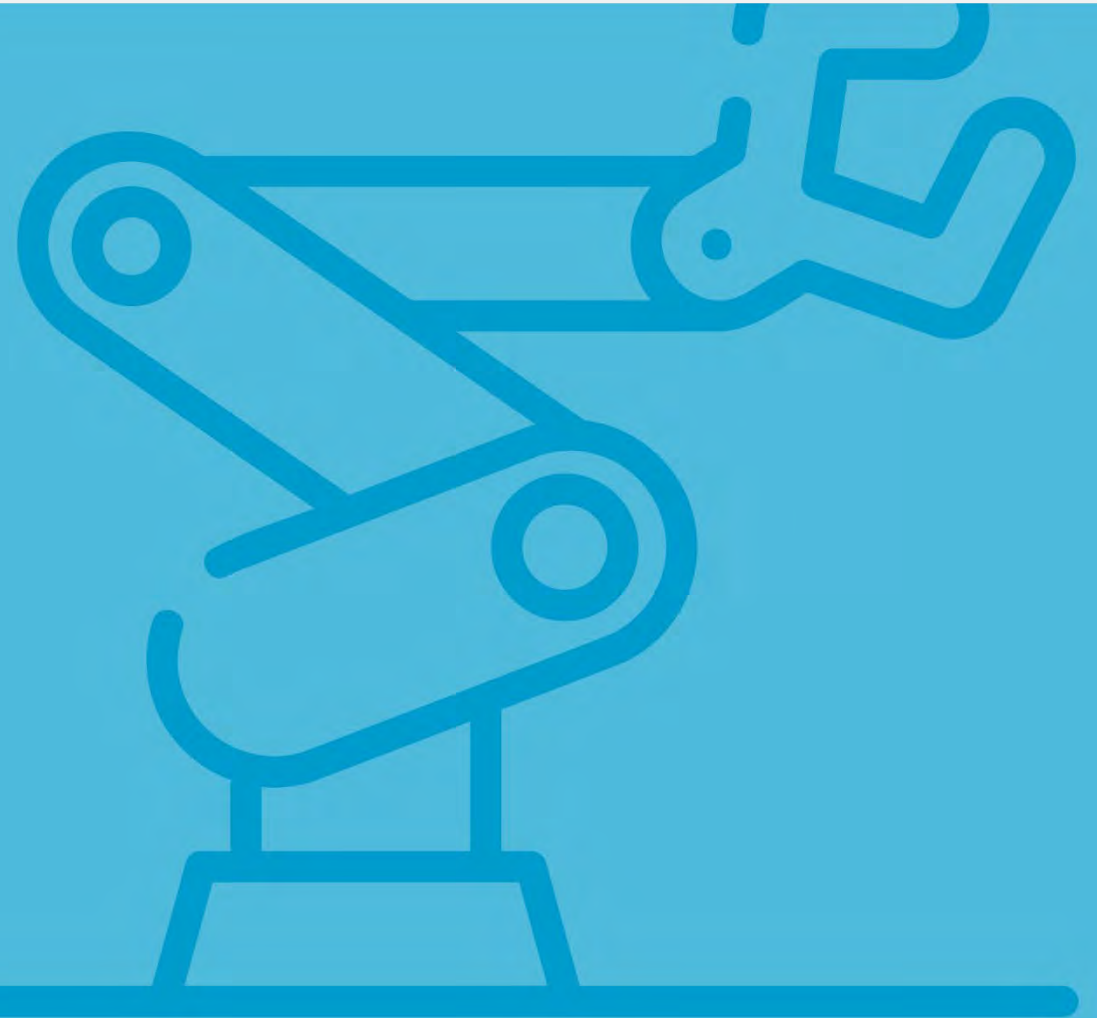


Welcome to the Press conference on

# World Robotics 2025



# The Speakers



**Takayuki Ito**  
IFR President

Standing Advisor R&D,  
FANUC



**Dr. Christopher Müller**  
Director Statistical Dpt.

International Federation  
of Robotics



**Dr. Werner Kraus**  
Chair IFR Service Robot  
Committee

Head of Dpt. Robot &  
Assistive Systems,  
Fraunhofer IPA



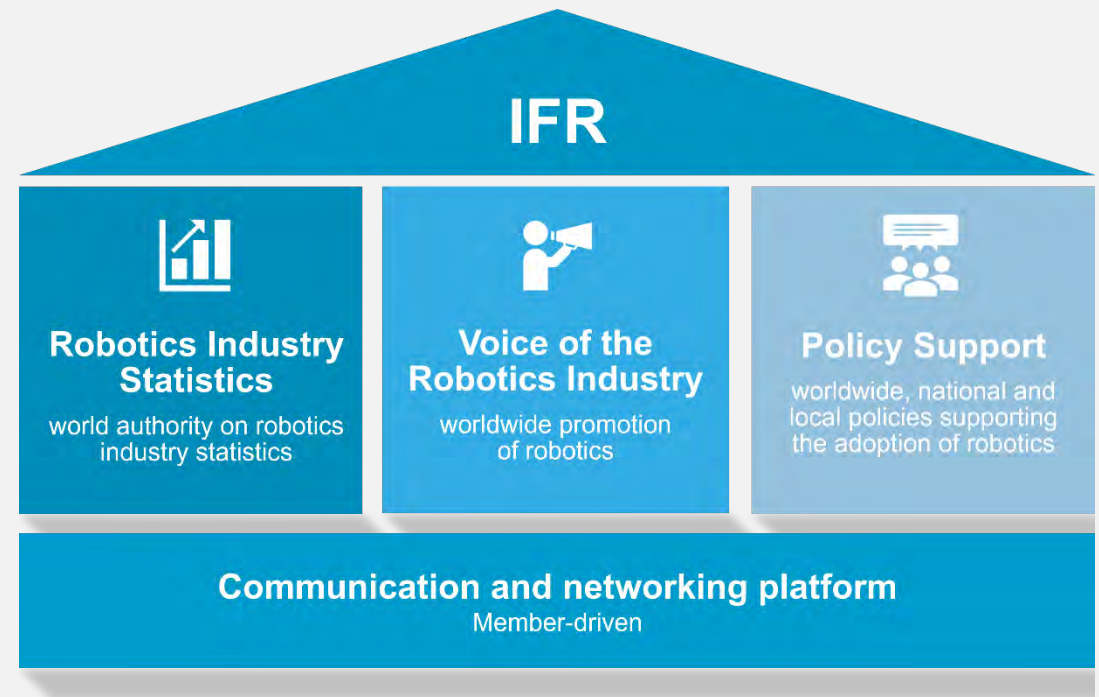
**Dr. Susanne Bieller**  
General Secretary

International Federation  
of Robotics

# International Federation of Robotics

## Who we are

- Professional **non-profit organization**
- **Established** in **1987**
- Over **3000 organizations** represented
- **About 100 global members**
  - National **robotics associations, R&D institutes, robot suppliers, integrators**
- **Communication and networking platform**



# Our members

## NATIONAL ASSOCIATIONS



## INDUSTRIAL ROBOT MANUFACTURERS



## SERVICE ROBOT MANUFACTURERS



## COMPONENT SUPPLIERS & INTEGRATORS



## R&D INSTITUTES





# What is a robot – and what is not?



Image: Yaskawa

- **“Robot”** defined by **International Standards Organization ISO**
  
- **No robots:**
  - ⊗ software (“bots”, AI, Robotic Process Automation -RPA)
  - ⊗ remote-controlled drones, UAV, UGV, UUV
  - ⊗ autonomous cars
  - ⊗ ATMs, smart washing machines, etc.
  - ⊗ voice assistants

