

WHY INVEST IN **TURKISH** MACHINERY INDUSTRY?



INVEST IN TURKEY



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



ROBUST GROWTH IN THE INDUSTRY

- Turkish machinery industry has been robustly growing over the past decade with approx. 5% CAGR
- Customer industries, such as plastic & rubber, automotive, construction, textile and electrical machinery are robustly growing and therefore further supporting the growth of machinery sector
- Export opportunities due to Turkey's proximity to regional markets

FAVORABLE INVESTMENT ENVIRONMENT

- Strong macroeconomic growth with increasing income per capita and a burgeoning middle class
- Favorable demographics with a dynamic, young and skilled labor force supporting the industry
- Cost-competitive labor and energy prices
- Strong government support through manufacturing and R&D incentives

LUCRATIVE OPPORTUNITIES IN SUB-SECTORS

- World-scale domestic demand and strong industrial base offer ample opportunities in agricultural machinery, construction & mining machinery, energy equipments such as electric motors & turbines, food processing & packaging machinery, HVAC, lifting & handling equipment, metalworking & machine tooling, pumps & compressors, textile machinery

STRONG INTERNATIONAL PRESENCE

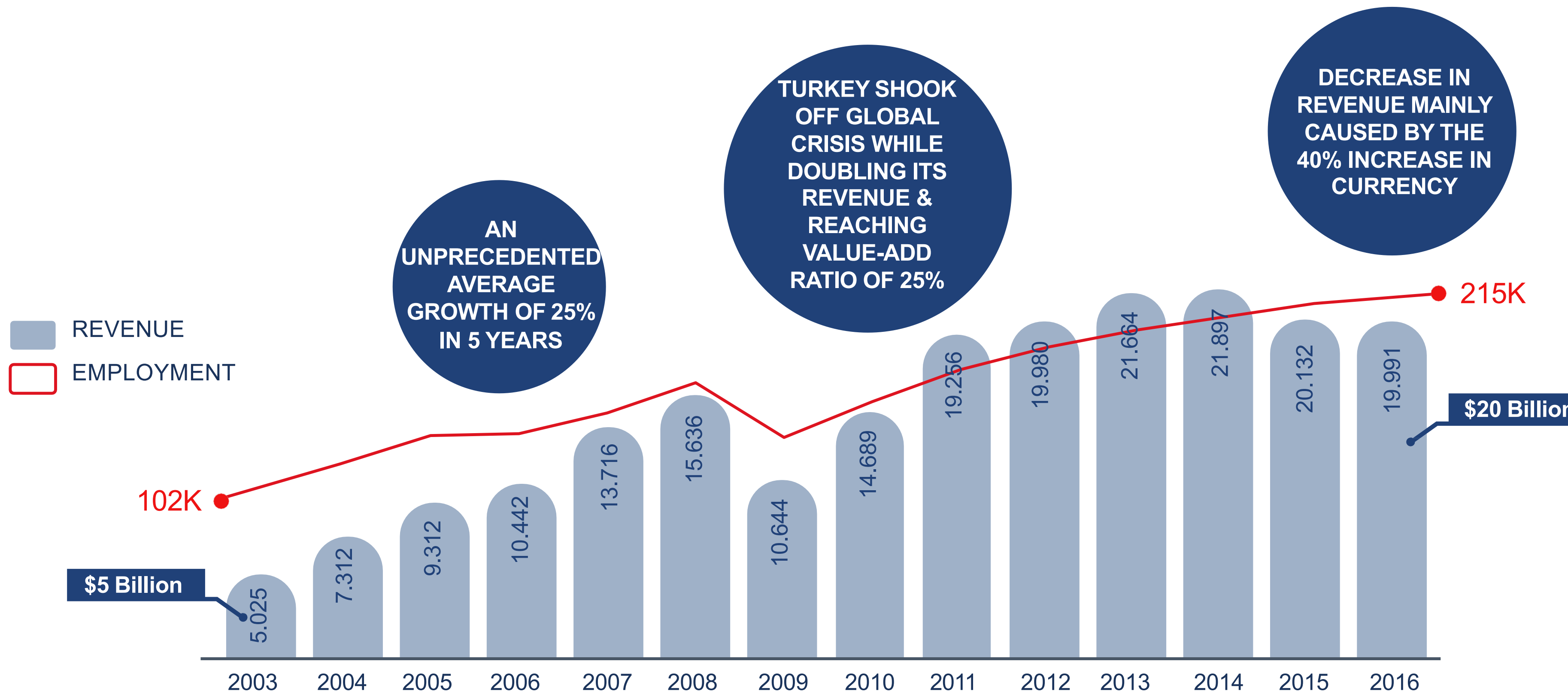
- Global machinery companies have been present in Turkey with significant manufacturing activities, using Turkey as a hub to access regional markets
- Successful partnerships with local companies to grow in the region, capitalizing on locals' experience and networks



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

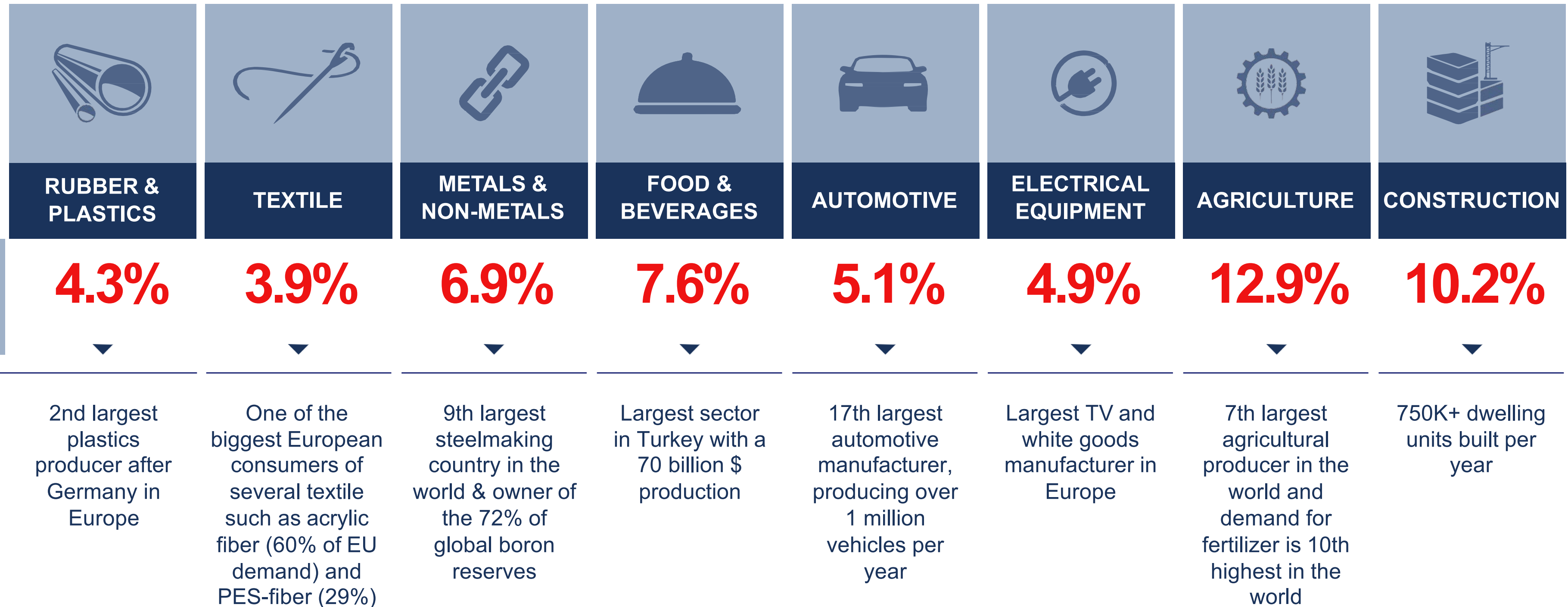
TURKISH MACHINERY INDUSTRY

TURKISH MACHINERY SECTOR HAS QUADRUPLED ITS REVENUES TO \$20 BILLION AND DOUBLED ITS WORKFORCE TO OVER 200K OVER THE PAST DECADE



END-USE INDUSTRIES

SUSTAINABILITY OF GROWTH IN CUSTOMER INDUSTRIES DRIVING TURKEY'S MACHINERY INDUSTRY...

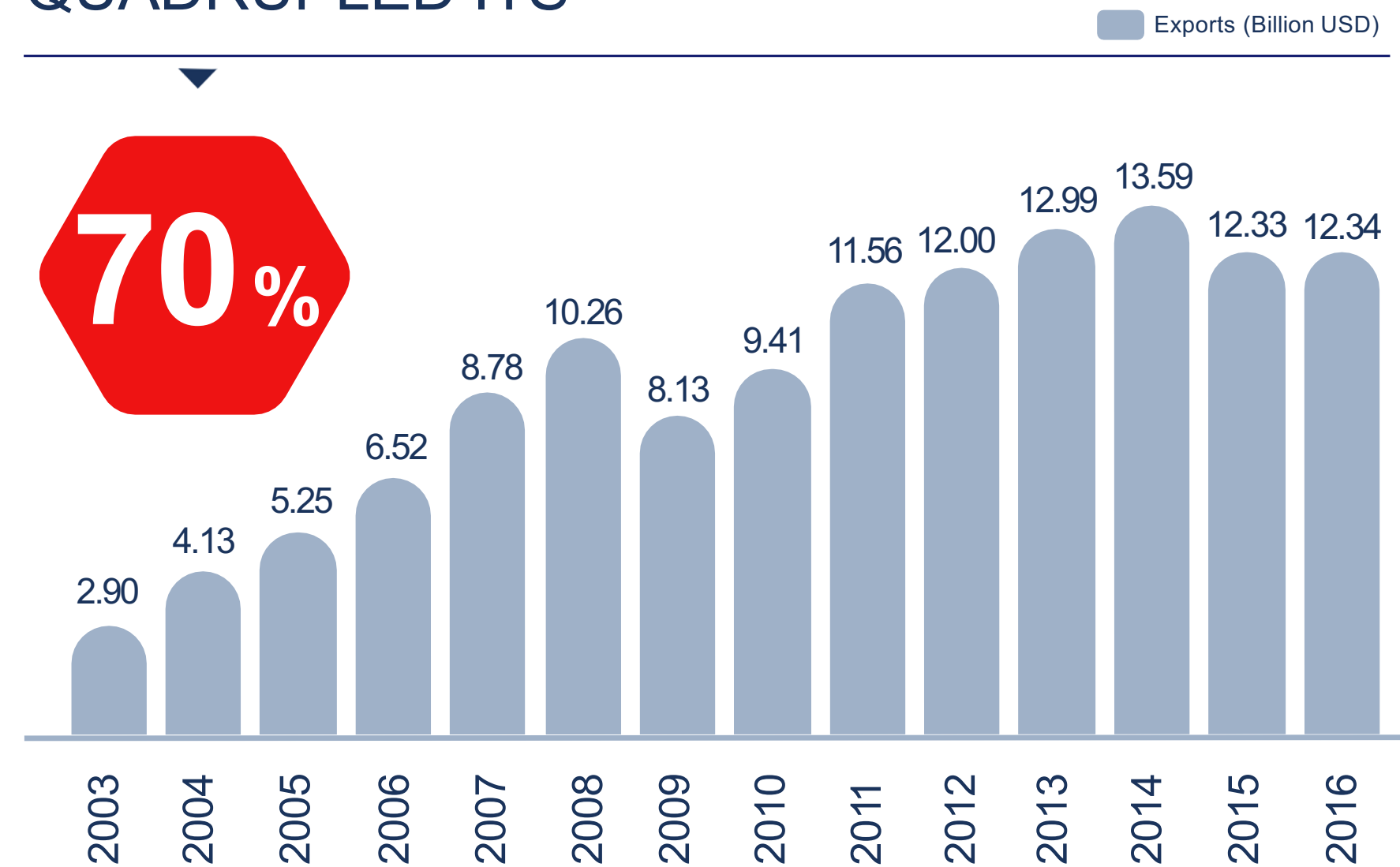


FOREIGN TRADE

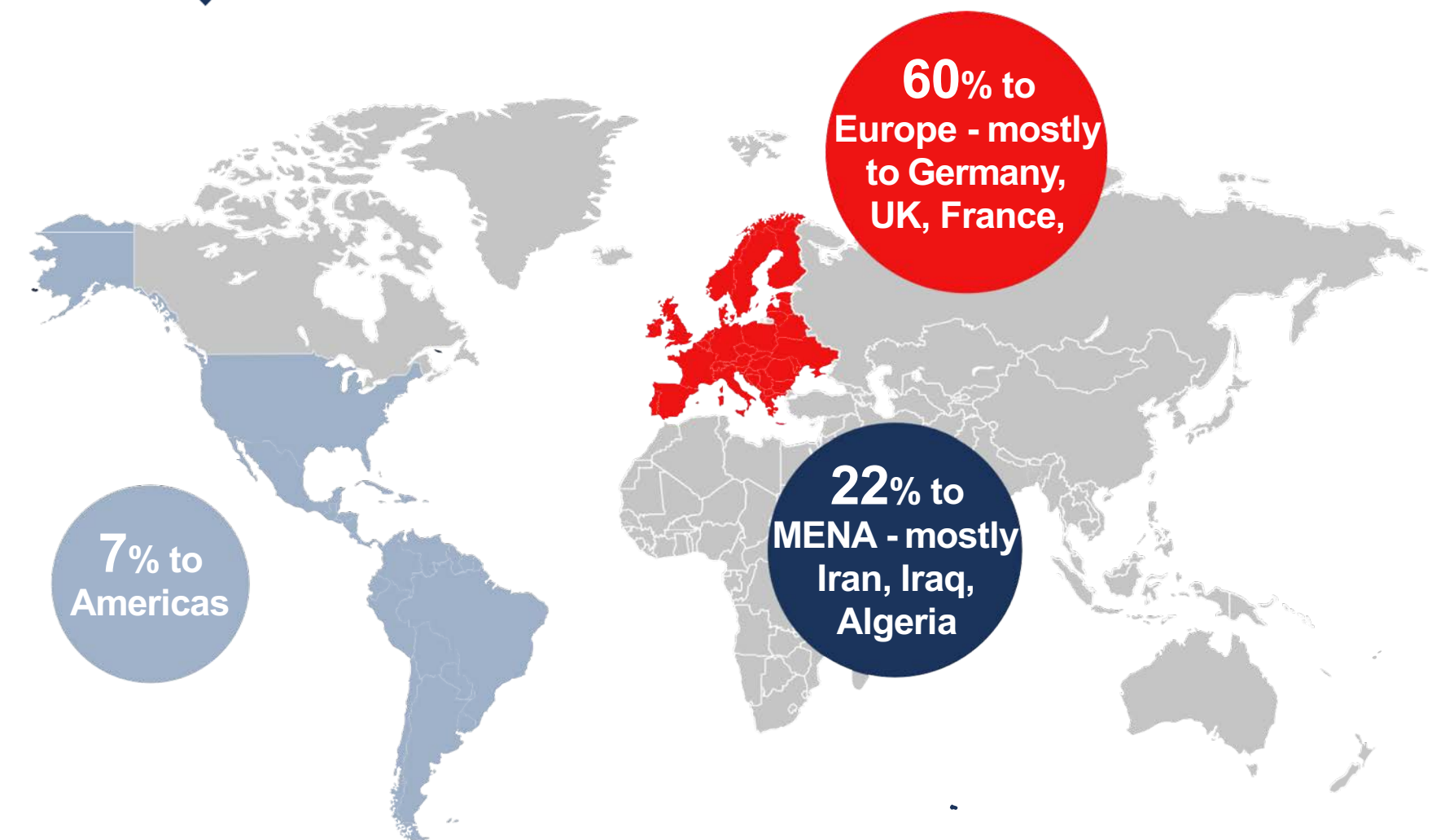
TURKEY HAS QUADRUPLED ITS EXPORTS SINCE 2003, MAKING IT ONE OF THE TOP PERFORMERS IN THE WORLD MACHINERY TRADE



