



**Welcome to the**

**IFR Press Conference**

**18<sup>th</sup> September 2019**

**Shanghai**



## Agenda

## Welcome

## Presentation of the Speakers

## World Robotics 2019 Industrial Robots

## World Robotics 2019 China Market Data

## World Robotics 2019 Service Robots

## Questions

# Speakers on the Panel



**Steven Wyatt**  
IFR Vice President

Group Vice President  
and Head of Marketing  
& Sales Robotics  
ABB, Switzerland



**Susanne Bieller**  
General Secretary

International Federation  
of Robotics, Germany



**Christopher Müller**  
Director

Statistical Department  
International Federation  
of Robotics, Germany



**Daokui Qu**  
CRIA President

President  
SIASUN, China



**Xiaogang Song**

CRIA Executive Vice  
President and Secretary  
General

Member of the  
International Federation  
of Robotics Executive  
Board

# International Federation of Robotics



- **Voice of the global robotics industry**
- **Annual global robotics turnover almost \$50 billion (robot systems including software & peripherals)**
- **Almost 60 members:**
  - National robot associations
  - R&D institutes
  - Robot suppliers
  - Integrators

- **Sponsor of the International Symposium on Robotics (ISR)**
- **Co-sponsor of the IERA Award**
- **Primary source for world-wide data on use of robotics – IFR Statistical Department**





# World Robotics

## Industrial Robots

### 2019



Statistics, Market Analysis, Forecasts and Case Studies

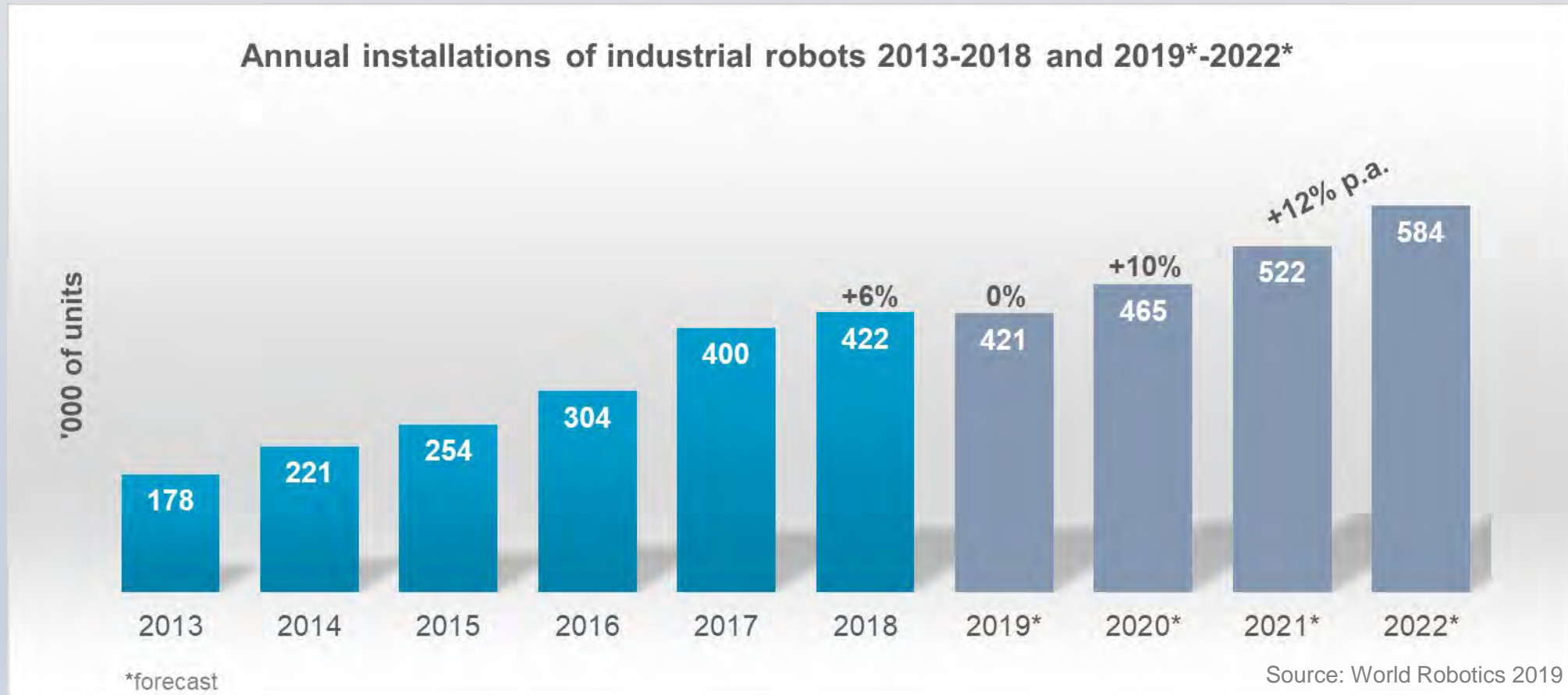
**2018 : Another Record Year -  
First Time over 400,000 Units**