# Two reports

## Industrial robots



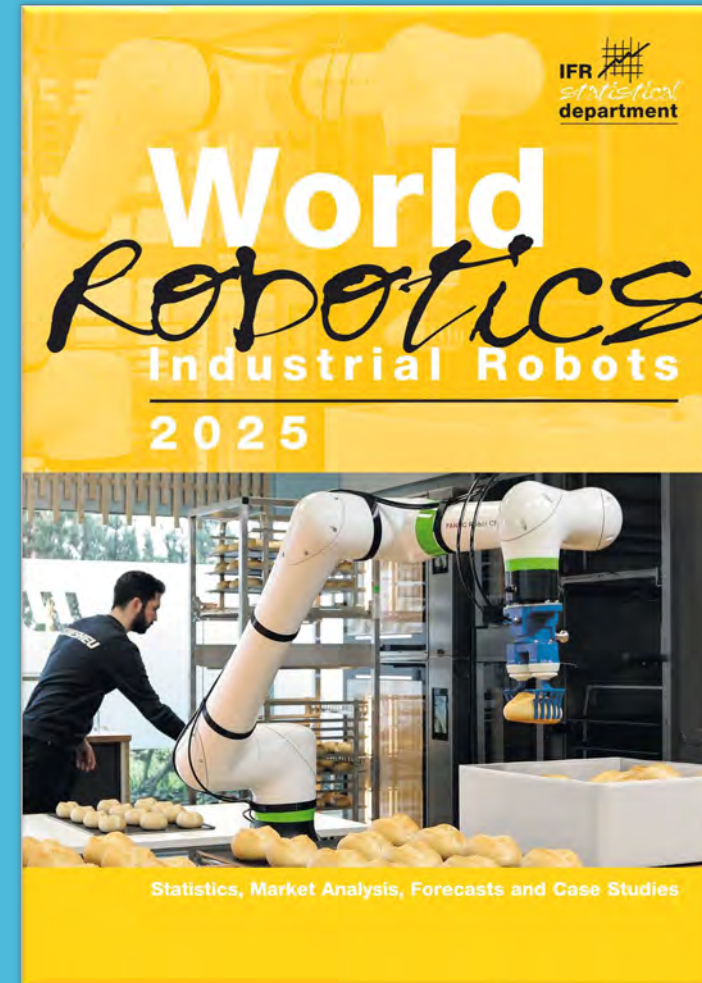
Source: FANUC

## Service, mobile and medical robots



Source: PAL Robotics

# Presentation of **World Robotics 2025 – Industrial Robots**





# Global robot demand in factories doubles over 10 years



## Annual installations of industrial robots - World

1,000 units

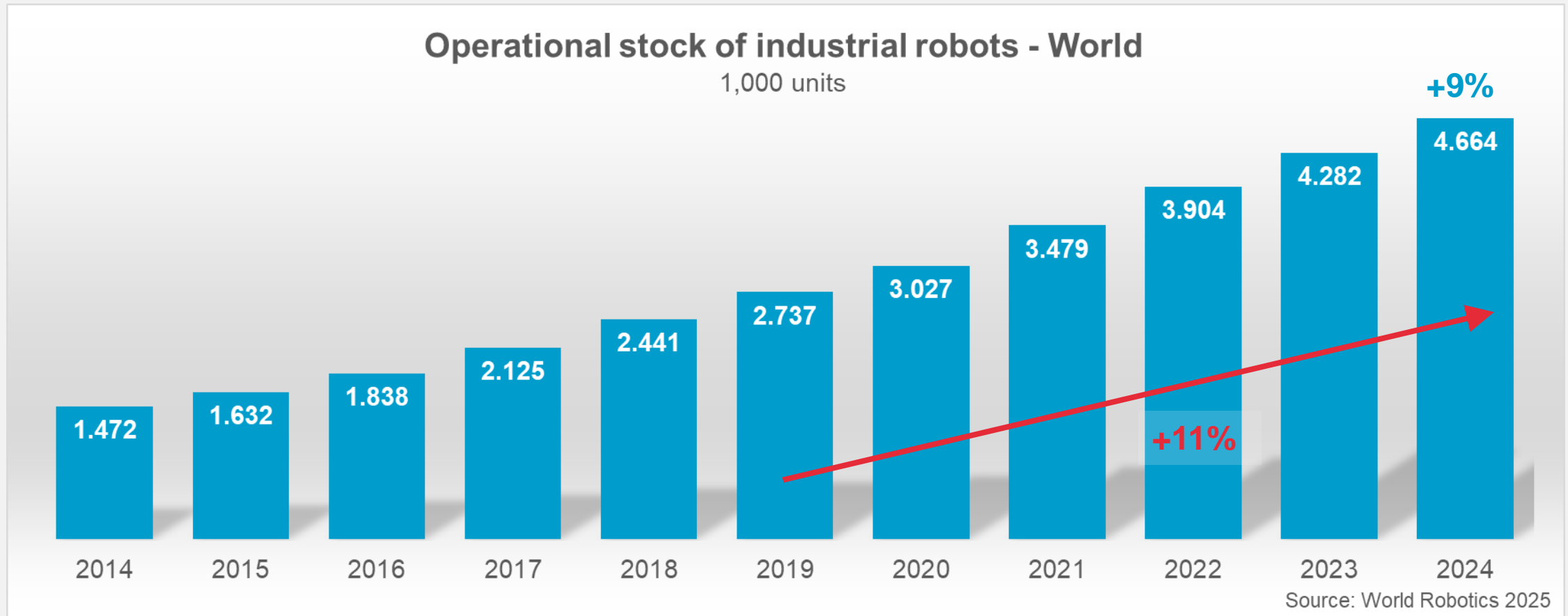
+/- 0%



Source: World Robotics 2025



# Continuous increase in operational stock

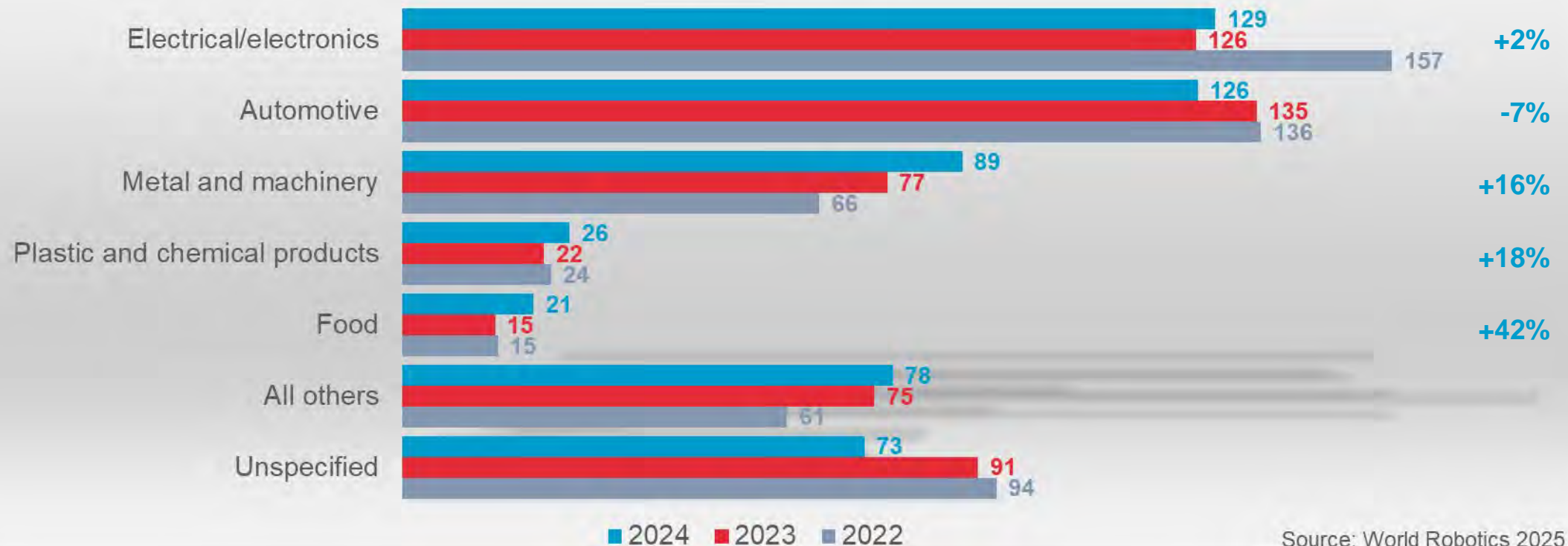


# General industries compensate weak automotive industry



## Annual installations of industrial robots by customer industry - World

1,000 units

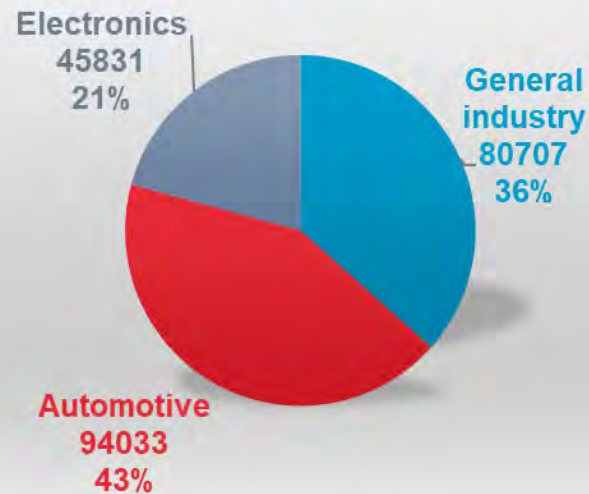


Source: World Robotics 2025

# General industries are growing their market share

## Shares of majors industries in 2014

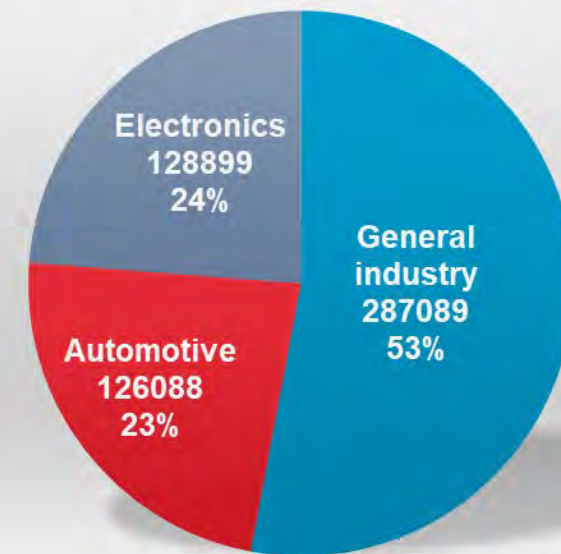
Installations of industrial robots by industry - World  
units and percentage share



Source: World Robotics 2025

## Shares of majors industries in 2024

Installations of industrial robots by industry - World  
units and percentage share

