WHY INVEST IN TURKISH MACHINERY INDUSTRY?

November 2022

INVEST.GOV.TR
EXECUTIVE SUMMARY

TÜRKİYE HAS A GROWING MACHINERY INDUSTRY OFFERING OPPORTUNITIES IN MANY AREAS...

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

STRONG INTERNATIONAL PRESENCE

• Global machinery companies are present in Türkiye with significant manufacturing activities, using Türkiye as a hub to access regional markets
• Successful partnerships with local companies to grow in the region, capitalizing on locals’ experience and networks

LUCRATIVE OPPORTUNITIES IN SUB-SECTORS

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

ROBUST GROWTH IN THE SECTOR

• Turkish machinery industry has been robustly growing over the past decade with approx. 5% CAGR
• Turkish machinery market is ranked 3rd largest sector in the Turkish manufacturing industry.
• Customer industries, such as plastic & rubber, automotive, construction, textiles and electrical machinery are robustly growing and therefore further supporting the growth of the machinery sector
• Export opportunities due to Türkiye’s proximity to regional markets
AGENDA

1. Executive Summary
2. Turkish Machinery Industry Outlook
3. Growth Drivers in Türkiye
4. Opportunities in Turkish Machinery Industry
5. Success Stories

TURKISH MACHINERY INDUSTRY OUTLOOK
TURKISH MACHINERY INDUSTRY

TURKISH MACHINERY SECTOR HAS MORE THAN QUADRUPLED ITS REVENUES TO USD 30 BILLION AND DOUBLED ITS WORKFORCE TO 232K OVER THE PAST DECADE

AN UNPRECEDENTED AVERAGE GROWTH OF 40% IN 5 YEARS

TÜRKİYE SHOOK OFF GLOBAL CRISIS WHILE DOUBLING ITS REVENUE & REACHING VALUE-ADD RATIO OF 25%

5% CAGR 2010-2021

Revenue (M$) Employment

Source: Turkish Statistical Institute Industry & Services Statistics NACE Rev2 Division 28, Central Bank of Republic of Türkiye
END-USE INDUSTRIES

SUSTAINABILITY OF GROWTH IN CUSTOMER INDUSTRIES DRIVING TÜRKİYE’S MACHINERY INDUSTRY...

Source: Ministry of Science, Industry and Technology, Investment Office Team Analysis
TÜRKİYE’S EXPORTS HAVE GROWN FIVE TIMES SINCE 2003, MAKING IT ONE OF THE TOP PERFORMERS IN GLOBAL MACHINERY TRADE

WHEN WORLD EXPORTS DOUBLED, TÜRKİYE’S EXPORTS INCREASED FIVE TIMES...

...WHILE DIVERSIFYING ITS EXPORT MARKETS:

Europe – mostly to Germany, UK, France, and Italy

Americas

MENA - mostly Iran, Iraq, Egypt, Israel

Source: Comtrade HS code 84, 8202, 8207, 8208, 8501, 8502, 8503, 8505, 8514, 8515, 8701, 8709, 8716, 9017, 9024, 9508, 9603, Team Analysis
TÜRKİYE HAS ALMOST TRIPLED ITS IMPORTS TO USD 28 BILLION AND NOW IS THE 24TH LARGEST IMPORTER IN THE WORLD

TÜRKİYE HAS INCREASED ITS EXPORT/IMPORT RATIO FROM 30% TO 65% SINCE 2003...

...WITH THE FOLLOWING BREAKDOWN BY COUNTRIES

- **Europe** - mostly from Germany, Italy and UK: 53.8%
- **USA**: 5.5%
- **China**: 25.4%
- **South Korea & Japan**: 7.1%

Source: Comtrade HS code 84, 8202, 8208, 8501, 8502, 8503, 8514, 8515, 8701, 8709, 9017, 9024, 9058, 9603, Team Analysis
TÜRKİYE is well connected with the region through customs union with the EU and free trade agreements with 28 countries.

TÜRKİYE has geographical proximity to some of the highest-growth markets in machinery and is conveniently positioned as a managing and manufacturing hub.

TÜRKİYE fully complies with the EU technical legislations since 2002, with all conformity assessments in line with EU regulations.

Source: UN Comtrade HS Code 84, Türkiye has signed Free Trade Agreements (FTA) with 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 Liechtenstein, Syria, Tunisia. (*to be ratified).
There are over 18k companies in Turkish machinery sector where both local and international players are active.

63% of machinery revenue is made by small and medium enterprises.

77% of the companies have <10 employees.

Growth requires access to:
- Market
- Technology
- International finance

10 of the largest 25 players are international & export rate is 40% on average.

