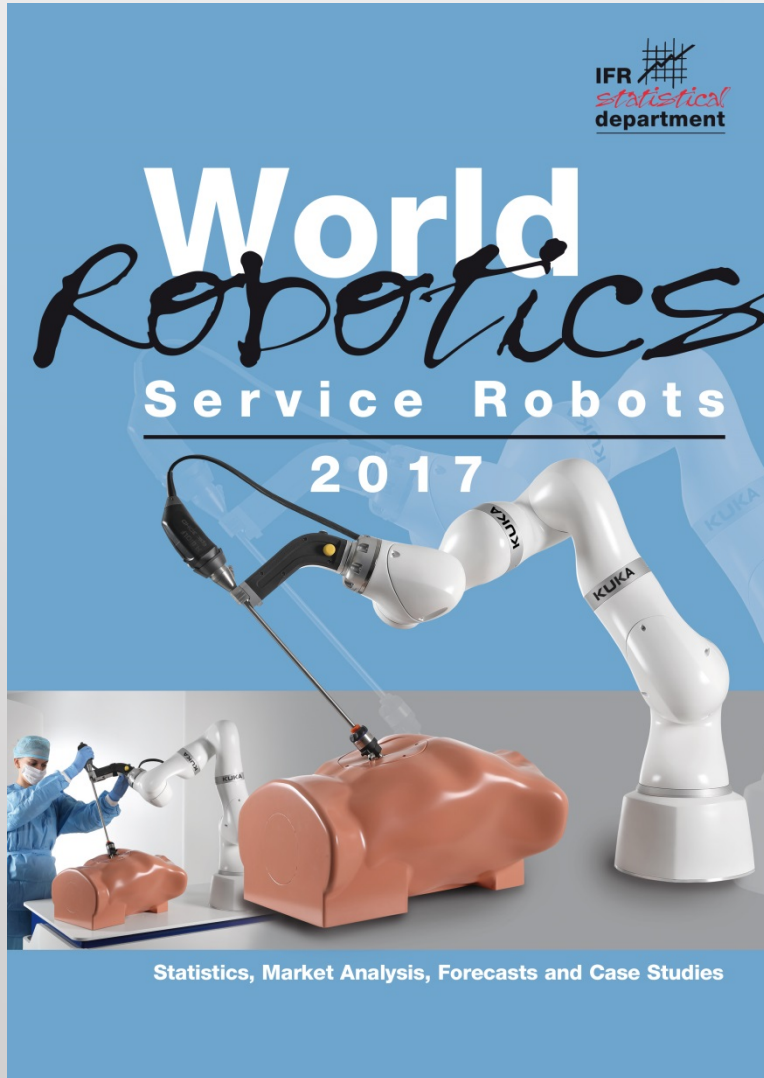




# Why service robots boom worldwide

IFR Press Conference, 11 October 2017  
Brussels



# Schedule

- Welcome and introduction of the panelists
- Global service robot market up to 2020 by Gudrun Litzenberger
- Dynamics of the service robotics industry
- Technological enablers by Martin Hägele
- Questions

# International Federation of Robotics

Representing the global robotics industry

- Robotics turnover 2016: \$40 billion
- More than 50 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 resource for worldwide data on use of robotics – IFR Statistical Department



# **Speakers on the panel**



**Martin Hägele**

Chairman IFR Service Robot  
Group

Head of Robot and Assistive  
Systems

Fraunhofer IPA, Stuttgart,  
Germany



**Gudrun Litzenberger**

IFR General Secretary  
Frankfurt

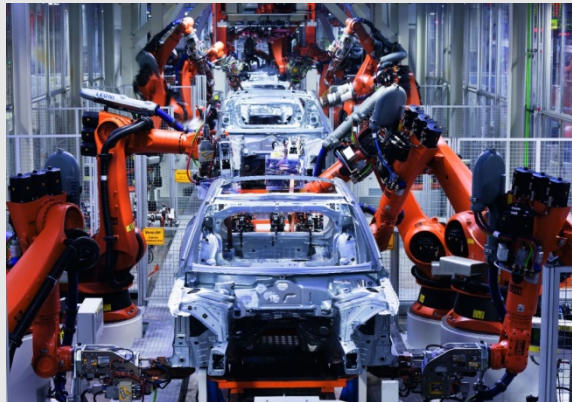


**Gudrun Litzenberger**

**Global Service Robot Market up to 2020**

# What is a service robot?

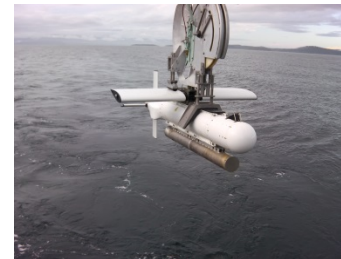
## Industrial Robots



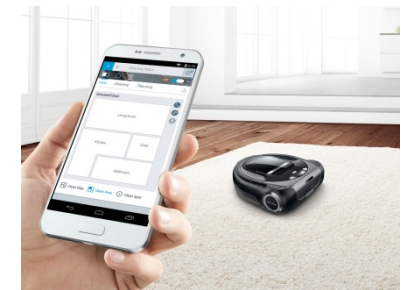
## Industrial environments

## Service Robots

### Professional Use



### Personal/domestic



## Non-industrial environments

Picture source: Goldbeck, ;KUKA AG, Bosch Bonirob, Hetwin, SMP Robotics, Omron, International Submarine Engineering , Robert Bosch Hausgeräte , Wonder Workshop