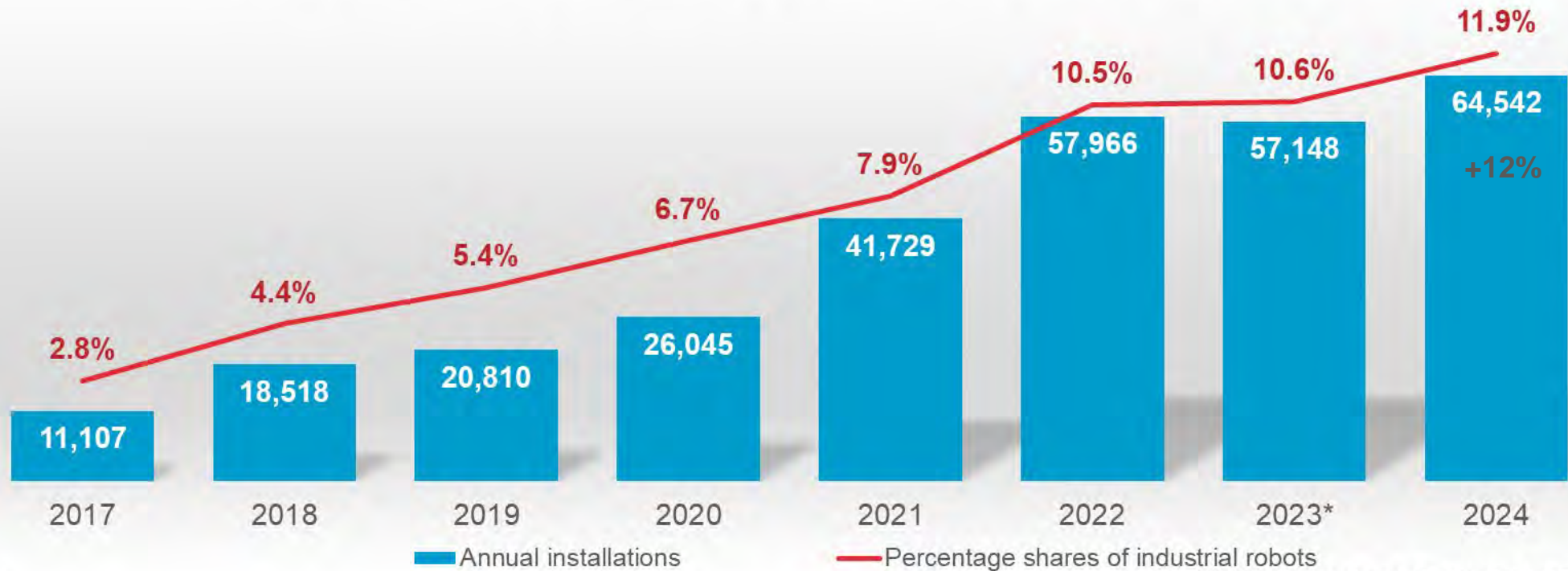


Source: World Robotics 2025

# Double digit growth rates of collaborative robot installations



Annual installations and shares of collaborative industrial robots 2024



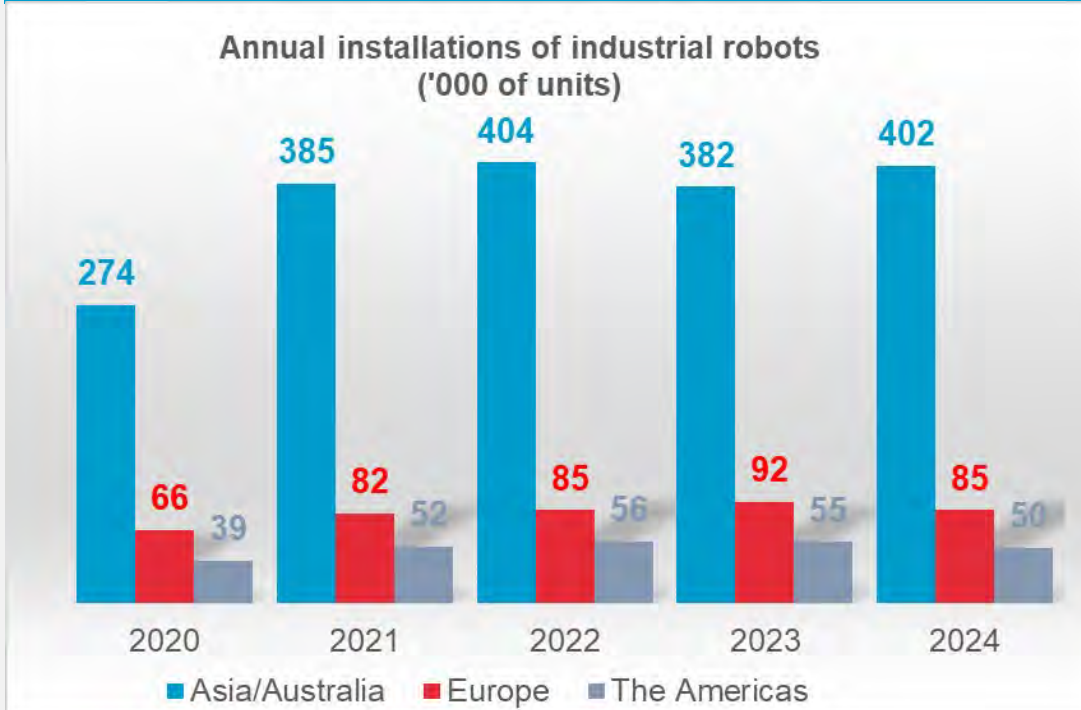
\*revised

Source: International Federation of Robotics

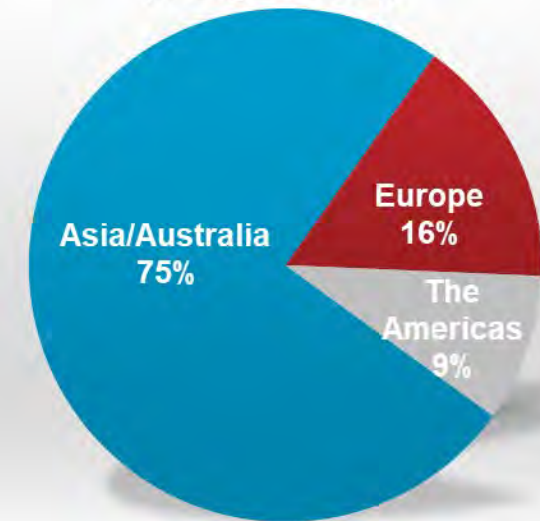


# Growth in Asia

## Annual installations per region

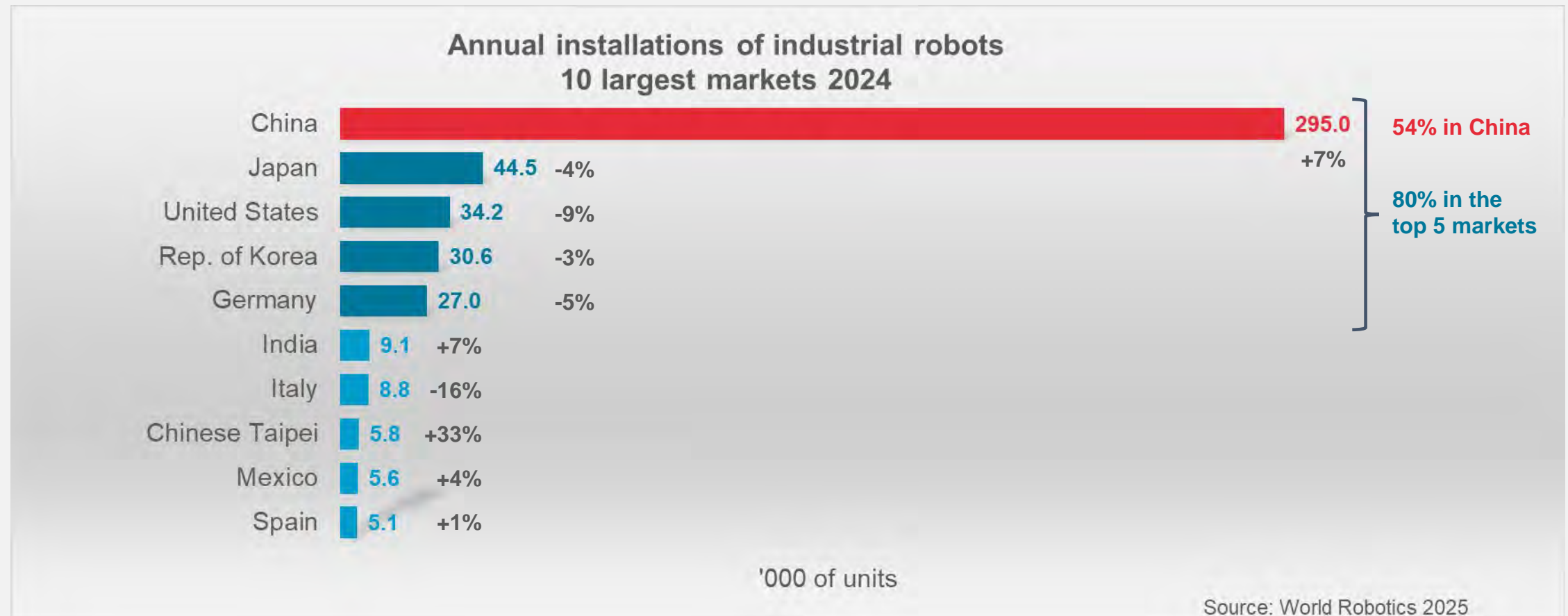