40% export on average.
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GROWTH DRIVERS IN TÜRKİYE
ROBUST ECONOMY

TRACK RECORD GROWTH AND BRIGHT FUTURE WITH PROVEN RESILIENCE

11th largest economy in the world

RANKING OF ECONOMIES BY GDP AT PPP

<table>
<thead>
<tr>
<th>2003</th>
<th>2019</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>USA</td>
<td>1.</td>
</tr>
<tr>
<td>2.</td>
<td>CHINA</td>
<td>2.</td>
</tr>
<tr>
<td>3.</td>
<td>JAPAN</td>
<td>3.</td>
</tr>
<tr>
<td>4.</td>
<td>GERMANY</td>
<td>4.</td>
</tr>
<tr>
<td>5.</td>
<td>INDIA</td>
<td>5.</td>
</tr>
<tr>
<td>6.</td>
<td>RUSSIA</td>
<td>6.</td>
</tr>
<tr>
<td>7.</td>
<td>FRANCE</td>
<td>7.</td>
</tr>
<tr>
<td>8.</td>
<td>UK</td>
<td>8.</td>
</tr>
<tr>
<td>9.</td>
<td>BRAZIL</td>
<td>9.</td>
</tr>
<tr>
<td>10.</td>
<td>ITALY</td>
<td>10.</td>
</tr>
<tr>
<td>11.</td>
<td>MEXICO</td>
<td>11.</td>
</tr>
<tr>
<td>12.</td>
<td>INDONESIA</td>
<td>12.</td>
</tr>
<tr>
<td>13.</td>
<td>TÜRKİYE</td>
<td>13.</td>
</tr>
<tr>
<td>14.</td>
<td>CANADA</td>
<td>14.</td>
</tr>
<tr>
<td>15.</td>
<td>S.KOREA</td>
<td>15.</td>
</tr>
<tr>
<td>16.</td>
<td>S.Arabia</td>
<td>16.</td>
</tr>
<tr>
<td>17.</td>
<td>IRAN</td>
<td>17.</td>
</tr>
<tr>
<td>18.</td>
<td>TÜRKİYE</td>
<td>18.</td>
</tr>
</tbody>
</table>

AVERAGE ANNUAL GDP GROWTH (%)

2002-2021

| 5.4  | TÜRKİYE |
| 3.8  | POLAND |
| 3.5  | ROMANIA|
| 2.9  | BULGARIA|
| 2.5  | CZECHIA |
| 2.5  | HUNGARY|

REAL GDP GROWTH

(INDEX: 2002=100)

registered the largest economic growth in G-20

Source: TurkStat, IMF, PPP: Purchasing Power Parity

registrated the largest economic growth in G-20
Turkish economy has **more than tripled over** the past 19 years and is promising to be on the growing trend.

**Turkish Economy**

(GDP at current prices, $Billion)

<table>
<thead>
<tr>
<th>Year</th>
<th>Domestic Consumption</th>
<th>Investment Expenditures</th>
<th>Exports</th>
<th>Stocks</th>
<th>Imports</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>236</td>
<td>30</td>
<td>25</td>
<td>-8</td>
<td>-21</td>
</tr>
<tr>
<td>2021</td>
<td>803</td>
<td>74</td>
<td>25</td>
<td>-8</td>
<td>-21</td>
</tr>
</tbody>
</table>

**Contribution to GDP Growth 2002-2021 (%)**

**Robust domestic market** and entrepreneurial private sector spurred investments and exports.

Source: TurkStat
DOMESTIC MARKET

IMPRESSIVE ECONOMIC GROWTH LEADING TO A SIZEABLE MIDDLE CLASS WITH INCREASING PURCHASING POWER

**Income per capita**

(GDP per capita, current prices at purchasing power parity)

<table>
<thead>
<tr>
<th>Year</th>
<th>Income per capita</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>$10,997</td>
</tr>
<tr>
<td>2021</td>
<td>$34,755</td>
</tr>
</tbody>
</table>

**Stock of Automobiles**

(million passenger car)

<table>
<thead>
<tr>
<th>Year</th>
<th>Stock of Automobiles</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>4.6</td>
</tr>
<tr>
<td>2021</td>
<td>13.7</td>
</tr>
</tbody>
</table>

**Turkish Aviation Passenger**

(million passenger)

<table>
<thead>
<tr>
<th>Year</th>
<th>Turkish Aviation Passenger</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>33.8</td>
</tr>
<tr>
<td>2019</td>
<td>208.9</td>
</tr>
<tr>
<td>2021</td>
<td>128.6</td>
</tr>
</tbody>
</table>

Source: TurkStat, Ministry of Transport and Infrastructure and IMF
FAVORABLE DEMOGRAPHICS

HALF OF POPULATION UNDER AGE OF 32.7 CREATING DYNAMIC LABOR FORCE AND FISCAL DISCIPLINE

TÜRKİYE

EUROPE

WORKING AGE POPULATION
(15-64+) (Index: 2014=100)

TOTAL DEPENDENCY RATIO
(%, Age 0-14 & 65+)/Age 15-64)

Source: Turkstat, Eurostat, UN, 2019
SKILLED & COST-COMPETITIVE LABOR FORCE

TÜRKİYE’S EDUCATION SYSTEM UPGRADED TO SUPPORT A SKILLED LABOR POOL

ANNUAL NUMBER OF UNIVERSITY GRADS IN MECHANICAL FIELDS
(2020-2021)

- Electronics & Automation: 4,439
- Mechanics & Metal Trades: 23,883
- Manufacturing & Processing: 15,224
- TOTAL: 37,378

NUMBER OF GRADS FROM VOCATIONAL & TECHNICAL HIGH SCHOOLS
(in thousands)

- 2002: 177
- 2020: 455

LABOR FORCE BY EDUCATION LEVEL

- University: 2002 (10%) → 2021 (27.9%)
- High School and below: 2002 (90%) → 2021 (72.1%)

Source: Ministry of National Education, Council of Higher Education, Turkstat
SKILLED AND COMPETITIVE LABOR FORCE