**2018 : 422,000 Units, +6%**

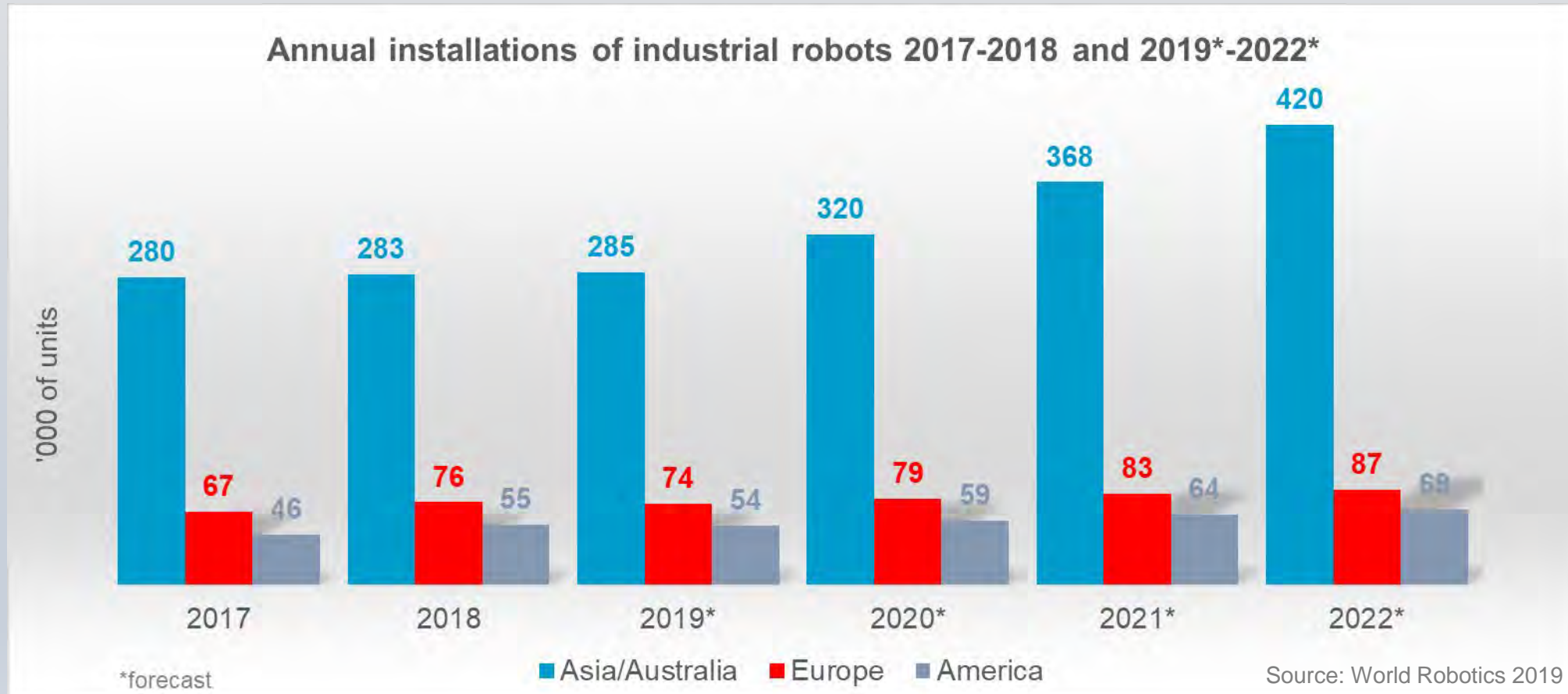
**2019 : 421,000 Units, +/-0%**

**2022 : 584,000 Units, +12% on average per Year**

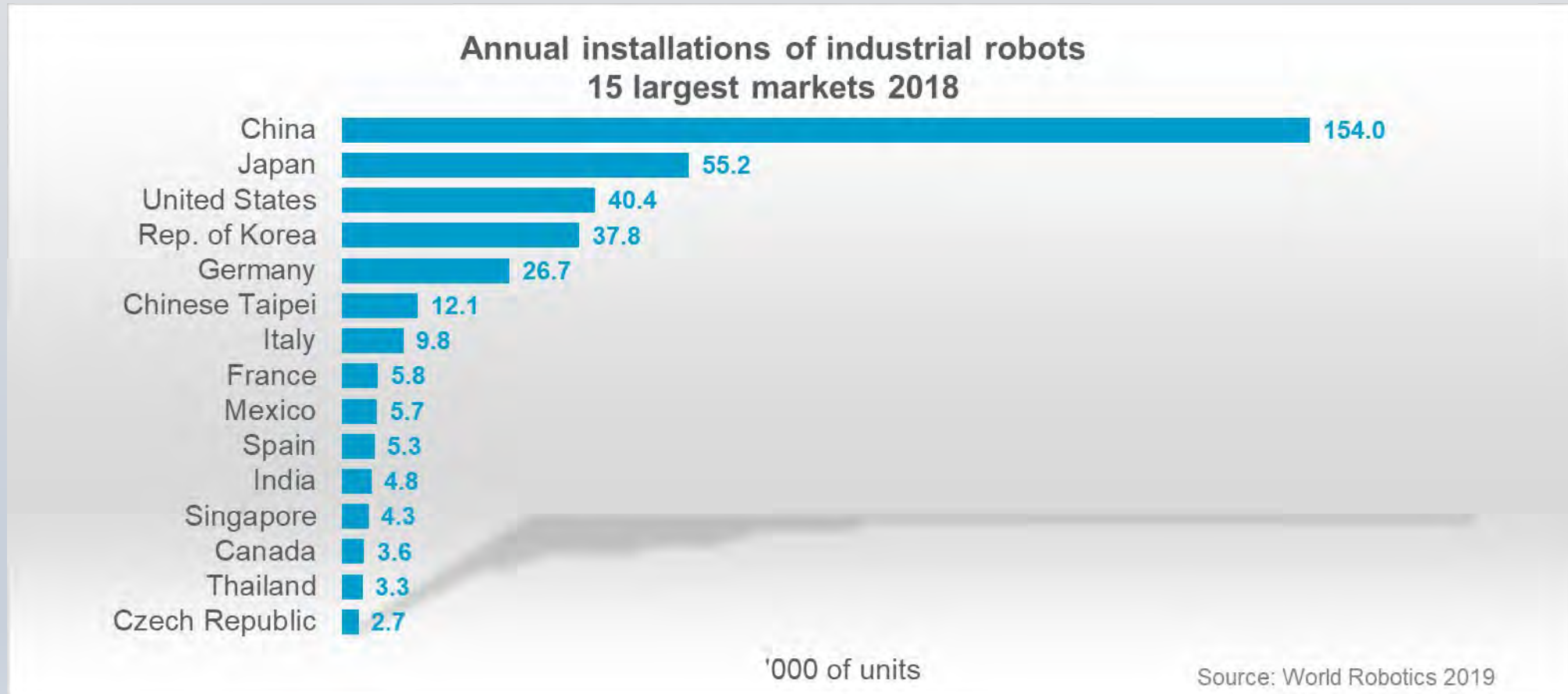
# Positive medium-Term Growth Expectations