## Shares in annual installations of industrial robots - 2024 (% of grand total)

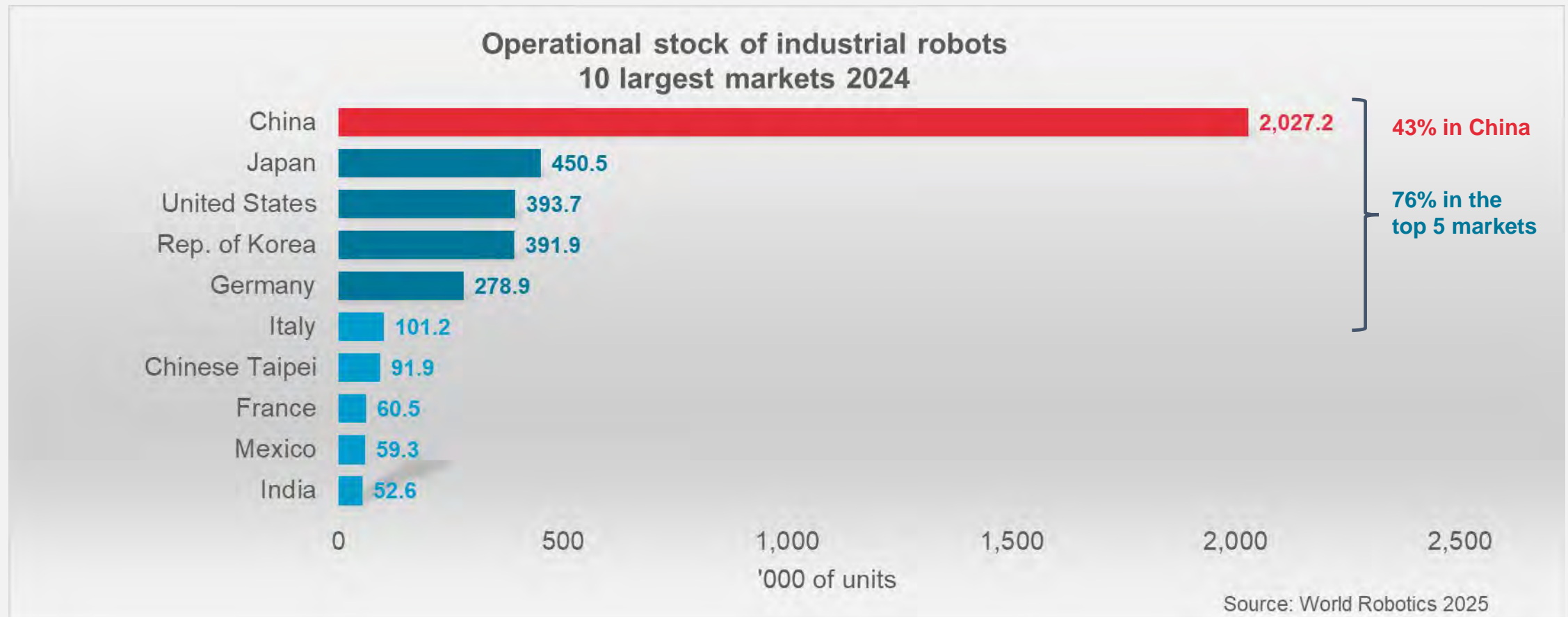


Source: International Federation of Robotics

# Top 10 markets - new installations



# Top 10 markets – operational stock

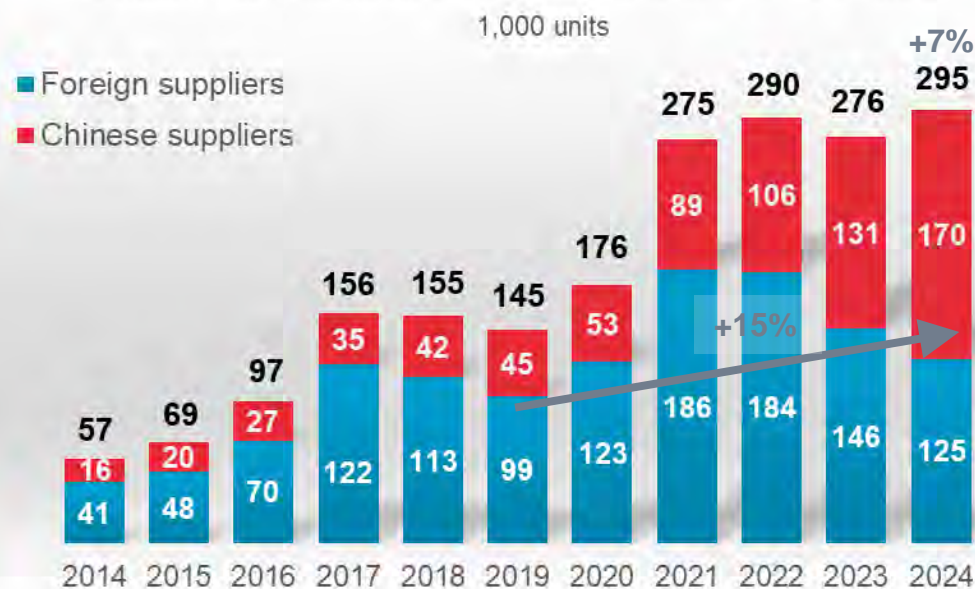


# Growth in China comparable to global growth



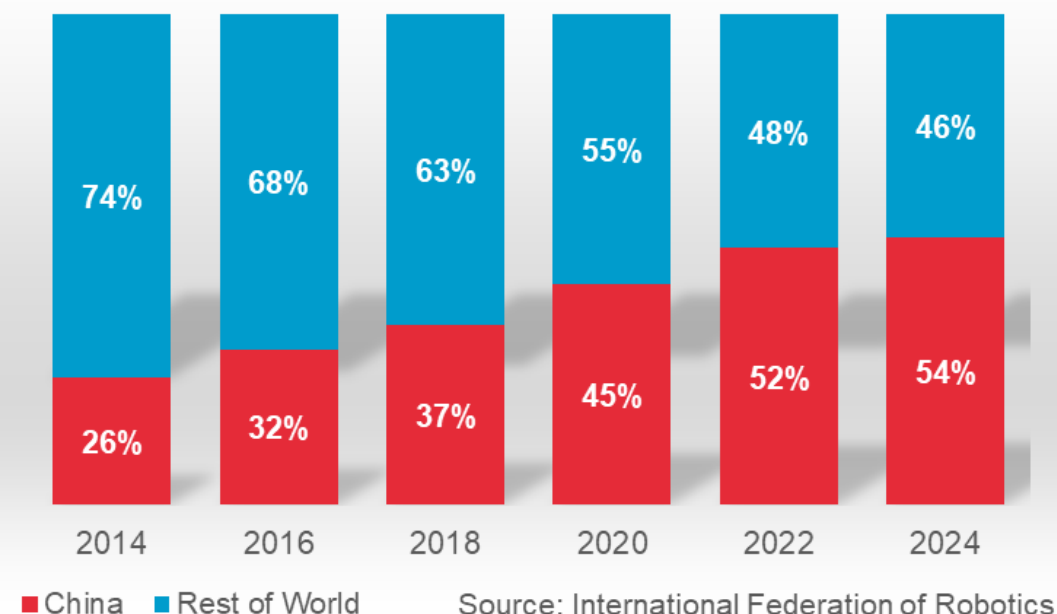
