

# Re-thinking Turkey-US Economic Relations in the Covid-19 Context

Final Report

OCTOBER 2020



## The project conducted last year ...

- Aimed to boost bilateral trade between Turkey and US to reach \$ 100 B target
- Identified high potential industries and suggested key recommendations to benefit this potential
- Shared key transversal levers to enhance economic relations between Turkey and US

... is revisited under the context of **COVID-19** and newly emerging opportunities

### Global trade dynamics changing



Supply chain shifts



Amplified US-China conflict



Major changes in global trade flows



### Newly emerging opportunities



Substituting China



New industries and capabilities



FDI perspective



Collaboration in Africa

# We have investigated significantly to assess how Turkey-US economic relations can be further improved with the latest global trends

## Progress across multiple dimensions



- Detailed analysis of global trade flows
- Analysis of 1000+ (sub)industry data for goods & services with focus on 2018-2019
- 50+ countries assessed
- Review of global reports, trends and success stories



- Diagnosis of flows in goods and services from China
- Sectoral selection based on shift from China and Turkey's capability to replace China



- TAIK Board Members (to continue in the 2nd round)
- Other relevant business organizations and NGOs
- Government institutions
- Turkish firms exporting to the US market and active in Africa
- BCG global expert panel

# We have interviewed with key stakeholders for deep-dive topics

Selected examples

## Bold moves for Turkey



## Africa



# Executive summary (I / III)

## Covid-19 has a strong effect on global economic relations via supply-chains, global trade and investments



- Multi-national companies that have cost focused supply-chain systems have started to consider reducing the risk profile of their supply-chain systems more diversification, regionalization or reshoring
- Existing trade conflicts have been escalated to a new level with increasing trends in favor of national protectionism
- Trade and investments will be negatively affected in the short-term; but new opportunities will exist for countries and companies

## Major shifts will occur in trade corridors, emerging as a significant opportunity for other countries to increase their exports and to attract FDI



- The export volume from China will shift away to other regions; the largest impact being between US and China trade corridor
- We expect \$130-200 B decline in US-China trade corridor in 2023 compared to 2019 levels
- This will provide significant trade and investment opportunity for countries like Turkey, Vietnam, Mexico, Taiwan and Poland

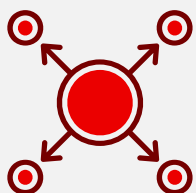
# Executive summary (II / III)



## Turkey's conventional industries will remain to be important ...

- Turkey has conventionally strong industries (e.g. automotive parts, textile, white goods, building materials, furniture etc.). These industries will remain to be the engine of exports to US
- Some other competitive industries (e.g. tourism, civil aerospace and jewelry) will stagnate because of Covid-19 context but will recover and contribute in mid-to-long term

## ... but in order to larger pie from this shift, Turkey needs to make bold moves in new industries and geographies



- Turkey needs to make bold moves in digital space and electronics to serve more to the US market
  - Digital space: Turkey has strong but underutilized potential in data services, software services and technology start-ups
  - Electrical equipment & electronics (E&E): Turkey has to invest in E&E, especially new trends (Industry 4.0, IoT, smart cities etc.) crosscutting the segment. This will be key to serve US market in large scale
- Joint ventures in Africa: Turkish and American firms have complementary skills to be more active in helping construction and infrastructural upgrading in the African continent

# Executive summary (III / III)

## Business communities could play an important role in strengthening Turkey-US economic relations and to further explore underutilized opportunities



- Turkish and US business communities could play an important role in:
  - Building up long-term trust-based business relations
  - Actively marketing new opportunities and capabilities to both sides
  - Help business-matching activities
  - Constructively guide policy-makers on key steps to be taken
- We strongly recommend establishing three task forces under TAIK to steer actively key topics of interest and to contribute to Turkey-US economic relations:
  - Digital Taskforce
  - Electronics Taskforce
  - Africa Taskforce



# Main sections of the report



*See details*



## Covid-19, global trends and impact on Turkey-US economic relations

Detailed assessment of Covid-19 impact on supply-chains and global trade, and potential opportunities in Turkey-US economic relations



*See details*



## Bold Moves for Turkey

Capability assessment, identification of opportunity space, recommendations for TAIK and sizing of the price for

- Digital space: IT & Startups
- Electrical equipment & electronics



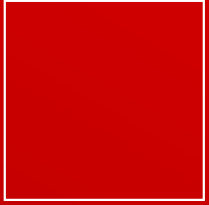
*See details*



## Joint opportunities for Turkey and US in Africa

Capability and opportunity assessment for US and Turkey for Africa, recommendations for TAIK and sizing on how they can join forces

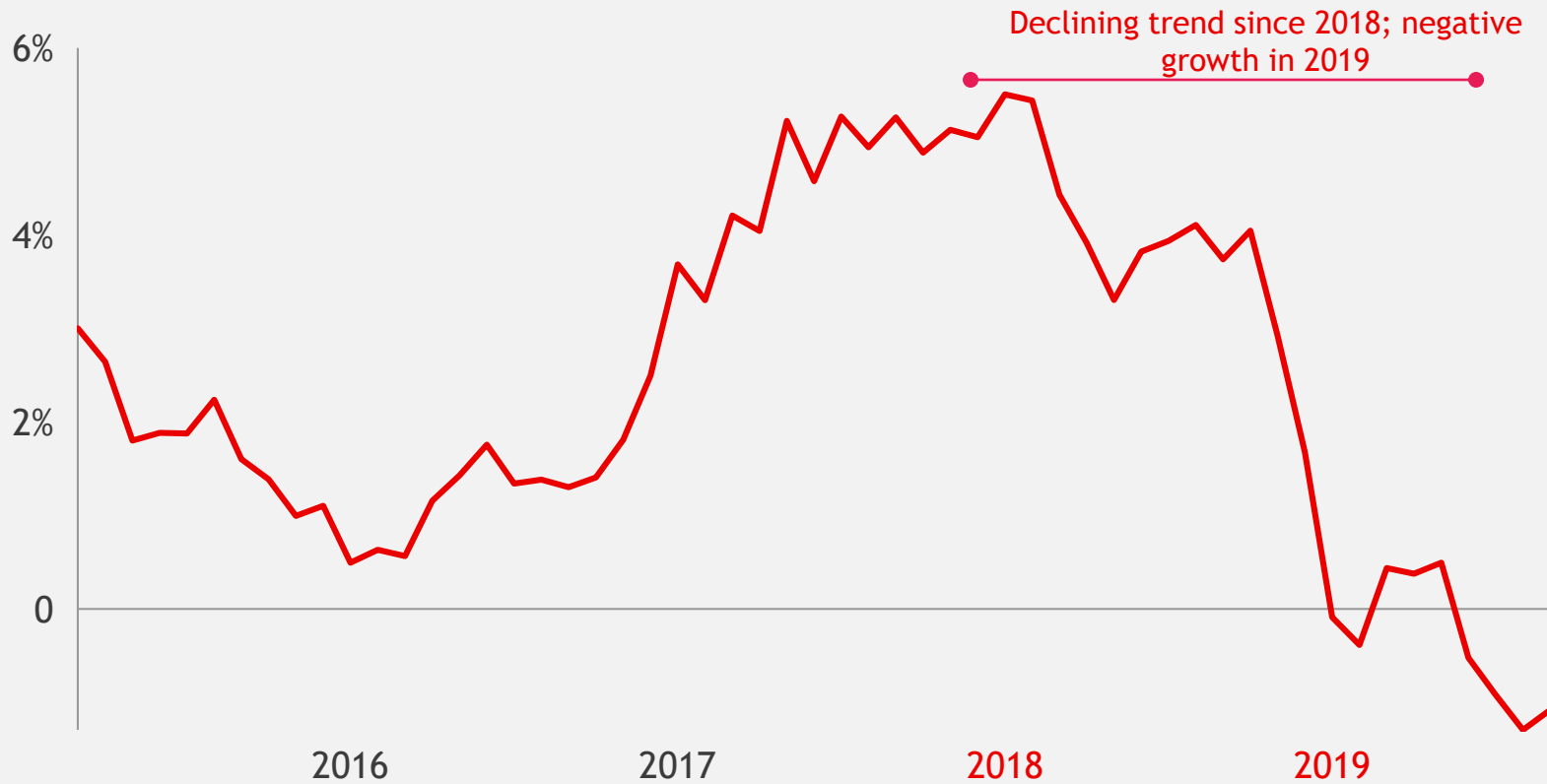




# Covid-19, global trends and impact on Turkey-US economic relations

# Global trade was already in decline even before the COVID-19 crisis

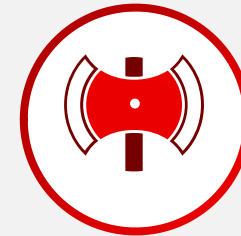
Change in Global Trade(3 Month Moving Average, YoY growth %)



Driven by two factors:



Rise of economic nationalism/protectionism



US-China trade war

# COVID-19 intensified two key global trends putting downward pressure on trade flows

1



## Supply chain shifts

- Supply chain focus on **resiliency** over **cost efficiency**
- **Re-shoring, nearshoring and diversification** expected to increase and change the supply chain structure

2



## Amplified US-China conflict

- US-China trade war amplified due to rising protectionism
- US imports from China **reduced by 16% (\$ 90 B)** in one year only (2018-2019), **expected to decline further**
- Increased tendency to localize industries that pose **national security concerns**

# COVID-19 unleashed vulnerabilities and risks of highly integrated global supply chains

Supply chains were dramatically affected by COVID-19



Difficulty in meeting required **supply levels** intensified in some sectors



Supply shocks triggered **stock outs** and **latency** in delivery times



**Production stoppages** broke out due to exposed risk with concentration on specific geographies



**Raised uncertainty** about future shocks

Revealing vulnerability and exposing the risks due to dependence on geographies

Not exhaustive



CEO  
James Quincy

Supply chain is creaking around the world. it's getting harder to get ingredients through due to **big changes in channel mix...** Some of the smallest SKUs will have to be left out.



Apple has warned of global **"iPhone supply shortages"** resulting from its Chinese factories being shut



Many big **car manufacturers** shut downed their production facilities

Hence,  
companies  
revisited  
their supply  
chain  
strategy in  
favor of  
resilience

## Resilience & Access

Diversify options to  
balance risk and  
bring supply chain  
operations inshore  
or nearshore



## Cost Efficiency

Leverage cost  
efficiency levers to  
minimize  
production/sourcing  
costs



### Selected examples of shift to resiliency



Looking to shift **20% of iPhone**  
production to India, **30% of**  
**AirPods production** to Vietnam



Shifted production of **auto**  
**components** from China to  
Mexico

# Supply chains are expected to change globally with reshoring, regionalization and diversification

## Reshoring

Supply chains moving back in-shore or near-shore due to:

- National security concerns



Pharmaceuticals



Telecommunications



## Regionalization

Supply chains moving closer to end-markets due to:

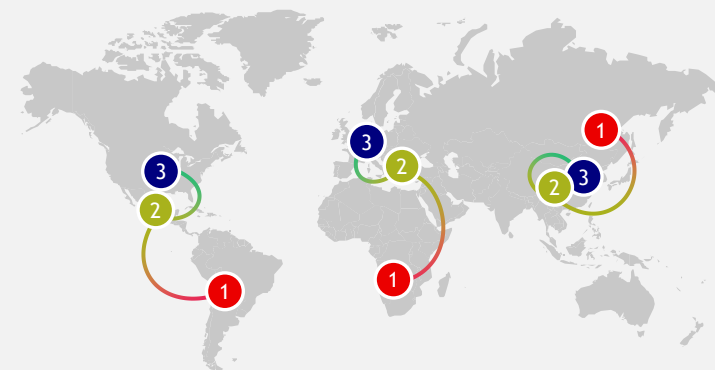
- Minimization of risk exposure



Agriculture



Automotive - vehicles



## Diversification

Global supply chains shifting to new geographies due to:

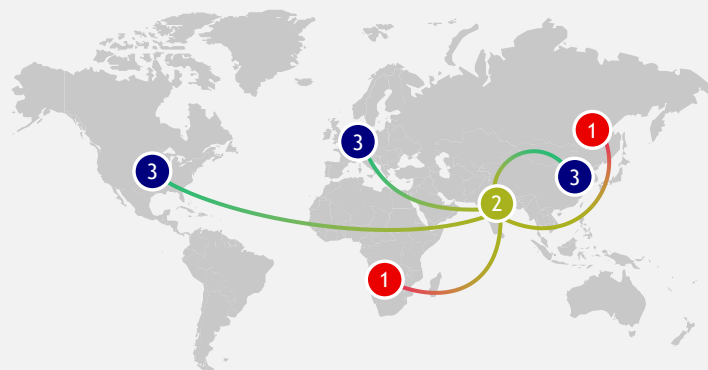
- Retaining low cost base for industries with profitability concerns



Apparel



Furniture



Sourcing



Manufacturing



Distribution



Degree of globalization

# US-China trade war were also amplified by COVID-19

## Existing pre-COVID issues



Concerns in the US about China becoming the biggest economy in the world with increasing global influence



Concerns in the US about the chronic and growing trade deficit with China



Concerns in the US about Chinese advancement in IT infrastructure (i.e. 5G, Huawei etc.) with national security implications



Geopolitical tensions with China (e.g. South China Sea, North Korea, Africa influence)

## Additional issues with COVID



US accused China over failing to handle the outbreak of Covid-19 and escalated existing tensions between China

- US stated filing lawsuits against China for the loss of life, “human suffering” and economic losses
- Additional tariffs on China being negotiated



National security concerns have risen especially on medical technologies, biopharma and information technologies