# Professional service robots: significant growth

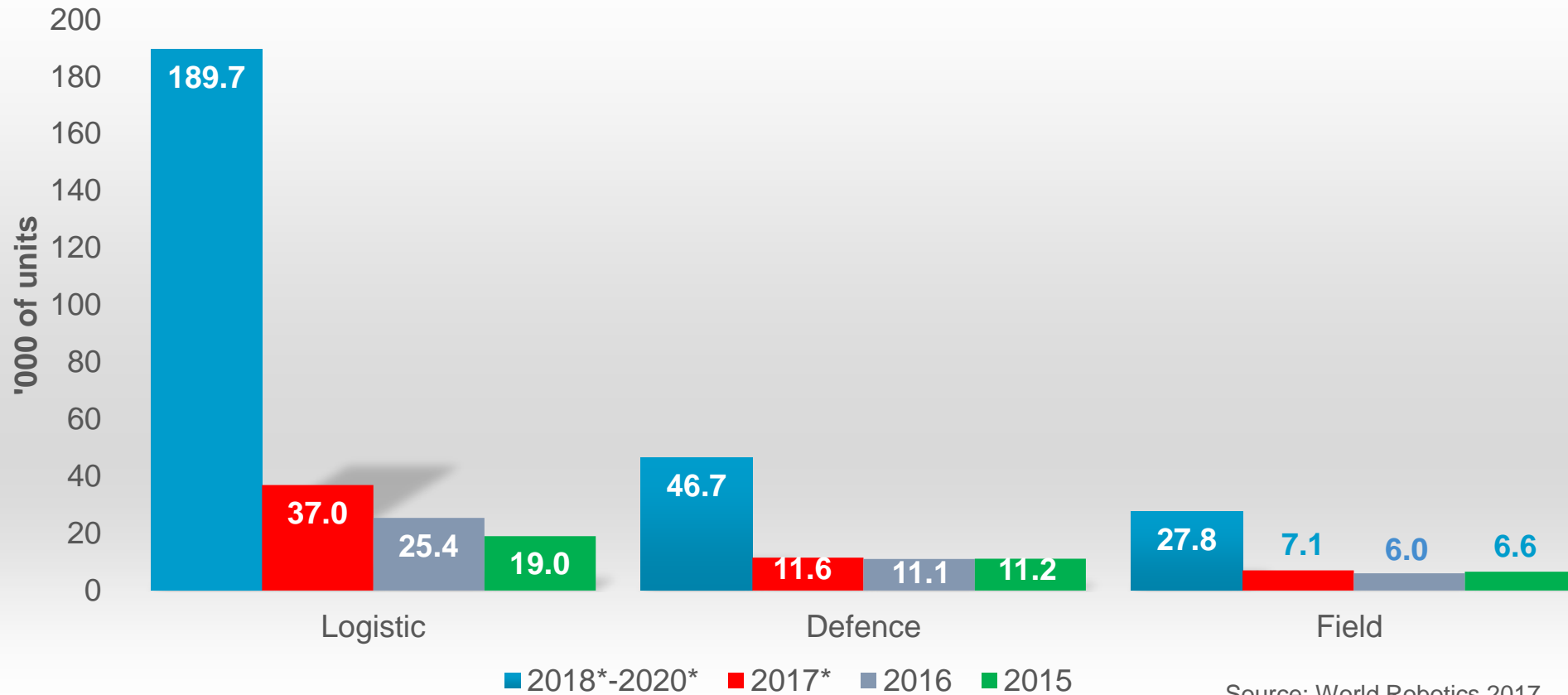
**2016: almost 60,000 units, +24%**

**Forecast 2017: +17% -almost 79,000 units**

**Forecast 2018 -2020: about 400,000 units  
20% to 25% on average per year**

# Main drivers: logistic systems

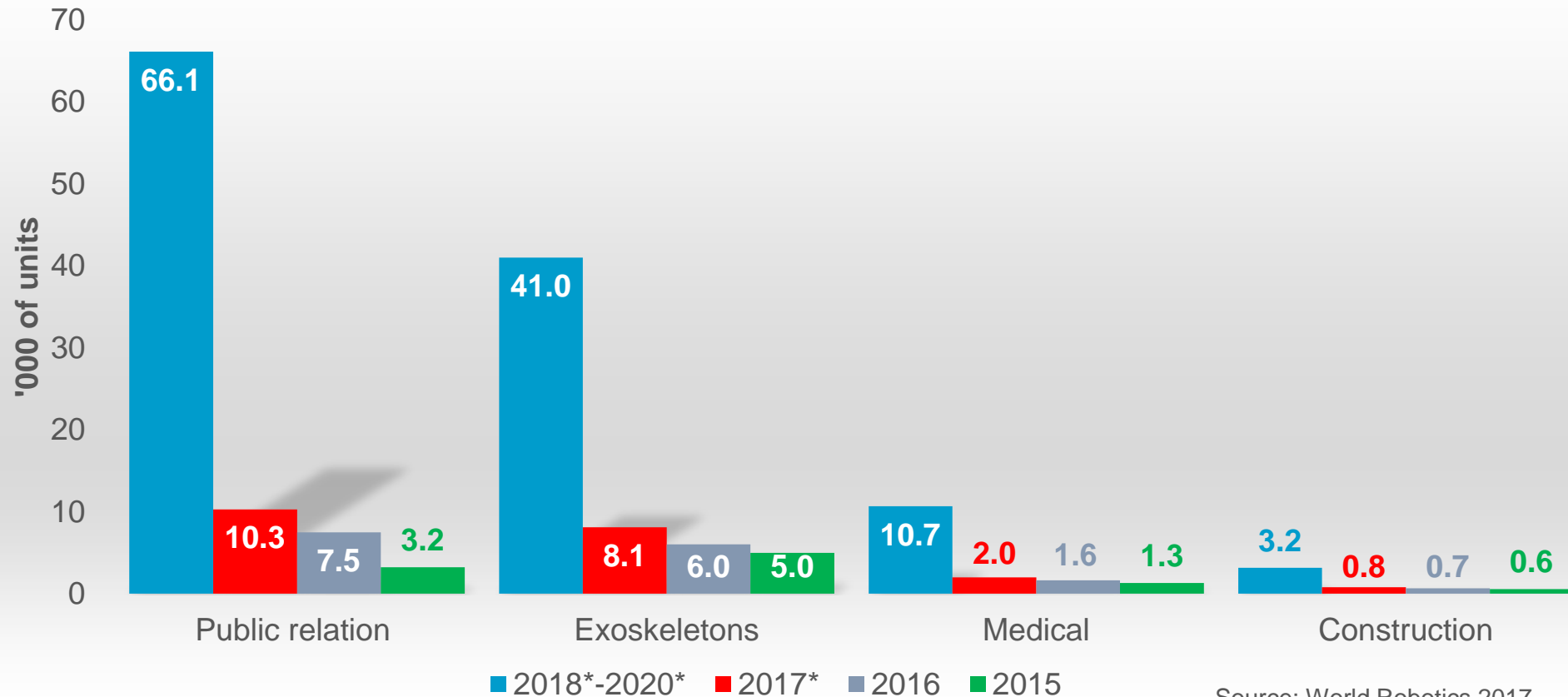
Service robots for professional use. Main applications  
Units sales 2015 and 2016, forecast 2017\*, 2018\*-2020\*