## Share of Chinese suppliers at 57%

Annual installations of industrial robots - China



## Increasing market shares of China

Share of Chinese installations vs. rest of world

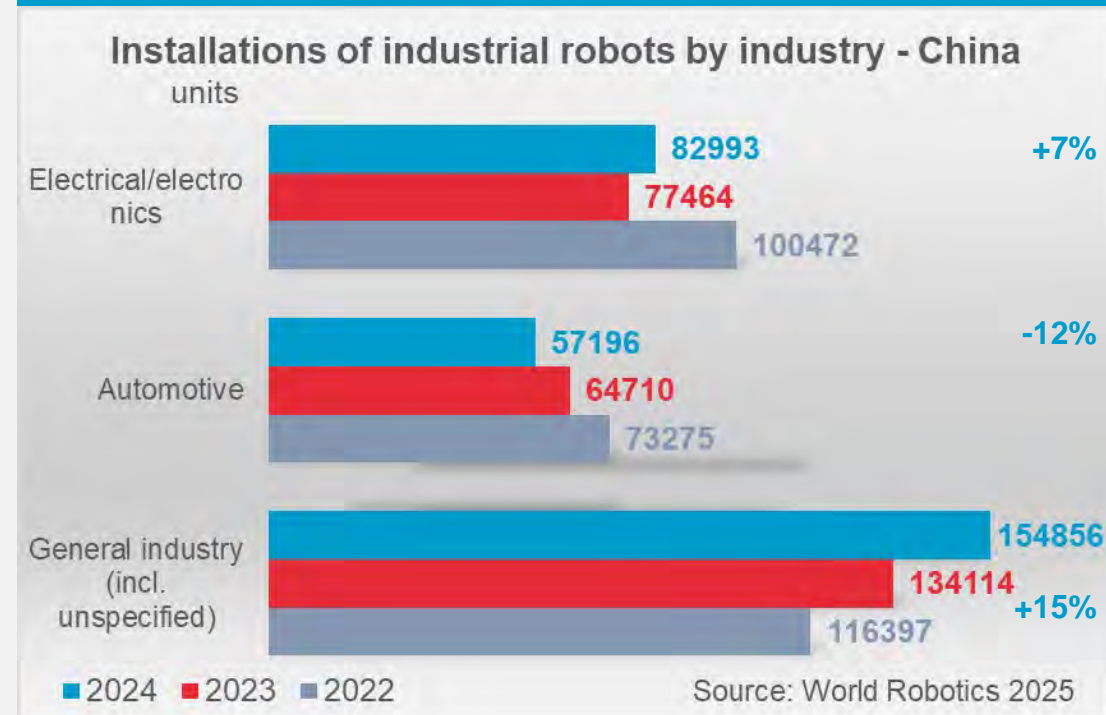




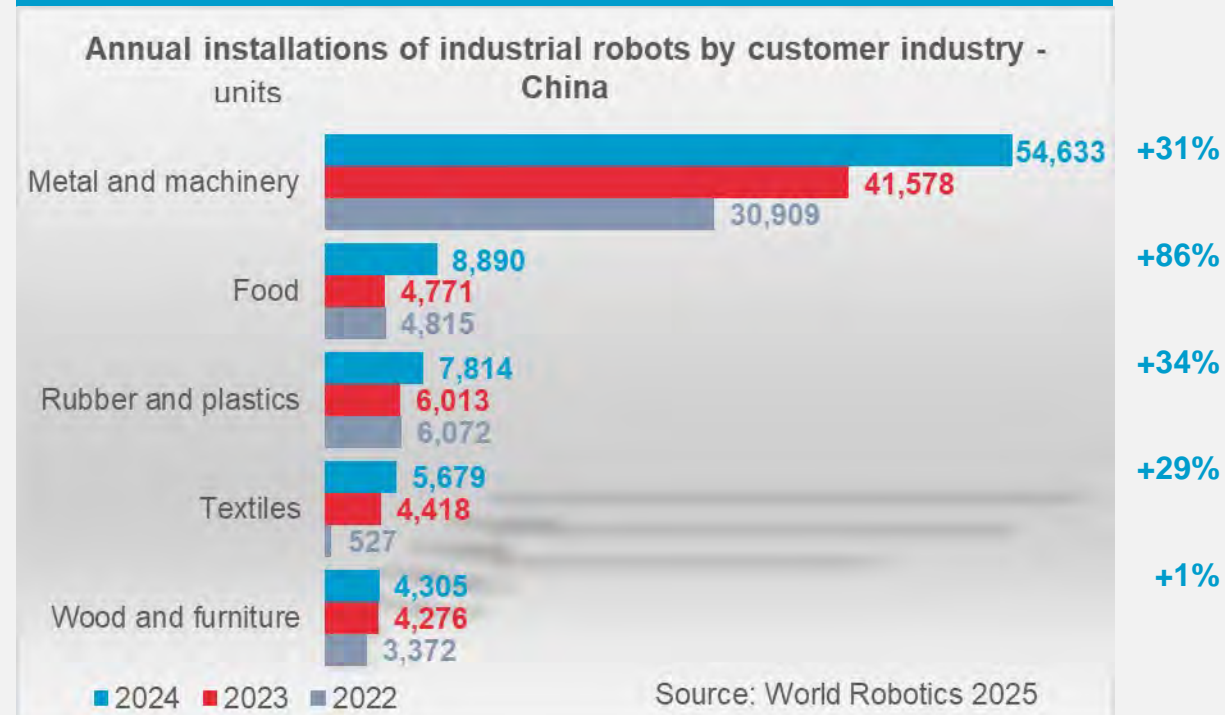
# Growth in China comparable to global growth



## Main customer industries



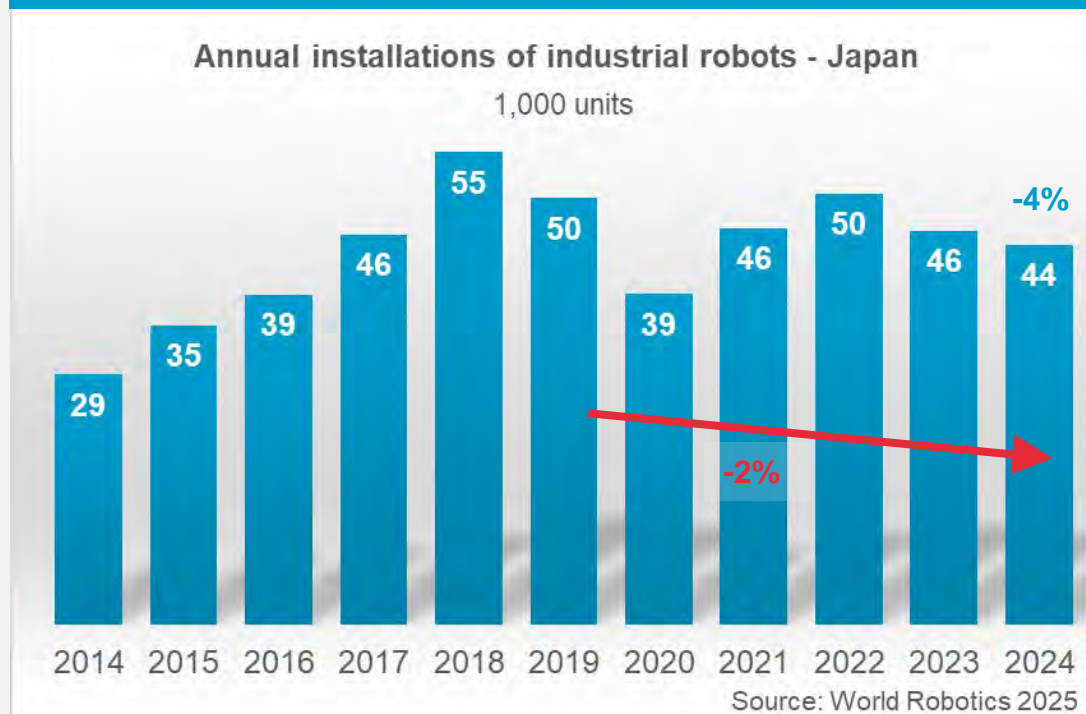
## Focus on general industries – new markets