# These factors will have major impact on the main trade corridors

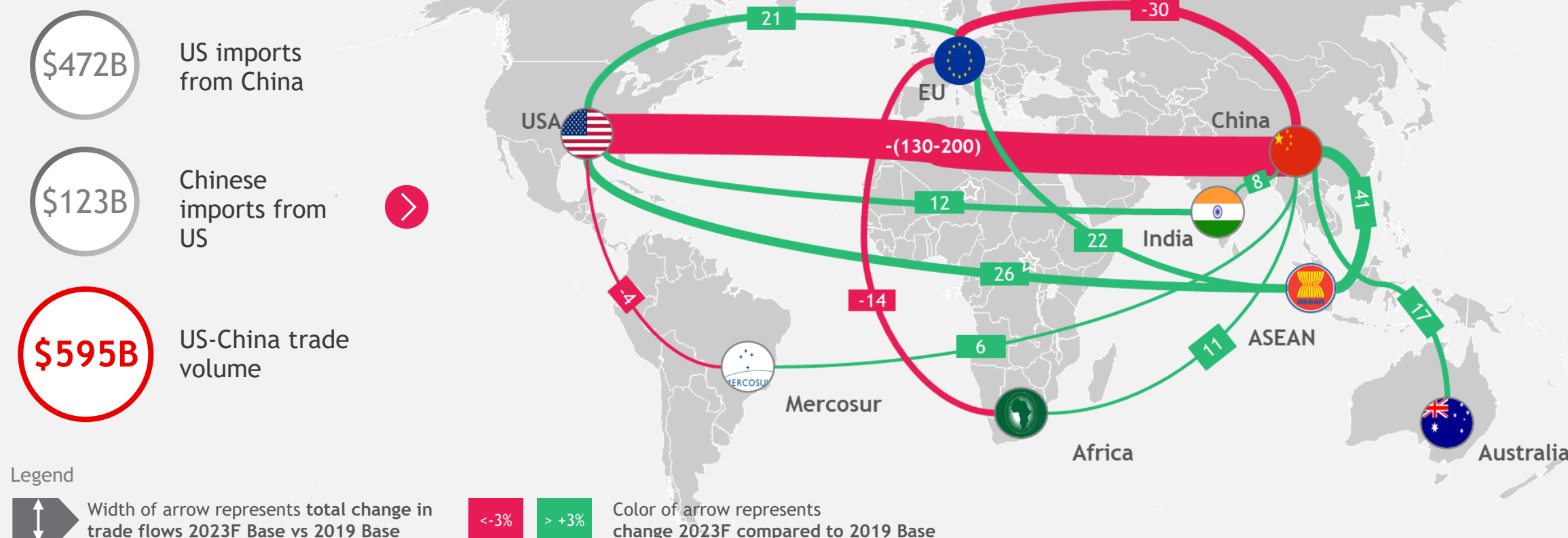
Highest impact expected on the US-China corridor with a decline of 130-200 B USD per annum

## US-China trade

2019, \$ B

Base scenario: Global trade change, 2023B vs. 2019 (Main corridors<sup>1</sup>, Billion \$)

Draft for Discussion



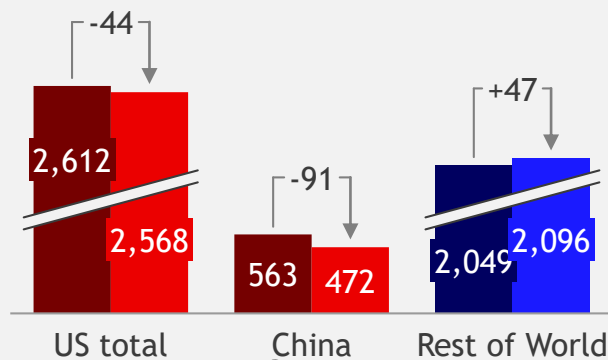
1. Corridors in the map above represent ~32% of global trade. Intra EU=~20%; NAFTA=~8%; China/Hong Kong=4%; ASEAN=3%, RoW=~32%  
Source: BCG Trade Finance Model 2020, UN Contrade, OECD, WEF, IHS, TradeAlert, BCG Analysis

# Some other countries already benefiting from this shift, however Turkey is lagging behind so far

## US import change

Change in US total, China and RoW imports (\$ B)

■ : 2018 (Dark) ■ : 2019 (Light)



- Electronics -34
- Machinery -18
- Furniture -9

China

## Rest of World

Top-3 countries with the highest increase in nominal value (\$ B)

### 1 Vietnam

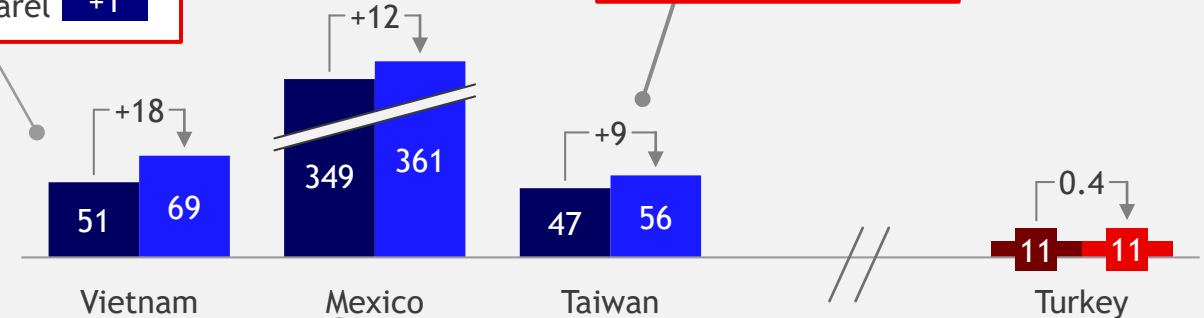
- Electronics +11
- Furniture +2
- Tex.&Apparel +1

### 3 Taiwan

- Electronics +5
- Machinery +3

### 2 Mexico

- Automotive +8
- Agri. prods +2
- Machinery +1



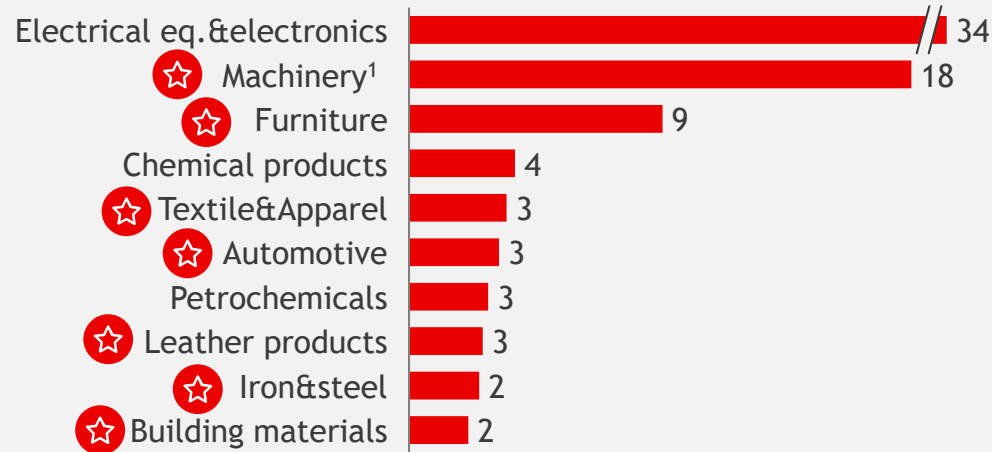
27<sup>th</sup> highest

# How can Turkey benefit from this shift?

We developed a rigorous methodology to identify the opportunity space for Turkey

Shift from China is occurring in multiple industries, Turkey is competitive only in some

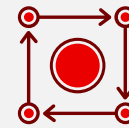
US' import decrease from China by top 10 industry (\$ B)



Total of Top 10 \$ 81 B

☆ Turkey's competitive industries

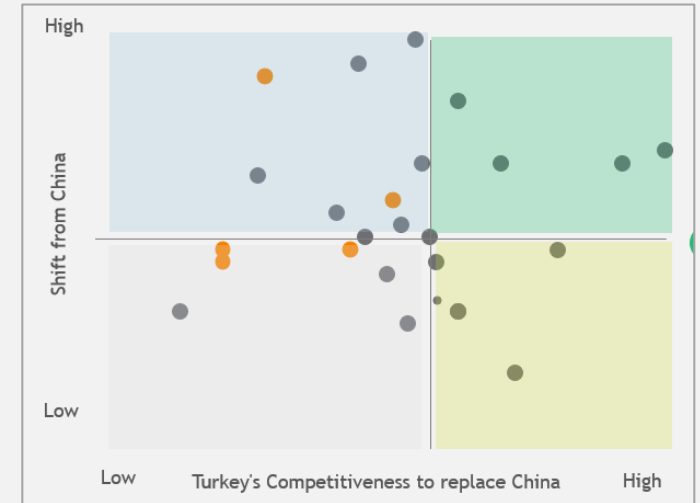
We sized the shift away from China and Turkey's capability to replace China



Shift Away from China

Potential shift of Imports in industries towards rest of the World

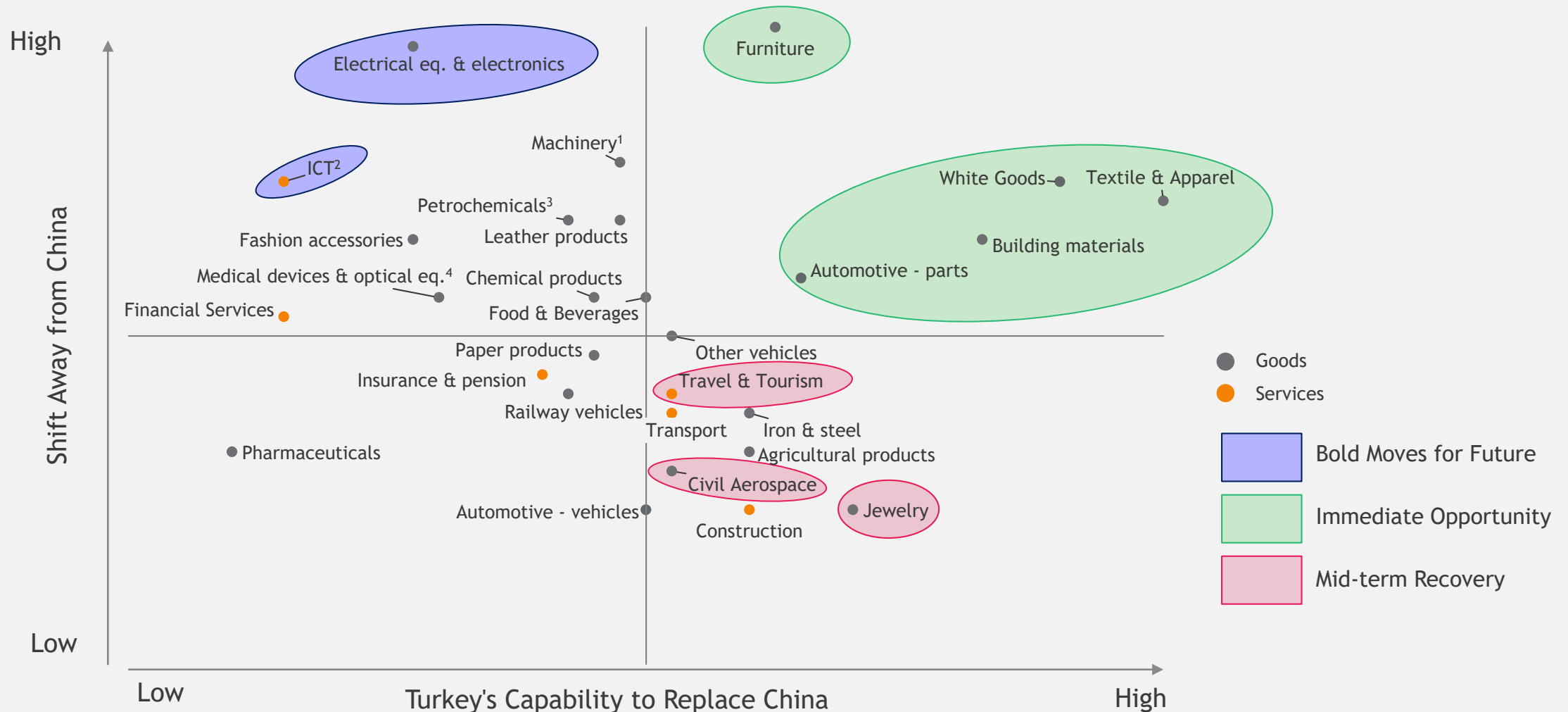
Market attractiveness for overall US imports was utilized in previous methodology



Turkey's Capability to Replace China

Turkey's relative position in the industry to capture the potential

# As such, we focused on 3 main industry groups to discuss alternative opportunities and required actions for Turkey



1- Machinery excludes White Goods, 2- ICT has been assessed with its potential beyond China based on expert view

3- Petrochemicals are degraded with expert view due to import dependence, 4- Not regarded as potential due to COVID-19 future effects remaining unclear

# New opportunities for Turkey can only be seized with bold moves

Turkey's previously strong industries persist to provide opportunity space

## New opportunities identified

High potential areas but building competitiveness feasible only in the long-term

### 1 Bold Moves for Future



Electrical equipment and electronics



Digital Space

- IT Services
- Technology start-ups

Build capability now investing in the future to become competitive in the long-term

## Previous findings revisited

High potential and high competitiveness in short term

### 2 Immediate Opportunity

React fast to grab the significant potential in immediate term in sectors Turkey is already competitive in

Low potential in short term, restructuring for solid recovery in long term

### 3 Mid-term Recovery

Negatively effected globally, minimize loss in short-term and build capability for long-term in sectors Turkey is already competitive in



Automotive - parts



White goods



Textile & apparel



Building materials



Furniture



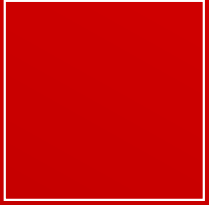
Jewelry



Travel & tourism



Civil aerospace

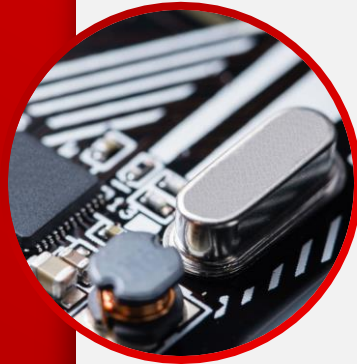


# Bold moves for Turkey

We see **two**  
**major**  
**opportunities** for  
Turkey and they  
can be achieved  
with **bold moves**