WHEN WORLD EXPORTS GREW BY 70%, TURKEY HAS QUADRUPLED ITS



...WHILE DIVERSIFYING ITS EXPORT MARKETS:



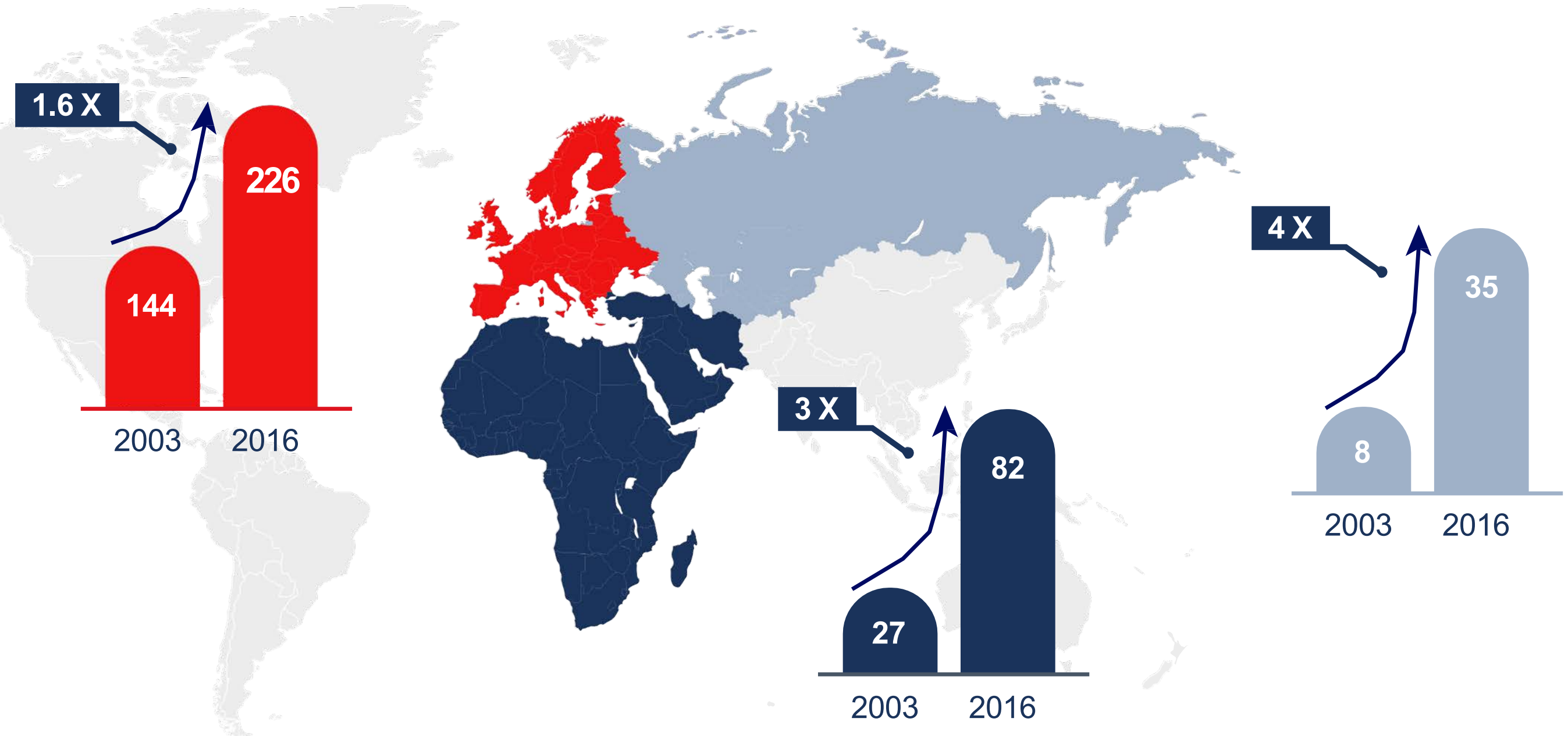
PROXIMITY TO KEY MARKETS

TURKEY IS WELL CONNECTED WITH THE REGION THROUGH CUSTOMS UNION WITH THE EU AND FREE TRADE AGREEMENTS WITH 28 COUNTRIES



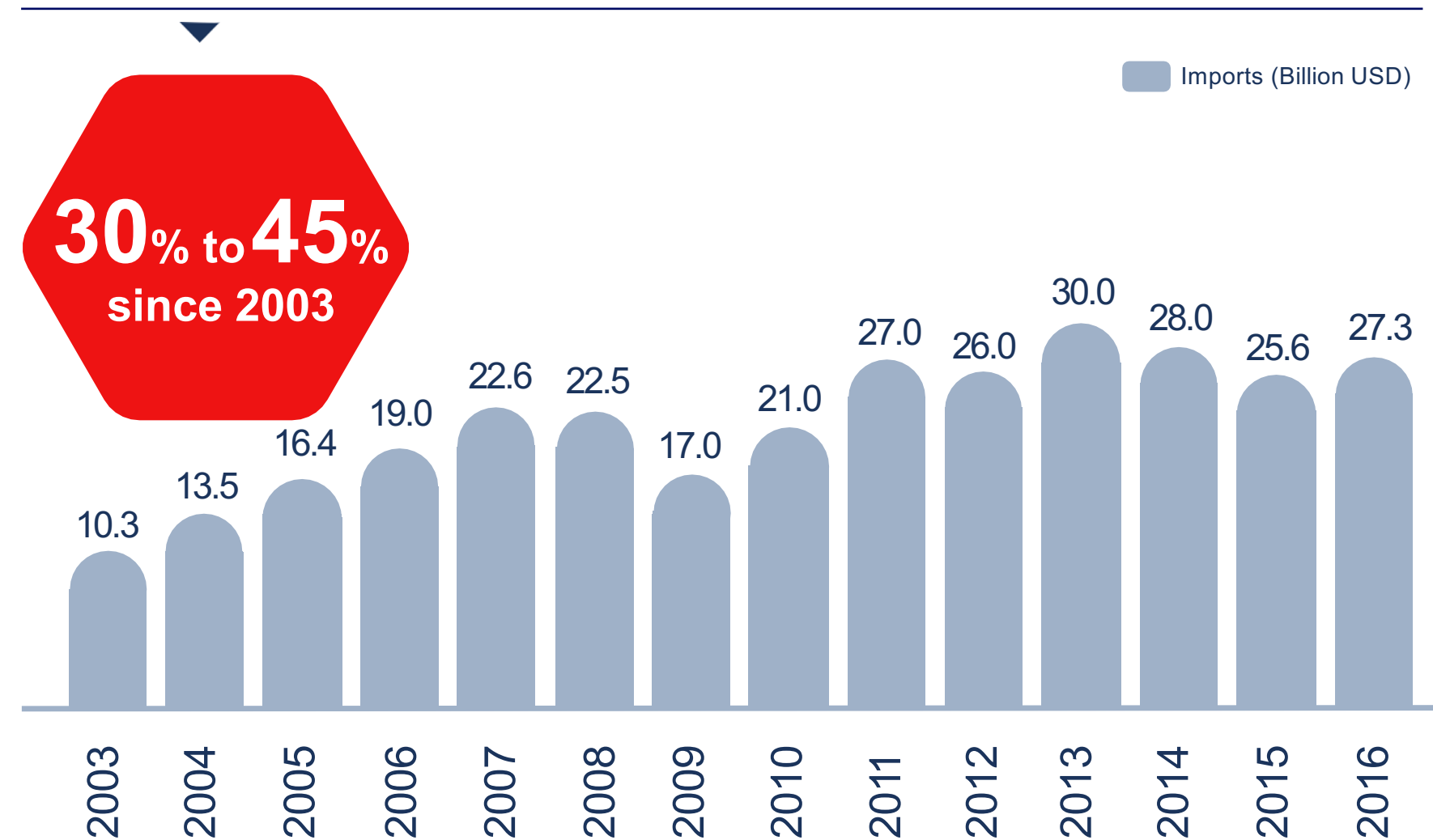
IMPORT NUMBERS (IN BILLION \$)

TURKEY HAS GEOGRAPHICAL PROXIMITY TO SOME OF THE HIGHEST GROWTH MARKETS IN MACHINERY AND IS CONVENIENTLY POSITIONED AS A MANAGING AND MANUFACTURING HUB

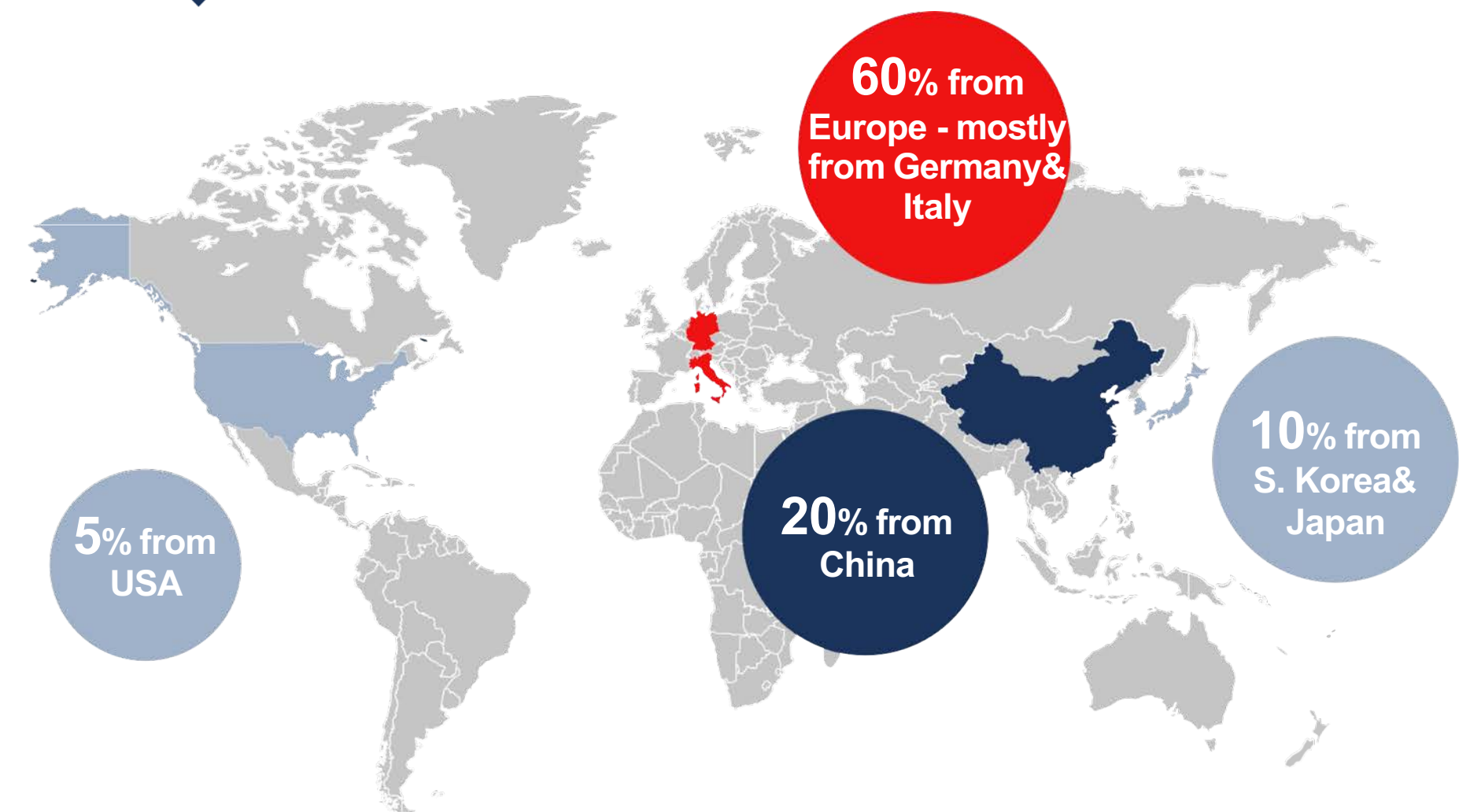




TURKEY HAS INCREASED ITS EXPORT/IMPORT RATIO FROM 30% TO 45% SINCE 2003...



...WITH THE FOLLOWING BREAKDOWN BY COUNTRIES:



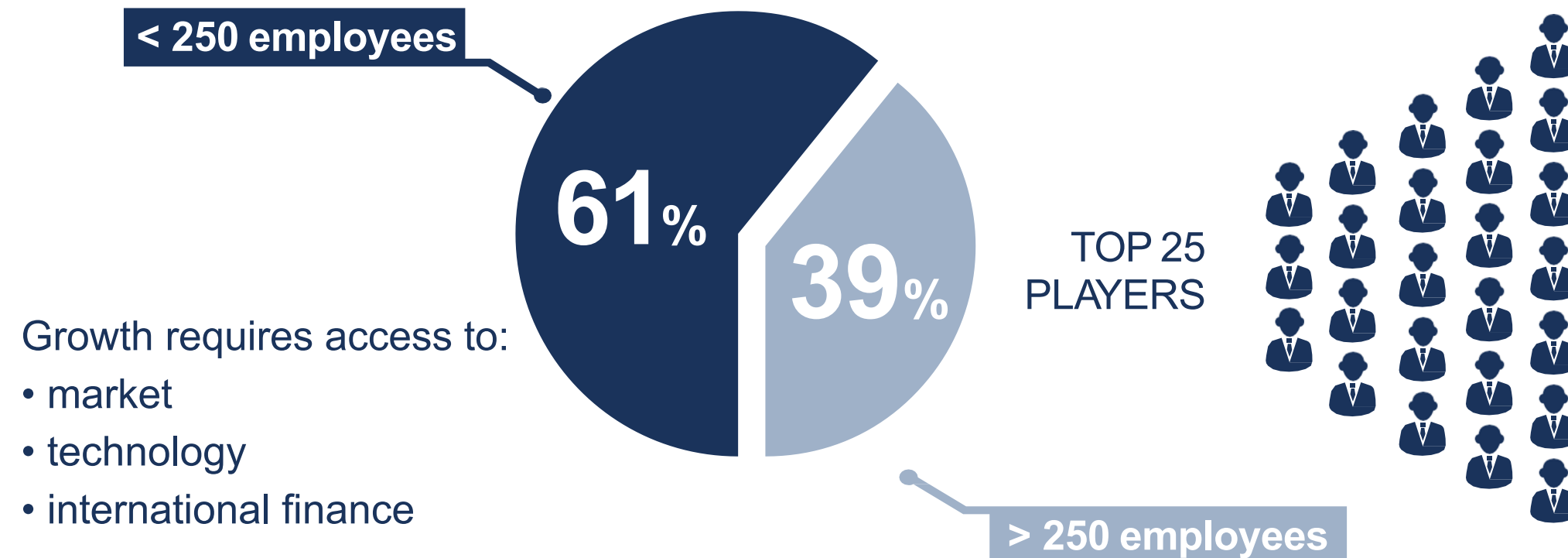
MAJOR PLAYERS

THERE ARE OVER 11K COMPANIES IN TURKISH MACHINERY SECTOR WHERE BOTH LOCAL AND INTERNATIONAL PLAYERS ARE ACTIVE



OVER 60% OF MACHINERY EXPORT IS MADE BY SMALL AND MEDIUM ENTERPRISES

Total Machinery Export* 2015



10 OF THE LARGEST 25 PLAYERS ARE INTERNATIONAL & EXPORT RATE IS 40% ON AVERAGE



40%
on average



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

ROBUST ECONOMY

TRACK RECORD GROWTH AND BRIGHT FUTURE WITH PROVEN RESILIENCE..