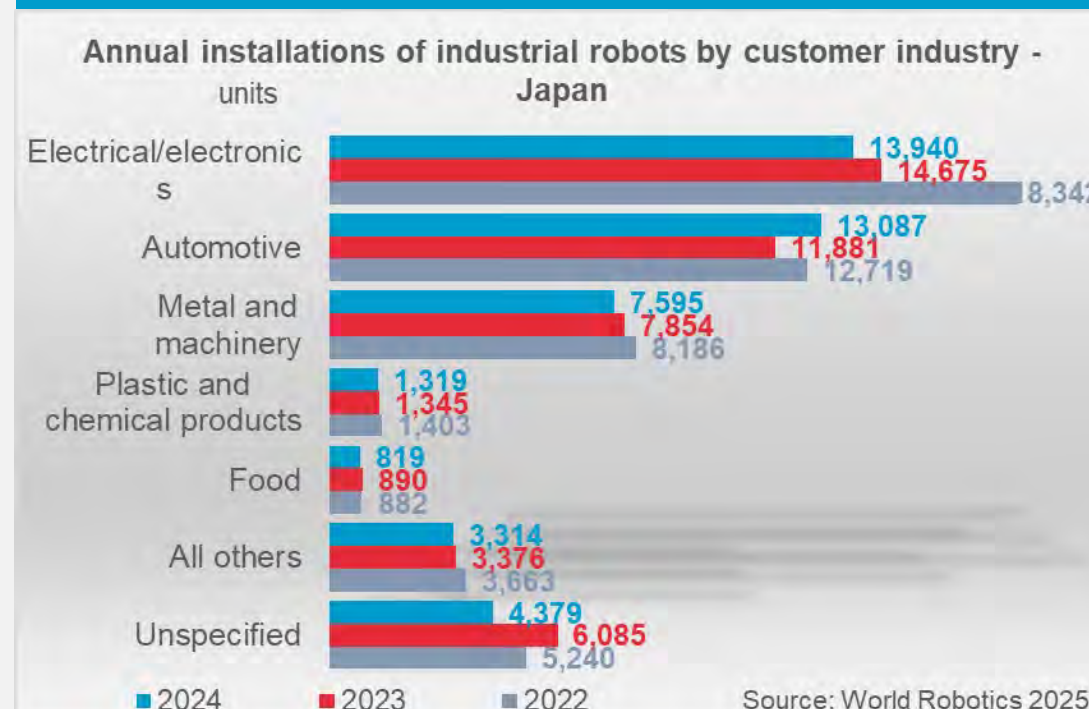
# Japan seeking new impetus



## Installations level out at 46 thousand units



## Electronics and automotive industry decline



# US installations decline due to weak general industries



## United States: Third highest level ever recorded

### Annual installations of industrial robots - United States

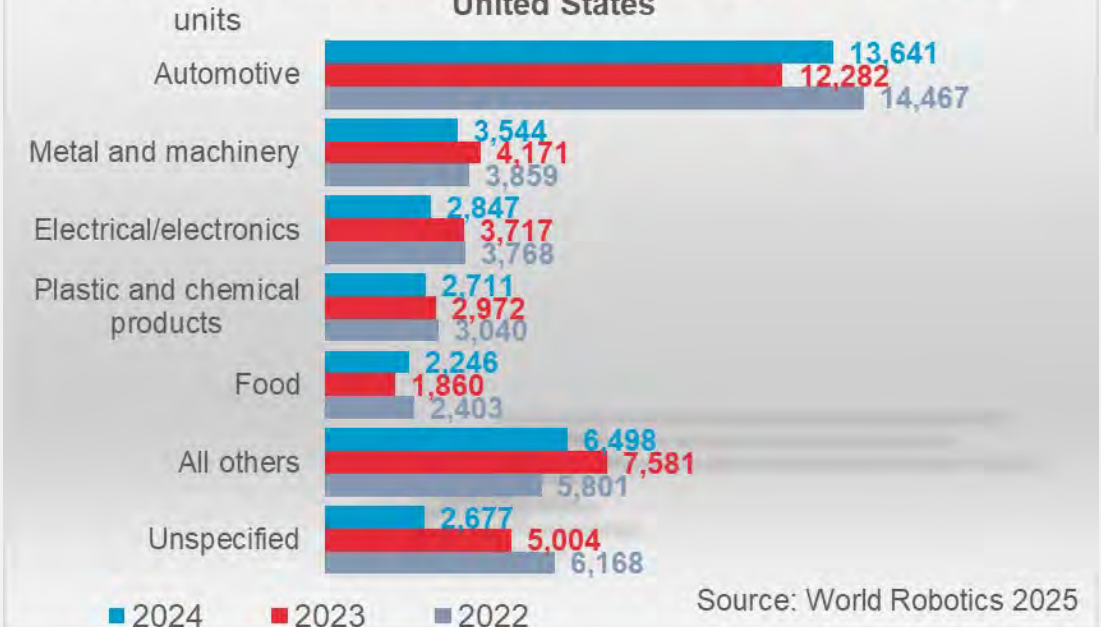
1,000 units



Source: World Robotics 2025

## US Automotive Industry back on growth track

### Annual installations of industrial robots by customer industry - United States



Source: World Robotics 2025



# Germany: Automotive falling by -25%



## Germany growing

Annual installations of industrial robots - Germany

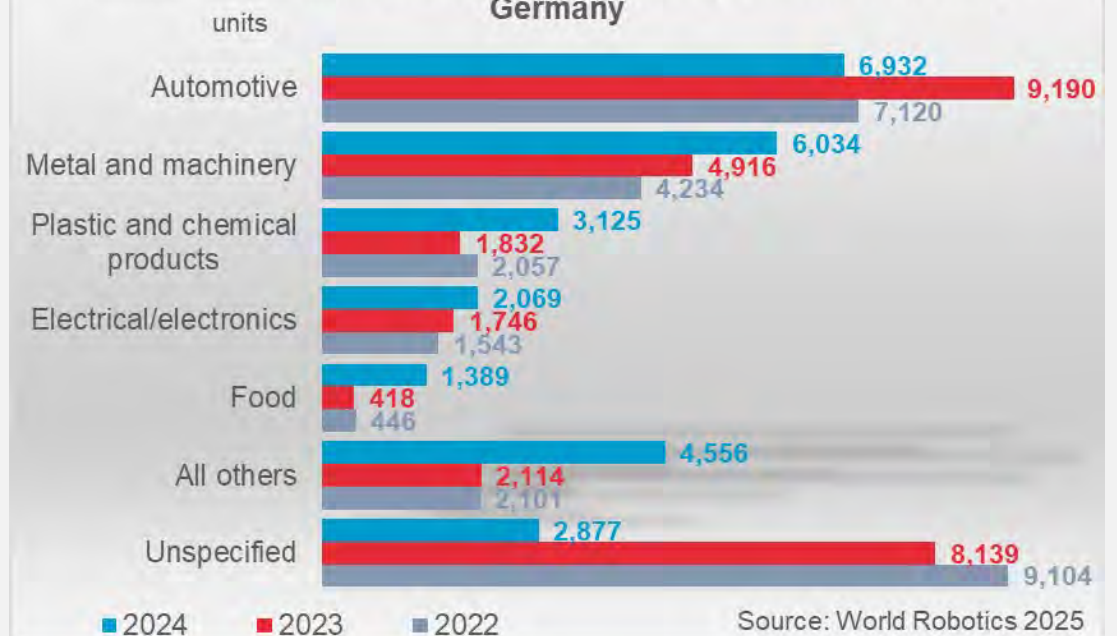
1,000 units



Source: World Robotics 2025

## Steep decline in the automotive industry

Annual installations of industrial robots by customer industry - Germany



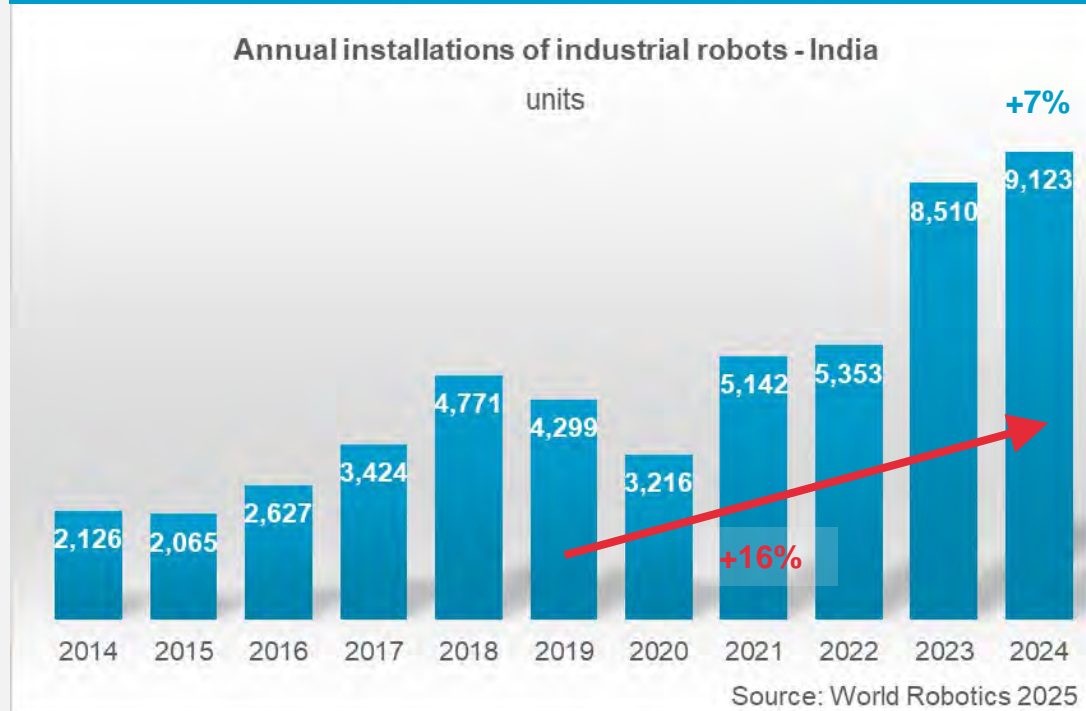
Source: World Robotics 2025



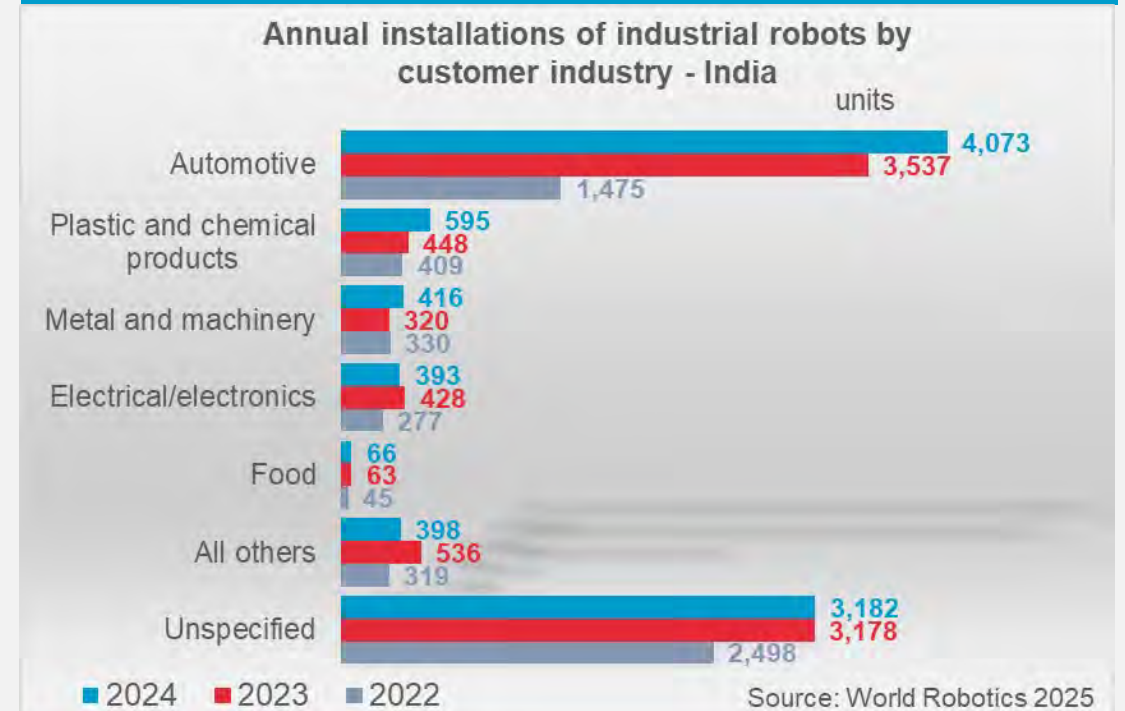
# India Rises to Sixth in Global Factory Robot Installations