Digital Space: IT Services and  
Technology Startups



Electrical Equipment & Electronics





## Digital Space: IT Services and Technology Startups

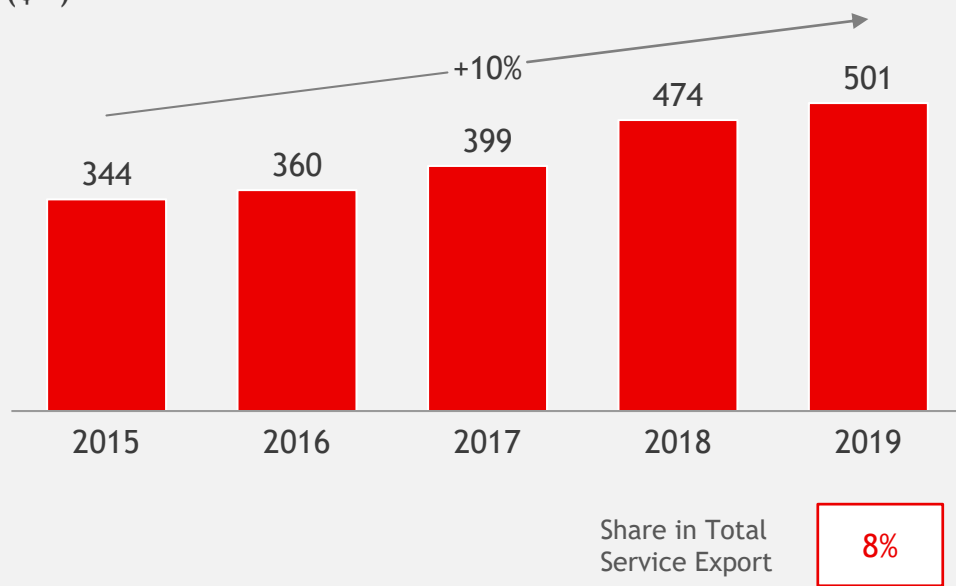


## Electrical Equipment & Electronics

# Digital space is growing fast through software market and technology companies

Global IT Export has increased gradually over the years

Global IT Export  
(\$B)



Technology companies have been growing and generating significant value for the economy

≈ 30%

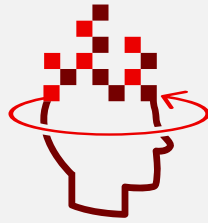
Share of technology companies in 100 fastest growing companies<sup>1</sup>

≈ \$1.5 Trillion

Cumulative valuation of Unicorn companies as of August 2020



# Turkey has strong capabilities and advantages to be a successful digital player



## Turkey has strong human capabilities

IT depends more on human capital and less on capital heavy investment; Turkey is competitive in talent



## Turkish companies have been exporting services in both major and niche segments

Turkish software companies have recently focused on vertical expertise allowing them to export to the US market



## Turkey is strategically located to serve nearby regions and attract US based FDI

Turkey's location allows it to serve Middle East, Central Asia and Europe



# Turkey is well-equipped with talent in a human-capital oriented sector

Turkey has a strong and growing labor force for IT

132,000

Employees  
in IT

120,000

Software developers

+50,000

Annual number of  
engineering graduates &  
undergraduates



"1 Million Developers"  
Project initiated

Business leaders in IT have full confidence in quality of talent in Turkey



*We have extremely talented graduates, all they need is to be equipped with technical skills on the job*

*Müjdat Altay, Netaş CEO*



*Business orientation, practicality and agility skills of Turkish developers are much better than competing countries*

*Buğra Koyuncu, LOGO CEO*



*Problem solving and model design are core competencies for next generation development, Turkish developers are highly skilled in both*

*Önder Kaplancık, KoçDigital Managing Director*







*Developer market in Turkey is rich in terms of availability of highly qualified talent and reaching talented developers is not an issue at all*

*Türkey Önal, Narcade Co-founder*



# Highly capable Turkish software companies have been exporting services in major and niche segments

## Selected Examples

	Turkish Company	Product	Achievement
Major Segment		Various tools in Enterprise Resource Planning, Customer Relationship Management and Warehouse Management Systems	Largest domestic company with ~\$40M annual revenue and ~\$300M valuation, acquired Romanian company to increase exports
Niche Segment		Artificial Intelligence powered multichannel marketing tool	Received \$32M investment in July 2020 to enter US Market
		Alert tool for developers to spot alarming incidents in the development platform	Acquired by Atlassian from US - owner of Jira, major project management tool- for \$295M in 2018
		Extension to increase performance of database	Acquired by Microsoft with undisclosed deal in 2019



# Turkey is strategically located to serve near geographies with datacenters and related software services

## Proximity to addressable markets is key



Data needs to be **processed and stored close enough** to derive optimal real-time value



Distance effects the **effectiveness** of **complementary services** in aftercare



More relevant for hardware-related infrastructures (e.g. datacenters and related software services)

## Turkey's location provides significant addressable market



Europe,  
Central Asia,  
Middle East and  
North Africa



≈30% of  
World  
GDP



≈20% of  
World  
Population

## Turkey has competitive advantages over near geographies

Potential  
Competition

Turkey's competitive  
advantage

Major competition

Eastern  
Europe

~30% cheaper labor cost  
with competitive quality

Central  
Asia

Qualified labor force  
Lower country risk

MENA

Qualified labor force



# We assessed opportunities in three major segments for digital space

## Segments

## Definition

## Major Players



### Data Centers & Cloud Storage

Building a **dedicated, climate controlled and secured space** for hardware to store data and provide **online storage** through cloud services



Share of **3 major US companies** in the global market<sup>1</sup>



### Software Services

**Outsourcing** of software services or **developing software** products by established brands to be used by enterprises



Share of **5 major US companies** in the global market<sup>2</sup>



### Technology Startups

Developing **technology-oriented innovative businesses** bringing a new solution to the market



Share of **US Companies** in top 100 Venture Capital<sup>3</sup>

Source: Statista, Expert Interviews, BCG Analysis

1-Cloud infrastructure service revenue share for Q4 2019 2 -Enterprise Software as a Service Solution market share for Q1 2020, 3- Preqin Special Report: The Venture Capital Top 100





# Establishing Data Centers & Cloud Storage is the fundamental segment to address digital space

## Segments

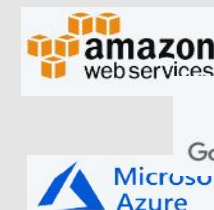
## Definition

## Major Players



### Data Centers & Cloud Storage

Building a **dedicated, climate controlled and secured space** for hardware to store data and provide **online storage** through cloud services



Share of **3 major US companies** in the global market<sup>1</sup>



### Software Services

**Outsourcing** of software services or **developing software** products by established brands to be used by enterprises

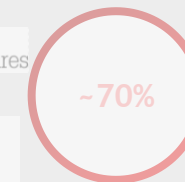


Share of **5 major US companies** in the global market<sup>2</sup>



### Technology Startups

Developing **technology-oriented innovative businesses** bringing a new solution to the market



Share of **US Companies** in top 100 Venture Capital<sup>3</sup>

Source: Statista, Expert Interviews, BCG Analysis

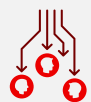
1-Cloud infrastructure service revenue share for Q4 2019 2 -Enterprise Software as a Service Solution market share for Q1 2020, 3- Preqin Special Report: The Venture Capital Top 100



# Data center is a key opportunity to attract investment and become a regional technology hub

Data centers need significant investment and leading companies need partnerships...

... they are investing in near geographies to cover the opportunity in the region



Critical to serve a **region** since **domestic markets** do not usually provide **sufficient scale**



Geographical **proximity** is vital and **leading companies** are **forming partnerships** to serve new geographies



Attracting **FDI** is critical both to reach necessary **capital** and **know-how**



Majority of **investments** for datacenters have **significant value** surpassing \$1B



**Online storage** through data centers is **complemented** by **services** such as security, disaster recovery and remote working (VPN)

## Major hub attracting significant investments



Poland

**Google** is investing \$2 B for data centers becoming operational in **2021**

**Microsoft** announces a \$1 B digital transformation plan for cloud services in the next 7 years



Romania

**Amazon** opened Technology Development Center in 2018



Bulgaria

**HP, IBM, Cisco** operate large R&D Centers employing thousands of employees



# Poland has taken solid steps to become a regional technology hub

## Incentivized and supported investment for the sector



Provided incentives in R&D both for domestic and international companies in the form of: EU grants, national funds and tax relief



State treasury owned bank and Polish Development Fund funded establishment of local "Domestic Cloud Provider" through Joint Venture

## Built long-lasting and sustaining relationships

### International Companies



Strengthened relations after foundation of Google for Startups in Warsaw in 2015



Became a trusted operating partner for Microsoft with 30-year track record

### Nearby Countries



European Union

Established positive relationships with neighbor countries through European Union

## Negotiated integrated deals between local and global players



"Domestic Cloud Provider" will resell Google cloud services and mutually produced services

Google will build datacenters for CEE, provide strategic insight and train experts



Microsoft partners with a different local cloud player: Chmura Krajowa to serve Polish public institutions and businesses

Aims on boosting digital competencies of organizations through +150k individuals to grow the market



# Turkey has potential to be a regional technology hub for US technology companies

## Turkey can be regional hub to serve nearby geographies



Leading tech companies already established in Turkey with sales and customer relations functions and regional headquarters



US tech companies can be incentivized to position Turkey as a regional tech hub



Prerequisite for partnership is stability of relations with nearby countries

## Domestic market can be addressed with partnerships



Significant room for growth in domestic market:

- Growing need of public sector
- Emerging needs for SME
- Access to B2C



Local Telco companies have established domestic network in all B2B and B2C segments



Global companies have strong solutions in cloud services

## TAIK can take active role in facilitation of relationships



Communicate Turkey's investment story to US-based tech companies to position Turkey as a regional tech-hub



Facilitate formation of joint ventures between US-based tech players and domestic Telco players to target domestic market



# There are different models to be competitive in software services

## Segments

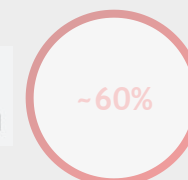
## Definition

## Major Players



Data Centers &  
Cloud Storage

Building a dedicated, climate controlled and secured space for hardware to store data and provide online storage through cloud services



Share of 3 major US companies in the global market<sup>1</sup>



Software Services

Outsourcing of software services or developing software products by established brands to be used by enterprises

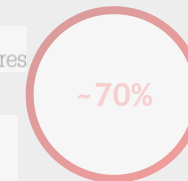


Share of 5 major US companies in the global market<sup>2</sup>



Technology  
Startups

Developing technology-oriented innovative businesses bringing a new solution to the market



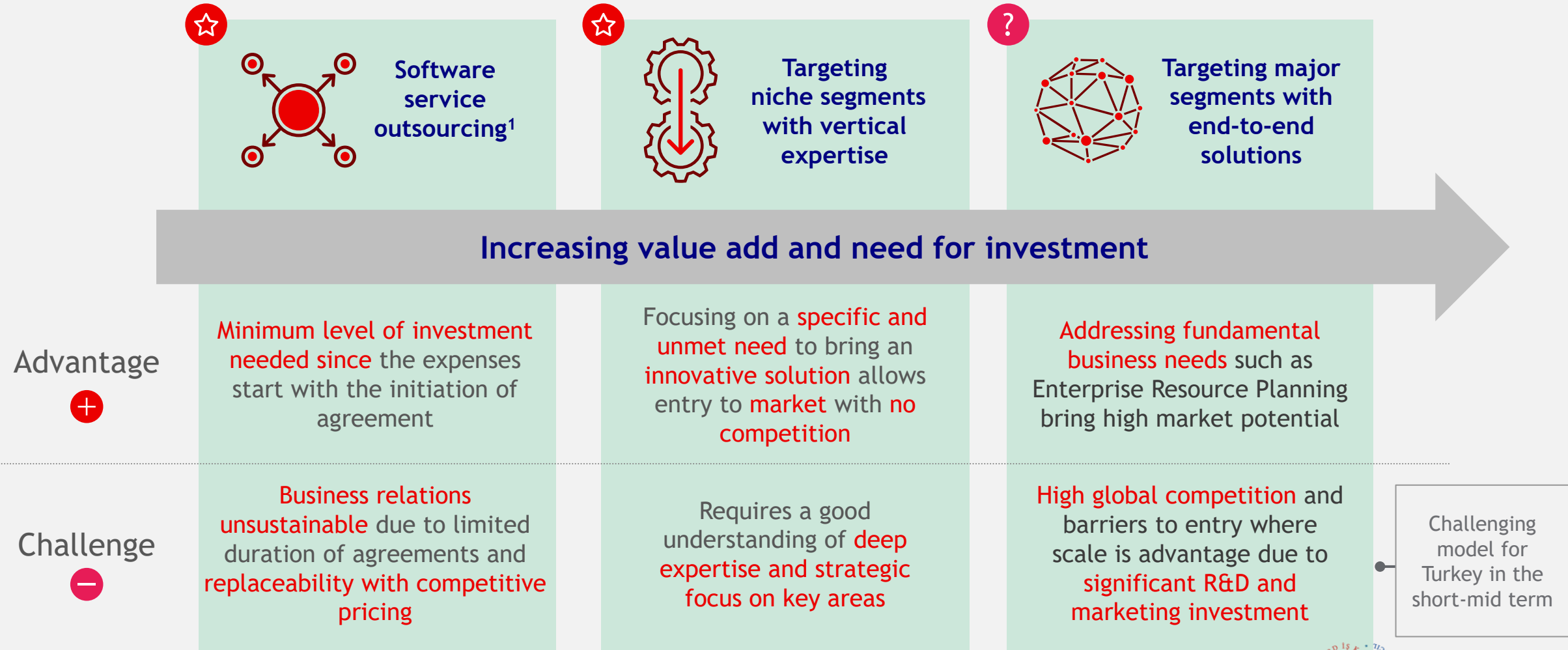
Share of US Companies in top 100 Venture Capital<sup>3</sup>

Source: Statista, Expert Interviews, BCG Analysis

1-Cloud infrastructure service revenue share for Q4 2019 2 -Enterprise Software as a Service Solution market share for Q1 2020, 3- Preqin Special Report: The Venture Capital Top 100



# We identified three models to address the potential in software services

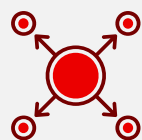




# Benchmark countries have taken different approaches to become globally competitive in IT services



India



Global powerhouse  
for IT service  
outsourcing



Focused on outsourcing  
with **direction** of the  
government



Established Tidel Park for  
**clustering**: Asia's **largest**  
software park in Chennai



Established **governmental**  
**fund**: NFSIT<sup>1</sup>



Romania



Provides niche  
solutions within  
banking sector



National Bank of Romania  
launched **FinTech Innovation Hub**



**Deutsche Bank** and **ING** chose  
Bucharest for their **IT**  
**development hubs** bringing  
**expertise** to the region



Multiple **Romanian software**  
**companies** established **niche**  
**solutions in banking** such as AI  
powered customer support



Israel



Global hub for  
Cybersecurity



**Top performer** nation in **R&D**  
investment<sup>2</sup> : 4.6% of GDP



Joint **Binational R&D Programs**  
with other countries to increase  
investment



Invests heavily in **Defense**  
**Technologies** to build **expertise**





# Turkey has competency to address the potential in software services with different models

Turkey has competitive capabilities for both software service models...