Source: World Robotics 2017

# Public relation robots and exoskeletons on the rise

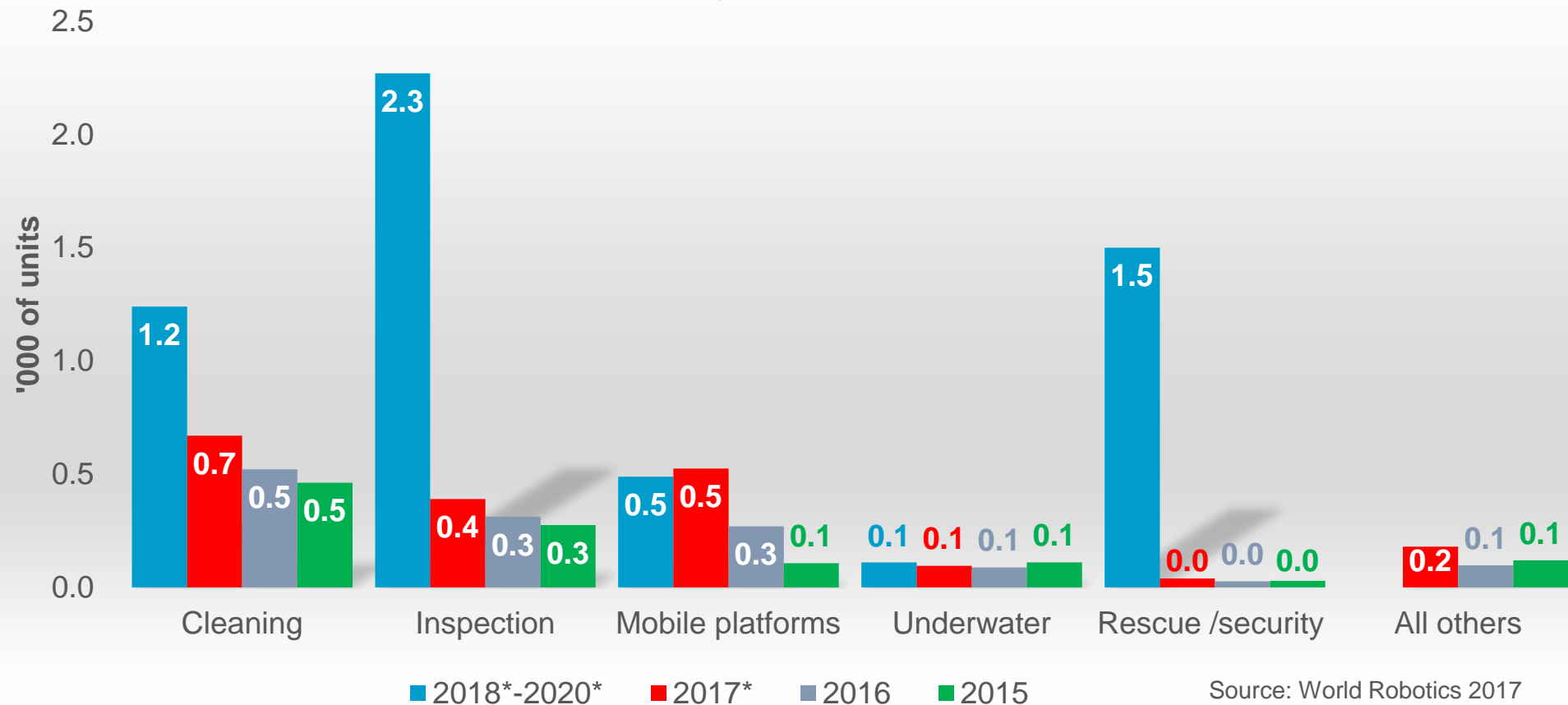
Service robots for professional use. All other applications - 1 -  
Units sales 2015 and 2016, forecast 2017\* and 2018\*-2020\*



Source: World Robotics 2017

# Good prospects for inspection robots

Service robots for professional use. All other applications - 2 -  
Units sales 2015 and 2016, forecast 2017\* and 2018\*-2020\*