UPGRADED EDUCATION SYSTEM TO ENABLE A SKILLED LABOR POOL AND ADDRESS BUSINESS REQUIREMENTS

AVAILABILITY OF QUALIFIED ENGINEERS
(10=Available; 0=Unavailable)

<table>
<thead>
<tr>
<th>Country</th>
<th>2021</th>
<th>Source: Ministry of National Education, Council of Higher Education, Turkstat, IMF World Competitiveness Yearbook Executive Opinion Survey based on an index from 0 to 10, Numbeo Database</th>
</tr>
</thead>
<tbody>
<tr>
<td>Türkiye</td>
<td>7.28</td>
<td></td>
</tr>
<tr>
<td>Czechia</td>
<td>5.97</td>
<td></td>
</tr>
<tr>
<td>Poland</td>
<td>5.57</td>
<td></td>
</tr>
<tr>
<td>Slovakia</td>
<td>5.45</td>
<td></td>
</tr>
<tr>
<td>Romania</td>
<td>5.33</td>
<td></td>
</tr>
<tr>
<td>Hungary</td>
<td>4.99</td>
<td></td>
</tr>
<tr>
<td>Bulgaria</td>
<td>4.91</td>
<td></td>
</tr>
</tbody>
</table>

AVAILABILITY OF COMPETENT SENIOR MANAGERS
(10=Available; 0=Unavailable)

<table>
<thead>
<tr>
<th>Country</th>
<th>2021</th>
<th>Source: Ministry of National Education, Council of Higher Education, Turkstat, IMF World Competitiveness Yearbook Executive Opinion Survey based on an index from 0 to 10, Numbeo Database</th>
</tr>
</thead>
<tbody>
<tr>
<td>Türkiye</td>
<td>5.66</td>
<td></td>
</tr>
<tr>
<td>Czechia</td>
<td>4.64</td>
<td></td>
</tr>
<tr>
<td>Poland</td>
<td>4.51</td>
<td></td>
</tr>
<tr>
<td>Romania</td>
<td>3.97</td>
<td></td>
</tr>
<tr>
<td>Bulgaria</td>
<td>3.48</td>
<td></td>
</tr>
<tr>
<td>Slovakia</td>
<td>3.45</td>
<td></td>
</tr>
<tr>
<td>Hungary</td>
<td>3.16</td>
<td></td>
</tr>
</tbody>
</table>

COST OF LIVING INDEX 2022
(New York=100)

<table>
<thead>
<tr>
<th>Country</th>
<th>2021</th>
<th>Source: Ministry of National Education, Council of Higher Education, Turkstat, IMF World Competitiveness Yearbook Executive Opinion Survey based on an index from 0 to 10, Numbeo Database</th>
</tr>
</thead>
<tbody>
<tr>
<td>France</td>
<td>74.1</td>
<td></td>
</tr>
<tr>
<td>USA</td>
<td>70.3</td>
<td></td>
</tr>
<tr>
<td>UK</td>
<td>69.7</td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>65.6</td>
<td></td>
</tr>
<tr>
<td>Czechia</td>
<td>48.2</td>
<td></td>
</tr>
<tr>
<td>Slovakia</td>
<td>44.7</td>
<td></td>
</tr>
<tr>
<td>Hungary</td>
<td>40.7</td>
<td></td>
</tr>
<tr>
<td>Poland</td>
<td>39.0</td>
<td></td>
</tr>
<tr>
<td>Bulgaria</td>
<td>38.4</td>
<td></td>
</tr>
<tr>
<td>Romania</td>
<td>35.2</td>
<td></td>
</tr>
<tr>
<td>Türkiye</td>
<td>28.3</td>
<td></td>
</tr>
</tbody>
</table>

REMUNERATION OF MANAGEMENT/ENGINEER
Total base salary plus bonuses and long-term incentives

<table>
<thead>
<tr>
<th>Country</th>
<th>$K, 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany</td>
<td>153</td>
</tr>
<tr>
<td>USA</td>
<td>122</td>
</tr>
<tr>
<td>France</td>
<td>108</td>
</tr>
<tr>
<td>UK</td>
<td>91</td>
</tr>
<tr>
<td>Slovakia</td>
<td>77</td>
</tr>
<tr>
<td>Poland</td>
<td>61</td>
</tr>
<tr>
<td>Hungary</td>
<td>43</td>
</tr>
<tr>
<td>Czechia</td>
<td>40</td>
</tr>
<tr>
<td>Türkiye</td>
<td>36</td>
</tr>
<tr>
<td>Romania</td>
<td>34</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>22</td>
</tr>
</tbody>
</table>

Source: Ministry of National Education, Council of Higher Education, Turkstat, IMF World Competitiveness Yearbook Executive Opinion Survey based on an index from 0 to 10, Numbeo Database
COMPETITIVE ENERGY PRICES

ELECTRICITY AND NATURAL GAS PRICES IN TÜRKİYE HAVE BEEN COST-COMPETITIVE IN COMPARISON WITH THE EU

Electricity Prices for Household Consumers, S1 2022
(EUR per kWh)

Natural Gas Prices for Non-Household Consumers, S1 2022
(EUR per kWh)

Excluding Taxes and Levies
Excluding VAT and Other Recoverable Taxes and Levies
All Taxes and Levies Include

Source: Eurostat
**INCENTIVES**

**MAIN INCENTIVE ITEMS**

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

**VAT Refund**: VAT collected for the construction expenses will be refunded as the construction expenses (only for manufacturing industry).