...and can follow the path for each service model

## 1 Software service outsourcing

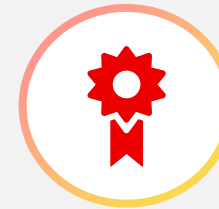


Turkey has **talented developers** and has **competitive labor cost rate**

## 2 Targeting niche segments with vertical expertise



New generation companies are building **expertise in niche segments** (e.g. fintech, marketing, medical etc.)



Form a cluster of companies to provide **software service outsourcing** with competitive pricing and facilitate matchmaking with buyer companies in US



Identify, support and guide **companies aiming addressable niche markets** and facilitate matchmaking with potential US buyers



# Developing technology startups is another segment to address digital space

## Segments

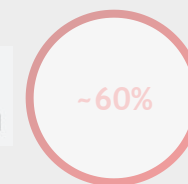
## Definition

## Major Players



### Data Centers & Cloud Storage

Building a **dedicated, climate controlled and secured space** for hardware to store data and provide **online storage** through cloud services

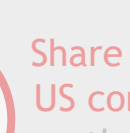


Share of 3 major US companies in the global market<sup>1</sup>



### Software Services

**Outsourcing** of software services or **developing software** products by established brands to be used by enterprises

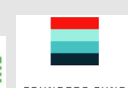


Share of 5 major US companies in the global market<sup>2</sup>



### Technology Startups

Developing **technology-oriented innovative businesses** bringing a new solution to the market



Share of US Companies in top 100 Venture Capital<sup>3</sup>

Source: Statista, Expert Interviews, BCG Analysis

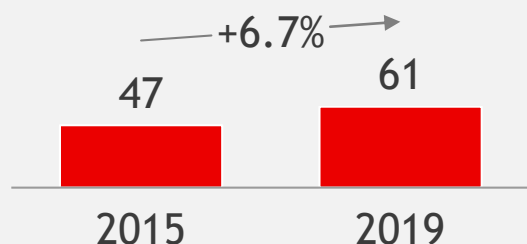
1-Cloud infrastructure service revenue share for Q4 2019 2 -Enterprise Software as a Service Solution market share for Q1 2020, 3- Preqin Special Report: The Venture Capital Top 100



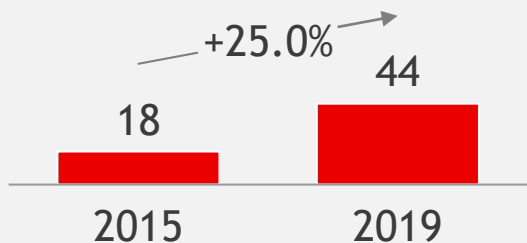
# Startup ecosystem in Turkey has been growing with acceleration efforts

Accelerator factors for startups have been gradually increasing

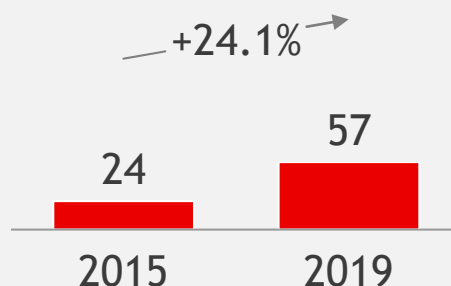
Accelerator Programs



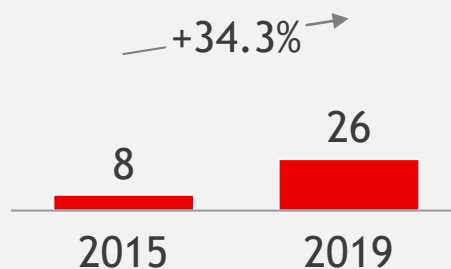
Co-working Spaces



Technoparks



Local Venture Capital Companies



Resulting in a growing startup ecosystem starting to receive global highlight

+7,500

Operating Startups

+550

Startups established each year

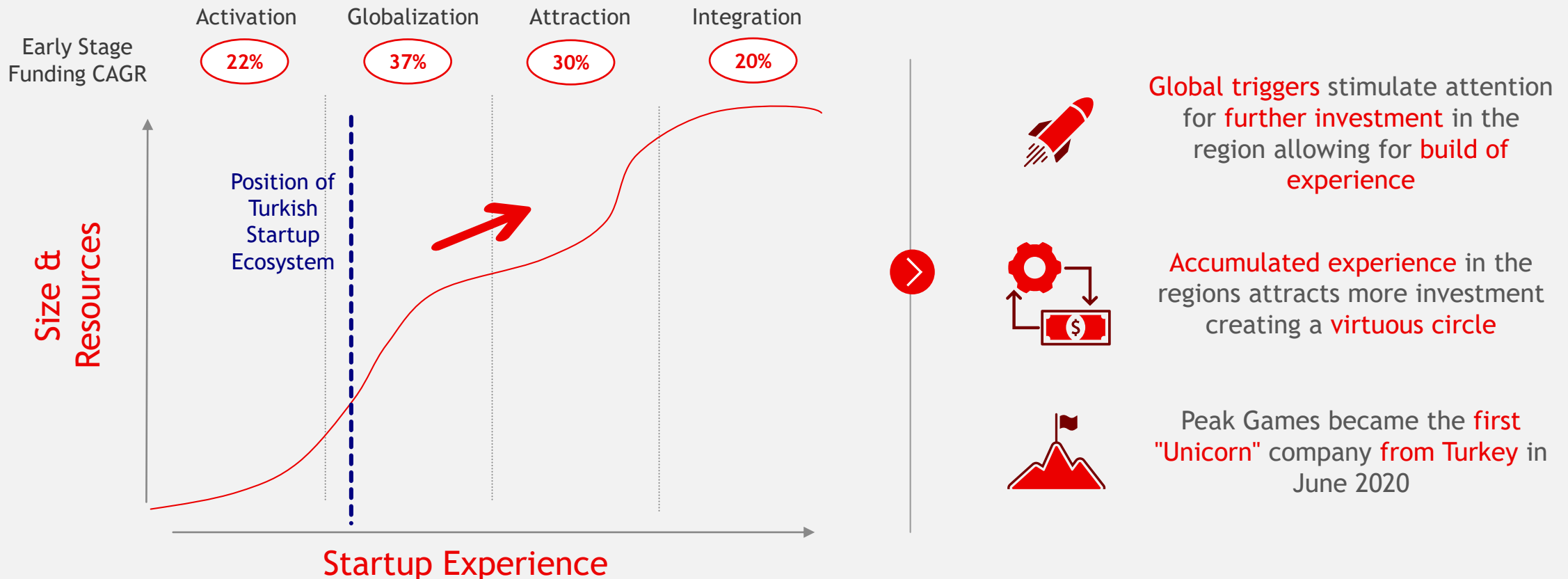


Istanbul is selected amongst top 20 emerging ecosystems<sup>1</sup>



# Growing Turkish startup ecosystem is about to enter a virtuous circle with a need of few concrete triggers

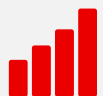
## Phases of Startup Ecosystem Lifecycles





# Gaming is a high potential-market to grow and target the US market

Global gaming market proves potential with different business models



Gaming is a high potential market to scale and **easier to expand globally**; US is the largest market with 24% share in 2019<sup>1</sup>

## Gaming segments

### Hyper-casual gaming

Easy to play mobile games with a potential to reach mass market with low frequency and retention

### Experience gaming

Games targeting niche segments with high quality level and game design with sticky players



Number of users and lifetime value generated is the key **success criteria** for both segments

Turkey has proven its competency in both models...



Turkey is amongst Tier 1 countries competing with US, UK and South Korea

Turkey has **developed expertise in gaming** and a solid ecosystem with successful examples



## Segment

Hyper-casual

## Acquisition

\$250M in 2018



Hyper-casual

\$168M in August 2020



Experience

\$1.8B in June 2020



**Designing capability** can be further developed



**Experience gaming** needs time for R&D and capital: Need for strategic investors with long-term vision and high capital funding



# Attracting investment is a fundamental element for success in developing the startup ecosystem



Brazil

**Key success factor:** Attracting foreign investment to feed the startup ecosystem

## Accelerating factor



Apex-Brasil<sup>1</sup> takes active role in attracting investment for startups by support programs to access Brazilian market and **matchmaking** since 2010



Apex-Brasil has a strategically located **office in San Francisco** to reach US venture capital



South Korea

**Key success factor:** Supporting the growth of ecosystem with internal investment

## Accelerating factor

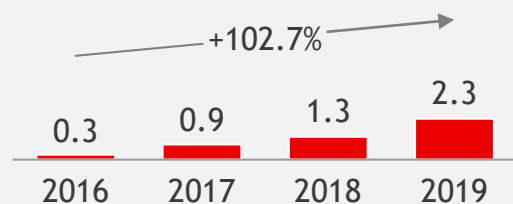


Government initiated strong funding of over **+\$14B** through public and private finances in the last 5 years



5th highest investor in R&D with **\$72B** annual R&D spending

## VC<sup>2</sup> Investments in Brazil (\$B)



20x Turkey's VC Investment

**+5**

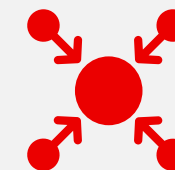
Number of new unicorn companies in Brazil in 2019

3rd after US and China

**12**

Number of Total Unicorn companies by January 2020

6th country in the world



Seoul is amongst top 20 global startup ecosystems



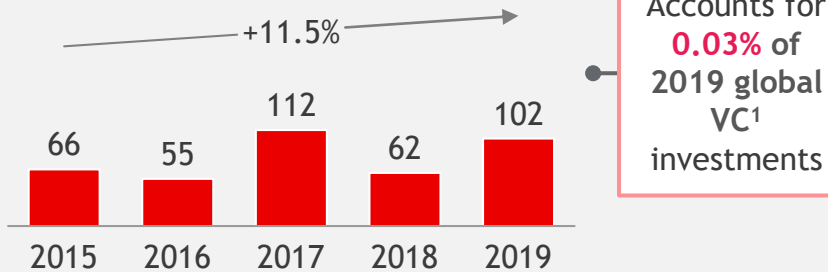
# Turkey needs to attract external resources

Funding and global know-how is needed to reach the activation phase

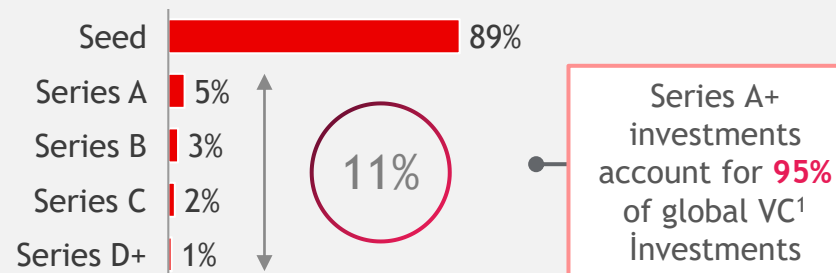
Venture capital funding especially in later stages can improve along with expansion and scaling experience...

...bringing the need to attract external resources

Venture Capital Funding in Turkey (\$M)



Breakdown of VC Investment in Turkey for 2019



## Critical Needs for Global Expansion



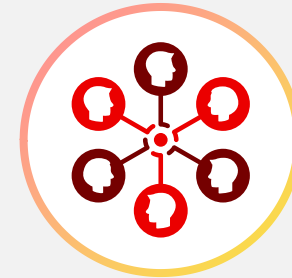
Later stage investments - Series A and beyond



Knowledge on previous scaling and expansion experience - limited in Turkey



Increase attraction of foreign VC especially for later stage investments



Mentoring early-stage startups and scale-ups and establishing a global network of mentors for global exposure

## We recommend TAİK initiates: "TR-US Digital Corridor"



**Establish TAIK Digital Task Force** (with the involvement of leading companies and associations) to facilitate the implementation of recommendations and act as the bridge between Turkey and US digital effort



**Attract investment** by communicating Turkey's investment story to US-based tech companies and facilitating strategic partnerships



**Support Turkish software companies on exporting services to the US** by providing insights on US market and matchmaking with potential buyers in US



**Promote Turkish start-up ecosystem**, attract US-based VC and establish a **mentor club** including Turkish and global network