## India growing massively



## Growth driver: automotive industry

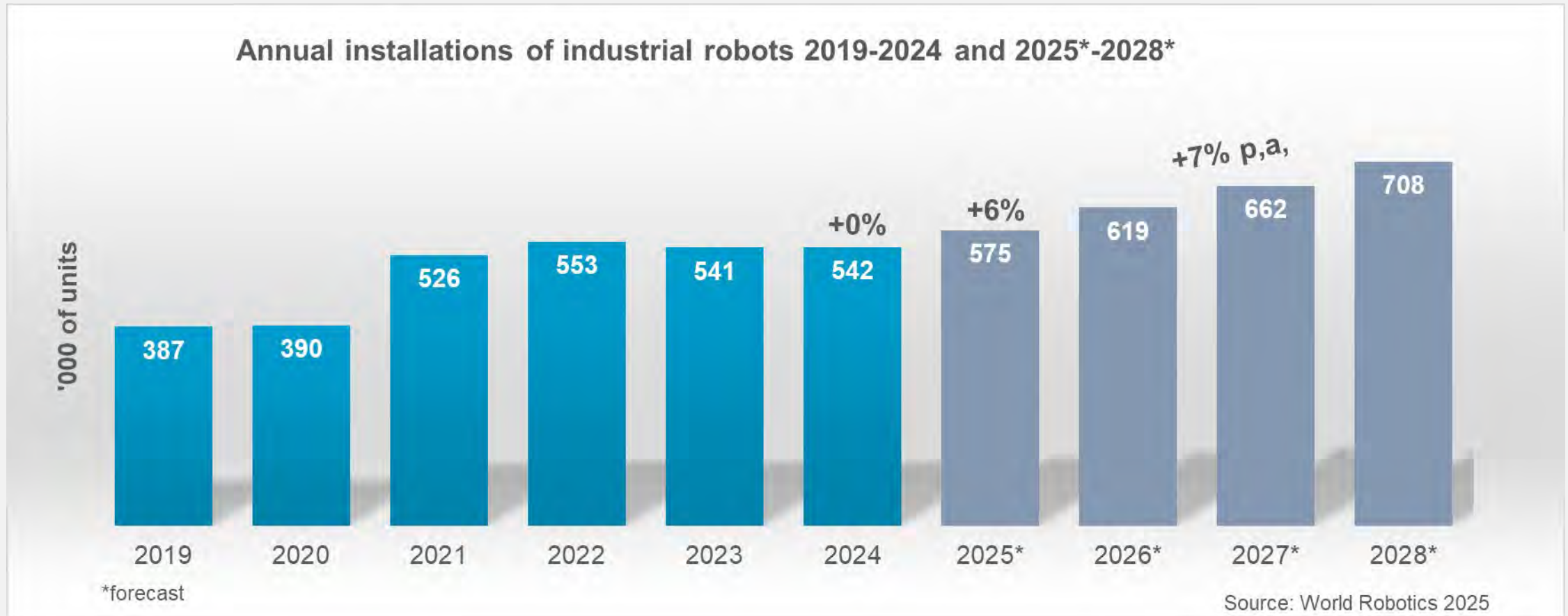


# Trends and Forecast

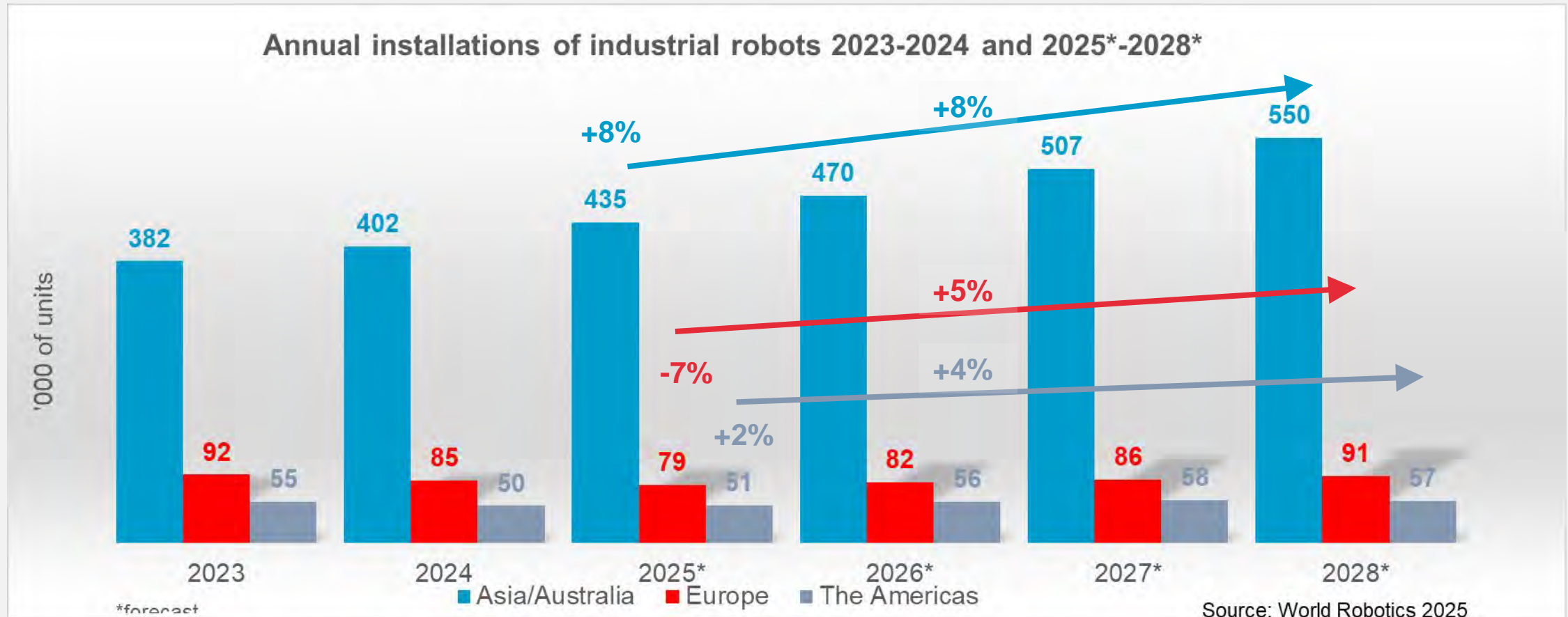


# Forecast 2025+

## Positive aggregate global trajectory



# Regional growth trends vary substantially





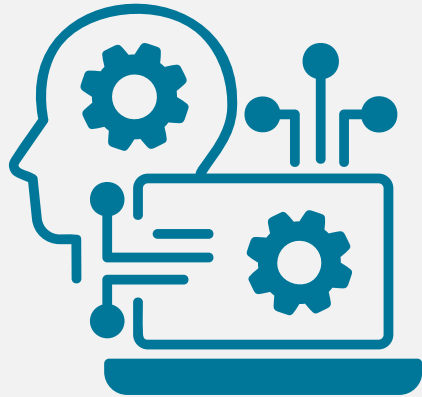
# Short-term market determinants



- **Macroeconomic conditions remain fragile**
  - Geopolitical tensions, violent conflicts and trade barriers persist
  - Increased uncertainty
  - Elevated labor costs in many countries
- **Global growth expected to slow down**

# Top 5 trends

## Technological trends

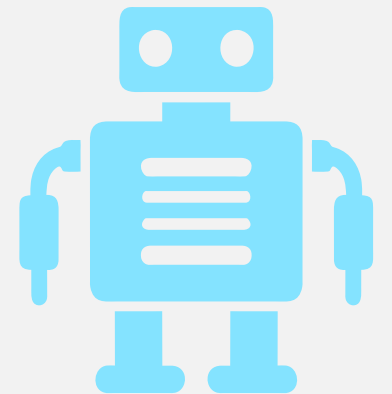


- **Physical, Analytic & Generative AI**

- Physical AI coined as the new term
- Generative AI is opening up new applications

- **Single Purpose Humanoids**

- Few commercial deployments announced
- True multipurpose humanoids are far off yet



# Top 5 trends

## Market trends



### ■ Sustainability and Energy Consumption

- Long-term policy goals for carbon neutrality
- Reconsideration of supply chains and closeness to customers

### ■ New Fields of Business and Customer Segments

- New customer segments beyond manufacturing
- New business models evolving

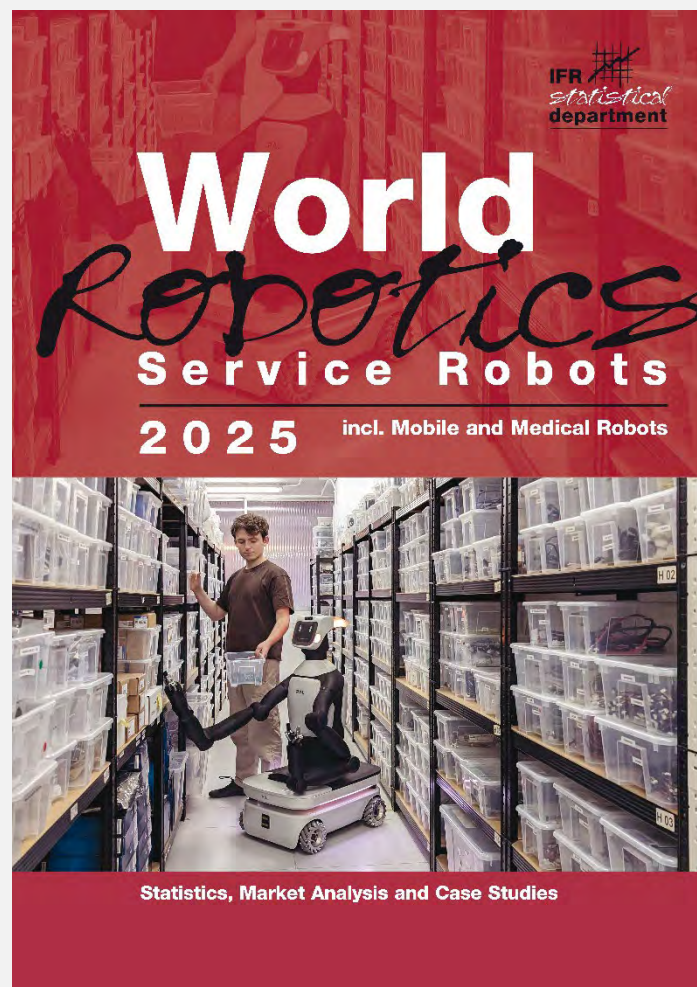


### ■ Robots Addressing Labor Shortage

- Flexible applications to fill gaps when and where needed



# Service robots – top findings



## 2024: Continuous **growth\***

### New **professional service robots** (incl. AMRs)

- 199,000 units (+9%)

### New **medical robots**

- 16,700 units (+91%)