# Professional service robots: increasing turnover

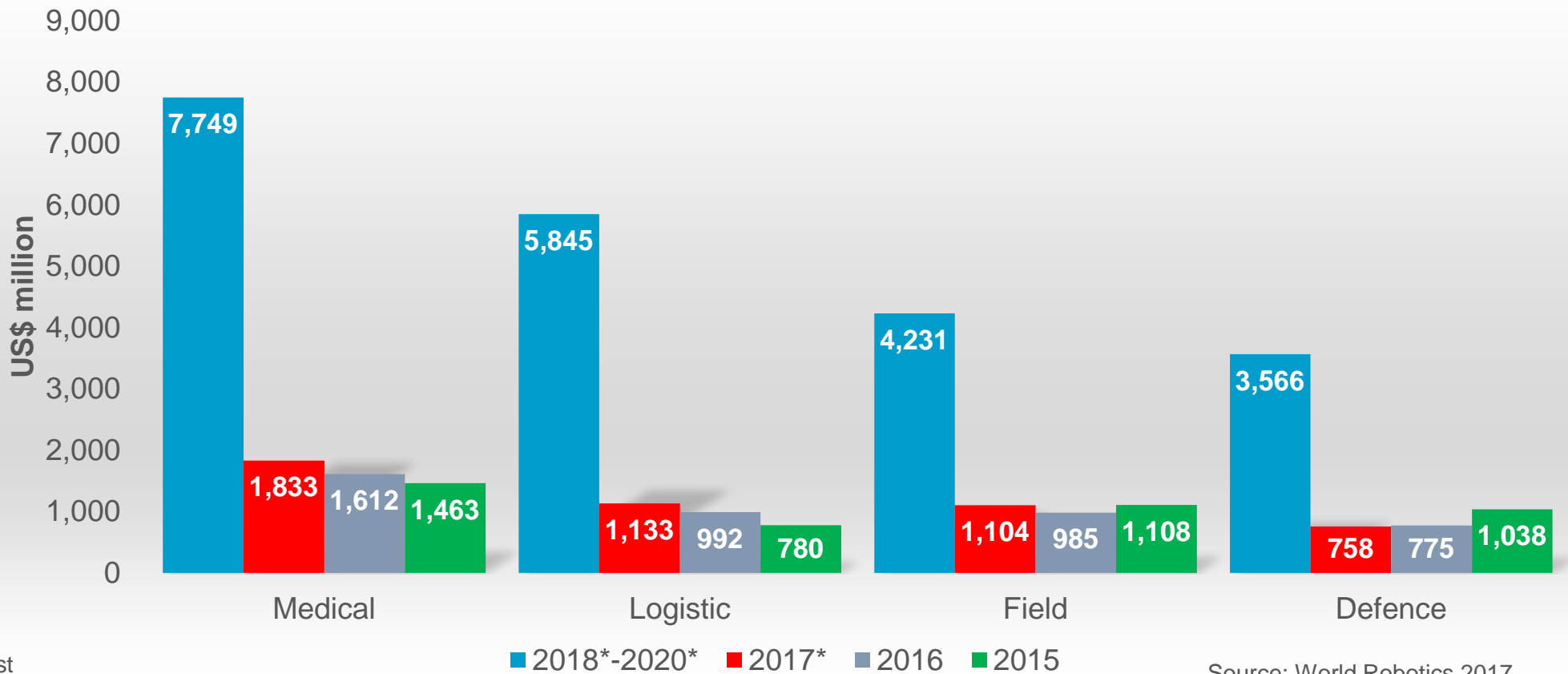
**2016: 4.7 US\$bn, +2%**

**Forecast 2017: +12% - 5.2 US\$bn**

**Forecast 2018 -2020: 26.8 US\$bn  
20% to 25% on average per year**

# Medical robots: most valuable

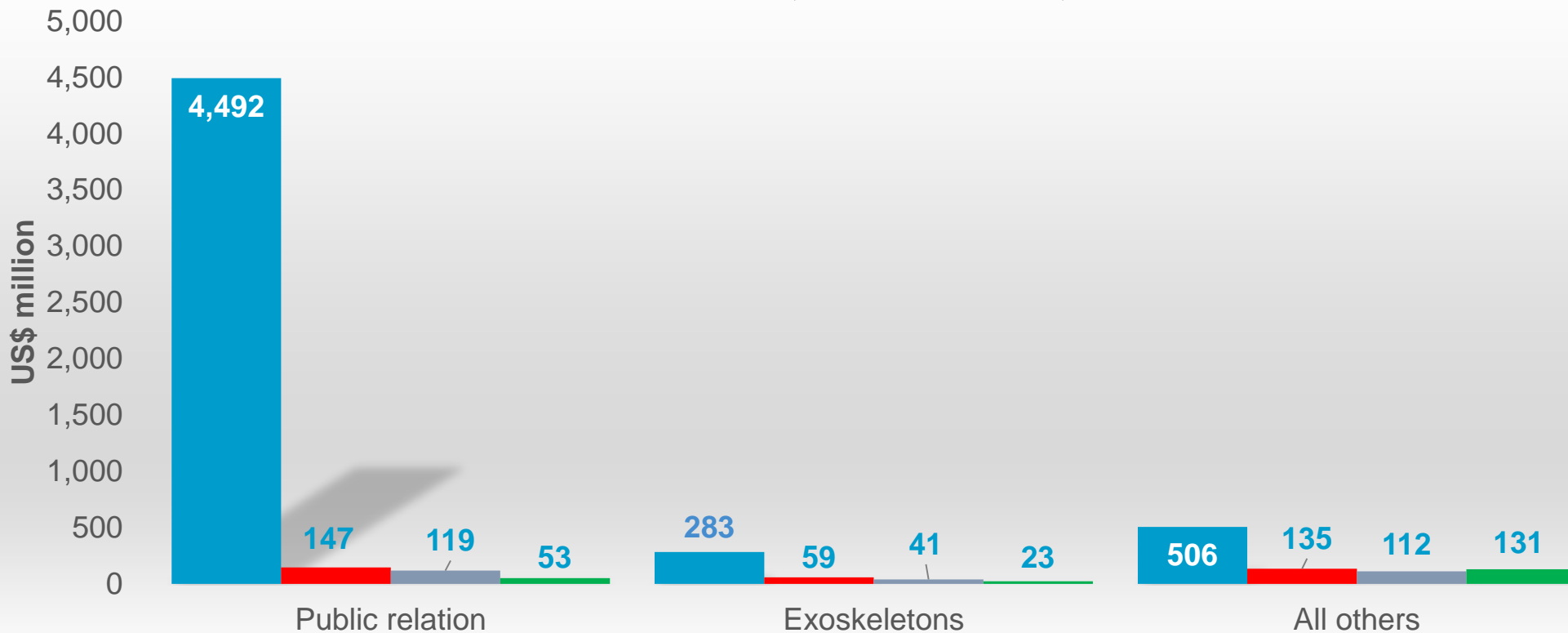
Service robots for professional use in main applications. Estimated values 2015 and 2016, forecast 2017\*, 2018\*-2020\*