**Corporate Tax Reduction**: The corporate tax reduction is calculated over the fixed investment amount and support could be between 30-55%. (Up to 200% in project-based incentives) CIT to be paid at the end of each year is deducted from the support calculated over the fixed investment amount. There is no time limit until you reach maximum support.

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

**Social Security Premium Support (Employer’s Share)**: The employer’s share of the social security premium calculated on the basis of the legal minimum wage will be covered by the government. (Between 6-12 years)

**Interest Rate Support**: For the loans extended in order to finance the fixed investment amount for up to 10 years. (3-7% points in TRY, 1-2% points in foreign currency loans).

**Land Allocation**: If the investment is built upon a public immovable property, a right of easement or use on that immovable property can be granted in favor of the investor without consideration for 49 years.

### MACHINERY & EQUIPMENT MANUFACTURING INVESTMENTS ARE ABLE TO BENEFIT FROM “MEDIUM-HIGH TECH INCENTIVES”

<table>
<thead>
<tr>
<th>Incentive Items</th>
<th>Incentive Schemes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General Incentives</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Regional Incentives</strong></td>
<td></td>
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<tr>
<td><strong>Medium-High Tech Incentives</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Priority Incentives</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Strategic Incentives</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Project Based Incentives</strong></td>
<td></td>
</tr>
<tr>
<td>VAT Exemption</td>
<td>✓</td>
</tr>
<tr>
<td>VAT Refund</td>
<td>✓</td>
</tr>
<tr>
<td>Customs Duty Exemption</td>
<td>✓</td>
</tr>
<tr>
<td>Corporate Tax Reduction</td>
<td>✓</td>
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<tr>
<td>Social Security Premium Support (Employer’s Share)</td>
<td>✓</td>
</tr>
<tr>
<td>Income Tax Withholding Support *</td>
<td>✓</td>
</tr>
<tr>
<td>Social Security Premium Support (Employee’s Share) *</td>
<td>✓</td>
</tr>
<tr>
<td>Land Allocation</td>
<td>✓</td>
</tr>
<tr>
<td>Interest Rate Support</td>
<td>✓</td>
</tr>
<tr>
<td>Qualified Employee Support</td>
<td>✓</td>
</tr>
<tr>
<td>Energy Support</td>
<td>✓</td>
</tr>
<tr>
<td>Purchasing Guarantee</td>
<td>✓</td>
</tr>
<tr>
<td>Cashback Support</td>
<td>✓</td>
</tr>
</tbody>
</table>

* In regional incentive scheme, Income Tax Withholding Support and Social Security Premium Support (Employee’s Share) are only for Region 6. They are also included in Strategic and Project Based Incentives.

** Medium-High Tech Incentives are Region 4 incentives and Priority Incentives are Region 5 incentives. Rate of the support items is higher in better incentive schemes like Strategic and Project Based Incentives.**
EXCLUSIVE INCENTIVES INCLUDE SUPPORT FOR TECH ENTREPRENEURS TO CREATE INNOVATIVE HIGH VALUE-ADDED ACTIVITY, WHICH ARE KEY TO CATCHING UP WITH THE NEW INDUSTRIAL REVOLUTION

BREAKDOWN OF R&D CENTERS BY SECTOR

Total Number of R&D Centers

174

16 15
56
81
108
129

(AS OF NOVEMBER 2022)

MACHINERY INDUSTRY
AUTOMOTIVE INDUSTRY
SOFTWARE
ICT

HEALTH AND LIFE SCIENCES
FINANCE
LOGISTICS AND TRANSPORTATION

INCENTIVES THROUGH INNOVATION LIFECYCLE

START

Technostartup Incentives:
Cash support up to 450K TRY

PRODUCT / PROJECT DEVELOPMENT

Tubitak programs:
Cash support up to 60-80% of the project budget

COMMERCIALIZATION

Technoparks and R&D Centers:
Income Tax Exemption
Tax cuts up to 20-30% of the personnel cost

MANUFACTURING

SME Technoinvestment Incentives:
Cash/credit support up to 5Million TRY for SMEs

GROWTH & COMPETITION

Patented sales:
Income Tax & VAT Exemption

Source: Ministry of Industry and Technology Report 2021, Comtrade HS code 84, 8202, 8207, 8208, 8501, 8502, 8503, 8505, 8514, 8515, 8701, 8709, 8716, 9017, 9024, 9508, 9603, Team Analysis
Tech-Driven Industry Initiative has been launched in 2019

The products will be supported from concept phase to marketing

The Ministry of Industry and Technology will create schedules within the scope of investor calls for each sector.

Complete support for high-value-added, medium-high tech and high-tech products manufactured in certain sectors with local resources and capabilities. Machinery, Computer, Electronics, Chemicals etc.

The investments supported in the program shall receive strategic investment incentives.

Application Process in 3 Stage
Stage 1 PRE APPLICATION (1 MONTH)
Stage 2 DETAILED APPLICATION (3 MONTHS)
Stage 3 FINAL DECISION (1 MONTH)

R&D incentives, KOSGEB incentives and investment incentives will be given through a single platform / www.hamle.gov.tr

Investments over TRY 50 million will be able to benefit from project based investment incentives

The purchasing guarantee mechanism will also operate in projects where the state is the buyer.
DIGITAL MANUFACTURING

TO FURTHER VALUE-ADDED MANUFACTURING, THE METAL INDUSTRY ESTABLISHED A STATE-OF-THE-ART DIGITAL TRANSFORMATION AND CAPABILITY BUILDING CENTER.