# TR-US Digital Corridor can accelerate TR-US economic relations reaching significant impact by 2030

## Data Centers & Cloud Storage



Annual  
opportunity in  
2030

~\$1.8B  
Datacenter FDI  
in 2030

## Software Services



~\$2B  
Exports to US  
in 2030

## Technology Startups



~\$6.5B  
VC Funding  
Attraction in 2030

Cumulative  
opportunity for  
2020-2030

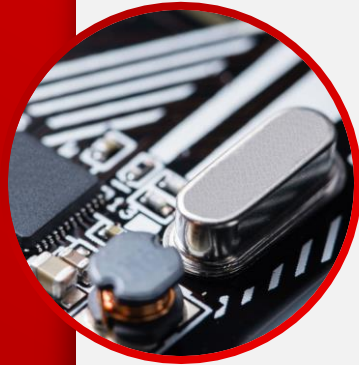
~\$15B  
Cumulative  
Datacenter FDI

~\$10B  
Cumulative  
Exports to US

~\$30B  
Cumulative  
VC Funding Attraction



Digital Space: IT Services and  
Technology Startups



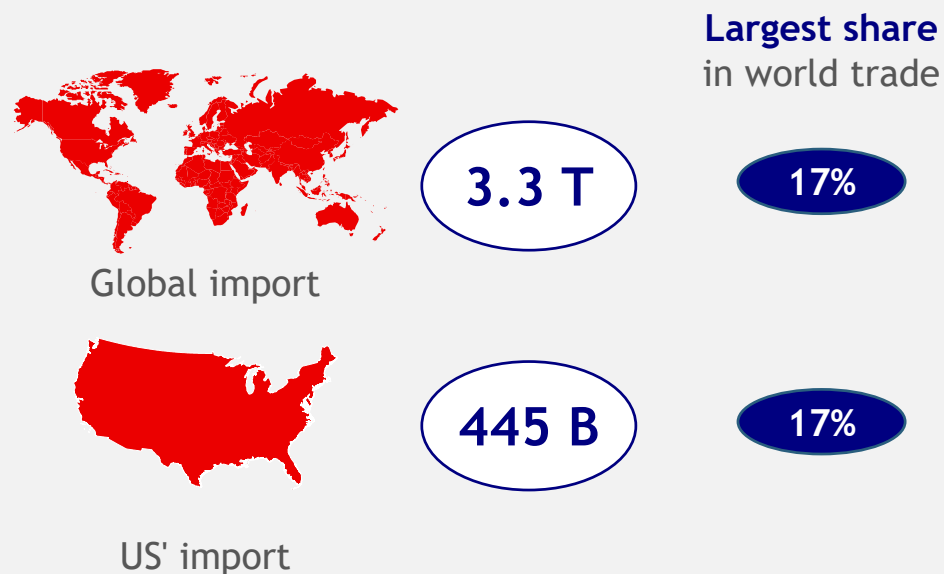
Electrical Equipment & Electronics



# Electrical Equipment & Electronics is the largest segment in trade

## Shift in US Imports from China in 2019 accounted for **\$34B**

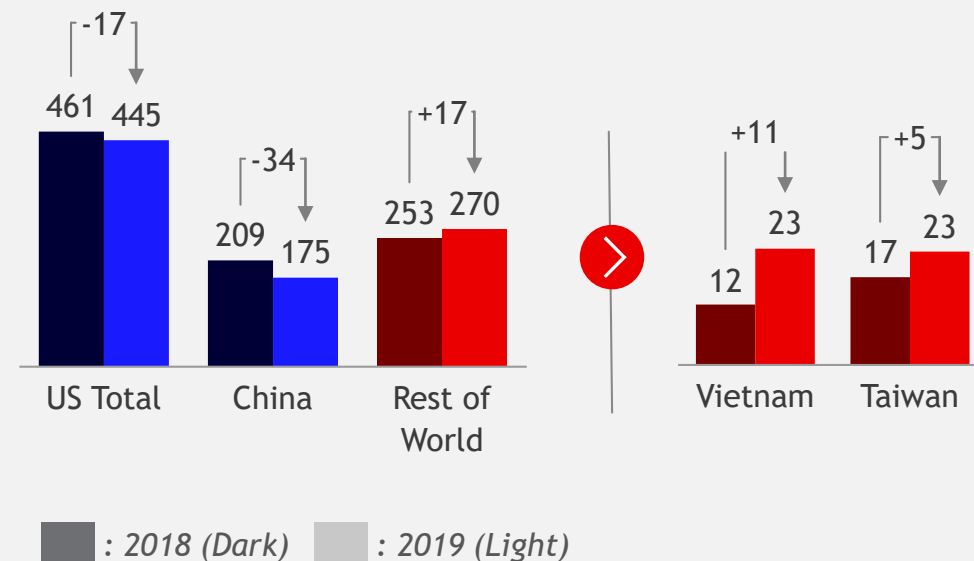
E&E has the largest share both in US and global imports



There has been a shift in US imports from China towards inshore and other Asian countries

### Change in US Electronics Imports

Change in US total, China and RoW imports (\$ B)

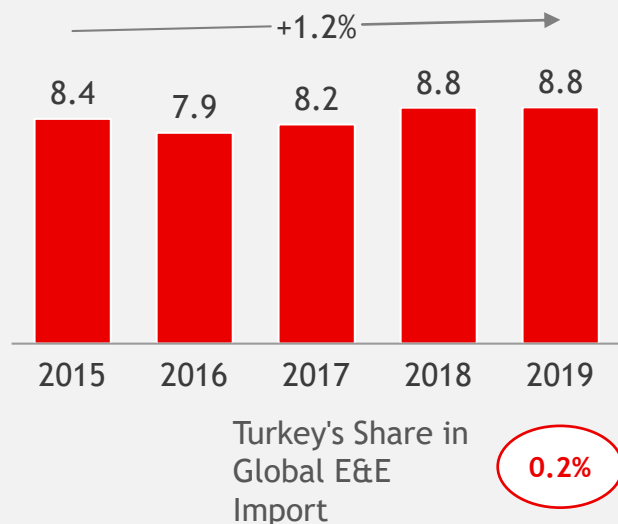




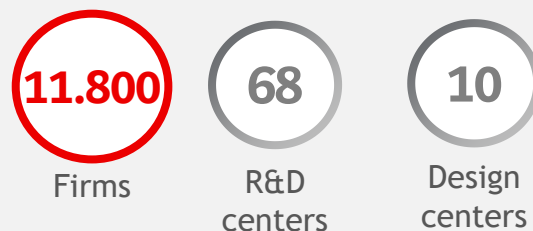
# Turkey's export in E&E has been stagnant **but has promising capabilities and efforts**

E&E exports has been stagnant

Turkey's Exports in Electrical Eq. & Electronics (\$B)



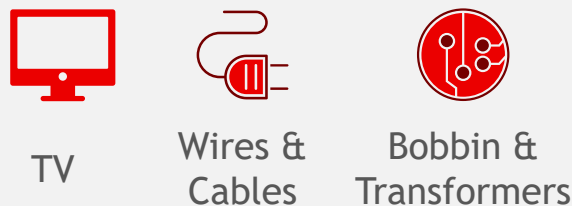
... but has certain capabilities



With major players



And export in some segments



... and promising efforts on capability building



Semiconductors **critical** in producing components and **high-end** products



**aselsan**



Tübitak & Aselsan **co-invest** in Semiconductor Research Laboratory



**Universities** are building capabilities on **design** and **manufacture** of **semiconductors**





# We identified two approaches to build capability in E&E

Long-term effort with clear vision, direction and sustained investment required

## Approach:



FDI driven  
integration with  
GVCs



Internal Capability  
Building for Higher  
Value-add

## Key Success Criteria:

Reliable Cost Competitiveness  
in Production

Sustainable and Efficient  
Production with High Quality

## Driven by:



Availability of affordable labor



Incentives on trade and investment



Sustained confidence on perception as  
a stable FDI location



Investment in human capital



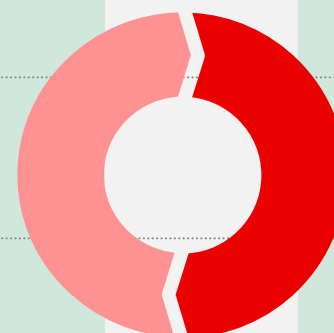
Strong logistic infrastructure



Advanced manufacturing capabilities  
and investment in R&D



Public-private sector cooperation





# Benchmark countries have pursued mixed paths in building capabilities around E&E and adjacencies



China

FDI-driven GCV integration then built capabilities in major segments



Emerg ed as an export platform for ultra-cheap labor after joining WTO in 2001



Entered globalization phase of domestic electronics companies including Huawei and Lenovo from 2005 onwards



Announced "Made in China" in 2015 incentivizing high-tech value production



Malaysia

FDI-driven GCV integration then built capabilities in niche segments



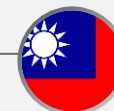
Became assembling and testing hub for global companies:

By 2003 Motorola, Dell and Intel employed 90k people in Malaysia



Government announced National Biotechnology Policy in 2005 and Biotech is expected to account for 5% of GDP in 2020

Bio-tech includes application of electronics to problems in biology (e.g. automated X-ray inspection, optical inspection, electrocardiographs etc.)



Taiwan

Focused on building domestic E&E supplier companies



Created a strategy focusing on the semiconductor industry with the cooperation of gov't and private sector starting from 1978

Inventec



Manufacturers for Apple

FOXCONN

PEGATRON

Selected Examples

Resulted in emerging of a tech-supplier ecosystem with selected companies having +\$250B annual revenue in total

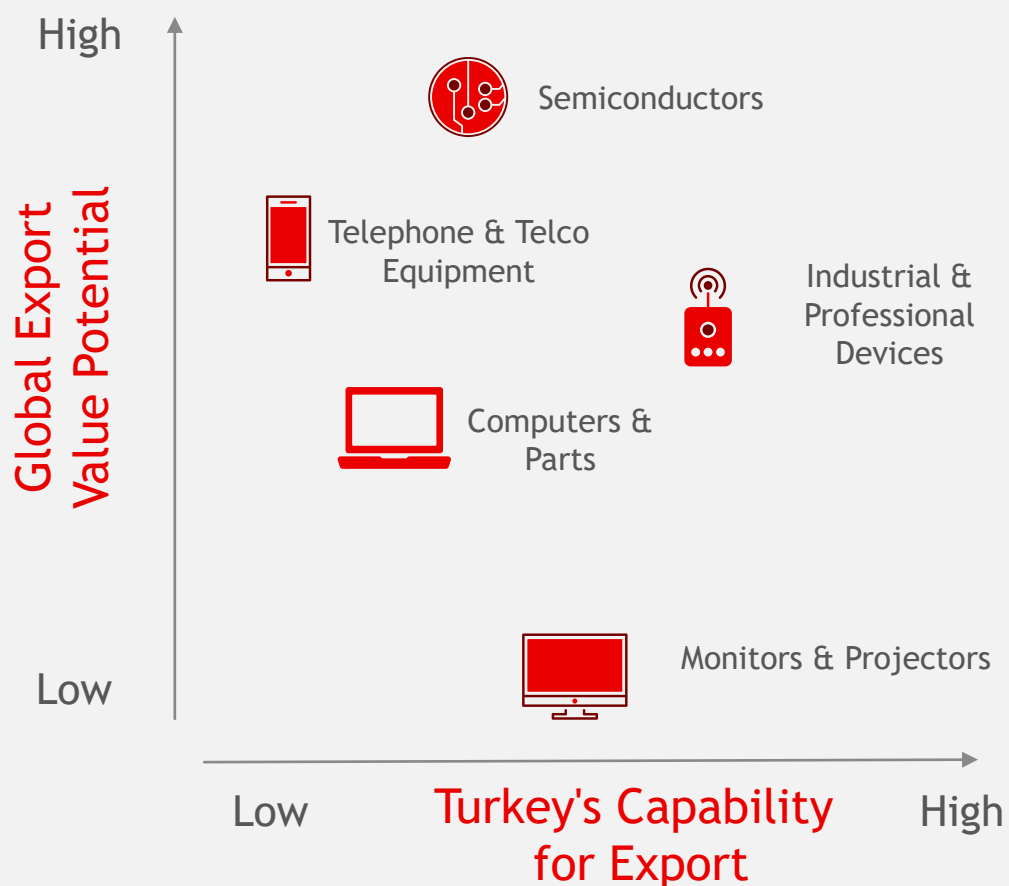


TAIEX



# We assessed 5 major segments of E&E to identify the opportunity space for Turkey

## Illustrative result for main segments



Segment	Recommended approach	Potential
Industrial & Professional Devices	Build internal capabilities	Emerging potential with rising capabilities
Semiconductors	Build internal capabilities	Challenging but strategically important to invest
Telephone & Telco Equipment	FDI-driven	High potential area with very high barriers to entry due to strong competition in Asia
Computers & Parts	FDI-driven	Potential area with very high barriers to entry due to strong competition in Asia
Monitors & Projectors	Build internal capabilities	Challenging opportunity with need of investment

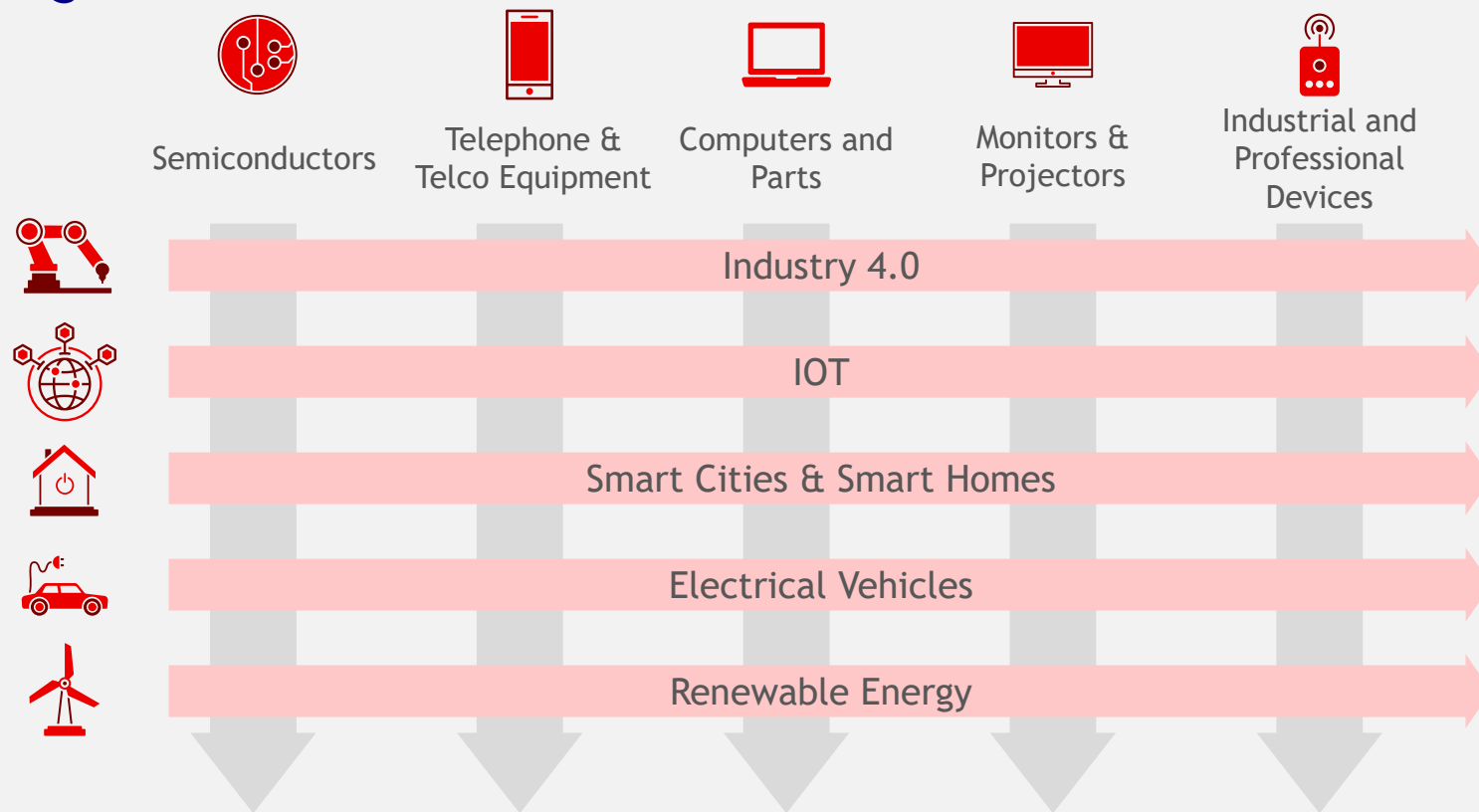
Details for product segments can be found in Appendix