Source: World Robotics 2017

# Public relation robots: significant increase of turnover

Service robots for professional use. All others  
Estimated value 2015 and 2016, forecast 2017\*, 2018\*-2020\*

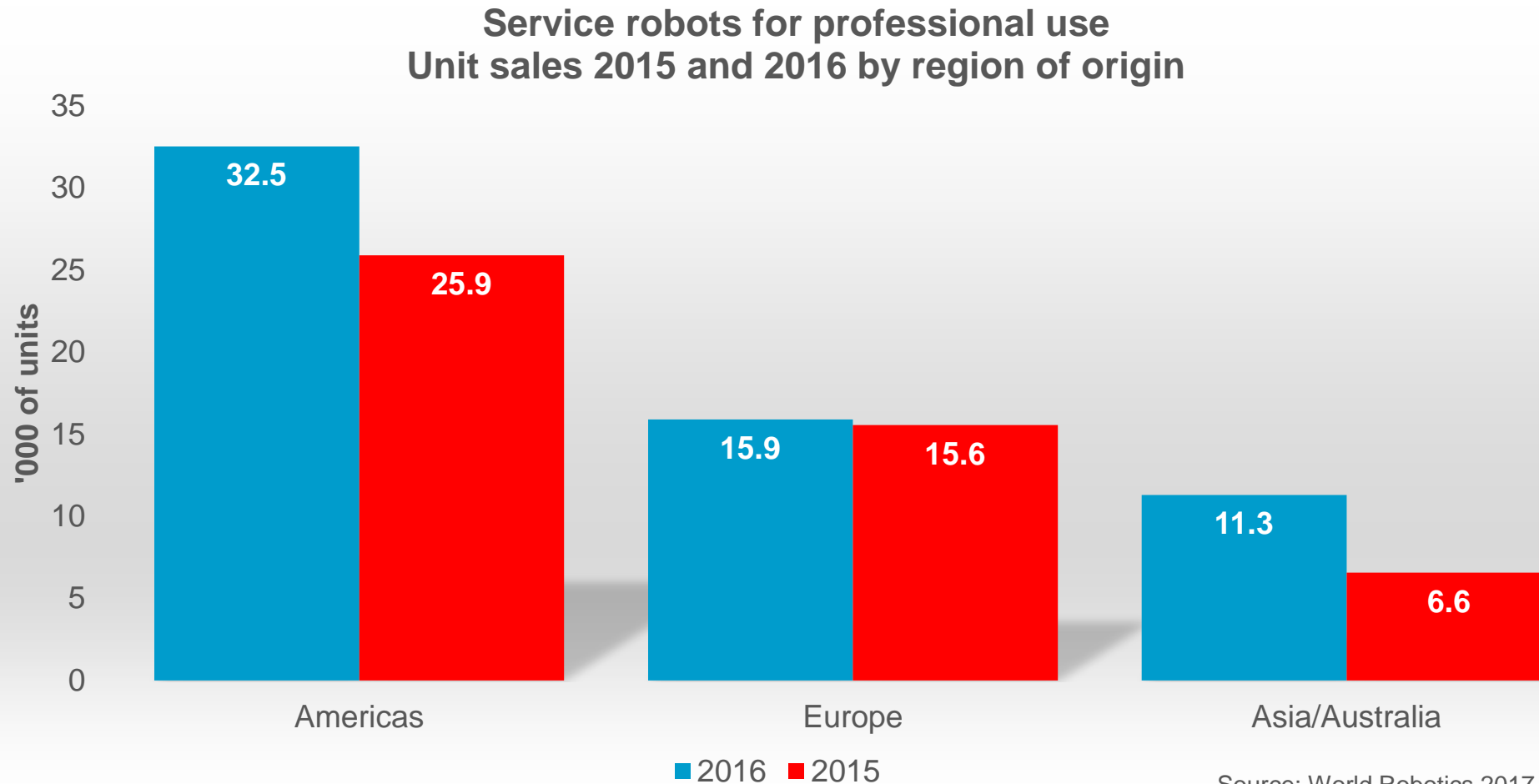


\*forecast

■ 2018\*-2020\* ■ 2017\* ■ 2016 ■ 2015

Source: World Robotics 2017

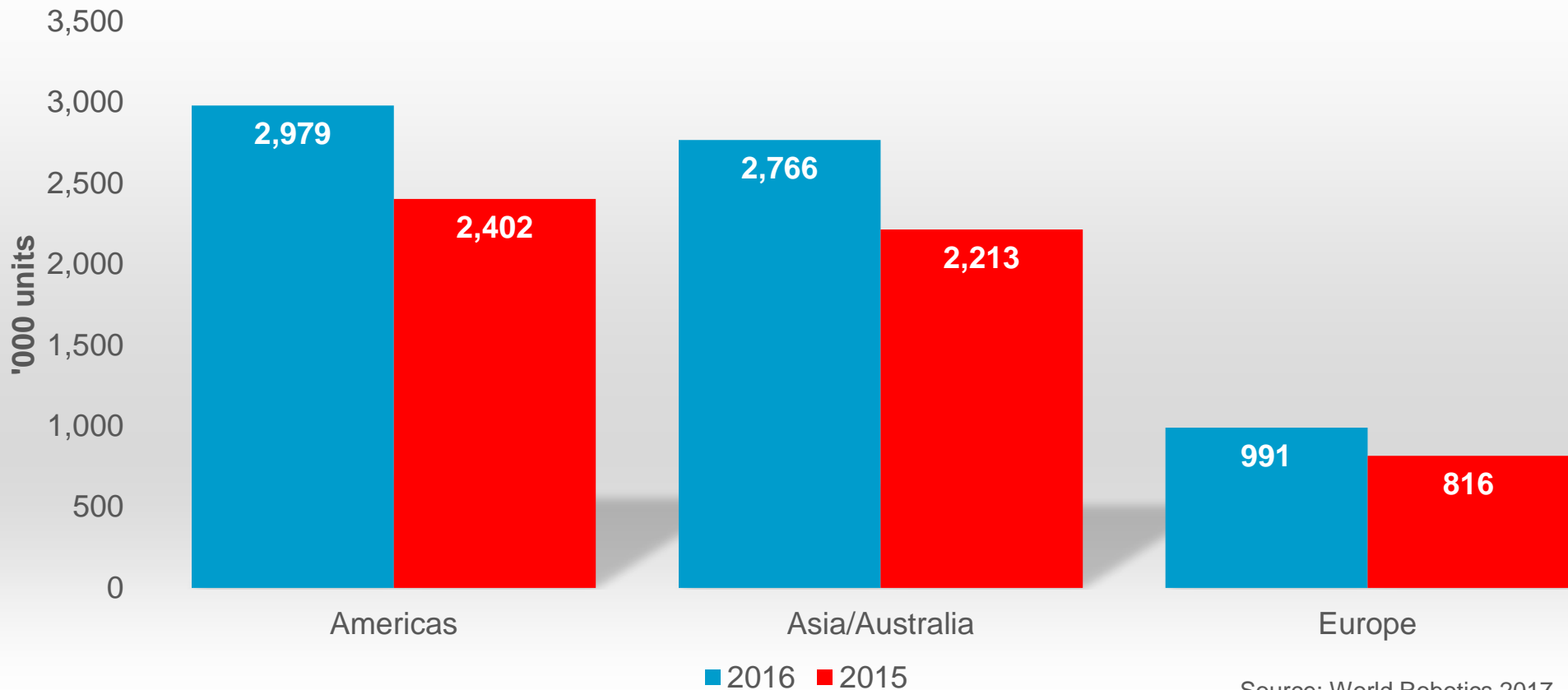
# Professional service robots: more than 50% from the Americas



Source: World Robotics 2017

# Personal/domestic robots on the rise

Service robots for personal/domestic use. Unit sales 2015 and 2016 by region of origin.