# Asia Region the Growth Engine

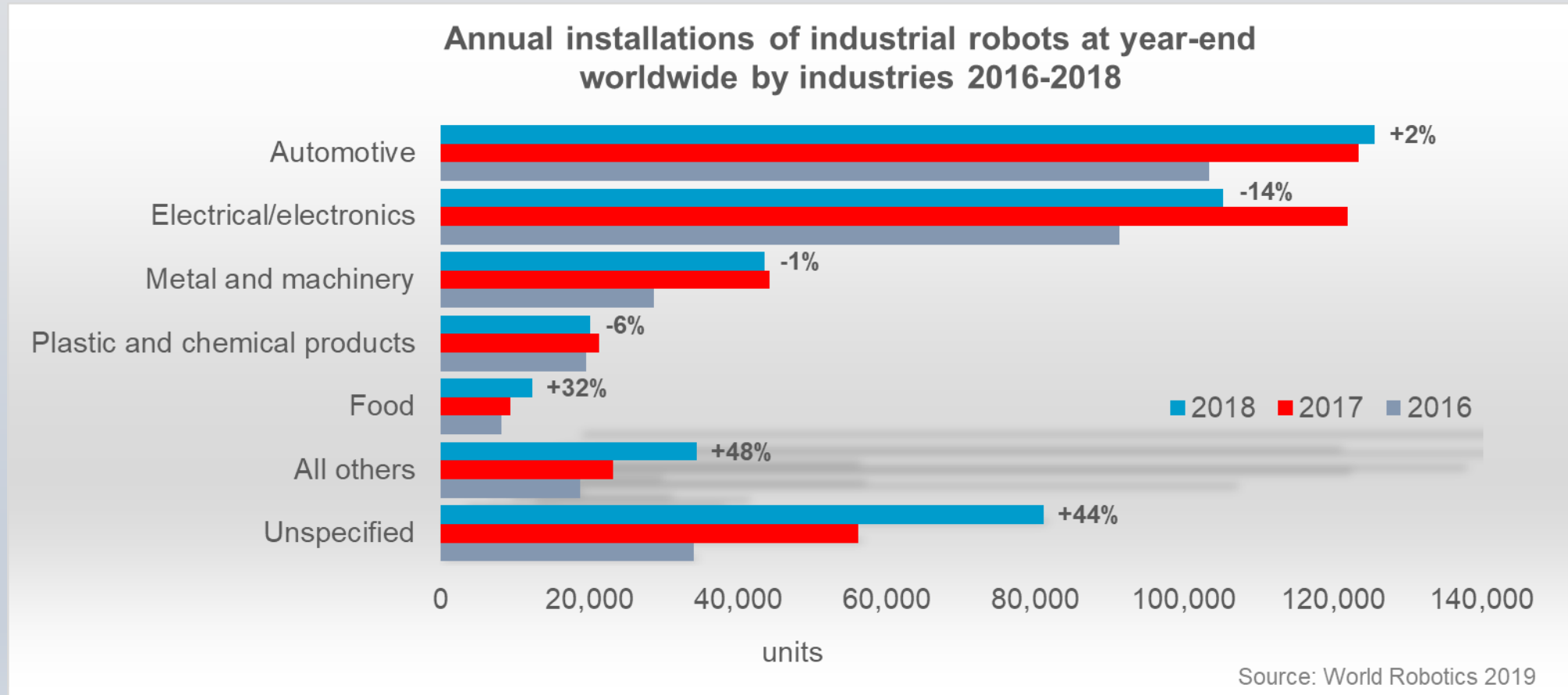


# China remains the main End User of Industrial Robots

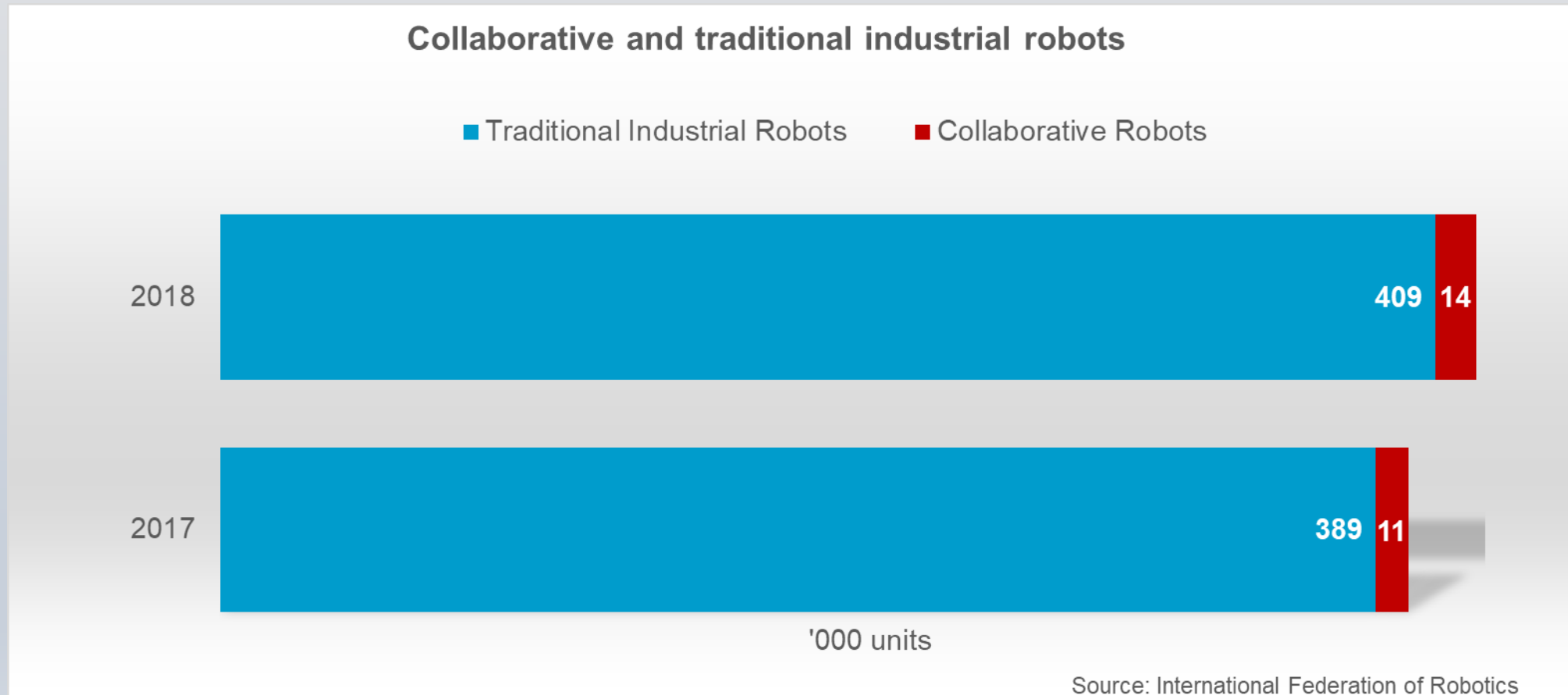




# Key Industries : Automotive, Electronics & Metals



# Collaborative Industrial Robots still a Niche



# Technological Developments expanding Robot Adoption

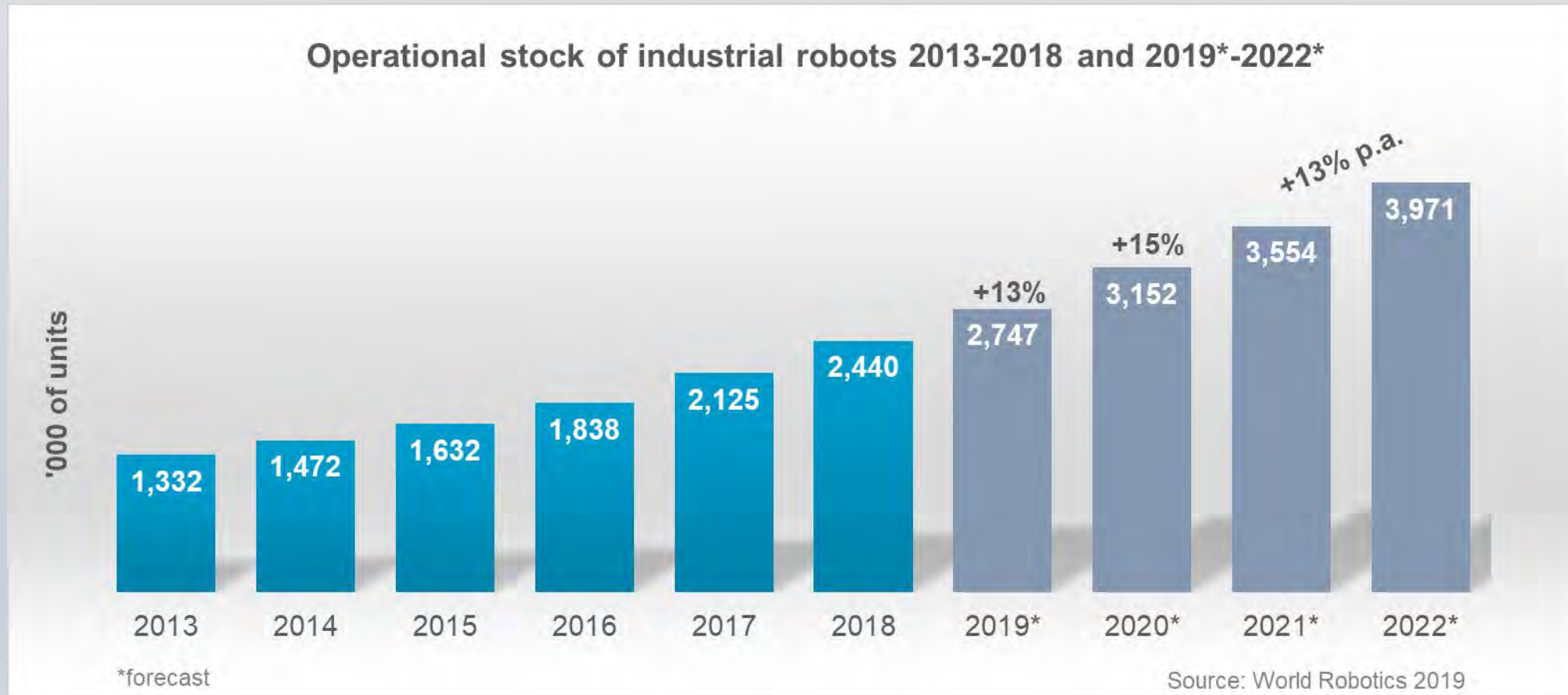
## Today

- More intelligent components, e.g. Smart Grippers
- Greater Connectivity, e.g. “Plug & Play” Interfaces and Cloud Computing
- Easier to Use, e.g. “Programming by Demonstration”

## Tomorrow

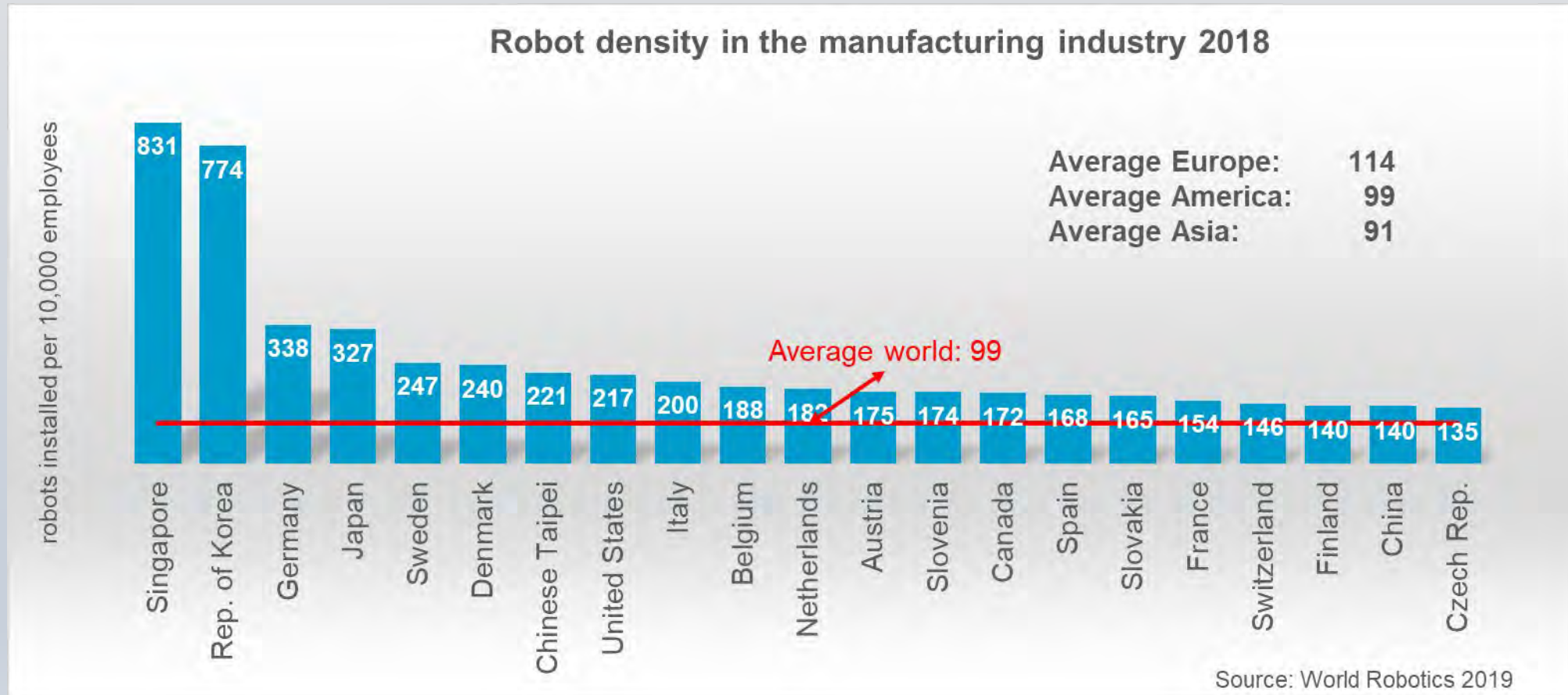
- “Machine learning” enables Robots ....
  - to learn by trial-and-error or by video demonstration.
  - to self-optimize.
  - to communicate with other machines to improve entire processes.
- New business models, e.g. Robots as a Service (RaaS)