**13TH
LARGEST
ECONOMY
IN THE
WORLD**

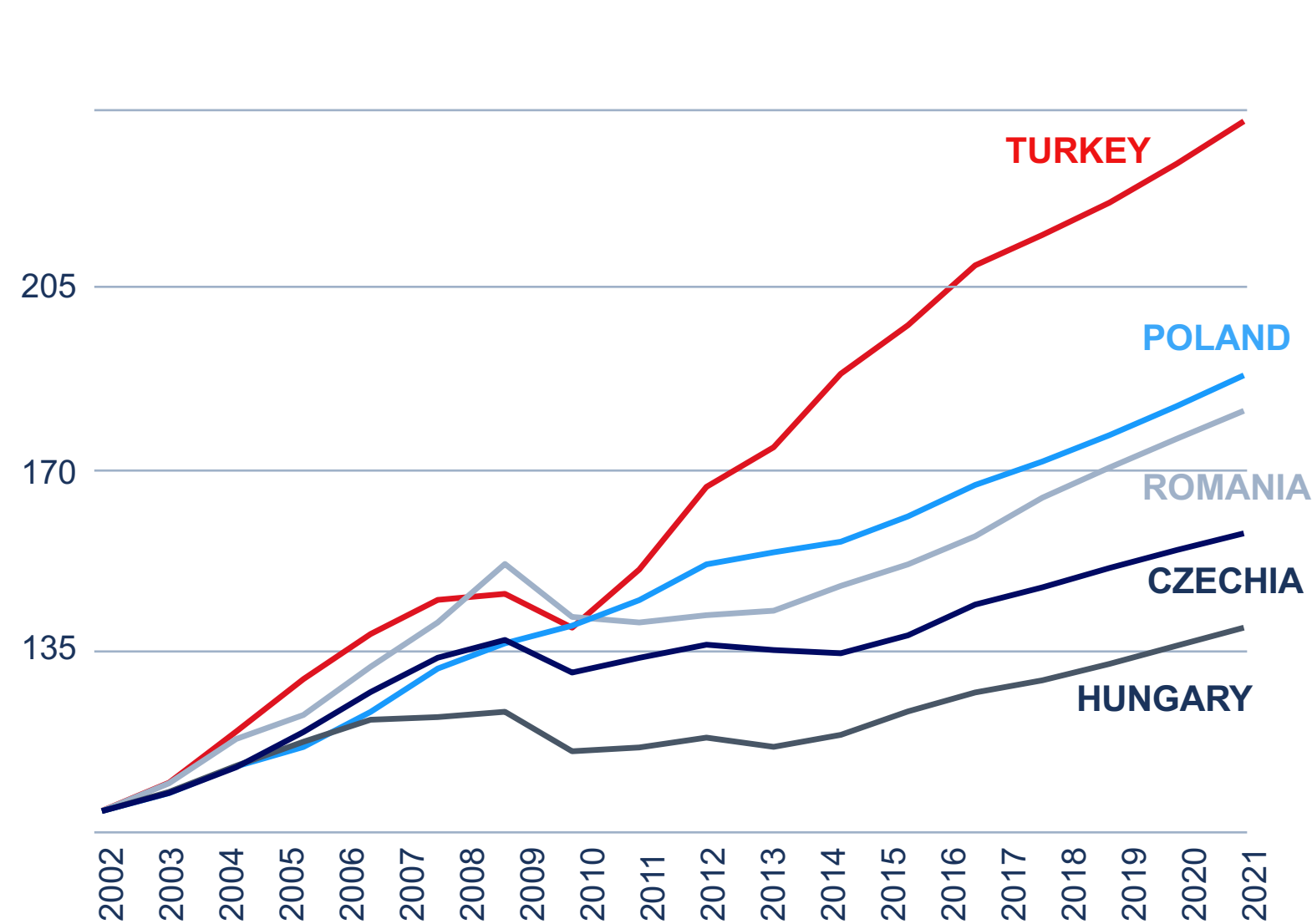
AVERAGE ANNUAL
GDP GROWTH
(%), 2003-2017



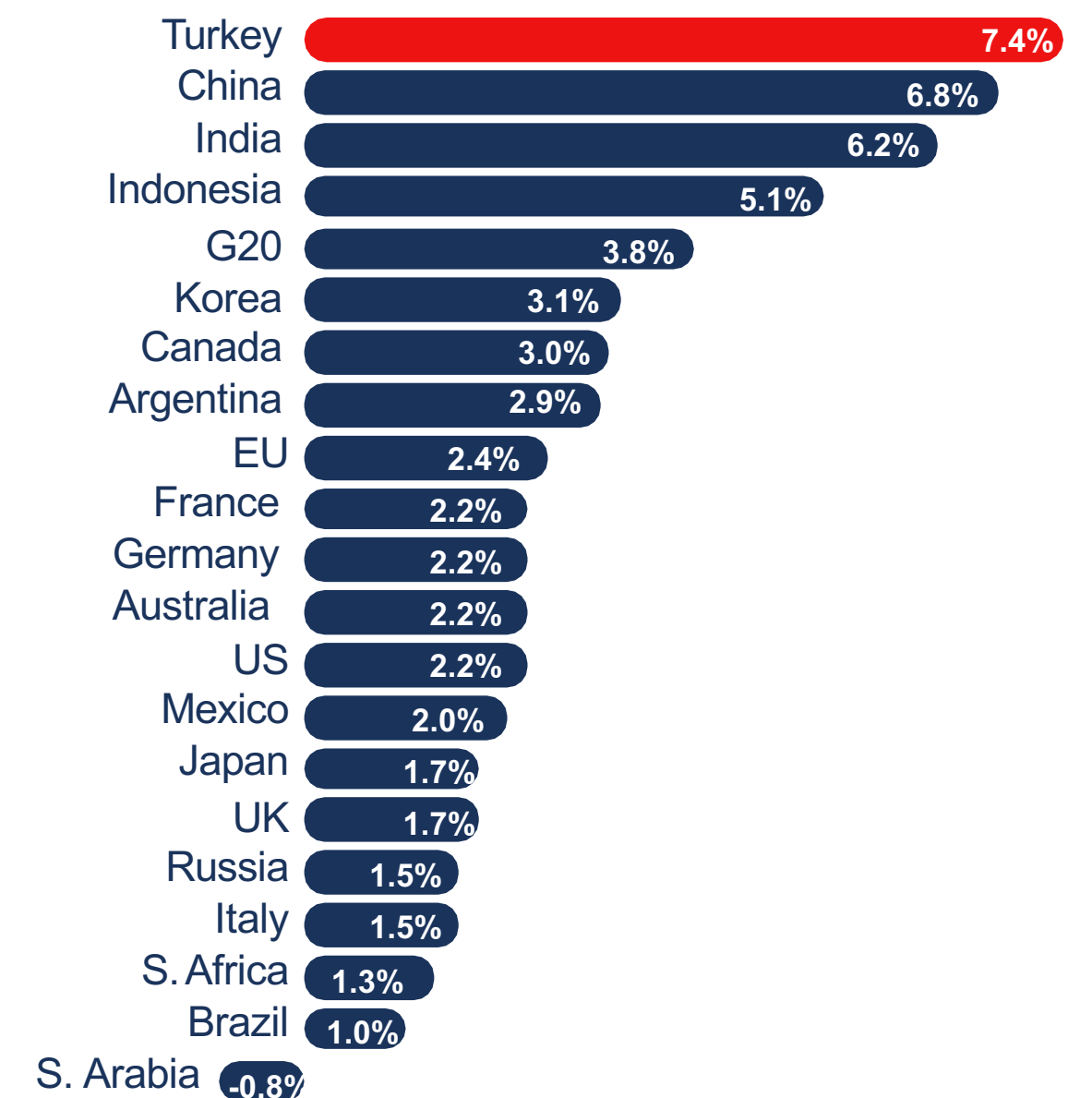
RANKING OF ECONOMIES BY GDP AT PPP

2003	2017	2021
1 USA	1 CHINA	1 CHINA
2 CHINA	2 USA	2 USA
3 JAPAN	3 INDIA	3 INDIA
4 GERMANY	4 JAPAN	4 JAPAN
5 INDIA	5 GERMANY	5 GERMANY
6 RUSSIA	6 RUSSIA	6 RUSSIA
7 FRANCE	7 BRAZIL	7 INDONESIA
8 UK	8 INDONESIA	8 BRAZIL
9 BRAZIL	9 UK	9 UK
10 ITALY	10 FRANCE	10 FRANCE
11 MEXICO	11 MEXICO	11 MEXICO
12 INDONESIA	12 ITALY	12 TURKEY
13 SPAIN	13 TURKEY	13 ITALY
14 CANADA	14 S. KOREA	14 S. KOREA
15 S. KOREA	15 S. ARABIA	15 S. ARABIA
16 S. ARABIA	16 SPAIN	16 SPAIN
17 IRAN	17 CANADA	17 CANADA
18 TURKEY	18 IRAN	18 IRAN

REAL GDP GROWTH (INDEX: 2002=100)



2017 REAL GDP GROWTH IN G20

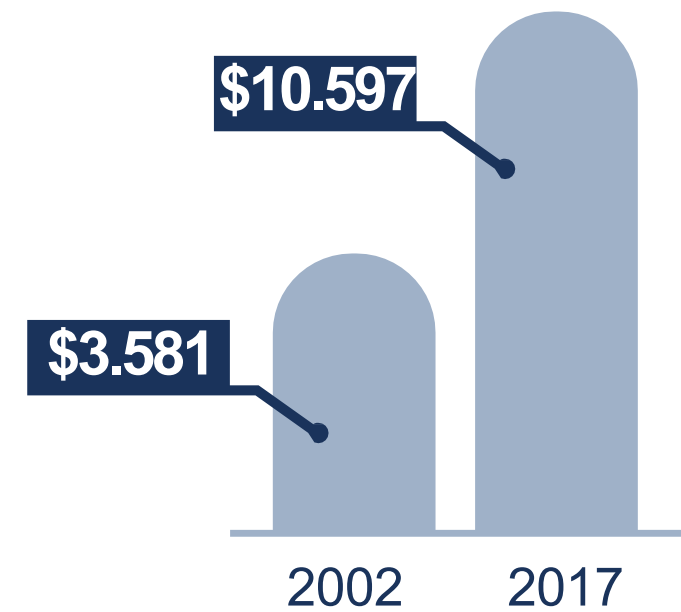


BOURGEONING MIDDLE CLASS

TURKEY'S ECONOMIC GROWTH HAS PAVED THE WAY FOR EMERGENCE OF A SIZEABLE MIDDLE-CLASS...

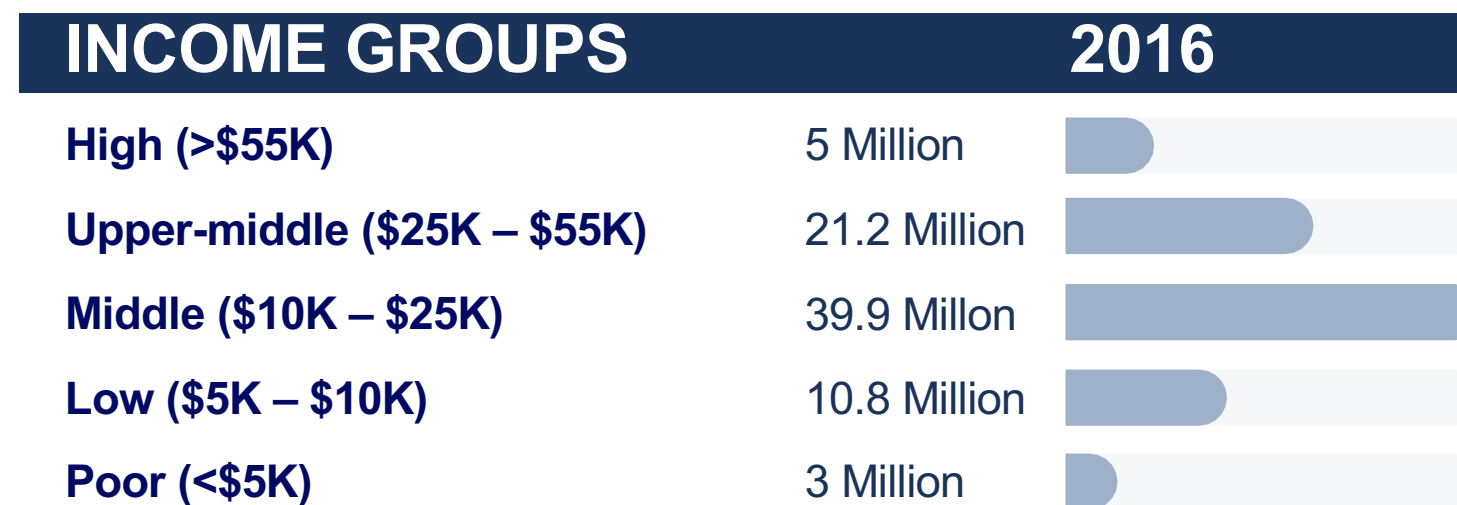
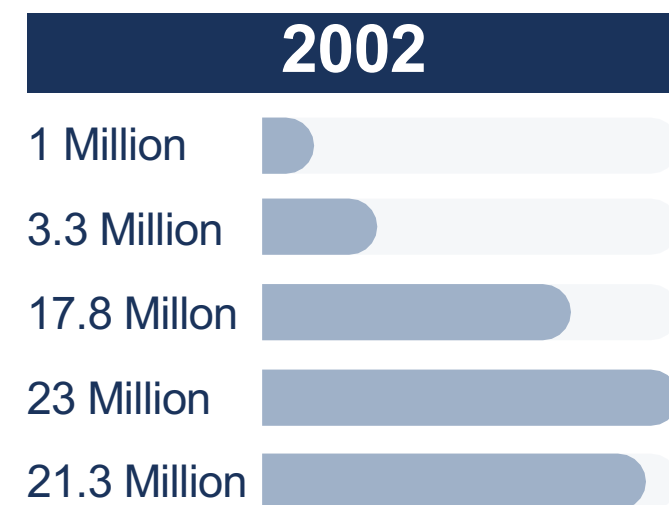
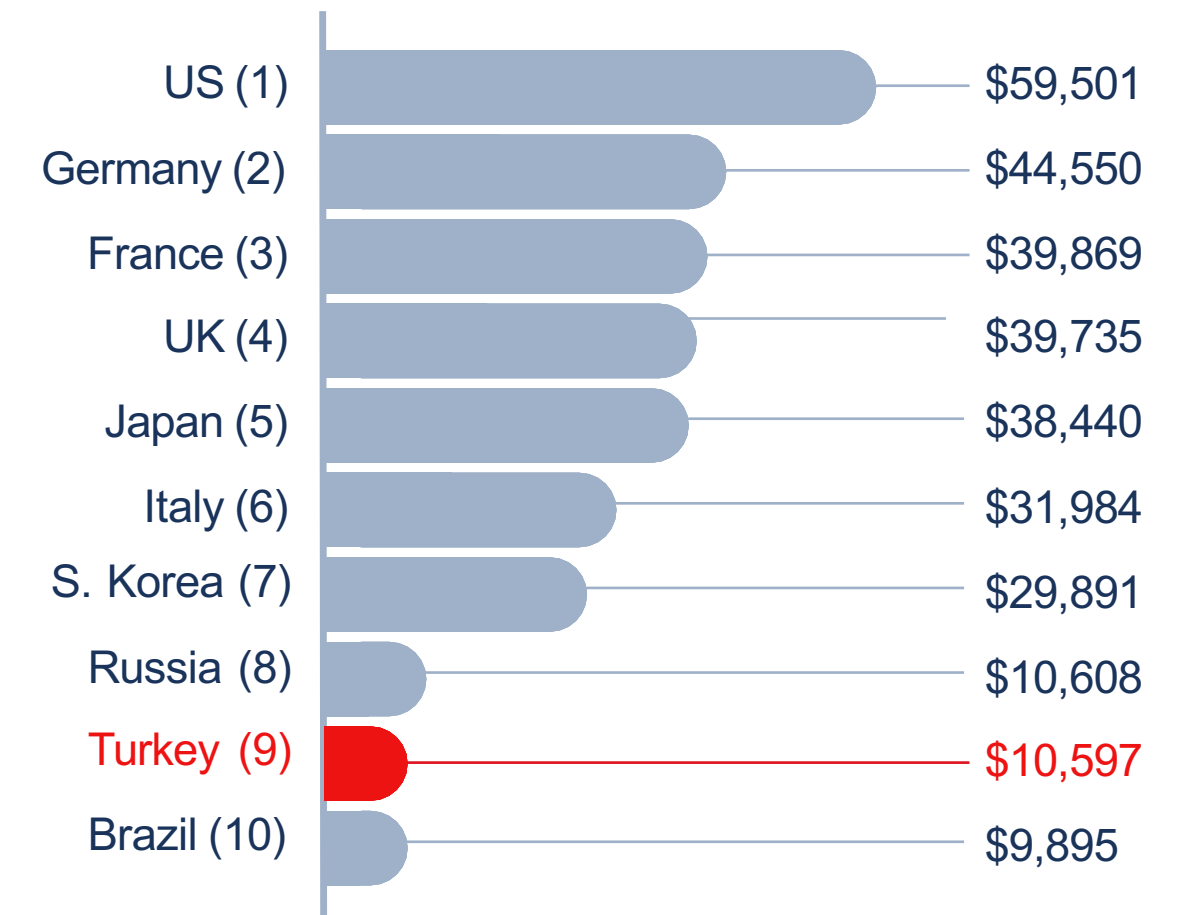