### New **consumer service robots**

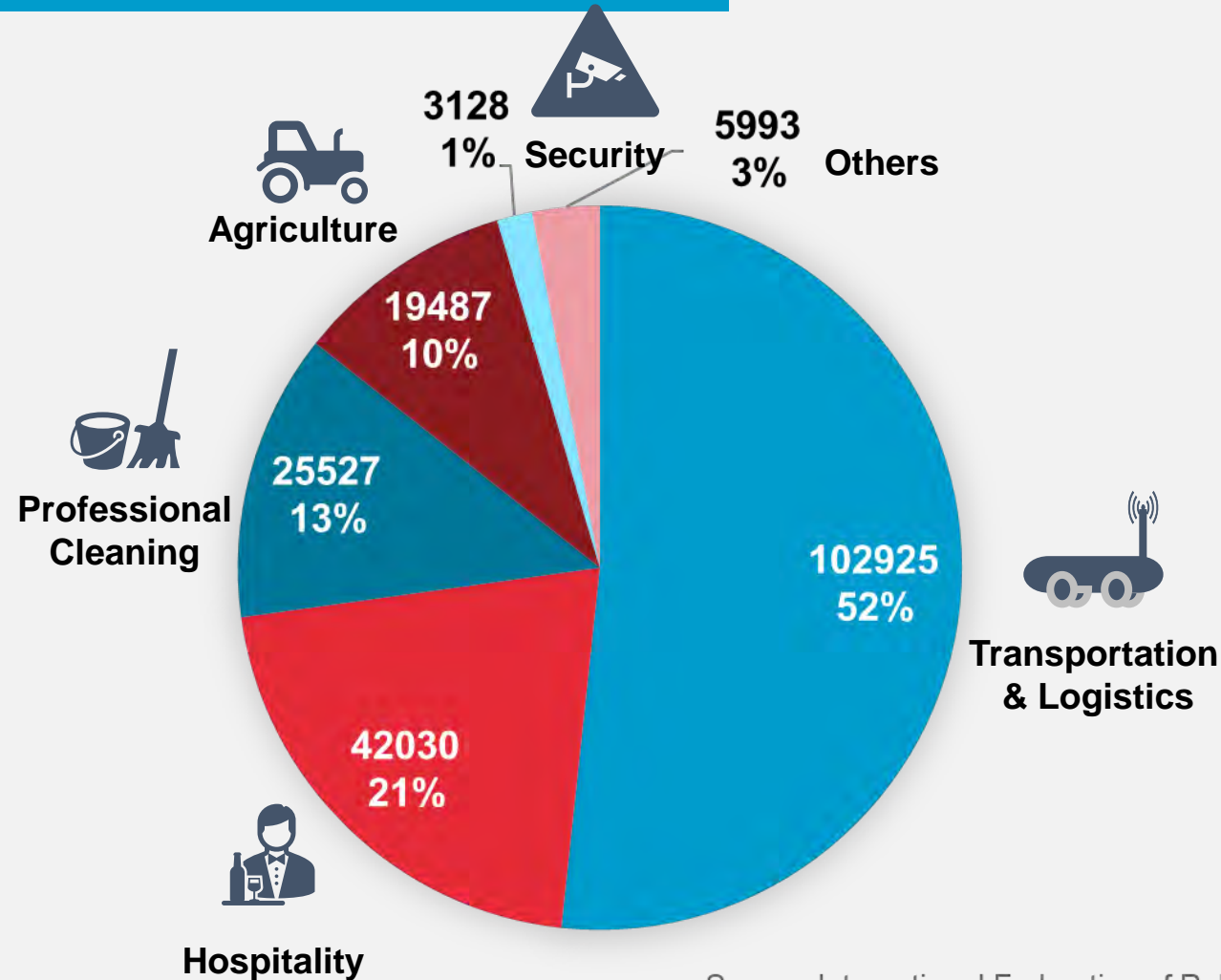
- 20.1 million units (+11%)

\*All numbers based on a sample of 293 producers of total 944 manufacturers.  
Data is not projected to the whole industry.  
Sample composition varies each year.  
Compiling or comparing data from different survey waves is strongly discouraged.



# Top 5 application groups for professional use

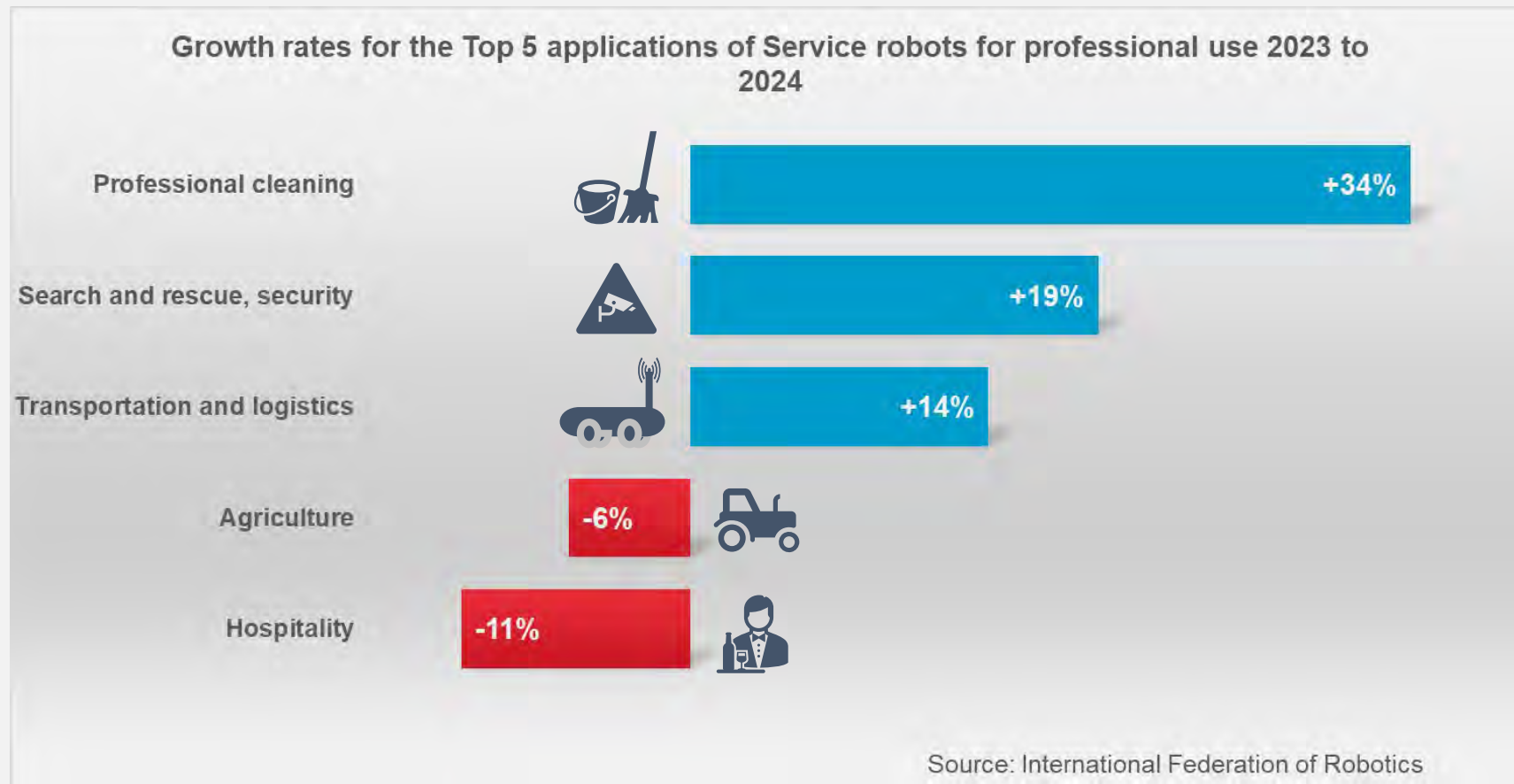
## Unit installations and shares



Source: International Federation of Robotics

# Top 5 application groups for professional use

## Growth rates



# Focus: Transportation in indoor environments without public traffic

- **Automation of material flow in production and logistics**
- **Drivers:**
  - Booming logistics and intralogistics
  - Shortage of workers
  - Increased reliability and performance in digitalized factories
- **Major challenges:**
  - High upfront investment costs
  - Adapting to industry-specific needs



Image: Mobile Industrial Robots (MiR)

# Medical robots growing strongly: 16,700 new units - +91%

## Surgery

Image: Kawasaki



+41%

## Rehabilitation & non-invasive therapy

Image: Life Science Robotics



+106%

## Diagnostics & Medical laboratory analysis

Image: ABB Robotics



+610%



# Focus: Laboratory robots

- **Automation in medical laboratories**
- **Advantages:** robots offer solutions that enable consistent, precise, and efficient execution of time-consuming and error-prone tasks 24/7
- **Technical solutions:** stationary industrial robots, mobile bases, and mobile manipulators
- **Challenges:** new application, varying complexity of tasks requiring high flexibility, material robustness to allow for disinfection/sterilization



Image: United Robotics Group

# Summary and Outlook



Image: Innok Robotics

- **Good growth market** with excellent long-term prospects
- **Key drivers: Demographic change** and **lack of skilled workers**
- Investments are postponed due to **uncertain** global economic conditions
- **RaaS business models** lower adoption barriers considerably
- Trend towards **multi-purpose service robots**

# Humanoid robots

- There is no massive use today but **serial production in preparation**
- **Manufacturers** are building **humanoid robots** for **R&D purposes** for several years and producing **on demand**
- **New companies** in the market do build **humanoids** at a **demonstrator** or **prototype stadium** for first trial applications
- **Application fields** of humanoids still have to be determined and proven in practice



# Thank you for your attention.

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