Source: World Robotics 2017

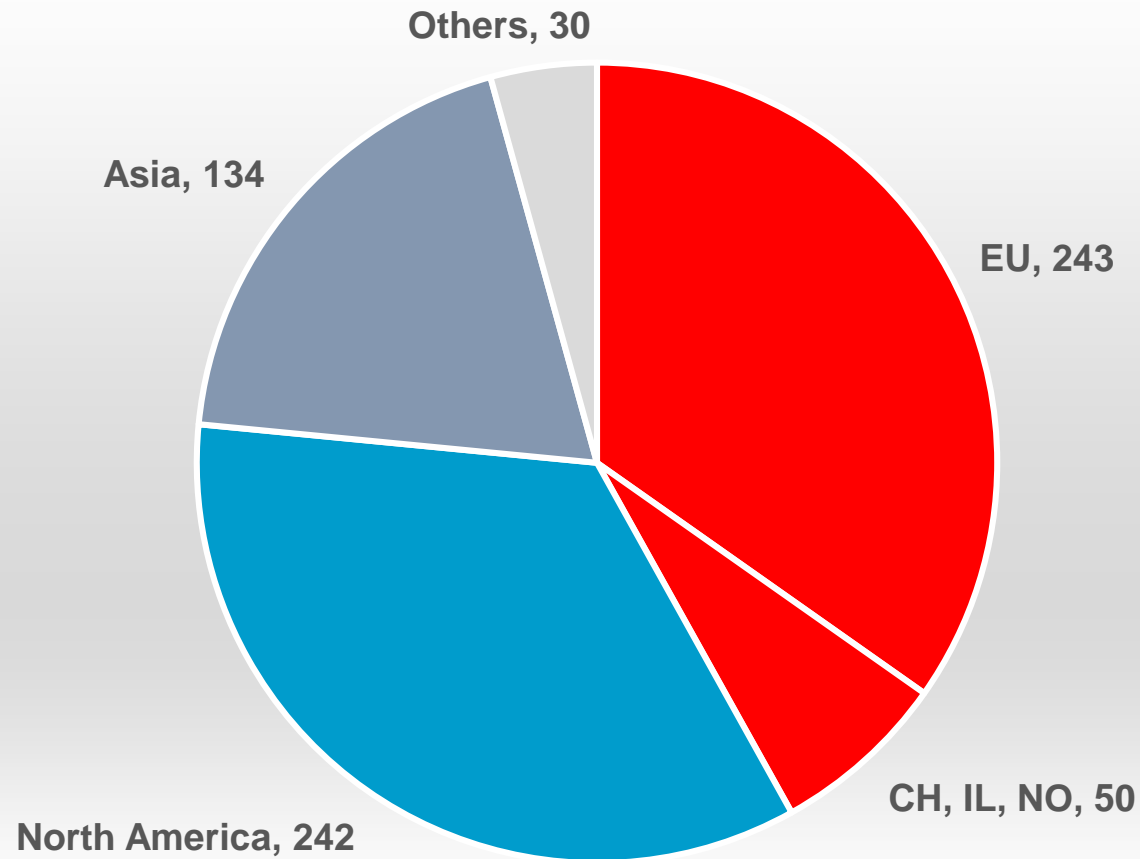


**Martin Hägele**

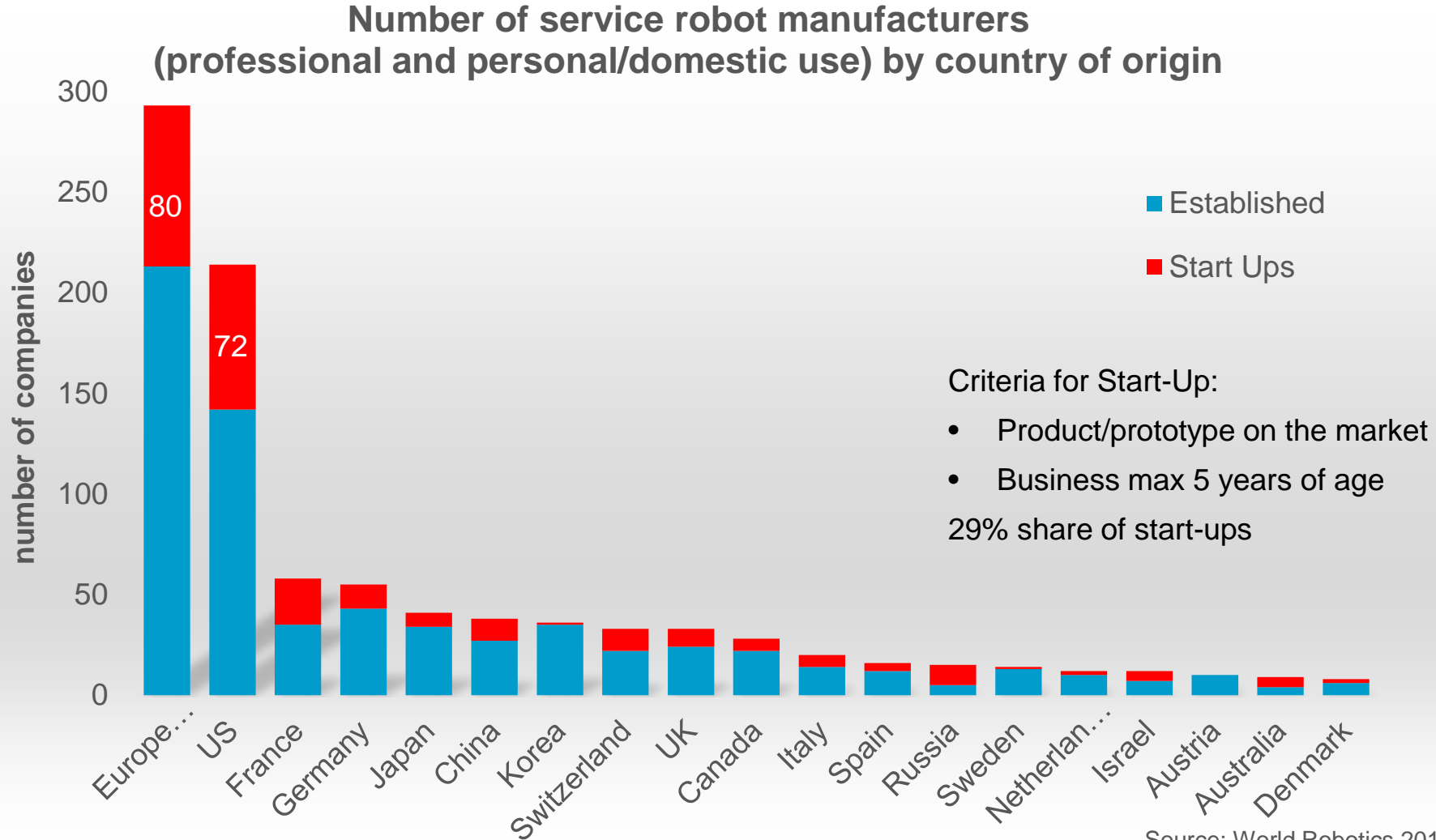
- **Dynamics of the service robotics industry**
- **Technological enablers**