# 2022 : 4 Million Industrial Robots in the World's Factories





# Highest Robot Density in Singapore - lowest Average in Asia



# Short-Term Volatility, but the Future for Robots is very bright!

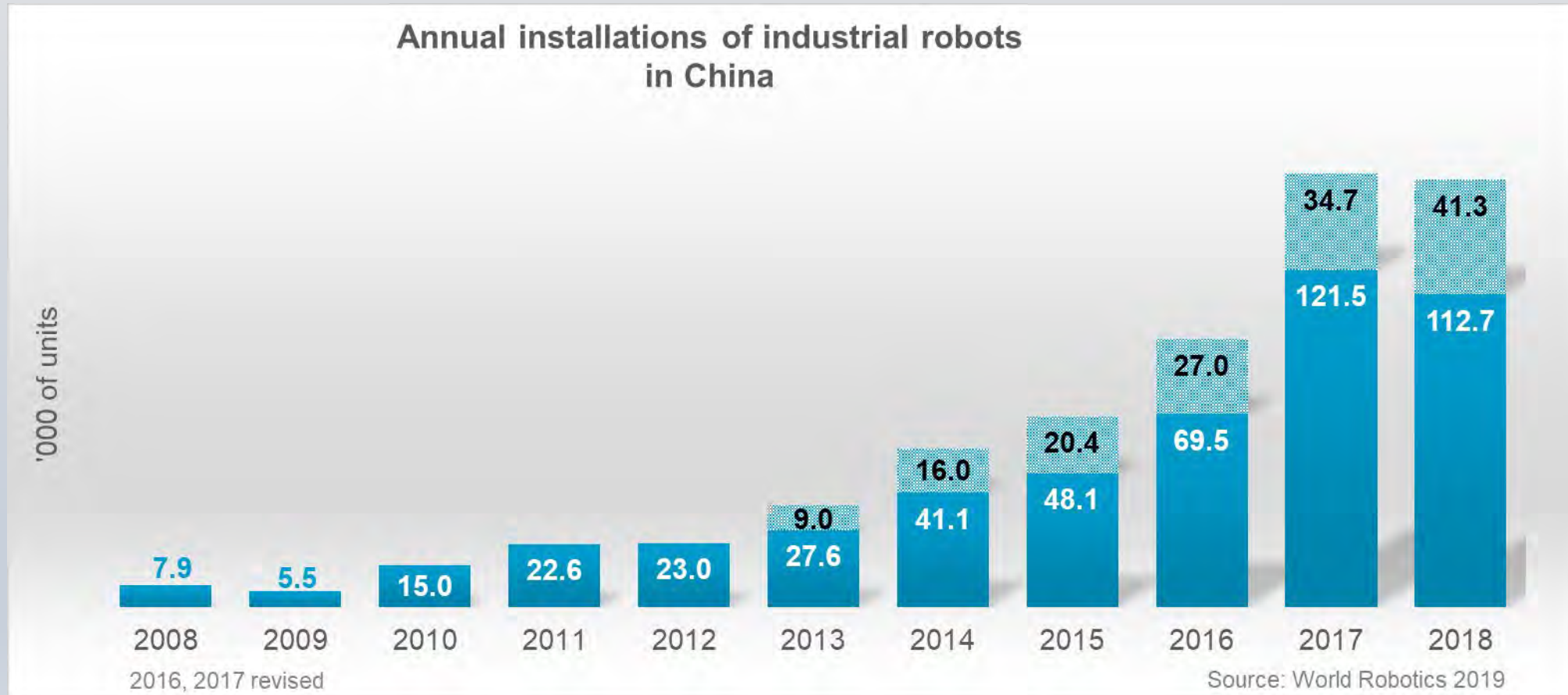
## Today

- Automotive Industry Transition from ICE to EV
- Declining Smartphone Sales
- Political Headwinds

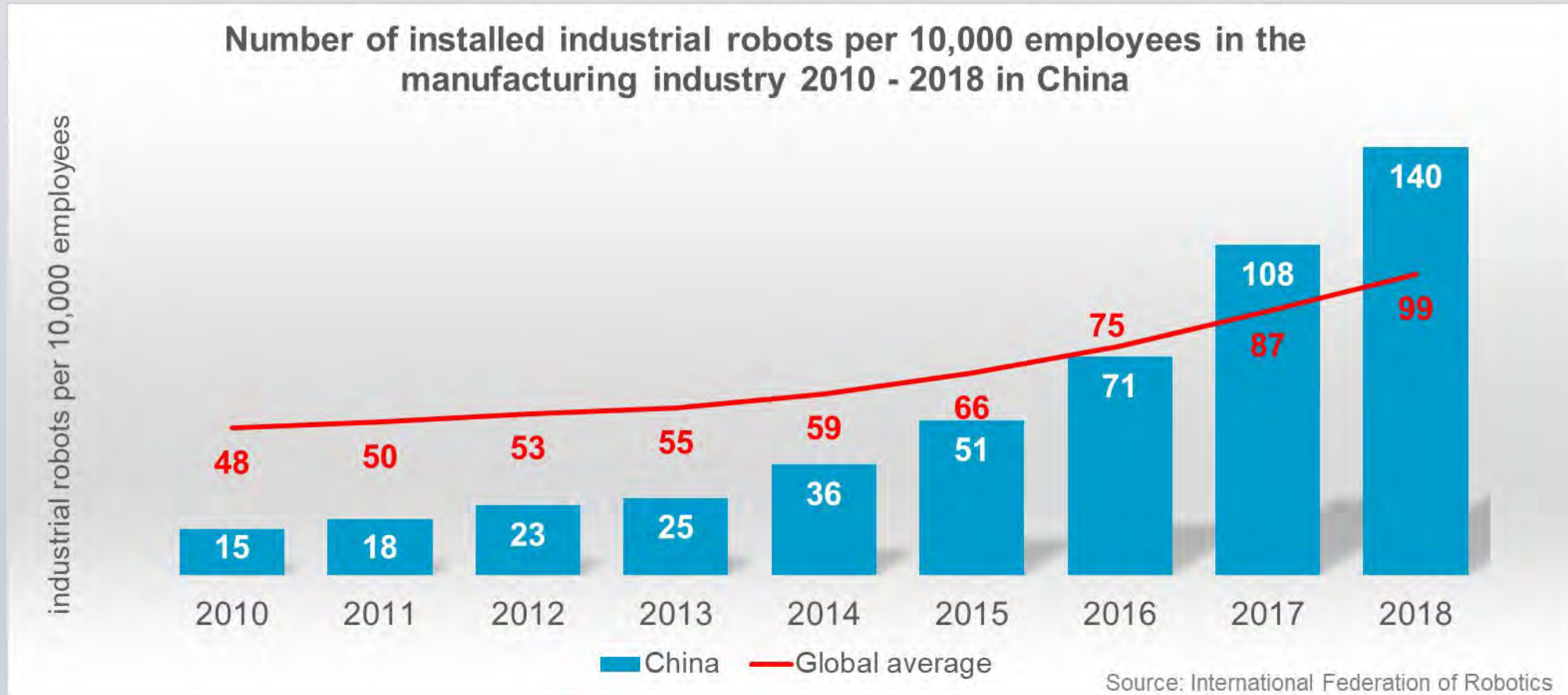
## Tomorrow

- ✓ Increased Manufacturing Flexibility : Batch Size = 1
- ✓ Demographic “Time Bomb”
- ✓ Emerging and rapidly-growing Market Segments
- ✓ Business and Technological Innovation, e.g. for SME Category