A technology centre that brings the latest disruptive technologies of Industry 4.0;

- Create an ecosystem connecting members from various metal industries and other industries with global players
- Set the aspiration for future industrial development of members in an innovative environment
- Execute digital maturity assessments and roadmaps for the deployment of digital transformation
- Develop capabilities to accelerate transformation and reach full industrial potential

In addition to digital transformation, MEXT is:

- Building Artificial Intelligence Laboratory.
- Focusing on green transformation.

260+MEMBERS
LOCAL & INTERNATIONAL PLAYERS

DIGITAL FACTORY
An end-to-end integrated infrastructure and is supported entirely by 5G technology. Housing more than +160 use cases applications in 2 production lines (discrete and continuous).

DIGITAL MATURITY ASSESSMENT
Smart Industry Readiness Index (SIRI), created with a network of leading technology companies and recognized by WEF, and Fraunhofer assessments have been completed with 200+ companies in 8 different sectors (Automotive, White Goods, Textile, Chemistry, Food etc.).

TRAINING AND DEVELOPMENT
Data science, applied trainings in the digital factory, digital transformation strategies, IoT for field team members, automation, robotics, and image processing programs, design thinking and business strategy.

ECOSYSTEM AND ENTREPRENEURSHIP
+50 global and regional best solution partners, technology businesses, and academic institutions, brings all business partners together under one roof. Close collaboration with startups.

10,000 M² CENTER
2 production lines covering 160+ use cases on discrete manufacturing & continuous process

200+ companies in 8 different sectors (Automotive, White Goods, Textile, Chemistry, Food etc.).

CORE PARTNERS
McKinsey & Company
Fraunhofer
Microsoft

Source: Employers’ Association of Metal Industries https://www.mext.org.tr
OPPORTUNITIES IN SUB-SECTORS

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

PRODUCTION VALUE IN ALL SUBSECTORS INCREASED RAPIDLY IN COMPARISON WITH 2020

Source: MAKFED analysis 2021 values

- Agricultural Machinery
- Construction & Mining Machinery
- Food Processing & Packaging Machinery
- HVAC Machinery
- Lifting & Handling Equipment
- Metalworking & Machine Tooling
- Motors & Turbines
- Pumps & Compressors
- Textile Machinery

Production value (2021) versus Local market size (2021)

<table>
<thead>
<tr>
<th>Sub-sector</th>
<th>Production value (2021)</th>
<th>Local market size (2021)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Machinery</td>
<td>3,000</td>
<td>2,000</td>
</tr>
<tr>
<td>Construction &amp; Mining Machinery</td>
<td>2,000</td>
<td>1,000</td>
</tr>
<tr>
<td>Food Processing &amp; Packaging Machinery</td>
<td>2,200</td>
<td>1,100</td>
</tr>
<tr>
<td>HVAC Machinery</td>
<td>3,500</td>
<td>2,500</td>
</tr>
<tr>
<td>Lifting &amp; Handling Equipment</td>
<td>2,500</td>
<td>1,500</td>
</tr>
<tr>
<td>Metalworking &amp; Machine Tooling</td>
<td>3,000</td>
<td>2,000</td>
</tr>
<tr>
<td>Motors &amp; Turbines</td>
<td>5,500</td>
<td>4,500</td>
</tr>
<tr>
<td>Pumps &amp; Compressors</td>
<td>2,500</td>
<td>1,500</td>
</tr>
<tr>
<td>Textile Machinery</td>
<td>1,000</td>
<td>500</td>
</tr>
</tbody>
</table>

Note: Production value and local market size values are in MILLION USD.
AGRICULTURAL MACHINERY

TÜRKİYE’S AGRICULTURAL MACHINERY MARKET HAS REACHED USD 2.6 BILLION IN 2021 - 4TH IN EUROPE

KEY FACTS

At the beginning of 2000, exports stood at 70 million dollars, increasing to 1.3 billion dollars in 2021.

Strong industrial base - over 10% share in Europe’s production with over 73K units in 2021.

Strong local market with 72K units in 2021 - largest tractor sales in Europe, 4th in the world, 75% of the local market supplied by local players.

Agricultural machinery manufacturing ecosystem with local and international players with a total of 20K employees.

Agricultural Machinery in Türkiye has highest production value with TRY 20 billion (13.76 % share) among 22 national machinery sub-segments.