TRIPLING INCOME PER CAPITA (GDP PER CAPITA, CURRENT PRICES)



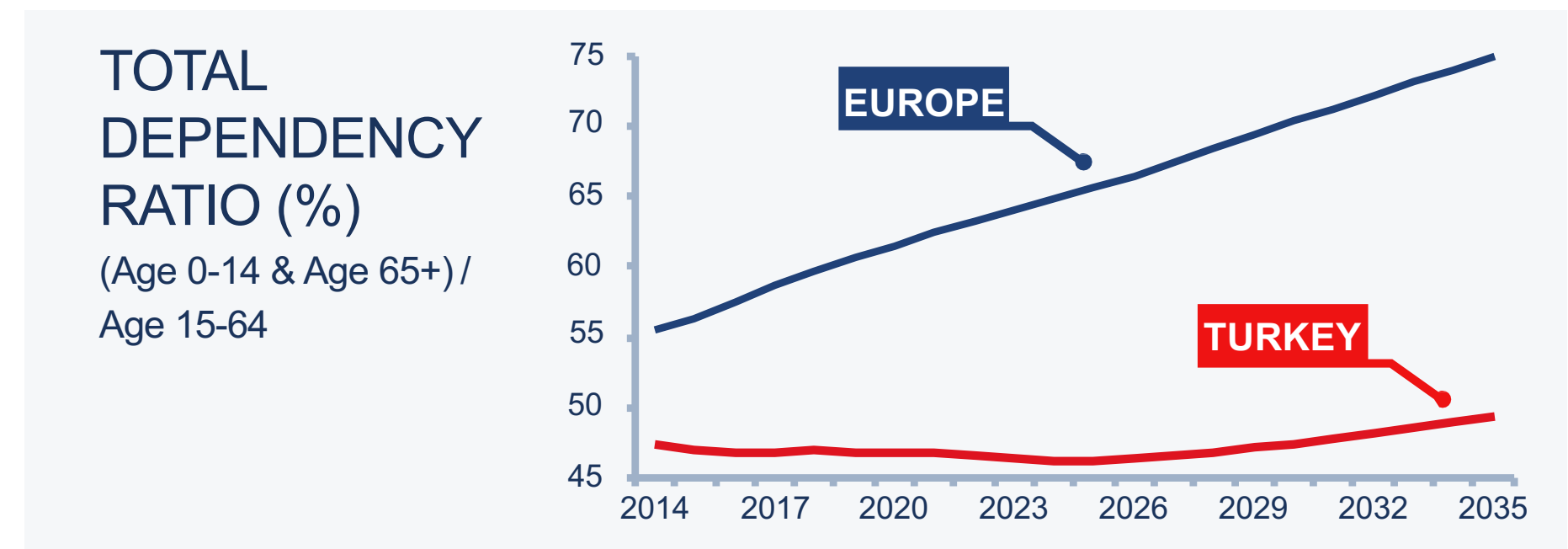
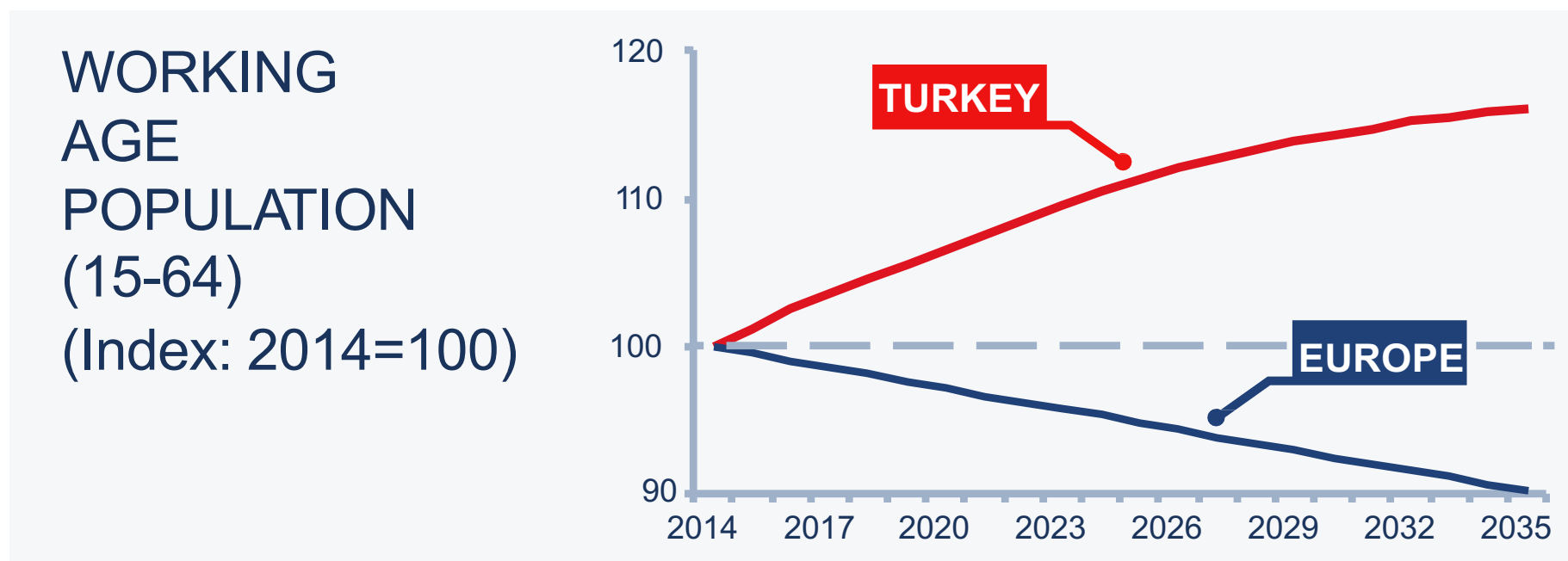
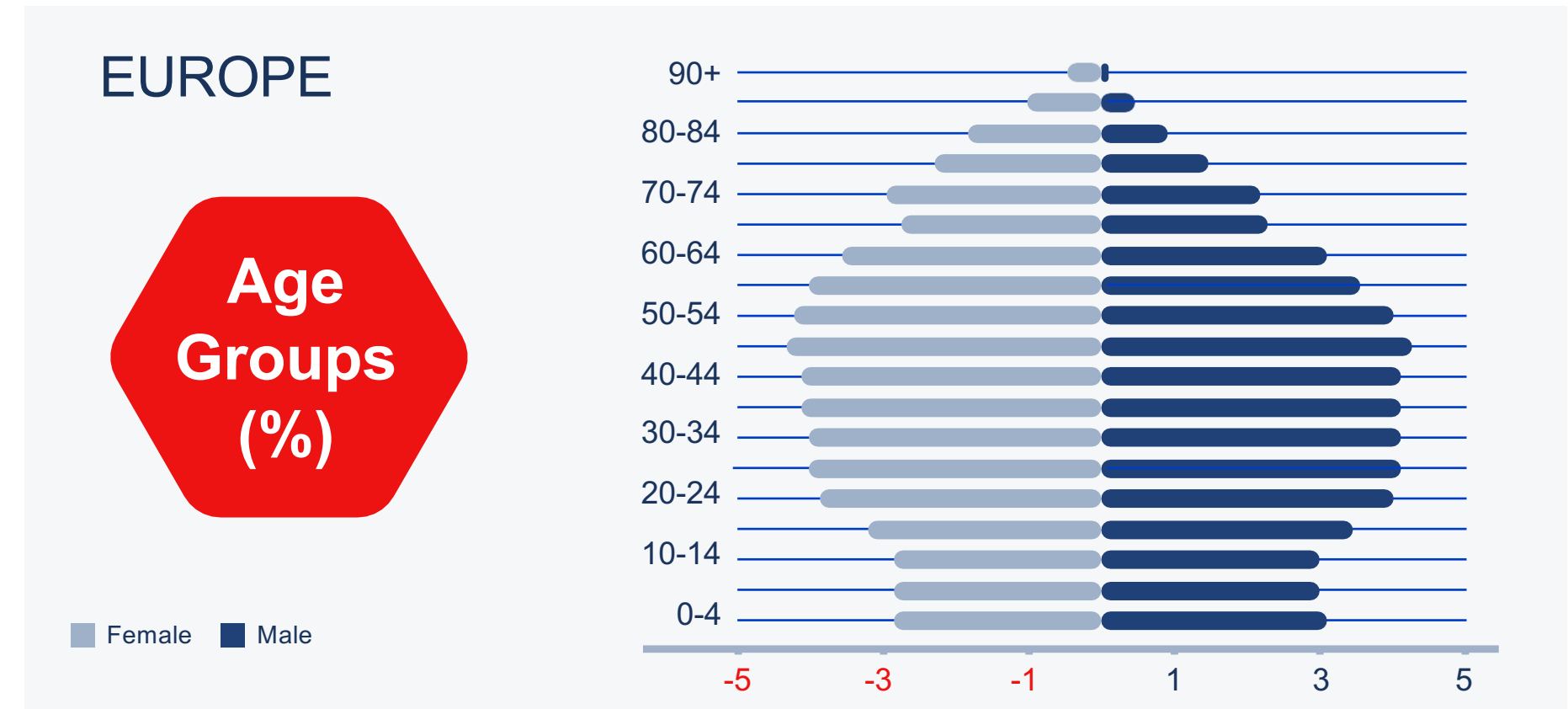
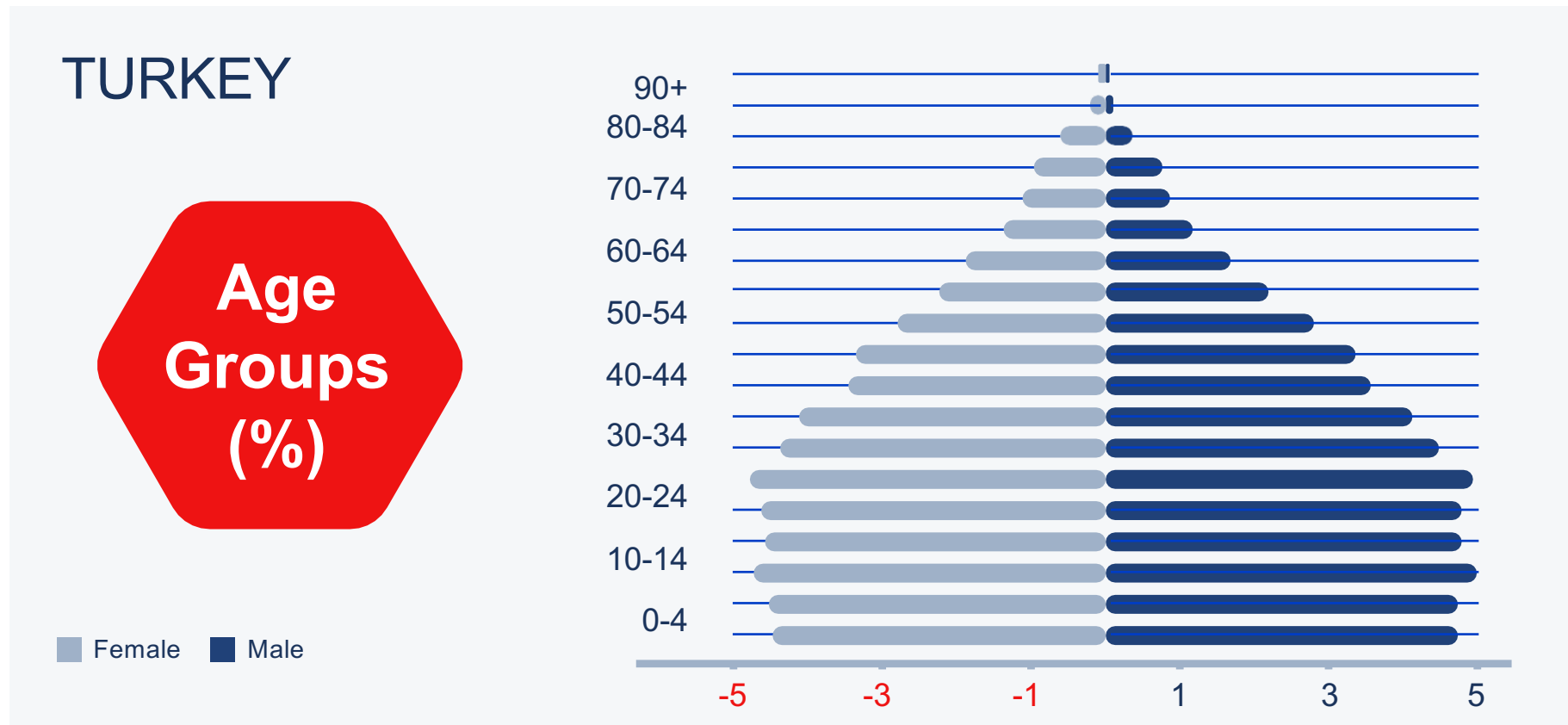
Among countries with population over 50 million, only 9 countries have GDP per capita over \$10,000