# Instead of prioritizing E&E sub-segments, Turkey needs to focus on emerging trends cross-cutting E&E segments

Confirmed with industry experts

New generation technologies are rising and cross-cutting major segments of E&E



Key products to focus on

Selected examples



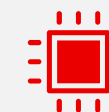
Power Electronic Devices



Smart Meters



Sensors



Microchip and system design







# Turkey needs a long-term strategy to seize opportunities in E&E

## Competitive countries have already initiated their long-term strategies

Competitive countries introduced long-term strategies to build capability in E&E with strong governmental drive

Turkey needs a long-term strategy to build capability in E&E

	 Made in China	 Make in Vietnam
Term	2025-2025	2025-2035
Selected Industries	<ul style="list-style-type: none"><li>• Robotics</li><li>• Aerospace</li><li>• Electrical vehicles</li><li>• Renewable Energy</li><li>• Power Equipment</li><li>• Maritime Equipment</li><li>• Medical Electronics</li></ul>	<ul style="list-style-type: none"><li>• Computer Equipment</li><li>• Phones and accessories</li><li>• Medical Electronics</li><li>• Renewable Energy</li></ul>

### Previous Examples on Capability Building

**aselsan**

Establishment of  
Military Defense  
industry

**beko** **VESTEL**

Establishment of  
TV and White  
Goods Industry

 **arçelik**



# TAİK can assist in driving Electrical Eq. & Electronics forward through multiple initiatives



Cooperate with sectoral associations (e.g. TESİD) to identify and address needs on capability building, export-inclinations, marketing for the US market



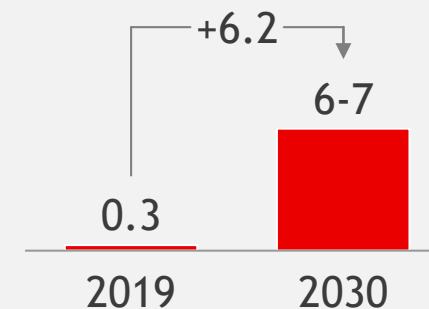
Build awareness on strategic significance of E&E in global and US exports on the governmental level to build capability



Facilitate strategic partnerships for establishing manufacturing hubs in Turkey with key suppliers of US-based mobile phone and computer companies

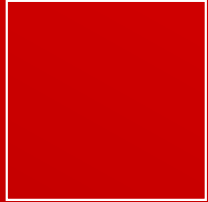


Turkey's Annual E&E Export to US (\$B)



~\$20  
Billion

Cumulative incremental E&E exports to US between 2020-2030



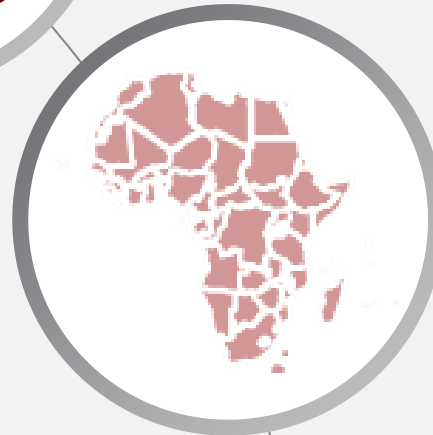
# Joint opportunities in Africa

Strong opportunity  
space exist for US  
and Turkish  
companies to  
collaborate in Africa



### **Sectoral**

- In which sectors US and Turkish companies can collaborate?



### **Regional**

- In which countries US and Turkish companies will collaborate?



### **Collaboration basis**

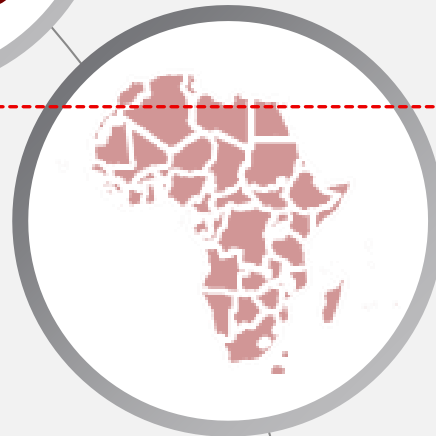
- What complementary roles US and Turkish companies have in collaboration?

Strong opportunity  
space exist for US  
and Turkish  
companies to  
collaborate in Africa



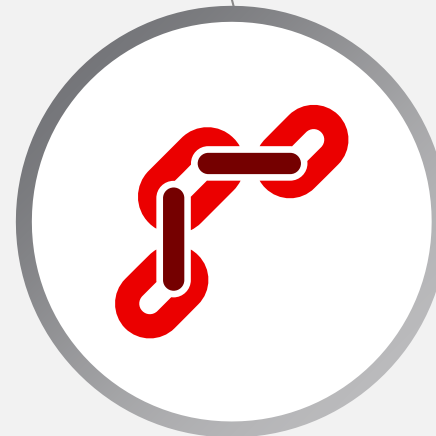
### **Sectoral**

- In which sectors US and Turkish companies can collaborate?



### **Regional**

- In which countries US and Turkish companies will collaborate?



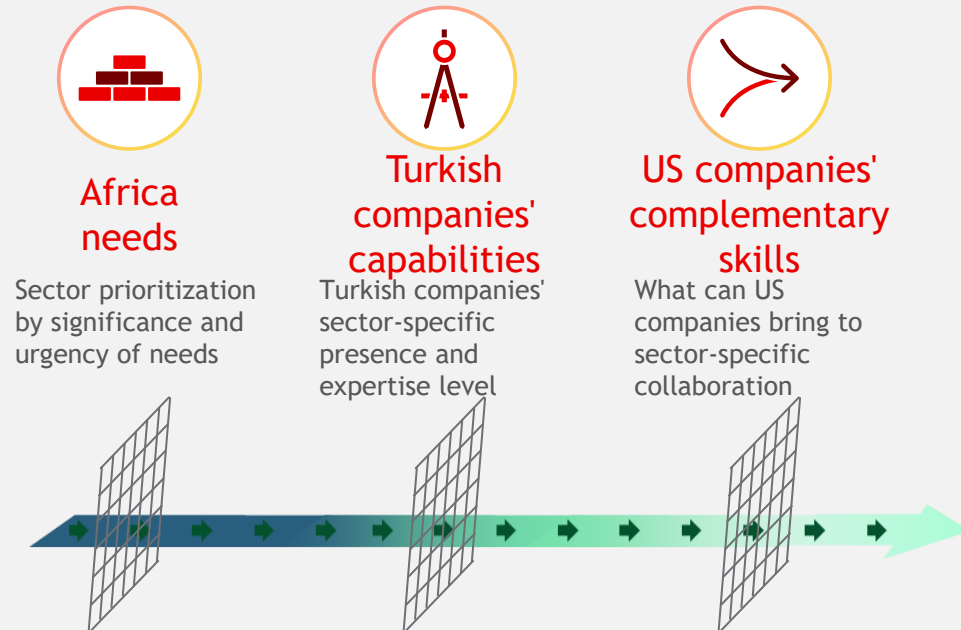
### **Collaboration basis**

- What complementary roles US and Turkish companies have in collaboration?



# Construction related industries are the main sectoral collaborative areas

## Filtering criteria



## Sectoral collaborative areas

### Core sectors



Construction, real estate



Public network, water sanitation



Transportation infrastructure



Building materials

### Other sectors



Consumer goods



Industrial goods

#### Why out of focus

- High dependence on Africa's mid-long term economic development (not urgent)
- Not necessarily US cooperation

 : Main focus



# Infrastructural upgrading is the major stepping stone for Africa; yet project financing is a challenge

Africa has a major potential for investors ...

5

of 10 **fastest-growing economies** are African in 2019<sup>1</sup>

40%

of the world's population **will live in Africa** by the turn of this century<sup>2</sup>

60%

of African population are under age 25, represents **immense workforce potential**

... but needs major infrastructural upgrading

Big infrastructure investments required to leverage the potential and increase value add



Highways and rail roads



Ports, dams and airports



Public networks, electric grids



Hospitals, public buildings

Project financing is the main obstacle for African countries

African countries cannot finance big infrastructure projects by themselves

Also, **external financing** is difficult and costly due to high risk profile of the continent



Difficult/unsafe work environment



High economic and political risks

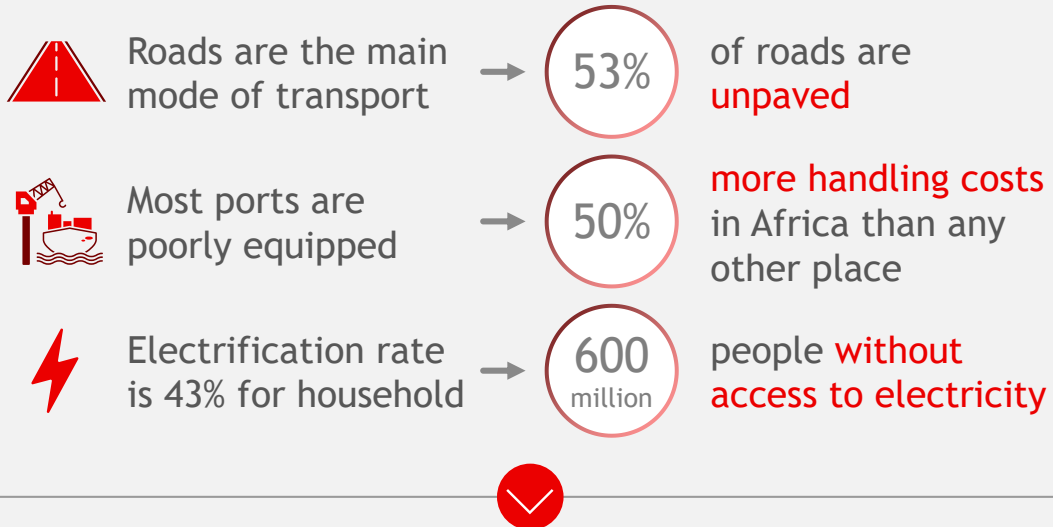


Corruption related concerns



# Infrastructure development is a key driver for progress across the African continent

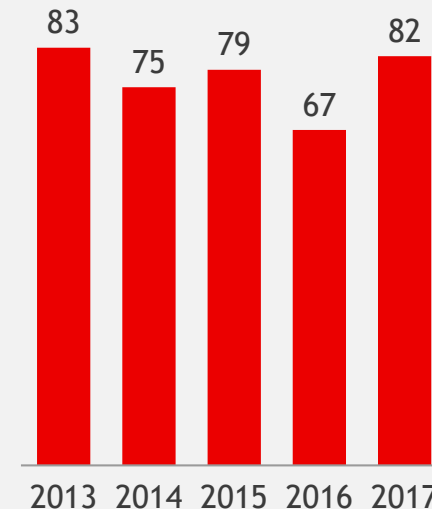
Infrastructure investments are the main requirements for Africa to reach its potential ...



**~150 \$ B** of **infrastructure investment is needed** for Africa to reach its potential<sup>1</sup>

... but, current funding is ~80B which is ~\$70 B shorter than actual annual need

Total infrastructure funding in Africa (\$ B)



**80 \$ B**

Approximate average infrastructure funding in Africa between 2013 and 2017





# Chinese companies increased their influence in the African continent

Chinese approach to globalization and capabilities are key to its success in Africa

## Chinese companies' expansion characteristics



High-risk appetite and low profit margin model fits well with developing regions



High government involvement and flexibility on working with less democratized regimes



Strategic engagement through port access to secure "Belt and Road Initiative"

## Infrastructure expertise and strong project financing

- Chinese companies participated over 40% of infrastructure projects in Africa as of 2018<sup>1</sup>
- Chinese companies and institutions have a significant share:
  - 33% built by Chinese companies
  - 19% financed by Chinese institutions
- China is the single-largest financier by of African I&CP<sup>2</sup> projects

## Mining activities and valuable natural resource trade



Other countries are dependent on China for natural resources, especially rare earth materials



Limiting other countries' access to African resources through strategic port investments

China provides funding to even countries without financial guarantees in exchange for long-term usage of;



Mineral and metal ores

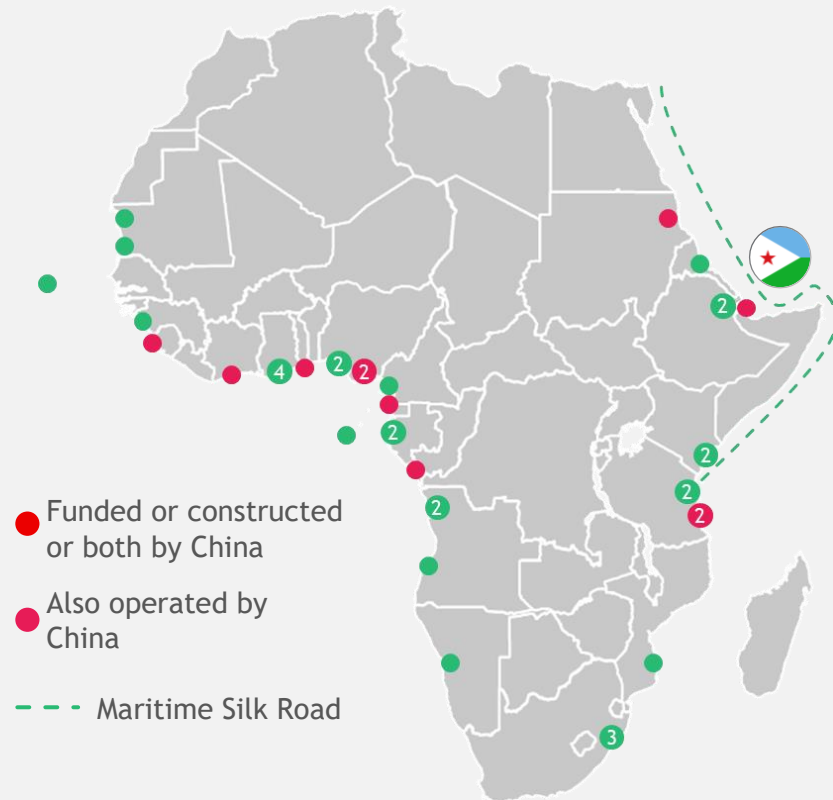


Precious stones and metals



# China increases its presence in Africa through port investments; also securing imports and economic access to inlands

46 sub-Saharan African ports with financial, construction, or operational involvement by Chinese entities<sup>1</sup>