Some of the major investment areas needed by the sector are:  
- Self-propelled harvesters (Combine, cotton harvester, beet harvester, etc.)  
- Self-propelled sprayers  
- Self-propelled loaders  
- Machinery, hardware (equipment) and software for smart agriculture  
- High-capacity harvesters  
- Milking facilities, milking robots, related software  
- Circular and linear motion irrigation systems

DEMAND DRIVEN BY TÜRKİYE’S AGRICULTURAL ECONOMY AND FRAGMENTED STRUCTURE:

Agricultural GDP USD 80 Billion

Agricultural land 23 Million ha

Arable land 6.1 Million ha

Average enterprise size 7.6 ha

Source: MAKFED analysis 2021 values, TARMAKBR, press excerpts, Comtrade HS 8432, 8433, 8436, 8478, 842481, 870110, 870190, 871620

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TÜRKİYE’S AGRICULTURAL MACHINERY EXPORTS ALMOST QUADRUPLED IN 10 YEARS

Source: MAKFED analysis 2021 values, TARMAKBİR, press excerpts, Comtrade HS 8432, 8433, 8436, 8478, 842481, 870110, 870190, 871620

KEY FACTS

<table>
<thead>
<tr>
<th>Country</th>
<th>Export Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>Italy</td>
<td>11%</td>
</tr>
<tr>
<td>Uzbekistan</td>
<td>4%</td>
</tr>
<tr>
<td>Azerbaijan</td>
<td>5%</td>
</tr>
<tr>
<td>Iraq</td>
<td>6%</td>
</tr>
<tr>
<td>Americas</td>
<td>19%</td>
</tr>
</tbody>
</table>

EXCEPTS (M$)

0.3  0.4  0.3  0.3  0.4  0.5  0.6  0.6  0.7  0.7  0.8  0.9  1  1.3
**CONSTRUCTION & MINING MACHINERY**

**TÜRKİYE’S CONSTRUCTION MACHINERY EXPORT HAS REACHED USD 1.8 BILLION IN 2021**

**KEY FACTS**

- **3rd largest local market** - 3rd largest growth in the world after China and India for the last eight years

- Strong local market - 3rd largest growth in the world after China and India for the last eight years

- Strong & international supplier base - Construction machinery industry can benefit from the supplier base of automotive manufacturing industry in Türkiye, which serves as a European manufacturing hub and has reached 1.3 million units

- Local and international companies are present - local market supplied by 35% local production and 65% import

- Local demand driven by public infrastructure and urbanization projects - opportunity for smaller sized construction machinery

- Europe’s 7th largest manufacturing base with key actors, USD 1.63 million local market and USD 1.8 billion of exports in 2021

- Access to international markets enabled through Turkish construction companies - 42 contractors in ENR250 list

Source: MAKFED analysis 2021 values, IMDER, ISDER, press excerpts, Contrade HS 8429, 8430, 8431, 8474
Türkiye invested USD 100 billion to infrastructure projects in the last 5 years.

Another USD 325 billion is expected by 2023.

Projects include:
- 3rd Istanbul Airport
- 3rd Istanbul Bridge
- Urban Transformation Projects
- Public Hospital Project

CONSTRUCTION & MINING MACHINERY
Türkiye’s energy equipment (electric motors & turbines) market has reached USD 5.4 billion in 2021.

KEY FACTS

Türkçe added the most renewable capacity in one year in 2020 at around 4,800 MW from investments totaling almost $7 billion.

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

5th largest electricity market in Europe; highest growth in Europe with 4.5%

Source: MAKFED analysis 2021 values, TEİAŞ Report, Ministry of Energy, Investment Office analysis, press excerpts, Comtrade HS 850231, 8410, 8406, 840690, 840290, 854140, 8501
Türkije’s food processing & packaging machinery market has reached USD 2.5 billion in 2021

Source: MAKFED analysis 2021 values, TARMAKBIR, Anadolu Agency, press excerpts, Comtrade HS 8432, 8433, 8436, 8478, 842481, 870110, 870190, 871620

Strong industrial base with a production value of USD 2.3 billion clustered in Istanbul, Konya, Ankara, Gaziantep and Izmir

Demand driven by the strong packaged food and beverages market in Türkiye - USD 23 billion export in 2021

USD 1.6 billion of import in 2021 - major imports are machinery for industrial preparation of food or drink, for treating material by heat change and machinery for filtering or purifying water

Türkiye is a manufacturing base for international food giants like Unilever, Kraft, Nestle, Danone, Ferrero with over 15K employees

Türkiye’s food processing & packaging machinery exports quadrupled in 10 years

Where 80% of exports are machinery for

- Processing & milling of grains and cereals
- Industrial preparation of food or drink
- Milking machines and dairy machinery

And top5 export markets are

- Uzbekistan
- Iraq
- Kazakhstan
- Iran
- Romania

Source: MAKFED analysis 2021 values, TARMAKBIR, Anadolu Agency, press excerpts, Comtrade HS 8432, 8433, 8436, 8478, 842481, 870110, 870190, 871620
HVAC

TÜRKİYE’S HVAC EXPORT MARKET HAS REACHED USD 6.2 BILLION IN 2021

KEY FACTS

- Strong industrial base - USD 3.2 billion in value - Europe’s manufacturing base for panel radiator, boiler and AHU’s
- Demand driven by construction in residential market; efficiency regulations and development in technology in non-residential market
- Strong local market - Europe’s largest split AC market with 1.5M units and VRF market with 250K units
- VRF market has grown 6 times with imports - opportunity for high-tech production
- Strong local market - Europe’s 4th largest with 1.3M boiler units
- Access to international markets through Turkish construction companies - 44 contractors in ENR250 list

Source: MAKFED analysis 2021 values, ISBIR press excerpts, Comtrade HS 8415, 841810, 841850, 841861, 841869, 841891, 841899

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TURKİYE’S HVAC EXPORTS MORE THAN QUADRUPLED IN 5 YEARS

WHERE EUROPE HAS OVER 60% SHARE

Source: ISIB 2021 report, MAKFED analysis 2021 values, press excerpts, Comtrade HS 8415, 841810, 841850, 841861, 841869, 841891, 841899