GDP PER CAPITA IN COUNTRIES WITH POPULATION OVER 50 MILLION



FAVORABLE DEMOGRAPHIC

...HALF OF POPULATION UNDER AGE 30

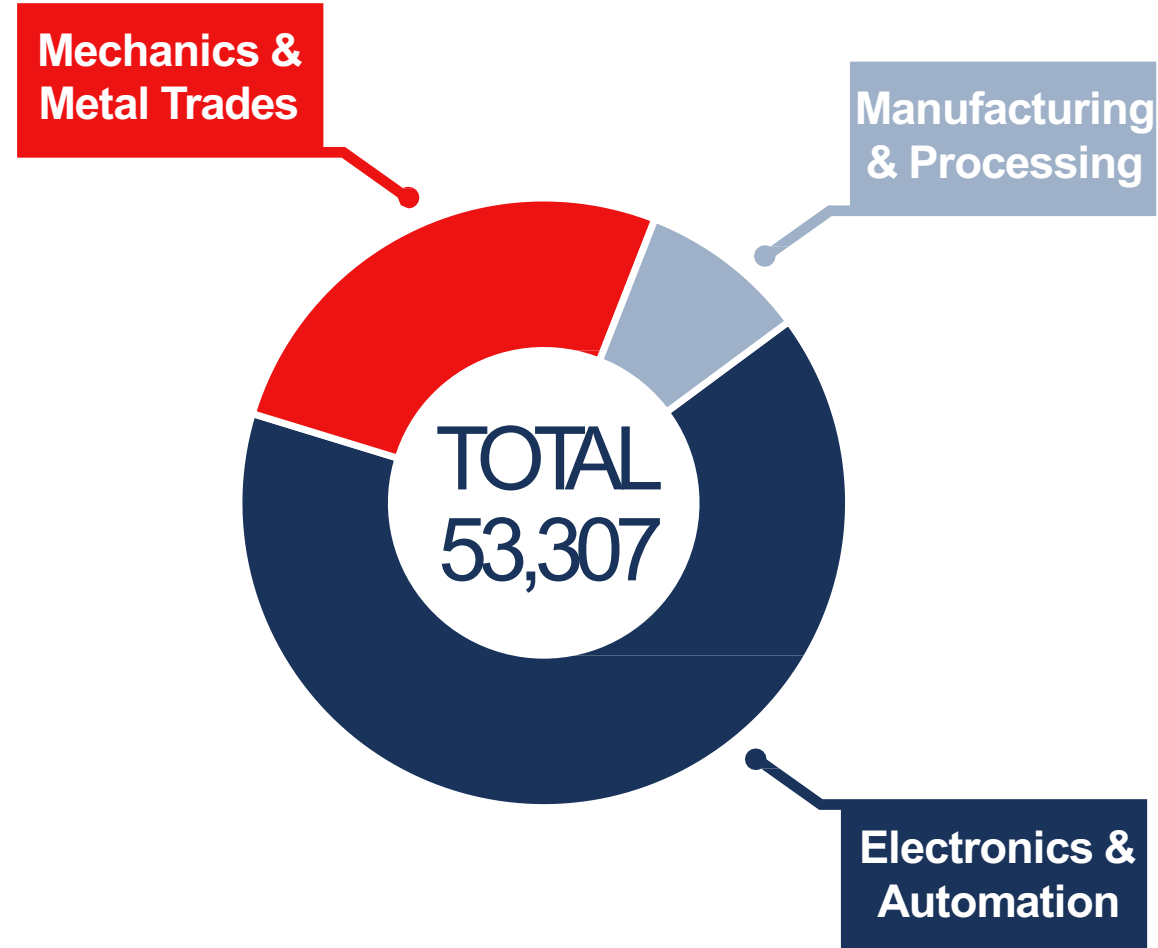


SKILLED & COST-COMPETITIVE LABOR FORCE

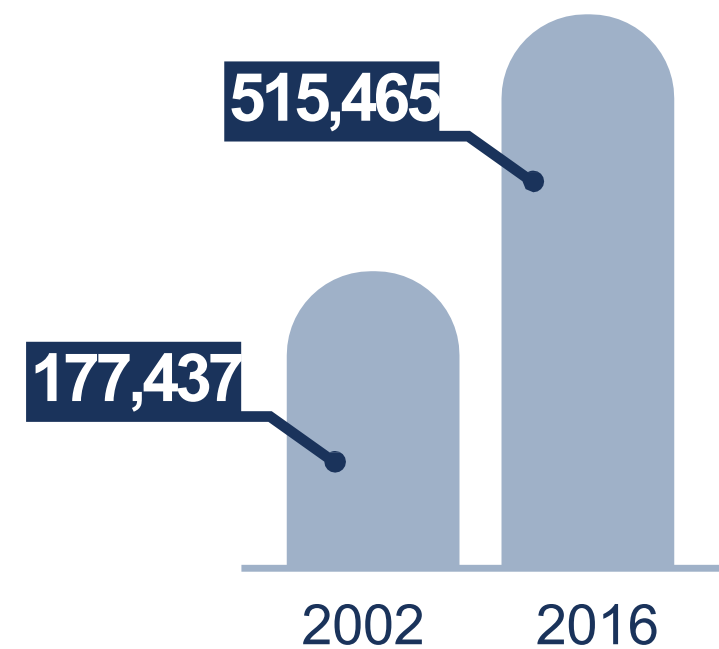
TURKEY'S EDUCATION SYSTEM UPGRADED TO SUPPORT A SKILLED LABOR POOL..



ANNUAL NUMBER OF UNIVERSITY GRADS IN MECHANICAL FIELDS (2016)



NUMBER OF GRADS FROM VOCATIONAL & TECHNICAL HIGH SCHOOLS



LABOR FORCE BY EDUCATION LEVEL

2002

2016

University 10%

High School and below 90%

University 23%

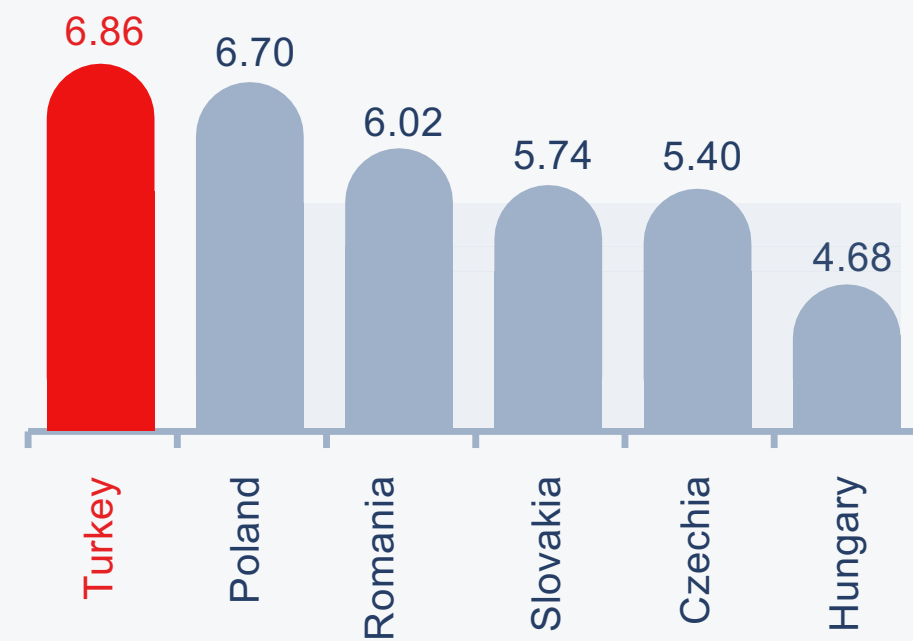
High School and below 77%

SKILLED & COST-COMPETITIVE LABOR FORCE



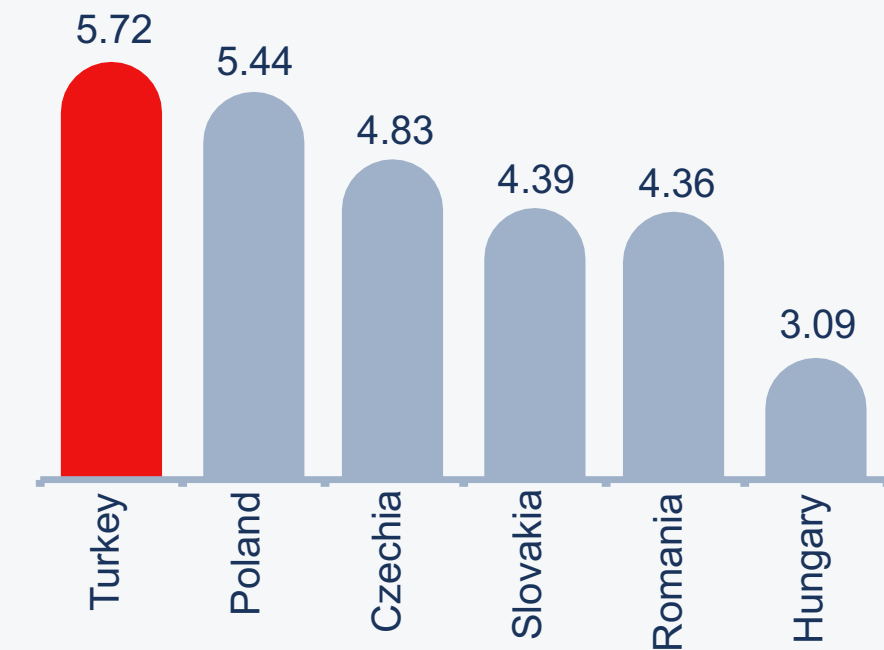
AVAILABILITY OF QUALIFIED ENGINEERS, 2017

(10=Available; 0=Unavailable)

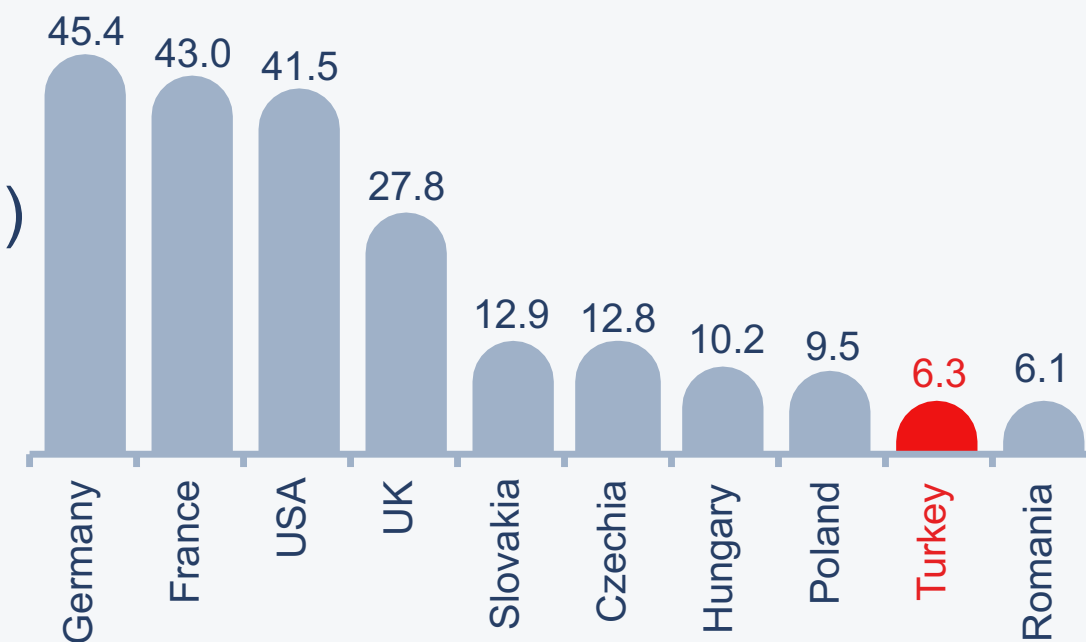


AVAILABILITY OF COMPETENT SENIOR MANAGERS, 2017

(10=Available; 0=Unavailable)