Port expansion and rehabilitation projects are key to furthering African growth and development

90% of African exports depend on ports



Port investments are one of the main avenues China established **commercial supremacy** and became the continent's **main trade partner**

Especially ports operated by Chinese government may pose **strategic risks** by enabling Beijing:



Restrict access to its rivals



Utilize ports during conflict

11 of 46 ports are operated by Chinese



Djibouti is the **most concerning port** given its proximity to a **maritime chokepoint**. China controls two of the five terminals in Djibouti



1. 46 sub-Saharan African ports with Chinese involvement were identified in the Center for Strategic International Studies Africa Program

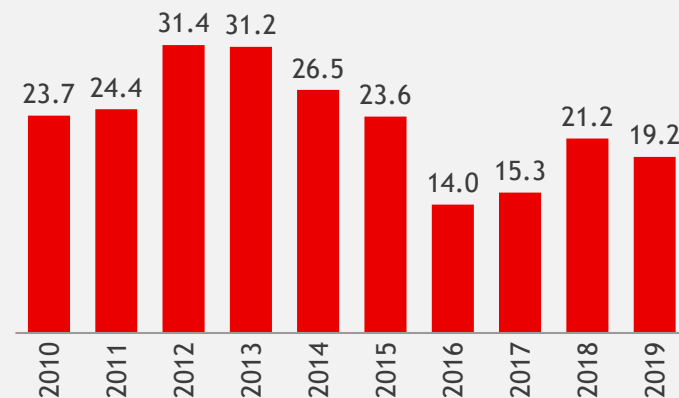


# Turkish construction companies have been executing large projects in Africa -further potential with easier access to project finance

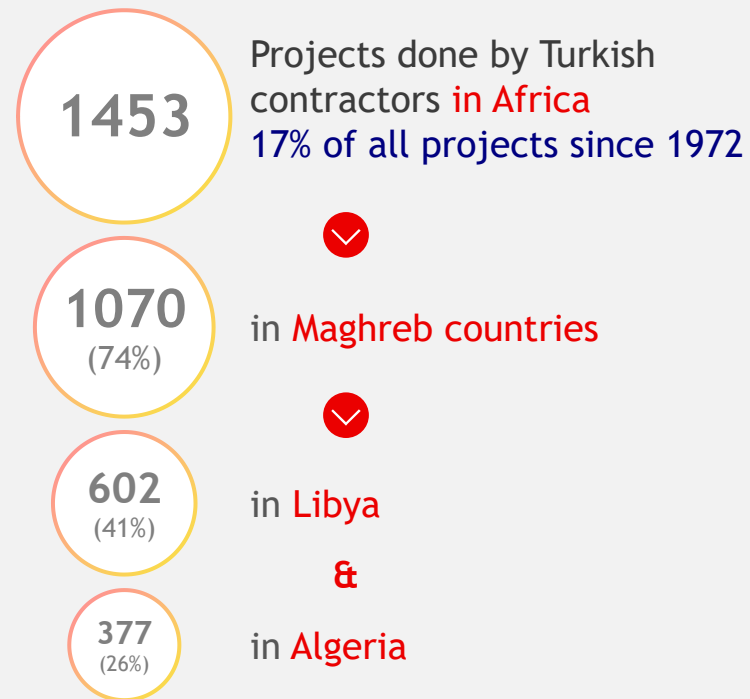
Turkish companies have improved their ability to do business abroad

Turkish contractors have done **10,169 projects** in **126 countries** with a value of **\$ 401 B** between 1972 and 2019

Construction project value undertaken by Turkish firms between 2010-2019 (\$ B)

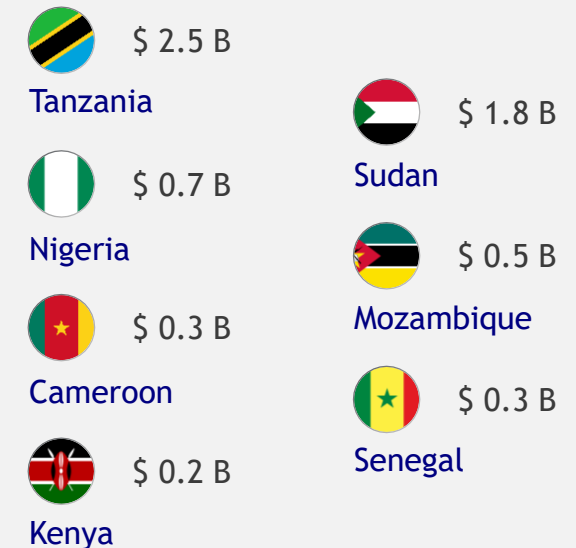


Turkish companies have done **1453 projects** in Africa till 2019, mostly in Libya and Algeria

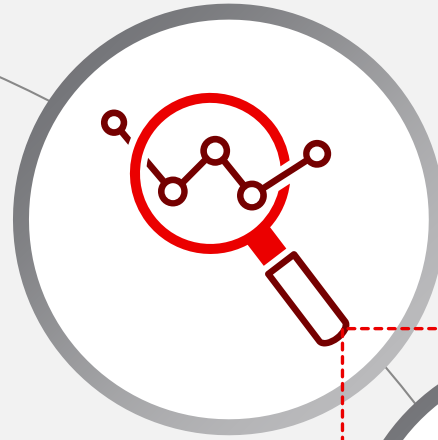


Turkish companies' interest shifted toward **Sub-Saharan Africa** after political changes

Turkish contractors have done **several important projects** in Sub-Saharan Africa between 2017 and 2019

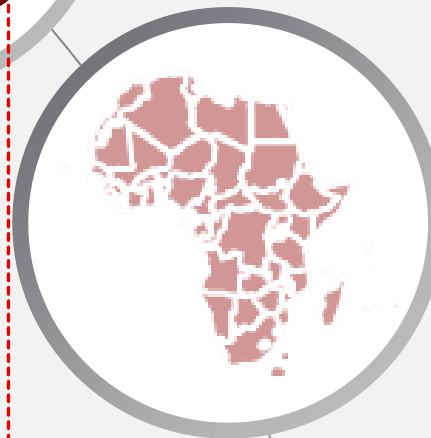


Strong opportunity  
space exist for US  
and Turkish  
companies to  
collaborate in Africa



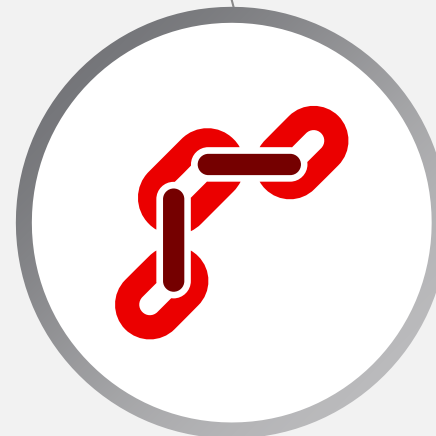
### **Sectoral**

- In which sectors US and Turkish companies can collaborate?



### **Regional**

- In which countries US and Turkish companies will collaborate?

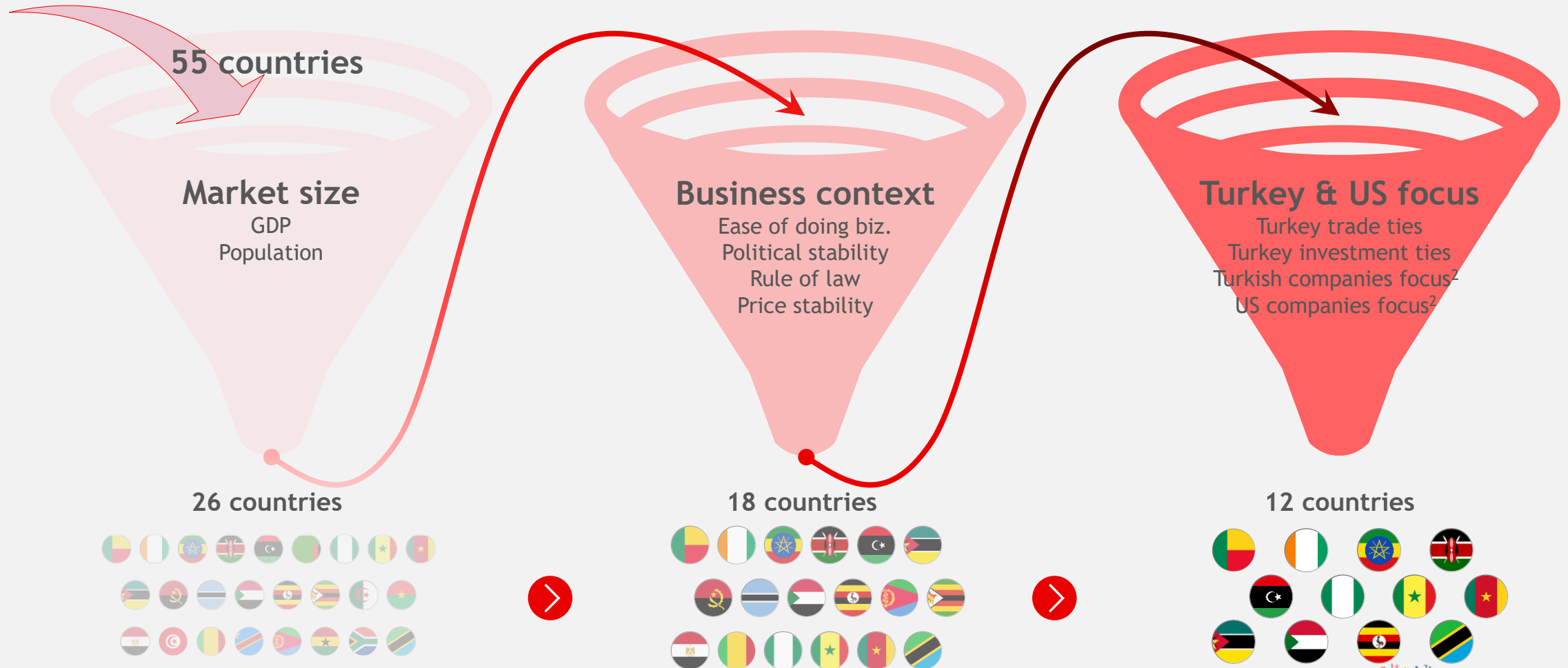


### **Collaboration basis**

- What complementary roles US and Turkish companies have in collaboration?



# We have developed a rigorous methodology to select countries of focus

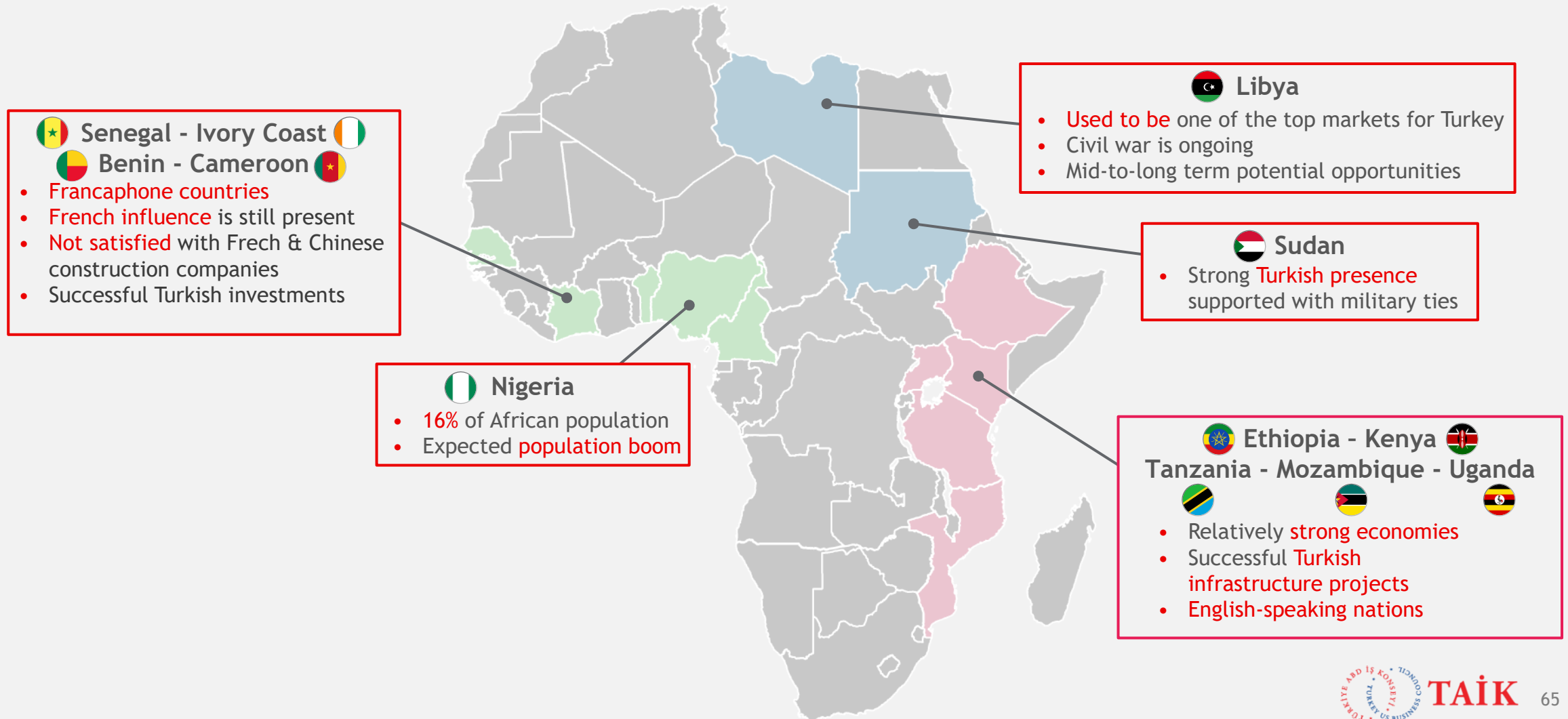


1. GDP > \$ 40 B, Population > 2 million 2. Based on interviews and expert judgement

Selected countries: Benin, Côte d'Ivoire, Ethiopia, Kenya, Libya, Nigeria, Senegal, Cameroon, Mozambique, Sudan, Uganda, Tanzania



# 12 countries are prioritized for US and Turkish companies collaborate in Africa

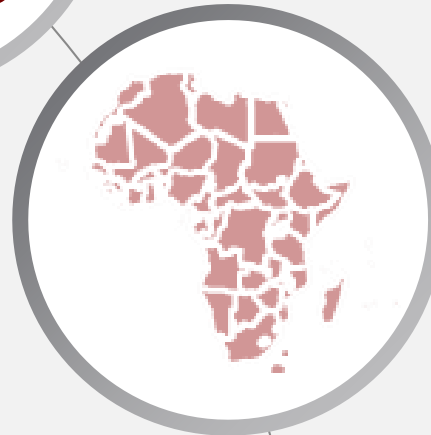


Strong opportunity  
space exist for US  
and Turkish  
companies to  
collaborate in Africa



### **Sectoral**

- In which sectors US and Turkish companies can collaborate?