# Number of service robot manufacturers of all types by region of origin (N=699)

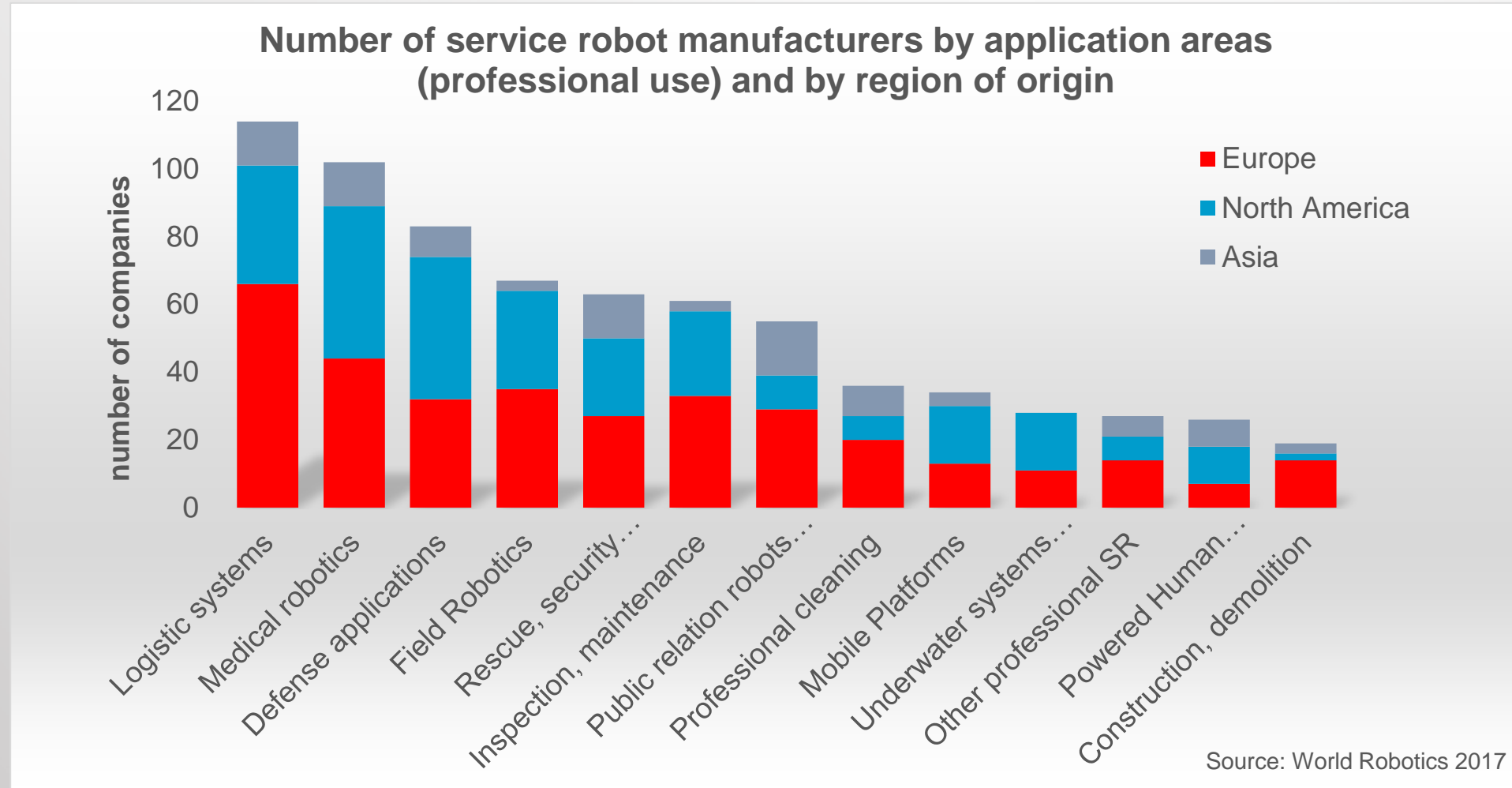
Number of service robot manufacturers of all types  
(professional and personal/domestic use) by region of origin