# China : slightly declining after 8 Years of strong Growth

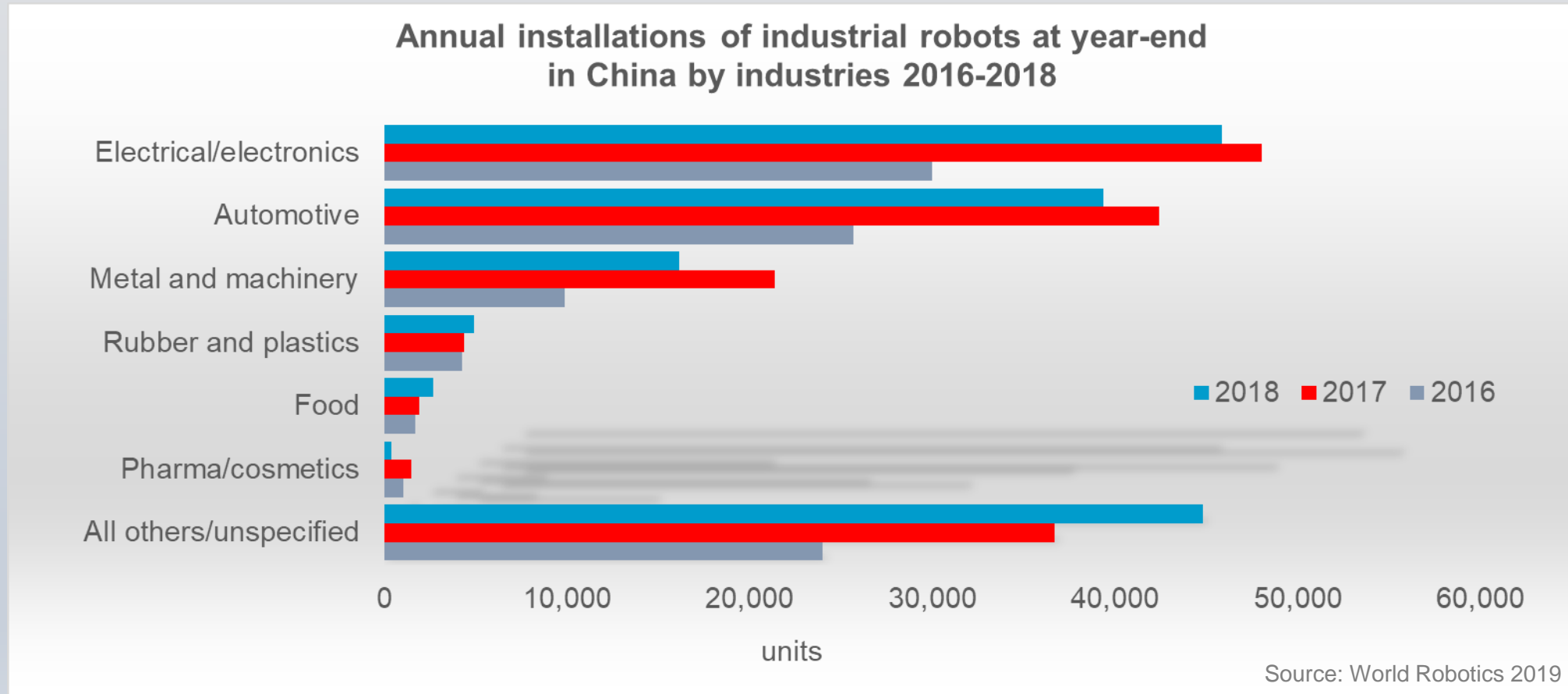


# Robot Density in China surpassing Global Average

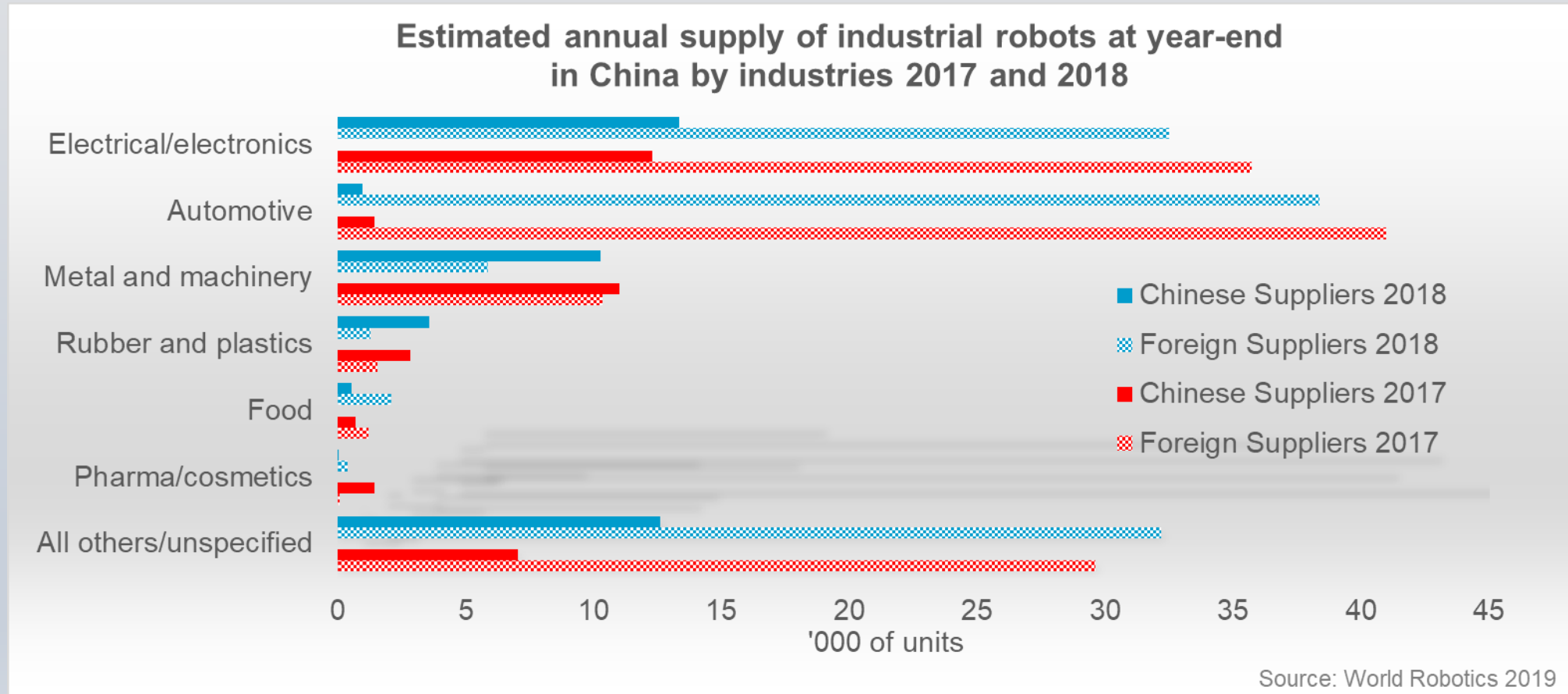




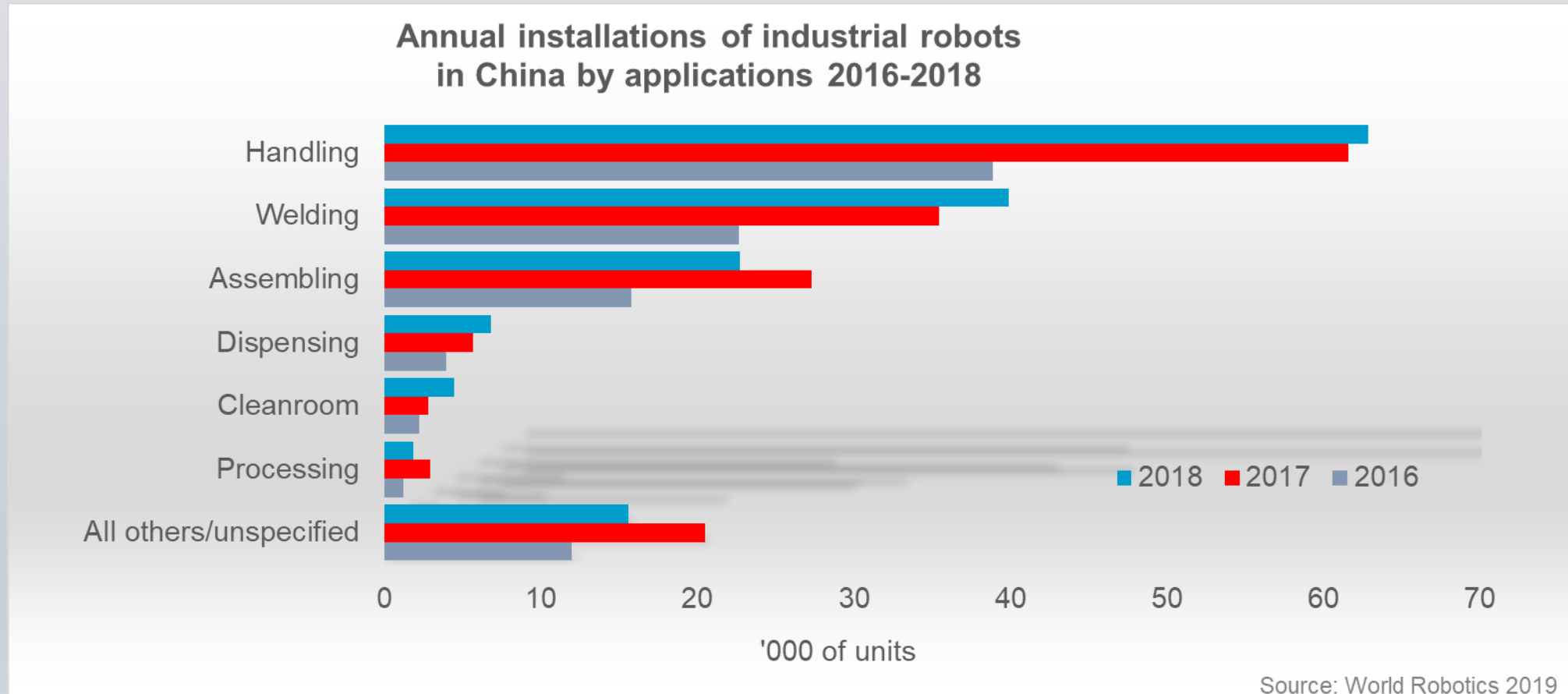
# Main Industries in China : Electronics, Automotive & Metals