### **Regional**

- In which countries US and Turkish companies will collaborate?

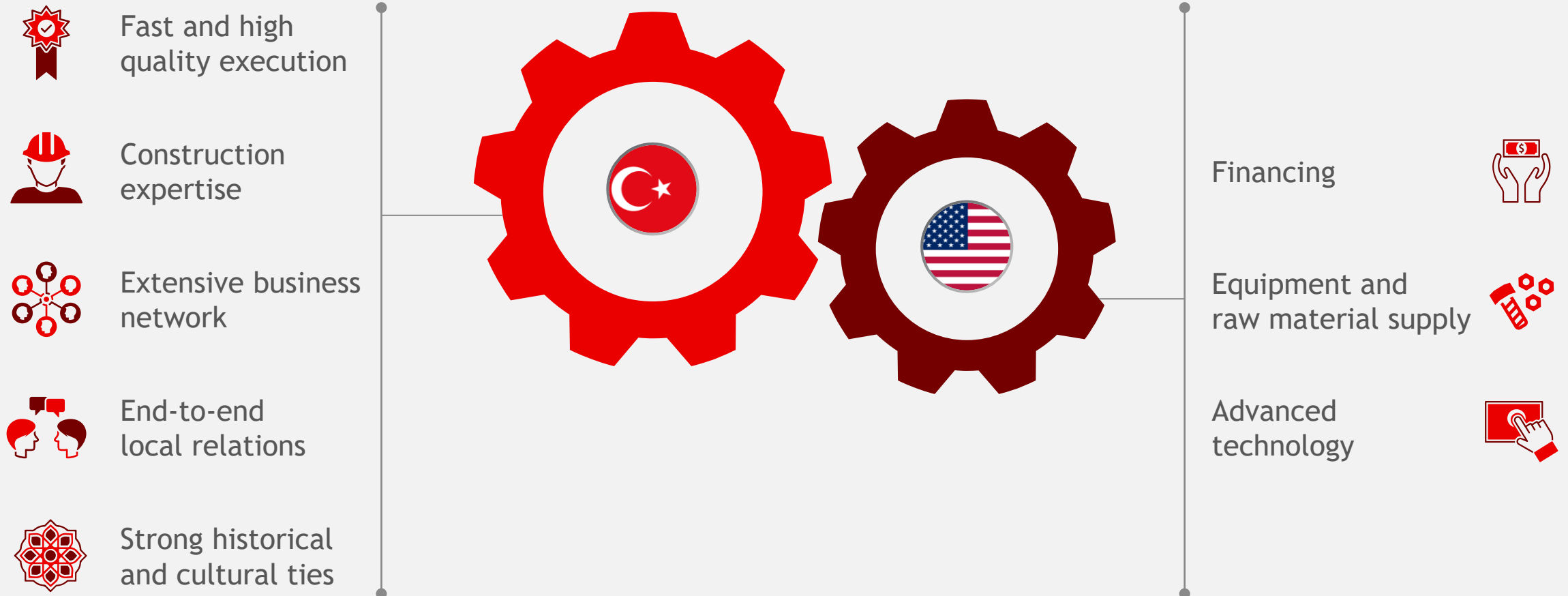


### **Collaboration basis**

- What complementary roles US and Turkish companies have in collaboration?



# Turkish and US companies can combine skills in Africa



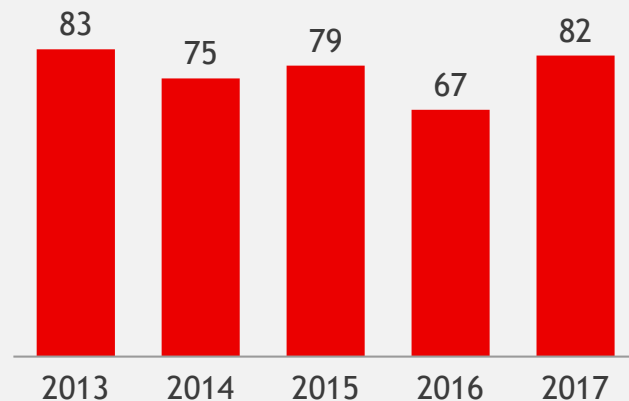




# Financing investments in Africa has been the key success factor for Chinese companies

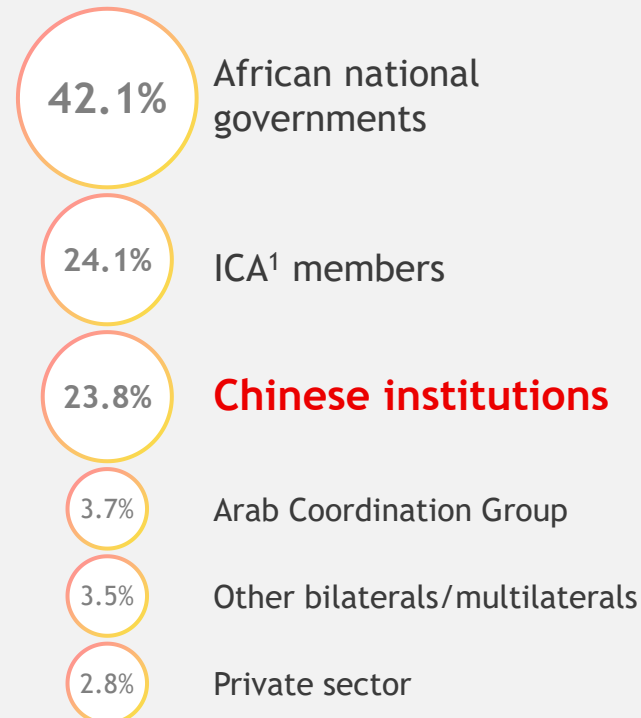
Funding of infrastructure projects in Africa is around \$ 80 B annually

Total infrastructure funding in Africa (\$ B)



**\$80 B** Annual average infrastructure funding in Africa between 2013-17 (\$ B)

24% of this funding came from Chinese business/institutions as the single largest financier of the continent



Chinese business community shows constant interest on African development financing

- Chinese institutions devoted \$60 billion financing twice in 2015 and 2018, **totalling \$120 B for Africa**
- Chinese financing for infrastructure projects has come mainly from **two policy banks**

Total loans between 2000 to 2015 came from:

- China Exim Bank
- China Development Bank

1. The Infrastructure Consortium includes G20 countries, African Development Bank (AfDB) Group, European Commission, European Investment Bank, Development Bank of Southern Africa 2. Remaining belongs to The China-Africa Development Fund (CADFund) and less private sector loan  
Source: The Infrastructure Consortium for Africa report on Infrastructure Financing Trends in Africa, 2017



# Africa has not been in the radar of US business interests

Focusing on Africa will have key business implications

Africa has never been a pivotal focus of US business community...



Limited presence of US companies in Africa:

- Only quarter of **trade volume** compared to China
- **US construction companies** focused on domestic market; limited involvement compared to Chinese, French and Turkish companies



... Recent policies to stimulate US business interests in Africa

**International Development Finance Corporation (DFC)**

US government agency to **invest in developing countries**



Debt financing



Political risk insurance



Equity financing



Technical development

**Prosper Africa**



Initiative to increase **two-way trade and investment** between US and Africa

**US Exim Bank**



Manager appointment crisis is over and US Exim Bank is **expected to be active in the continent**

# Existing agreement between USExim and TurkExim is an asset

## Further engagement is possible to further boost cooperation

USExim wants to be re-active  
all around the world,  
especially in Africa

US Exim's board **remained unfilled**  
about 4 years

**\$10 m** US Exim was **not allowed to deliver loans** to deals over \$10m

**May '19** The Bank's board was **confirmed by Senate**

**Sub-Saharan Africa** became one of the top priorities of US Exim

**\$4.7 b** US Exim **authorized a direct loan** of up to \$4.7b to **Mozambique**



Working with USExim provides  
significant financing  
advantage to Turkish firms



Even in the optimistic scenario,

- TR Exim gives credit at **Libor +5**
- US Exim at **Libor +<1**



which provides a significant  
**financing cost cut** for  
Turkish firms

Agreement between US and  
Turk Exims covers only credits  
with gov't debtor, for now ...



Credits with gov't debtor are  
guaranteed by **Turkish  
Ministry of Treasury**

... but, there is no structural obstacle  
to cover credits with **commercial risk  
or PPP projects**



Realizing projects  
together



Knowing each  
others' way of  
doing business



Establishing trust  
between entities



Possible to  
**enlarge the  
scope of the  
agreement**

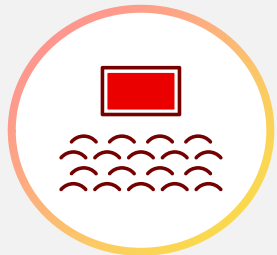
# TAİK can take concrete actions to raise awareness on seizing opportunities in Africa by collaborating with the counterparts and companies in the US



Establish an **Africa Task Force** under TAIK to organize the collaborative ground with US



Close collaboration with TMB (Turkish Contractors Association) to steer Turkish firms' construction strategy in Africa



Introduce **possible opportunities** to US firms and agencies to partner up with Turkish firms in Africa (via events, meetings webinars etc.)

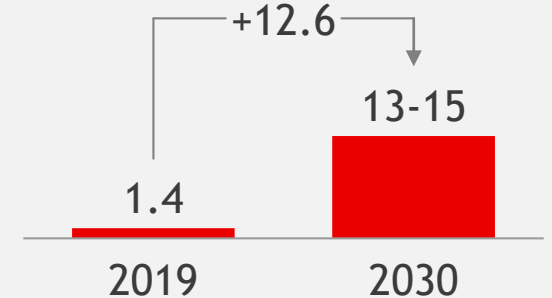


Identify **US firms** that would have interest in collaboration with Turkish firms in Africa and help **business matching activities**



Help to engage **US Exim** to support cooperation and to actively finance US-Turkey **JVs** in Africa

Overtime Project Value  
Constructed by Turkey in Africa (\$B)



~\$65  
Billion




Cumulative  
incremental project  
value between  
2020-2030



Potential opportunities and  
size of the prize

# Significant opportunity for Turkey-US economic relations

TAİK can be a key contributor to achieve these targets

	<div></div> <div>Digital Space</div>	<div></div> <div>Electrical Equipment &amp; Electronics</div>	<div></div> <div>Africa</div>																
TAIK's role	Establish Turkey-US digital corridor to facilitate strategic partnerships, investment attraction and global network establishment	Raise awareness on strategic significance of Electrical Equipment & Electronics sector on global trade	Enable collaboration by engaging and directing financial institutions and facilitating partnerships between Turkish-US companies																
Annual Opportunity for Turkey in 2030	<div>VC Investment Attraction (\$B)</div> <div>Software Services Exports to US (\$B)</div> <table><tr><td>2019</td><td>2030</td></tr><tr><td>0.1</td><td>6-7</td></tr></table> <div>+6.4</div> <table><tr><td>2019</td><td>2030</td></tr><tr><td>0.0</td><td>2-2.5</td></tr></table> <div>+2.2</div>	2019	2030	0.1	6-7	2019	2030	0.0	2-2.5	<div>E&amp;E Exports to US (\$B)</div> <table><tr><td>2019</td><td>2030</td></tr><tr><td>0.3</td><td>6-7</td></tr></table> <div>+6.2</div>	2019	2030	0.3	6-7	<div>Construction Projects in Africa (\$B)</div> <table><tr><td>2019</td><td>2030</td></tr><tr><td>1.4</td><td>13-15</td></tr></table> <div>+12.6</div>	2019	2030	1.4	13-15
2019	2030																		
0.1	6-7																		
2019	2030																		
0.0	2-2.5																		
2019	2030																		
0.3	6-7																		
2019	2030																		
1.4	13-15																		

# COVID-19 Disclaimer

The situation surrounding COVID-19 is dynamic and rapidly evolving, on a daily basis. Although we have taken great care prior to producing this presentation, it represents BCG's view at a particular point in time. This presentation is not intended to: (i) constitute medical or safety advice, nor be a substitute for the same; nor (ii) be seen as a formal endorsement or recommendation of a particular response. As such you are advised to make your own assessment as to the appropriate course of action to take, using this presentation as guidance. Please carefully consider local laws and guidance in your area, particularly the most recent advice issued by your local (and national) health authorities, before making any decision.

# Disclaimer

The services and materials provided by Boston Consulting Group (BCG) are subject to BCG's Standard Terms (a copy of which is available upon request) or such other agreement as may have been previously executed by BCG. BCG does not provide legal, accounting, or tax advice. The Client is responsible for obtaining independent advice concerning these matters. This advice may affect the guidance given by BCG. Further, BCG has made no undertaking to update these materials after the date hereof, notwithstanding that such information may become outdated or inaccurate.

The materials contained in this presentation are designed for the sole use by the board of directors or senior management of the Client and solely for the limited purposes described in the presentation. The materials shall not be copied or given to any person or entity other than the Client ("Third Party") without the prior written consent of BCG. These materials serve only as the focus for discussion; they are incomplete without the accompanying oral commentary and may not be relied on as a stand-alone document. Further, Third Parties may not, and it is unreasonable for any Third Party to, rely on these materials for any purpose whatsoever. To the fullest extent permitted by law (and except to the extent otherwise agreed in a signed writing by BCG), BCG shall have no liability whatsoever to any Third Party, and any Third Party hereby waives any rights and claims it may have at any time against BCG with regard to the services, this presentation, or other materials, including the accuracy or completeness thereof. Receipt and review of this document shall be deemed agreement with and consideration for the foregoing.

BCG does not provide fairness opinions or valuations of market transactions, and these materials should not be relied on or construed as such. Further, the financial evaluations, projected market and financial information, and conclusions contained in these materials are based upon standard valuation methodologies, are not definitive forecasts, and are not guaranteed by BCG. BCG has used public and/or confidential data and assumptions provided to BCG by the Client. BCG has not independently verified the data and assumptions used in these analyses. Changes in the underlying data or operating assumptions will clearly impact the analyses and conclusions.



