement with Deef Pharmaceutical, a manufacturing and marketing company of Banaja Holding - a Saudi Arabia-based pharmaceutical distribution company - in order to access the Middle East and North African markets.

What can ISPAT do for you?

ISPAT would assist you before, during and after your entry into Turkey



A governmental body attached to the Prime Ministry

Private sector approach with public sector capabilities

Acting as your solution partner



General & customized business information & Sectoral analysis & reports

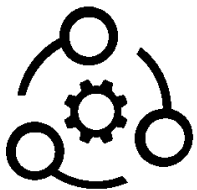


Site selection support to find appropriate location/land for your investment



Arrangements of meetings with governmental bodies and other stakeholders

AFTERSALES



Facilitating your investment at all stages



Matchmaking with local partners & establishing business linkages



Project launch & Press release services



Facilitating your visit to Turkey



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THANK YOU



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