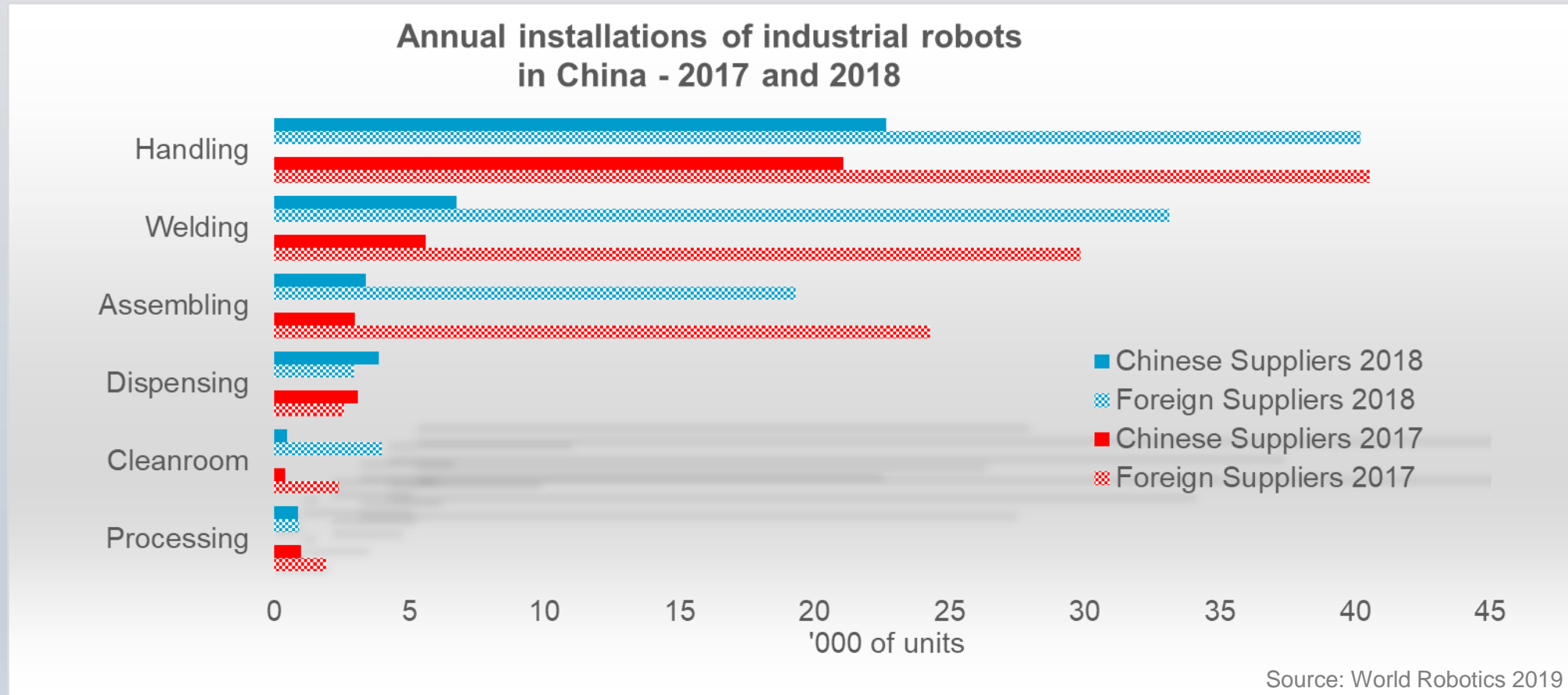
# Chinese Suppliers gaining Market Share



# Main Applications in China : Handling and Welding

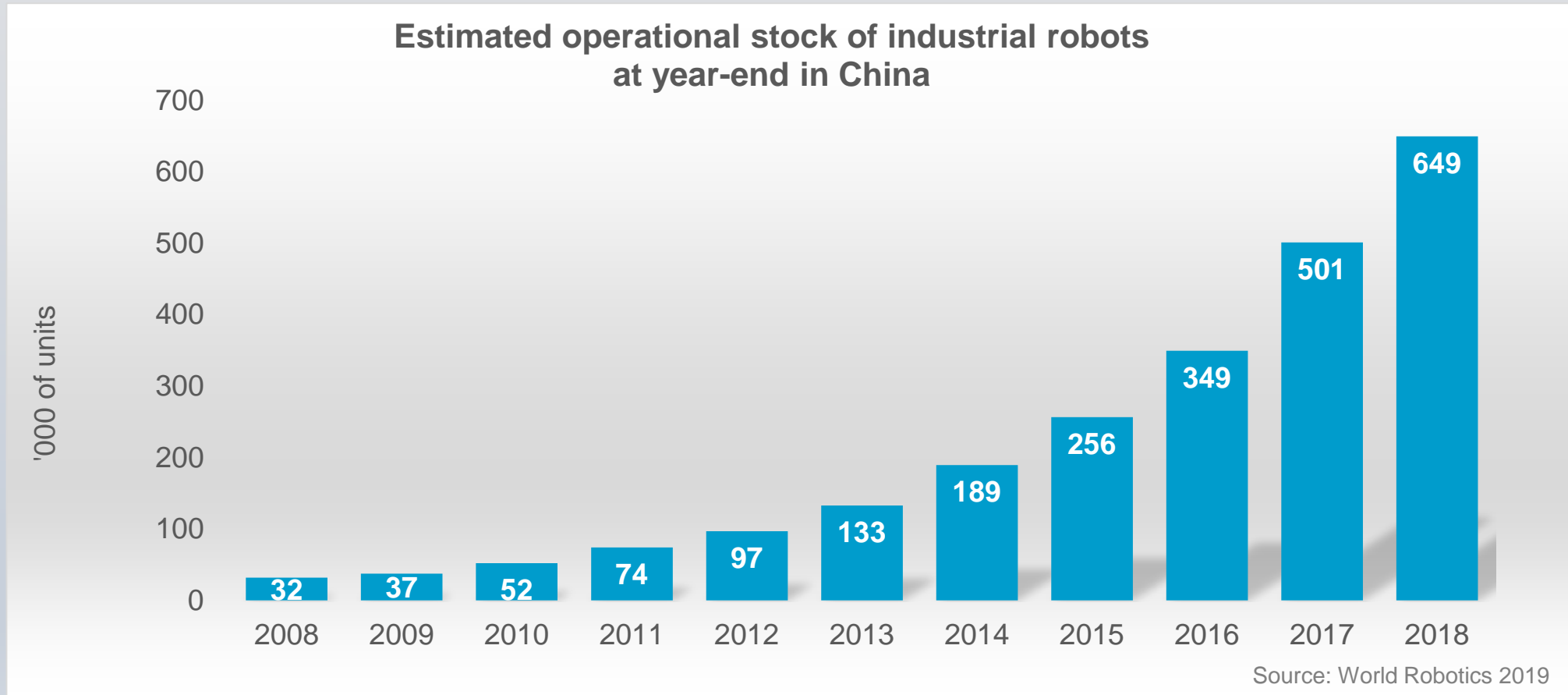


# Chinese Suppliers increased their share in Handling Applications





# Operational Stock in China : increased by 30%



# World Robotics

## Service Robots

### 2019



Statistics, Market Analysis, Forecasts and Case Studies

## Domestic Service Robots

### Value of Sales :

2018: US\$ 3.7bn, +15%

2019: US\$ 4.6bn, +27%

2022: US\$ 11.5bn, +35% (CAGR)

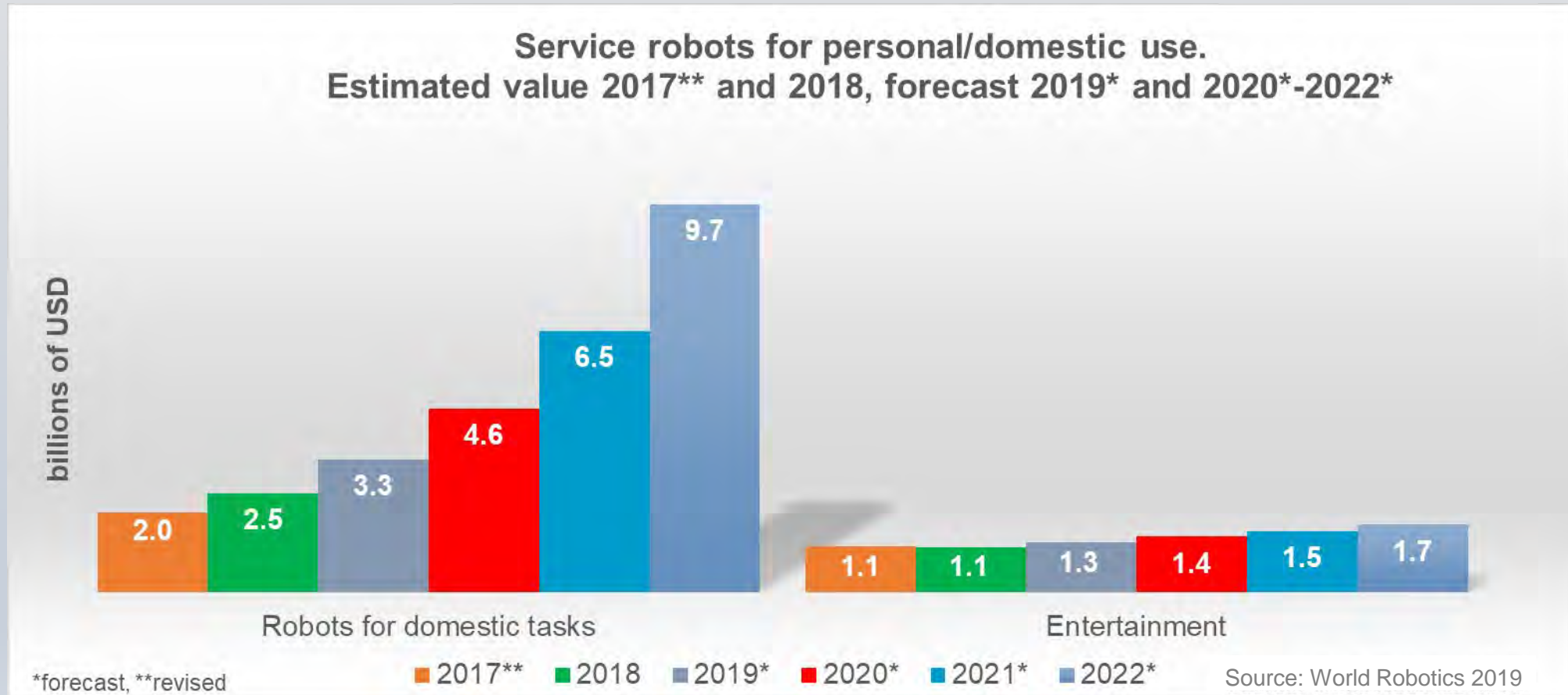
### Unit Sales :