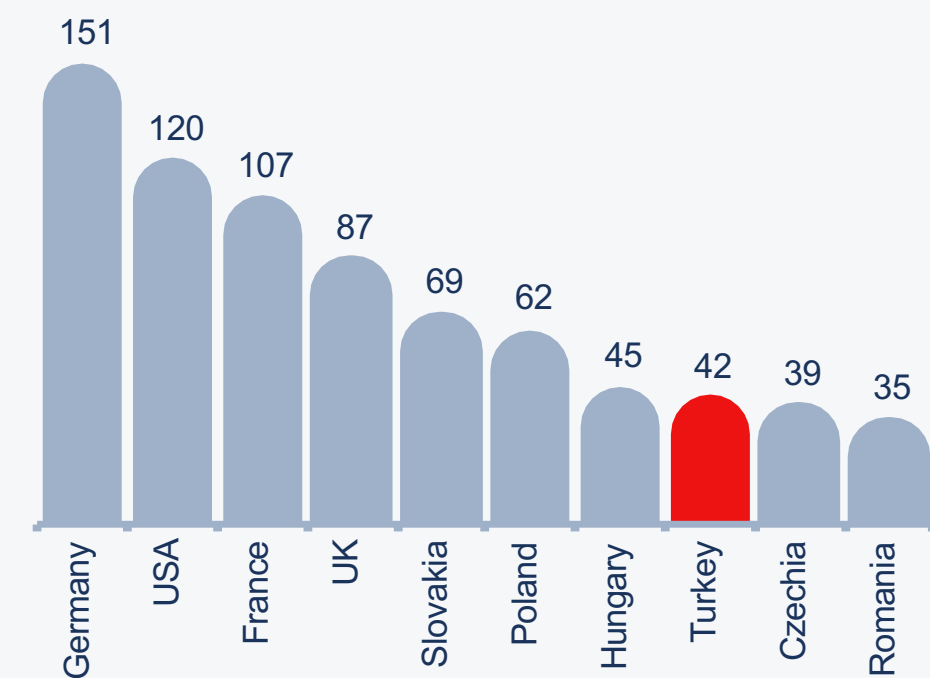


LABOR COST PER HOUR IN MANUFACTURING (\$), 2017



REMUNERATION OF MANAGEMENT/ENGINEER

Total base salary plus bonuses and long-term incentives

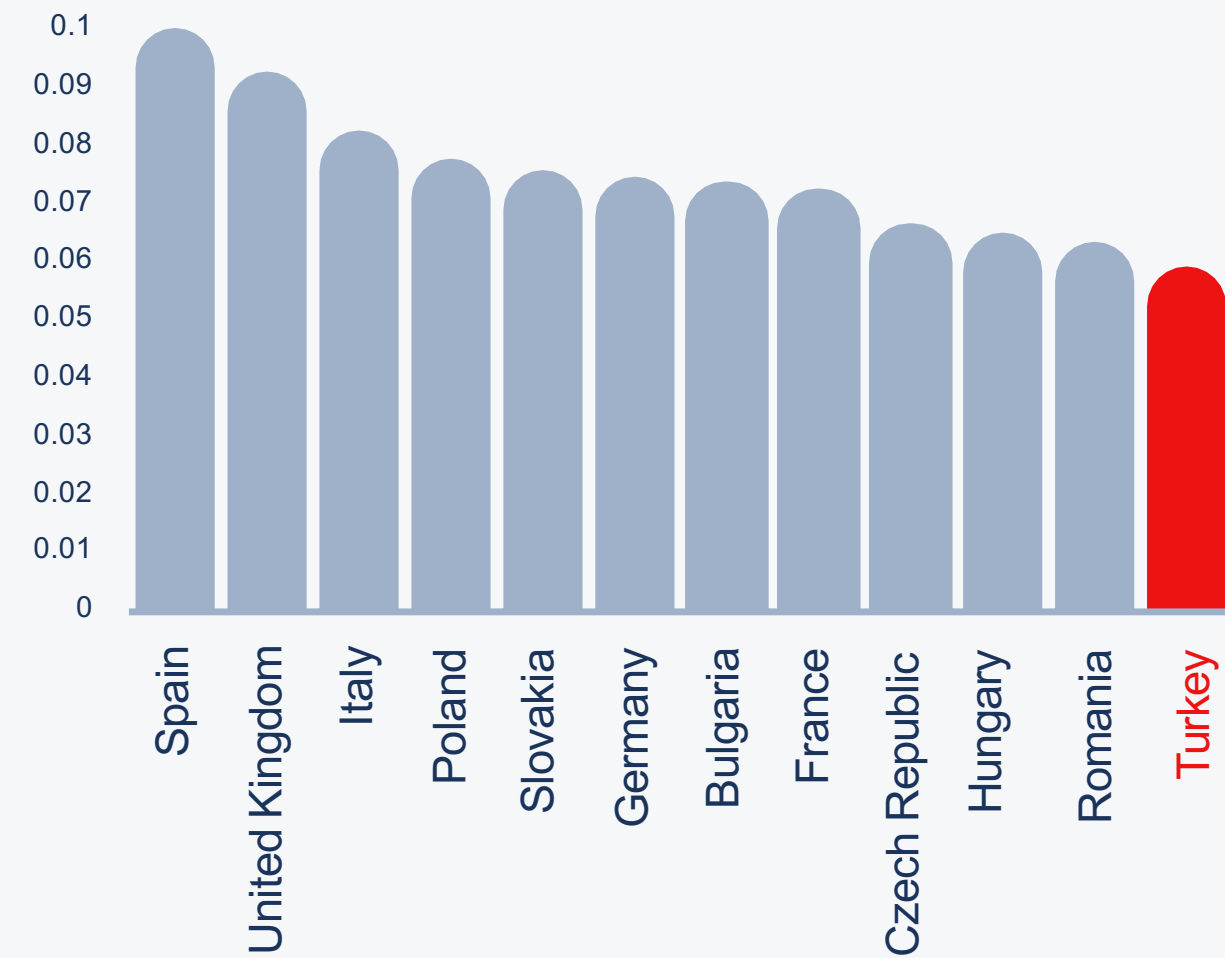


COMPETITIVE ENERGY PRICES

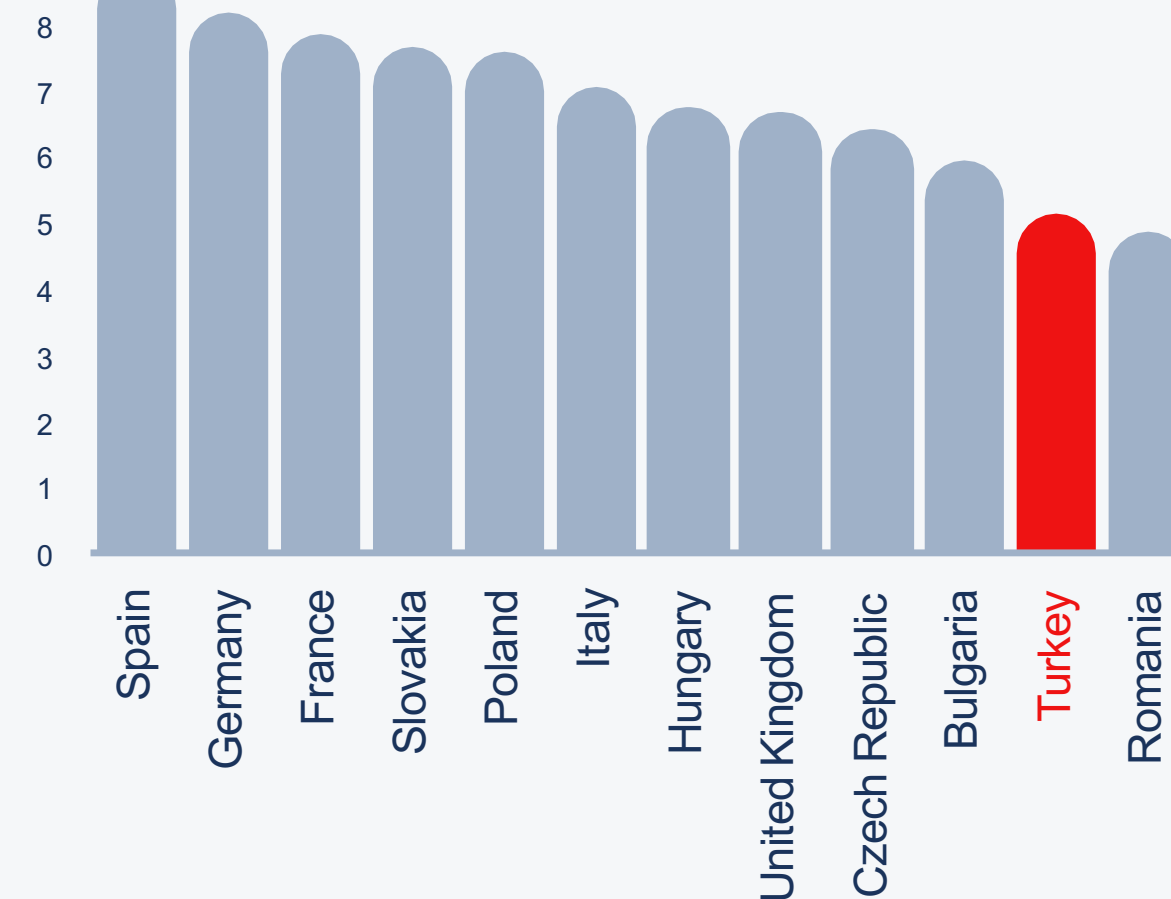
ELECTRICITY AND NATURAL GAS PRICES IN TURKEY HAS BEEN COST COMPETITIVE IN COMPARISON WITH THE EU...



ELECTRICITY PRICES (MEDIUM SIZE INDUSTRIES), EUR/KWH, 2017



NATURAL GAS PRICES, (MEDIUM SIZE INDUSTRIES), EUR/GJ, 2017



INCENTIVES

MACHINERY SECTOR INVESTMENTS AND R&D ARE CONSIDERED AS PRIORITY INVESTMENTS AND CAN BENEFIT FROM VARIOUS LUCRATIVE INCENTIVES..



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

MAIN INCENTIVE TOOLS

Tax Deduction: Reduced tax rates for investor's income (50-90 %) until the total deduction reaches to 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.

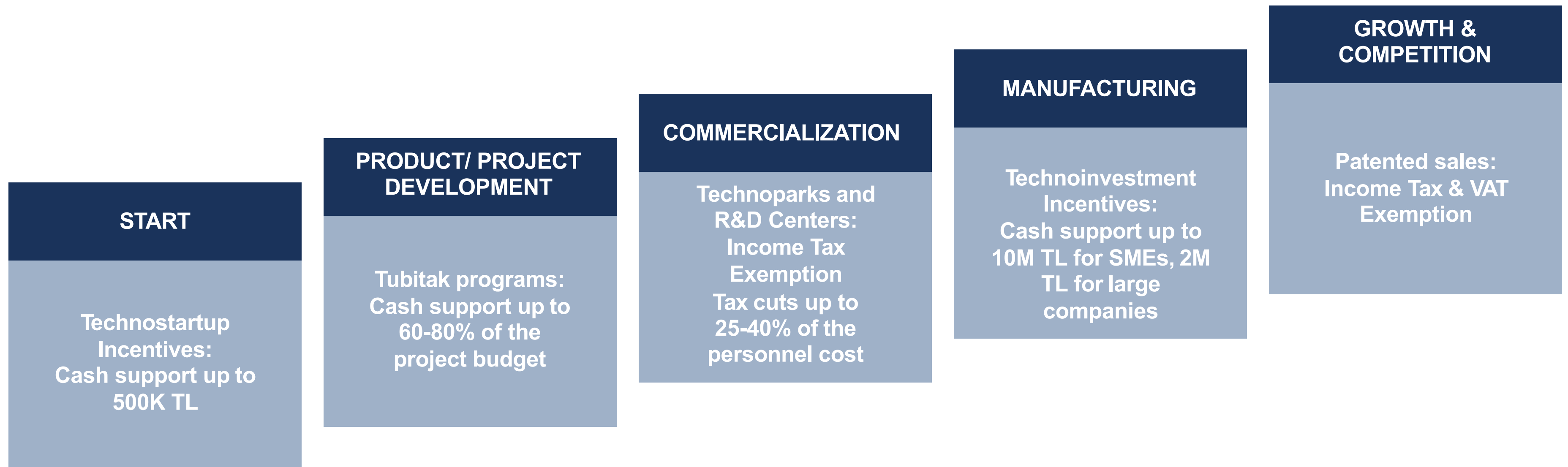
Interest Rate Support: For investment loans, a certain portion of the interest share will be covered by government. (3-7 % points for TL-denominated, 1-2% points for forex-denominated loans) (500K-900K TL).

Land Allocation: Government land will be allocated for the investments, if no land is available in OIZs.

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

*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

INCENTIVES THROUGH INNOVATION LIFECYCLE

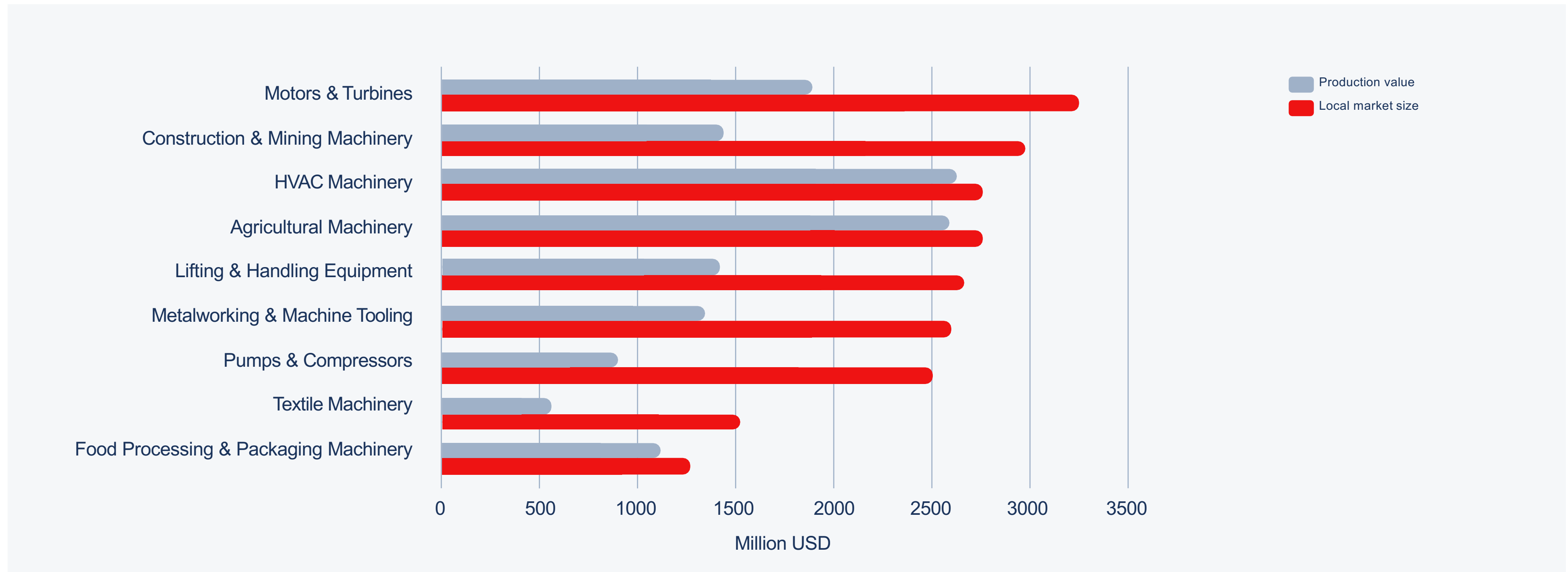




- Executive Summary
- Turkish Machinery Industry Outlook
- Growth Drivers in Turkey
- **Opportunities in Turkish Machinery Industry**
- Success Stories

OPPORTUNITIES IN SUB-SECTORS

TURKEY OFFERS SOLID FUNDAMENTALS TO MAKE PROFITABLE INVESTMENTS IN THE MACHINERY SUB-SECTORS



AGRICULTURAL MACHINERY

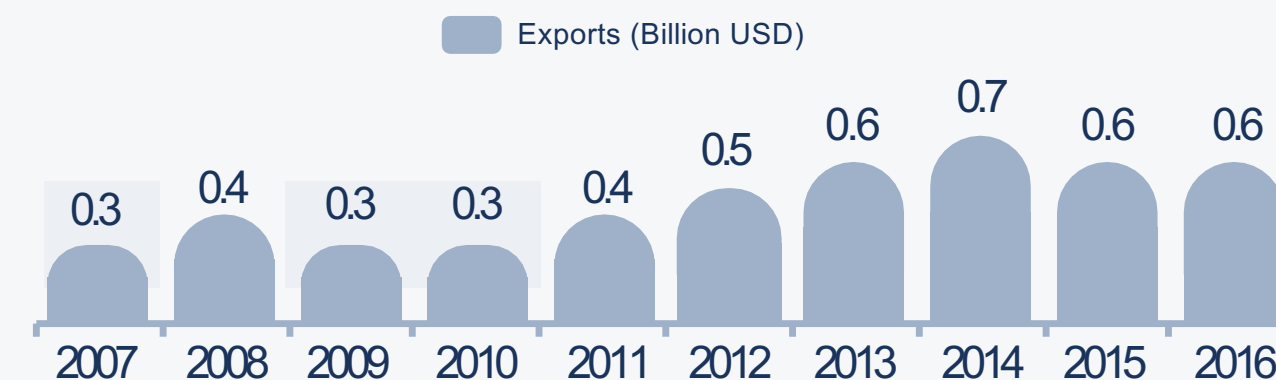
TURKEY'S AGRICULTURAL MACHINERY MARKET HAS REACHED TO \$2.8 BILLION IN 2017 - 1ST IN EUROPE, 4TH IN THE WORLD



KEY FACTS

- Strong industrial base – almost 30% share in Europe's production with over 67K units in 2016
- Strong local market – largest in Europe, 75% of the local market supplied by local players
- 70% of the imports are premium tractors and harvesting machinery – investment opportunity for production
- Manufacturing ecosystem with local and international players with a total of 18K employees

TURKEY'S AGRICULTURAL MACHINERY EXPORTS MORE THAN DOUBLED IN 10 YEARS..



..AND 2 OUT OF 3 TRACTORS GOES TO USA & ITALY

DEMAND DRIVEN BY TURKEY'S AGRICULTURAL ECONOMY AND FRAGMENTED STRUCTURE:

Agricultural GDP
USD 53.4 Billion



Agricultural land
25 Million ha



Arable land
5.1 Million ha



Average enterprise size
6 ha



CONSTRUCTION & MINING MACHINERY

TURKEY'S CONSTRUCTION MACHINERY MARKET HAS REACHED \$3.5 BILLION IN 2016 – 4TH IN EUROPE, 11TH IN THE WORLD



KEY FACTS

- Strong local market - 3rd largest growth in the world after China and India
- Local and international companies exist - local market supplied by 40% local production and 60% import
- Europe's 9th largest manufacturing base with 240K employees, strong local players and \$1Bn of exports
- Strong & international supplier base - Turkey's automotive manufacturing is highly integrated to the global industry and has reached to 1.7 million units
- Local demand driven by public infrastructure and urbanization projects - opportunity for smaller sized construction machinery
- Access to international markets enabled through Turkish construction companies – 46 contractors in ENR250 list

TURKEY INVESTED \$100 BILLION TO INFRASTRUCTURE PROJECTS IN THE LAST 5 YEARS..