Exports (M$)

<table>
<thead>
<tr>
<th>Year</th>
<th>USA</th>
<th>UK</th>
<th>France</th>
<th>Spain</th>
<th>Sweden</th>
<th>Germany</th>
<th>Italy</th>
<th>Iraq</th>
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<td>1.6</td>
<td>1.6</td>
<td>4.7</td>
<td>2.14</td>
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<td>1.7</td>
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<tr>
<td>2021</td>
<td>1.4</td>
<td>1.4</td>
<td>1.4</td>
<td>1.6</td>
<td>1.4</td>
<td>1.4</td>
<td>1.6</td>
<td>2.14</td>
<td>4.7</td>
<td>6.2</td>
</tr>
</tbody>
</table>

Exports: USA USD 127 MILLION, UK USD 456 MILLION, France USD 255 MILLION, Spain USD 204 MILLION, Sweden USD 243 MILLION, Germany USD 681 MILLION, Italy USD 318 MILLION, Iraq USD 233 MILLION, Israel USD 106 MILLION, Algeria USD 60 MILLION.
TÜRKİYE’S MARKET FOR LIFTING & HANDLING EQUIPMENT HAS REACHED USD 2.7 BILLION IN 2021

KEY FACTS

**Strong industrial base - USD 2.1 billion of production in 2021**

**3rd largest** elevator market in the world with 30K new units - ThyssenKrupp, Otis, Kone, Schindler, Hyundai present with some level of assembly operations

**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

**2nd largest** escalator and moving walk market in the world with 2K new units per year

**Strong local market** - demand driven by the growth in the industry and infrastructure & construction projects

**Opportunity for assembly and manufacturing** of parts

Source: MAKFED analysis 2021 values, IMDER, ISDER, press excerpts, Comtrade HS 8429, 8430, 8431, 8474
TÜRKİYE’S PRODUCTION OF LIFTING & HANDLING EQUIPMENT HAS ALMOST TRIPLED SINCE 2010

...AND EXPORTS HAVE REACHED USD 510 MILLION IN 2021

USD 1.2 MILLION IMPORT IN 2021 - ALMOST 70% FROM CHINA, GERMANY & ITALY

Source: MAKFED analysis 2021 values, press excerpts, Comtrade HS 8415, 841810, 841850, 841861, 841869, 841891, 841899
LIFTING & HANDLING EQUIPMENT

Source: MAKFED analysis 2021 values, press excerpts, Comtrade HS 8415, 841810, 841850, 841861, 841869, 841891, 841899

**Export USD Million**
- 2020: 424
- 2021: 510

**Import USD Million**
- 2020: 847
- 2021: 1130

**Local Market (2021)**: 2690 USD Million

**Production (2021)**: 2070 USD Million

**Notes:**
- USD Million values are for years 2020 and 2021.
- Data sourced from MAKFED analysis and Comtrade HS codes.
TÜRKİYE’S METALWORKING & MACHINE TOOLING MARKET HAS REACHED TO USD 3.2 BILLION IN 2021 - 11TH LARGEST IN THE WORLD

- **Strong industrial base**: largest in Central and Eastern Europe with USD 1.92 billion of production in 2021
- **Strong in laser machine tools**: forging & punching machine tools (including presses) - 80% of the exports
- **Exports have reached USD 1.03 billion in 2021**: 20% growth in the last three years - industry diversifying its export markets to Russia, Germany, USA, Poland, France, Canada.
- **Almost 30% of the USD 2.31 billion import in 2021 is for machining centers, transfer machines and lathes**: mostly from Germany, Japan and Italy
- **Investment opportunity for CNC tools**: supplier base for CNC tools exist

**KEY FACTS**

- **TÜRKİYE’S METALWORKING & MACHINE TOOLING MANUFACTURING DOUBLED SINCE 2009**

**DEMAND IS DRIVEN BY INDUSTRIES WHERE TÜRKİYE HAS A STRONG PRESENCE**

- **AUTOMOTIVE**
- **WHITE GOODS**
- **AVIATION**
- **HEALTH CARE**

**Production (M$)**

- **2009**: 0.7
- **2010**: 0.9
- **2011**: 1.2
- **2012**: 1.5
- **2013**: 1.5
- **2014**: 1.3
- **2015**: 1.3
- **2016**: 1.4
- **2017**: 1.6
- **2018**: 1.36
- **2019**: 1.3
- **2020**: 1.3
- **2021**: 1.9

Source: TIAD, MAKFED analysis 2021 values, press excerpts, Comtrade HS 8456, 8457, 8458, 8459, 8460, 8461, 8462, 8463, 8464, 8465, 8466, 8467, 8468, 8515
TÜRKİYE’S MARKET FOR PUMPS & COMPRESSORS HAS EXCEEDED USD 2.8 BILLION IN 2021

KEY FACTS

Industrial base - USD 1.7 billion of production in 2021; 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

Source: MAKFED analysis 2020 values, press excerpts, Comtrade HS 8413, 8414

PUMPS & COMPRESSORS

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Source: MAKFED analysis 2020 values, press excerpts, Comtrade HS 8413, 8414
TÜRKİYE’S PRODUCTION OF PUMPS & COMPRESSORS HAS TRIPLIED SINCE 2010

...AND EXPORTS HAVE REACHED $1.5 BILLION WHERE EUROPE & USA HAVE A 50% SHARE

Source: MAKFED analysis 2021 values, press excerpts, Comtrade HS 8413, 8414
TÜRKİYE’S TEXTILE MACHINERY MARKET HAS REACHED USD 2.5 BILLION IN 2020

**KEY FACTS**

**Strong industrial base** especially in knitting and dyeing & finishing machines

Demand driven by textile industry - Türkiye is the 7th largest textile exporter with USD 23 billion in 2021 where Europe has around 50% share.