2018: 16.3 million units, +59%

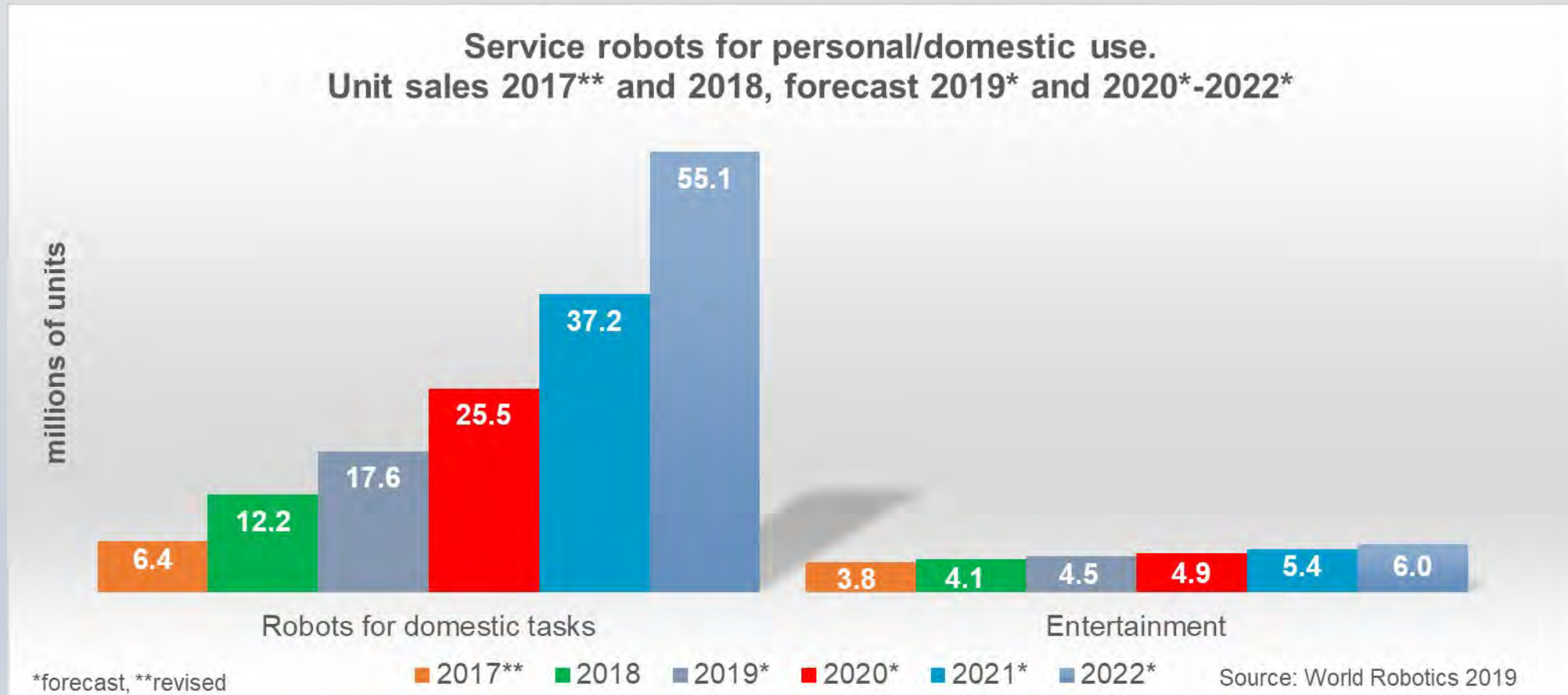
2019: 22.1 million units, +35%

2022: 61.1 million units, +40% (CAGR)

# Vacuuming and Floor Cleaning Robots are established Personal/Domestic Service Robots



# 2018 : 12 Million Units (+90%) - further Growth expected



# World Robotics

## Service Robots

### 2019



Statistics, Market Analysis, Forecasts and Case Studies

## Professional Service Robots support our Workers

### Value of sales

2018: US\$ 9.2 bn, +32%

2019: US\$ 12.6 bn, +37%

2022: US\$ 38 bn, +45% (CAGR)

### Unit sales:

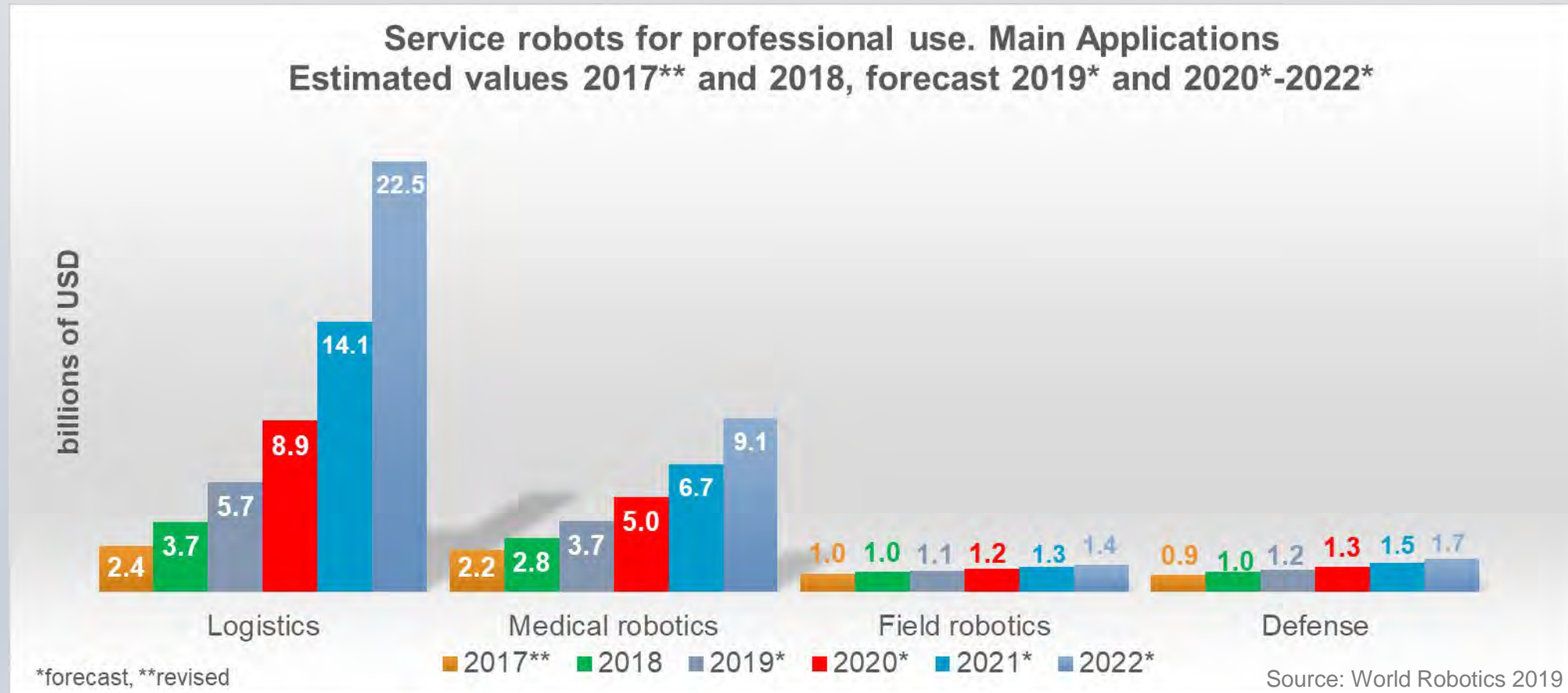
2018: 271,000 units, +61%

2019: 361,000 units, +33%

2022: 1,000,000 units, +41% (CAGR)



# Professional Service Robots: Main Value Growth Drivers are Logistic Systems





## AGVs in Factories, Warehouses, Logistic Centers, Hospitals ...

**111,000 units deployed in 2018, 60% more than in 2017**

- 7,700 units in manufacturing
- 103,000 units in warehouses, logistic centers, hospitals ...