..ANOTHER \$325 BILLION IS EXPECTED BY 2023



HIDROMEK®



PI MAKİNA
www.pimakina.com.tr

ÇUKUROVA

HMF | HYUNDAI
CONSTRUCTION EQUIPMENT



KEY FACTS

- 5th largest electricity market in Europe; highest growth in Europe with 5.3%
- \$75 billion of energy investments done in the last 10 years
- Electricity demand and supply to grow by 50% by 2030 – renewable and local energy resources are priorities
- Opportunities in production of wind/hydro/steam turbines and generators

WIND

20GW by 2030; 6.5GW total in 2017
\$882M of wind turbine imports in 2016 – over 90% from Germany, Denmark & Spain
YEKA tender for 1GW done in 2017; winning consortium is Siemens-Turkerler-Kalyon @3.48c/kWh with local production required

GEOTHERMAL & BIOMASS

1GW geothermal & 500MW biomass in 2017;
1GW geothermal in the pipeline
\$276M of steam turbine imports in 2016 – 80% from China & Germany

SOLAR

10GW by 2030; 2.6GW total in 2017
75% of solar panel imports are from China
YEKA tender for 1GW was done in 2017; winning consortium is Hanwha QCells-Kalyon @6.99c/kWh with local production required

ELECTRIC MOTOR

\$737M of electric motor & generator imports in 2016 – 50% from China, Germany, Italy

HYDRO

34GW by 2023; 27GW total in 2017
\$71M of hydro turbine imports in 2016 – 55% from Austria & China

NUCLEAR

3 nuclear power projects by 2023
Sinop and Akkuyu projects will lead to \$16 billion of products & service sales
Nuclear supply chain in Turkey to develop through international partnerships

COAL

10GW lignite, 8.8GW imported coal
18.5GW new capacity for lignite to be developed via PPAs
Lignite power projects are supported via capacity payments, PPAs and tax cuts

FOOD PROCESSING & PACKAGING MACHINERY

TURKEY'S FOOD PROCESSING & PACKAGING MACHINERY MARKET HAS REACHED \$1.3 BILLION IN 2016

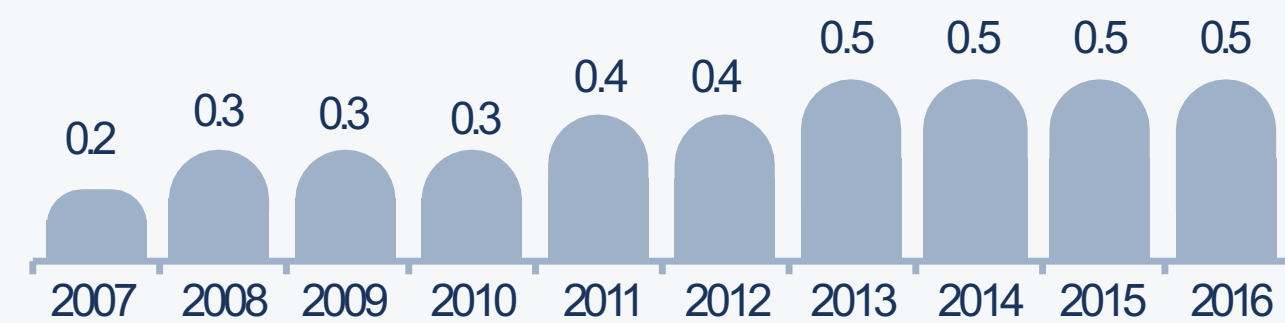


KEY FACTS

- Strong industrial base clustered in Istanbul, Konya, Ankara, Gaziantep and Izmir
- Demand driven by strong packaged food and beverages market - \$10.7 billion export in 2016
- \$577M of import in 2016 – major imports are machinery for manufacturing of confectionary/cocoa/chocolate, for bread/cake/biscuit and for processing food by heat exchange
- Turkey is a manufacturing base for international food giants like Unilever, Kraft, Nestle, Danone, Ferrero with around 15K employees



TURKEY'S FOOD PROCESSING & PACKAGING MACHINERY EXPORTS DOUBLED IN 10 YEARS



Exports (Billion USD)

..WHERE 80% OF EXPORTS ARE MACHINERY FOR

- Processing & milling of grains and cereals
- Industrial preparation of food or drink
- Filtering or purifying water

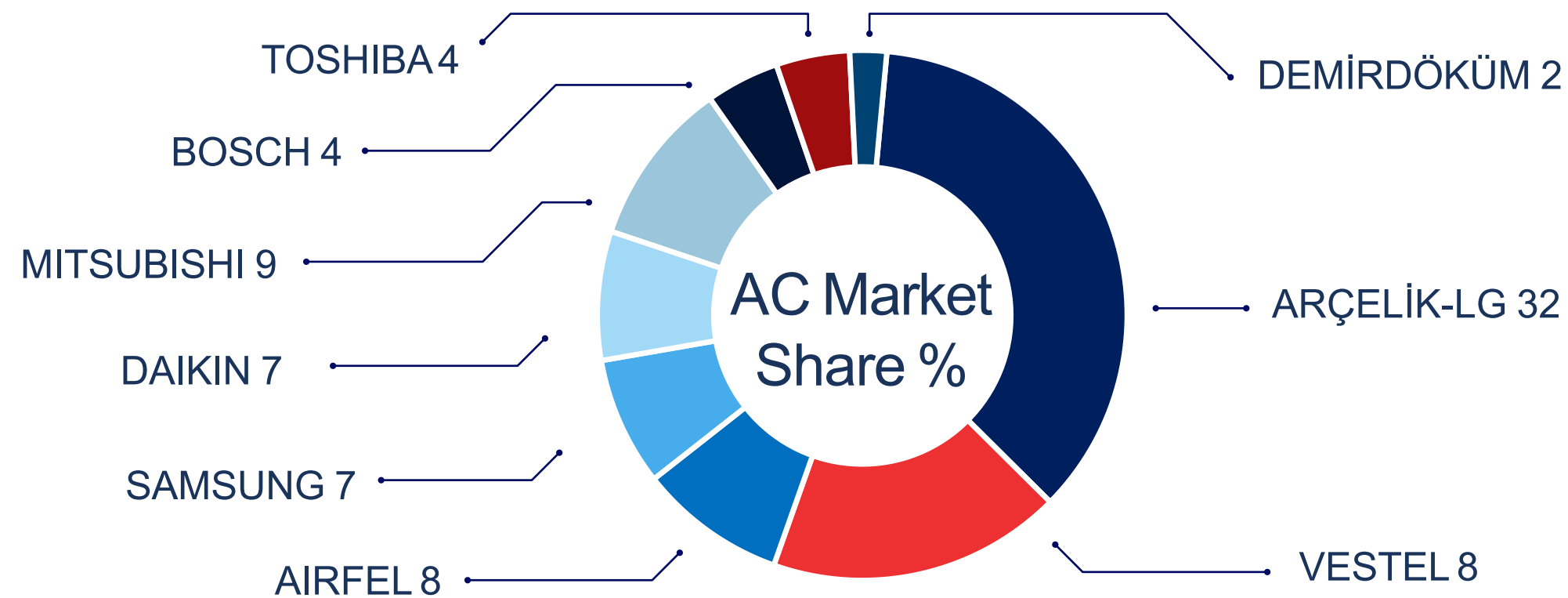
..AND TOP5 EXPORT MARKETS ARE

- Algeria
- Iraq
- Uzbekistan
- Iran
- Egypt

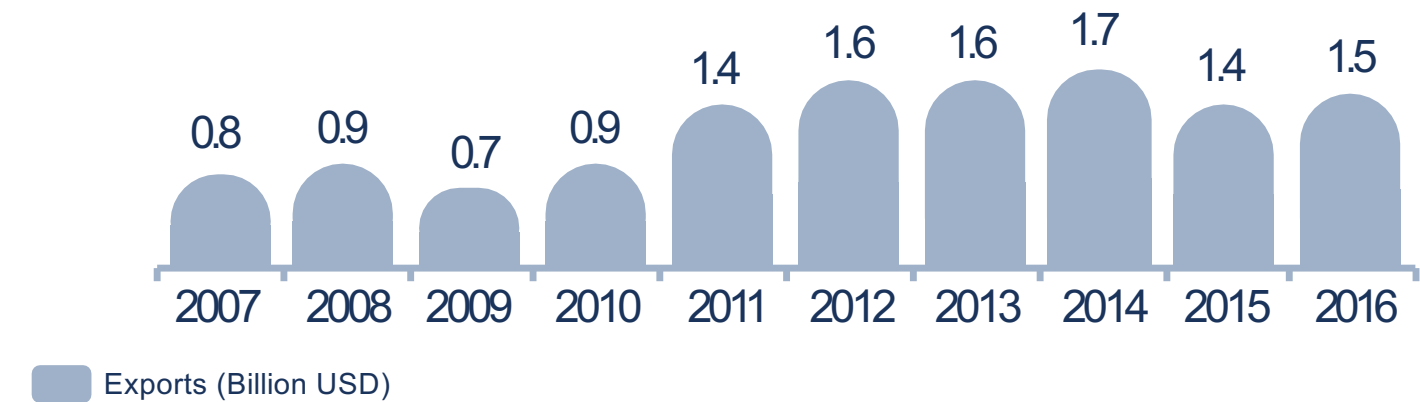


KEY FACTS

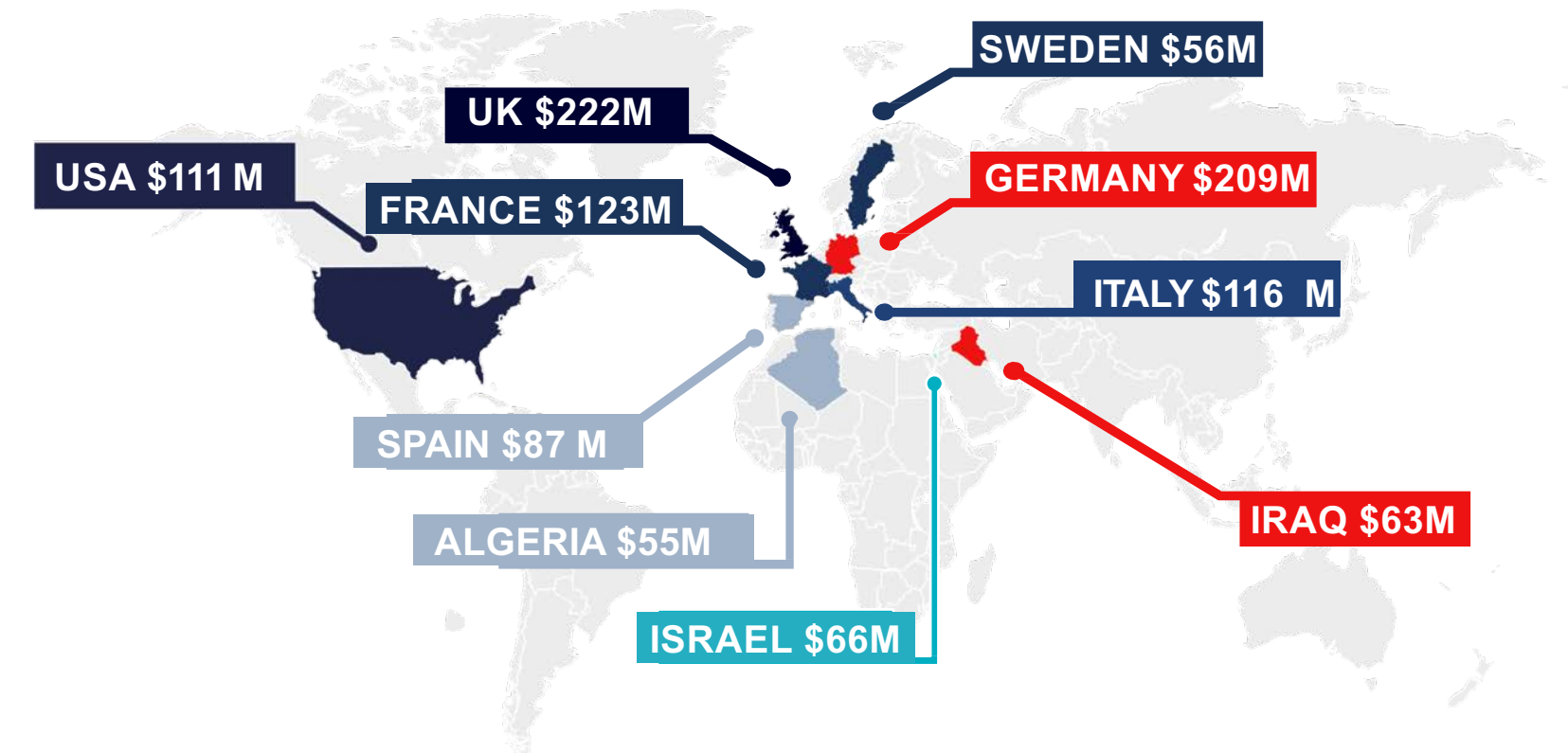
- Strong industrial base – Europe's manufacturing base for panel radiator, boiler and AHU's
- Strong local market – Europe's 3rd largest split AC market with 800K units and VRF market with 31K units
- Demand driven by construction in residential market; efficiency regulations and development in technology in non-residential market
- \$250M VRF market growing with imports – opportunity for high-tech production
- Access to international markets through Turkish construction companies – 46 contractors in ENR250 list



TURKEY'S HVAC EXPORTS DOUBLED IN 10 YEARS..



..WHERE EUROPE HAS 64% SHARE



LIFTING & HANDLING EQUIPMENT

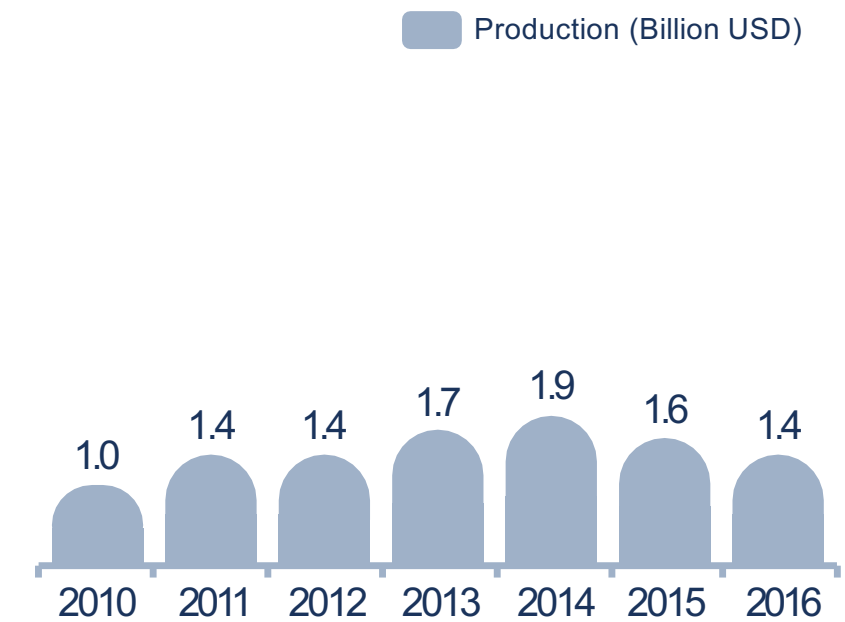
TURKEY'S MARKET FOR LIFTING & HANDLING EQUIPMENT HAS REACHED \$2.7 BILLION IN 2016



KEY FACTS

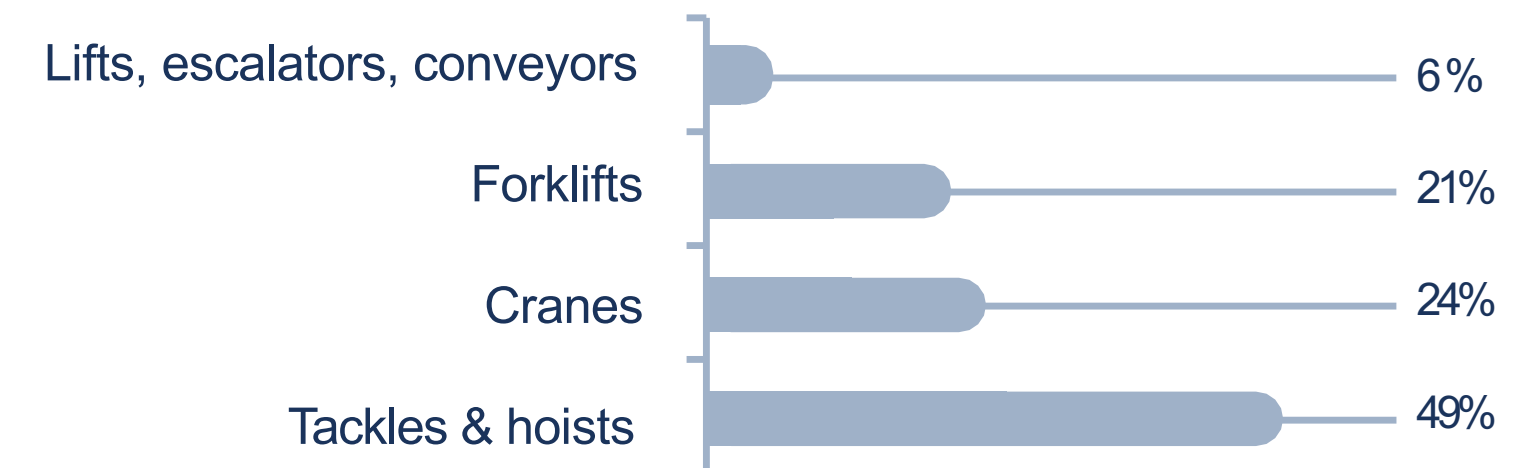
- Strong industrial base – \$1.4 Billion of production in 2016
- Local and international players mostly based in Istanbul, Kocaeli, Bursa, Ankara, Konya, Kayseri and Izmir
- Strong supplier base - expertise in automotive, machinery and electronics & control systems
- 3rd largest elevator market in the world with 30K new units - ThyssenKrupp, Otis, Kone, Schindler, Hyundai present with some level of assembly operations
- Opportunity for assembly and manufacturing of parts
- Strong local market – demand driven by the growth in the industry and infrastructure & construction projects

TURKEY'S PRODUCTION OF LIFTING & HANDLING EQUIPMENT HAS INCREASED BY 50% SINCE 2010..