Due to high cost pressure from Asian countries, Türkiye’s textile industry needs to specialize and increase its added value while upgrading or renewing its USD 25 billion machinery park - technical textile is an example

**EXPORTS (M$)**

Source: International Textile Manufacturers Federation, TEMSAO 2021 Report, press excerpts, Comtrade HS 8444, 8445, 8446, 8447, 8448, 8449, 8451, 8452
TÜRKİYE'S TEXTILE MACHINERY EXPORTS TRIPPLED IN 10 YEARS
STILL LOW COMPARED TO $2.4 BILLION OF IMPORTS

Türkçe’nin tekstil makine ihracatı, 10 yıl içinde üç katına çıktı.
Ancak ihracatı ihracata oranla oldukça düşük kalıyor. (İngilizce)

**TÜRKİYE’S COMPETITIVENESS IN TEXTILE MACHINERY CATEGORIES**

**SPINNING**
50% of Türkiye’s imports are from Switzerland, Germany & Italy.

**WEAVING**
71% of Türkiye’s imports are from Belgium & Italy. Türkiye is the 3rd importer country in the world.

**DYEING & FINISHING**
Türkiye is the 3rd importer of dyeing and finishing machines in the world.

**TECHNICAL TEXTILE**
693 million USD export in 2020. The top three export countries are Germany, the USA and the UK respectively.

**WEAVING**

**DYEING & FINISHING**
Türkiye is the 3rd importer of dyeing and finishing machines in the world.

**SEWING**
Turkish market dominated by China & Vietnam.

**KNITTING**
Türkiye is the 2nd importer of knitting machines in the world with its 350 million USD import.

Source: International Textile Manufacturers Federation, TEMSAT 2021 Report, press excerpts, Comtrade HS 8444, 8445, 8446, 8447, 8448, 8449, 8451, 8452
AGENDA

1. Executive Summary
2. Turkish Machinery Industry Outlook
3. Growth Drivers in Türkiye
4. Opportunities in Turkish Machinery Industry
5. Success Stories

SUCCESS STORIES
SUCCESS STORIES

MACHINERY GIANTS HAVE BEEN INVESTING IN TÜRKİYE FOR DECADES

B/S/H/

• The company’s brand portfolio includes eleven well-known appliance brands like Bosch, Siemens, Gaggenau and Neff as well as the ecosystem brand Home Connect and service brands like Kitchen Stories.
• 38 production sites in Europe, the USA, Latin America and Asia
• At the end of 2020, BSH employed about 60,000 people worldwide.
• BSH achieved record sales of €13.9 billion in 2020.
• At 5.1 percent of total turnover, R&D spending in 2020 remained high – with a focus on digital technologies.
• BSH Türkiye produced 5.8 million products from Çerkezköy Factories in 2020. 70% of the production is exported.
• BSH Türkiye is the first company that exports by rail to China from Türkiye.

IHI

• IHI Corporation - Japanese corporation that produces ships, aircraft engines, turbochargers, industrial machines, power station boilers and suspension bridges
• Had a revenue of USD 13 billion in 2020 with 30K employees
• Completed projects in Türkiye include Golden Horn Bridge, Fatih Sultan Mehmet Bridge, Osman Gazi Bridge and several reinforcement projects
• Formed a JV with Dalgakıran Makine with an investment of USD 14.4 million to produce turbo compressors in Türkiye in 2018 (60 employees)
• Uses Türkiye as a base for exports to Europe, the Middle East, and other growing markets.

MITSUBISHI ELECTRIC

• Japanese multinational electronics and electrical equipment manufacturing company with a total revenue of USD 40.7 billion in 2019
• Operational in Türkiye 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 for Europe in Türkiye with an investment of USD 80 million
MACHINERY GIANTS HAVE BEEN INVESTING IN TÜRKİYE FOR DECADES

**SUCCESS STORIES**

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

- **Haier**
  - Established in Italy, its products include washing appliances, built-in and small domestic appliances. Had a revenue of 1.1 Billion in 2019
  - Manufacturing in Türkiye since 2007 at its Eskisehir plant
  - Invested EUR 15 Million for the launch of a new plant in Türkiye where a workforce of 300 people were employed
  - Uses Türkiye plant as a base for oven and stove manufacturing, built-in appliances and dryers and exports over 90% of its production
  - Qingdao Haier completed the acquisition of the Candy Hoover Group in 2019.

- **Türk Traktör**
  - Turk Tractor was established in 1954. In 2008, the company merged with Italian company CNH Industrial.
  - 2 production facilities in Ankara and Sakarya with 50,000-unit capacity.
  - 2 R&D centres located in İstanbul and Ankara.
  - As of 2021, Turk Tractor has reached 11 million TL sales revenue doubled in two years.
  - Over 16,000 unit export and 32,000 unit local sales in 2021.

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