**2019:**

**176,000 units (+58%)**

**2022:**

**712,000 units (+59% on average each year)**



Image: Omron



## Medical Robots – most valuable service robots : US\$ 2.8 billion in 2018

- 2018: 5,100 units (+50%)
- 2019: 7,200 units (+39%)
- 2022: 19,700 units (+40% CAGR)

## Field robotics – the future of plowing

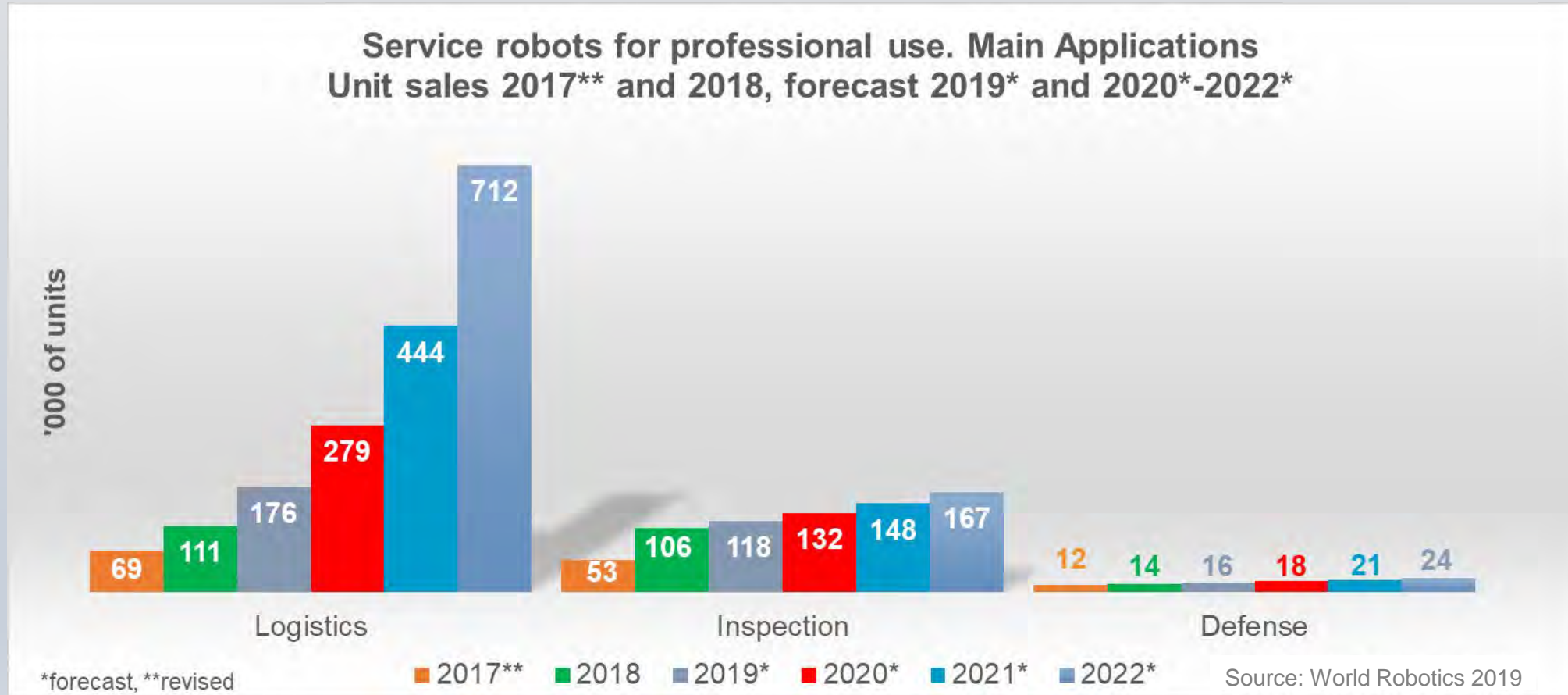
- 5,800 milking robots in 2018 (+8%)
- agricultural robots expected to grow strongly
  - 2018: 480 units (+30%)
  - 2019: 720 units (+50%)
  - 2022: 2400 units (+50% CAGR)



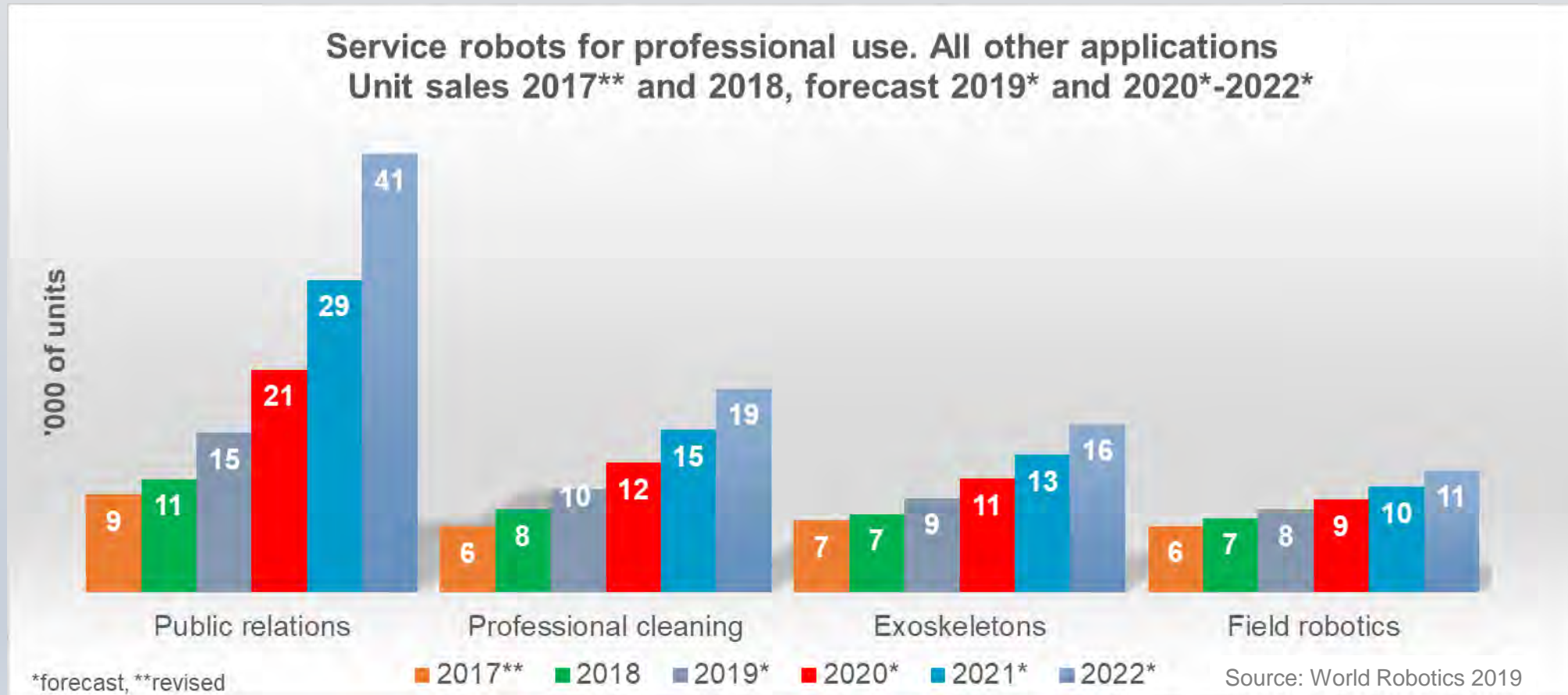
Image: AOT Carlo

Image: Naio

# Logistic Systems are also the Growth Driver in Units



# Public Relations Robots on the Rise





## The blurring Lines between Industrial and Service Robots

Depending on its application, the same unit can be a service robot or an industrial robot.

Usage concepts change – new applications emerge.

Reimagine business processes to make optimal use of collaborative robots.

AI and machine learning technologies enable robots to sense and respond to their environment.

Robots are increasingly supporting humans both at work and in their private lives.



# Thank you!

**Contact :**

Dr. Christopher Müller  
International Federation of Robotics IFR  
c/o VDMA Robotics+Automation  
60528 Frankfurt Main, Germany  
Email: [statistics@ifr.org](mailto:statistics@ifr.org)  
Phone: +49 69 6603 1191  
Internet: <https://ifr.org/>