..BUT EXPORTS REMAINED FAIRLY LOW AT \$229M

\$1.5 BILLION IMPORT IS DONE IN 2016 – 75% FROM CHINA, GERMANY & ITALY



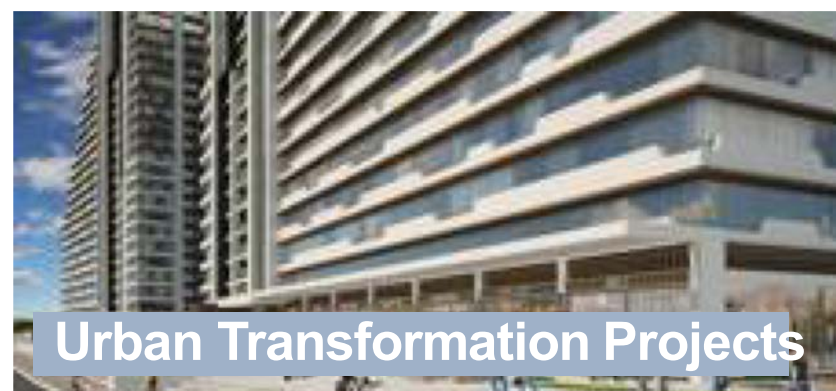
3rd Istanbul Airport



Hotel Projects



Subway Projects



Urban Transformation Projects



Public Hospital Projects

METALWORKING & MACHINE TOOLING

TURKEY'S METALWORKING & MACHINE TOOLING MARKET HAS REACHED TO \$2.6 BILLION – 11TH LARGEST IN THE WORLD

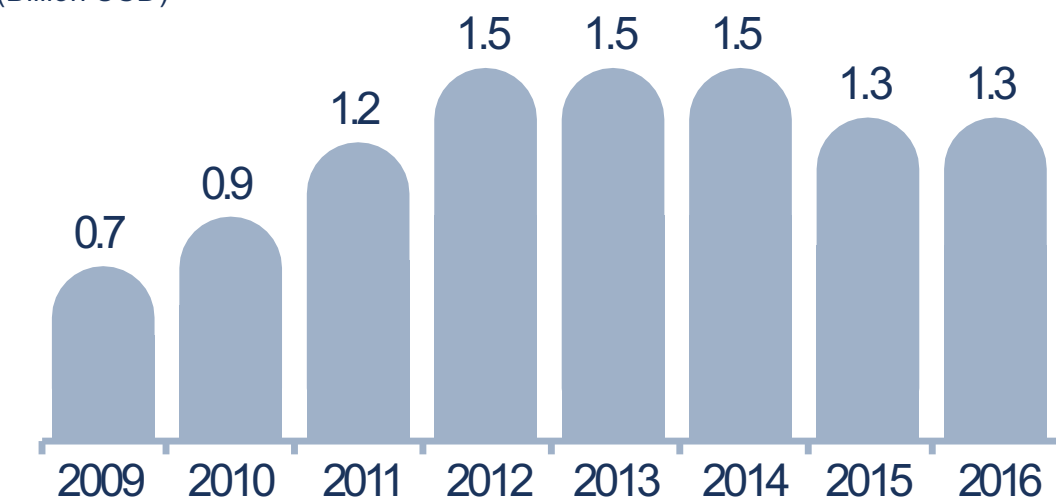


KEY FACTS

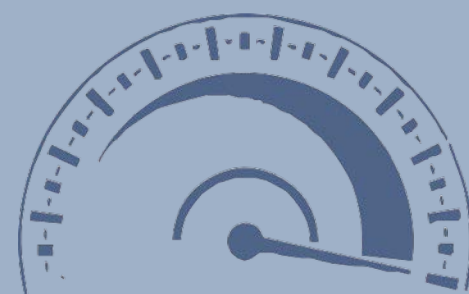
- Strong industrial base – largest in Central and Eastern Europe with \$1.3 Billion value in 2016
- Strong in laser machine tools, forging & punching machine tools (inc. presses) – 80% of the exports
- \$650M export value has remained steady in the last ten years – industry diversifying its export markets to USA, Canada, Mexico, Brazil and India
- Over 40% of the \$1.7 Billion import in 2017 is for machining centers, transfer machines and lathes - mostly from Germany & Italy
- Investment opportunity for CNC tools – supplier base for CNC tools exists

TURKEY'S METALWORKING & MACHINETOOLING MANUFACTURING DOUBLED SINCE 2009

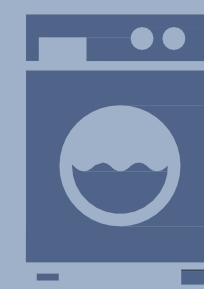
Production (Billion USD)



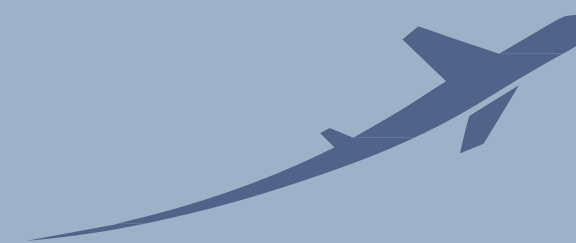
DEMAND IS DRIVEN BY INDUSTRIES WHERE TURKEY HAS A STRONG PRESENCE



AUTOMOTIVE



WHITE GOODS



AVIATION

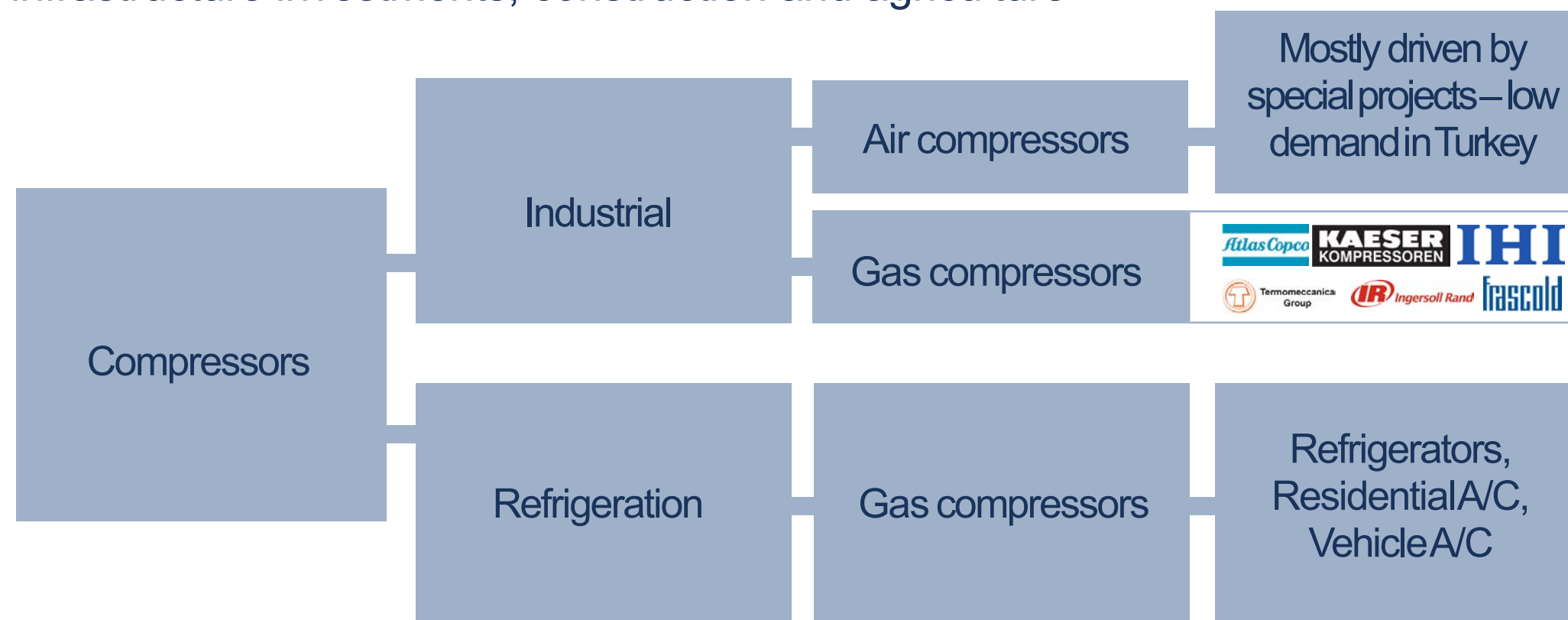


HEALTH CARE



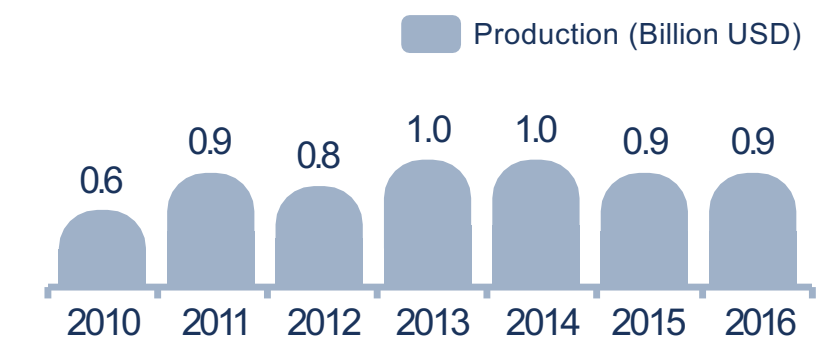
KEY FACTS

- Industrial base – \$899M of production in 2016; mostly based in Istanbul, Konya and Izmir
- Majority of the companies are small-sized - over 9K employees in 500 companies.
- Strong local market – demand driven by the growth in the industries, municipal infrastructure investments, construction and agriculture



TURKEY'S PRODUCTION OF PUMPS & COMPRESSORS HAS INCREASED BY 50% SINCE 2010

..BUT EXPORTS REMAINED FAIRLY LOW AT \$685M WHERE EUROPE & USA HAVE A 40% SHARE



TURKEY HAS \$2.2 BILLION OF IMPORTS WHERE EUROPE HAS OVER 60% SHARE:





KEY FACTS

- Strong industrial base especially in knitting and dying & finishing machines
- Demand driven by textile industry – Turkey is the 8th largest textile exporter with \$15 Billion in 2016
- Due to high cost pressure from Asian countries, Turkey's textile industry needs to specialize and increase its value add while upgrading or renewing its \$25 Billion machinery park – technical textile is an example

TURKEY'S TEXTILE MACHINERY EXPORTS DOUBLED IN 10 YEARS – STILL LOW COMPARED TO \$1.3 BILLION OF IMPORTS



TURKEY'S COMPETITIVENESS IN TEXTILE MACHINERY CATEGORIES:

SPINNING



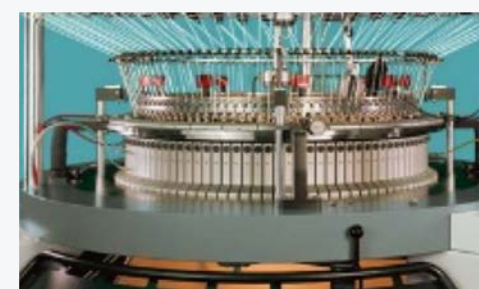
70% of Turkey's imports are from Switzerland, Germany & Italy

WEAVING



80% of Turkey's imports are from Belgium & Italy

KNITTING ✓



DYING & FINISHING ✓



SEWING



Turkish market dominated by China & Vietnam

TECHNICAL TEXTILE ✓

Developing in Turkey for non-woven applications:

- Carpets
- Automotive
- Apron dresses etc.



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



- Mahindra Farm Equipment (M&M) is part of the \$19 Billion Mahindra group headquartered in Mumbai, India. The group had a revenue of \$14 Billion in 2017
- Manufacturing tractor cabins & industrial components, foundry, engine and transmission with 865 employees in three facilities of Hisarlar, 355 employees in two facilities of Erkunt and an R&D Center
- Uses Turkey as a regional hub for Turkey, Middle East, CIS and Europe
- Acquired 75% of Hisarlar Makina in 2017 at \$19 Million



- IHI Corporation is a Japanese corporation that produces ships, aircraft engines, turbochargers, industrial machines, power station boilers and suspension bridges. Had a revenue of \$14 Billion in 2017 with 30K employees in total
- IHI's completed projects in Turkey include Golden Horn Bridge, 2nd Bosphorus Bridge, Osman Gazi Bridge and several reinforcement projects
- With an investment of \$14.4 Million, formed a JV with Dalgakıran Makine in order to produce turbo compressors in Turkey in 2018. Has an employment of 60
- Uses Turkey as a base for exports to Europe, Middle East, and other growing markets



- Japanese multinational electronics and electrical equipment manufacturing company with a total revenue of \$39 Billion in 2017
- Operational in Turkey since 2012 especially in air conditioning, elevators and escalators, factory automation systems, visual information systems and transportation systems as well as electrification
- In 2018, opened its first air-conditioner manufacturing plant of Europe in Turkey with an investment of \$80 Million



- Established in Germany in 1958, its products include plant and equipment for concrete production, truck mixers, plastering machines, concrete injectors and concrete pumps
- Acquired by Chinese competitor Sany Heavy Industries for \$402 Million in 2012
- Manufacturing concrete pumps and mechanical and hydraulic distributors at its Cerkezkoy plant since 2008



- Established in Italy, its products include washing appliances, built-in and small domestic appliances. Had a revenue of 1.1 Billion in 2017
- Manufacturing in Turkey since 2007 at its Eskisehir plant
- Invested €15 Million for the launch of a new plant in Turkey with an employment of 300 people
- Uses Turkey plant as a base for oven and stove manufacturing, built-in appliances and dryers and exports over 90% of its production



- Established in the USA in 1899, its products include pistons, rings&liners, valve seats&guides, engine bearings and sealing
- Had a revenue of \$7.3 Billion in 2014
- Operational in Turkey since 1998, currently has two facilities with a total employment of 1600 people
- Has invested a total of €400 Million in Turkey by 2017
- 80% of the piston production is exported to Europe and USA as original equipment

INVEST IN TURKEY



Contact: bavci@invest.gov.tr