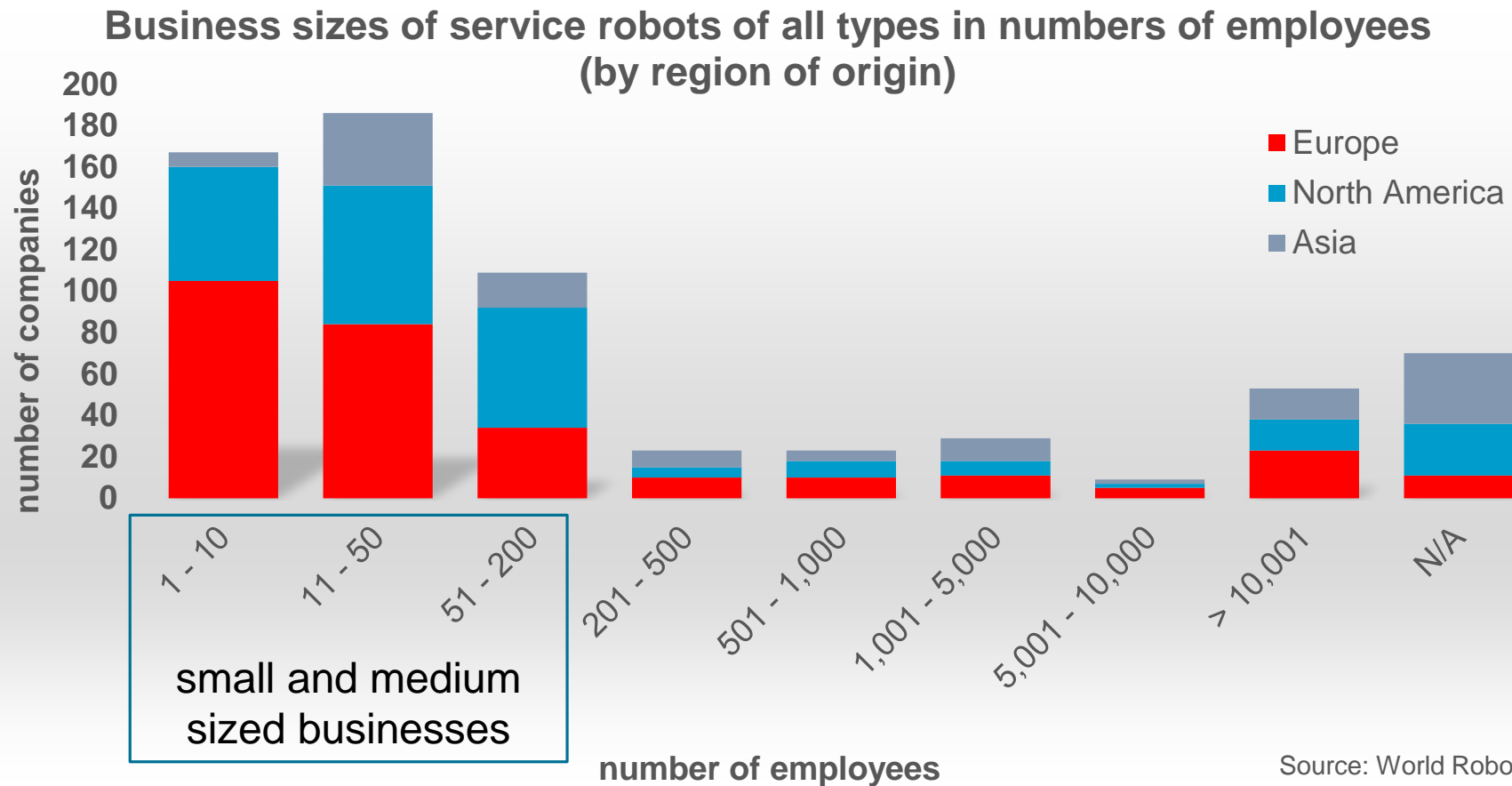
# Europe fares well in service robot start-up creation



# European strongholds in service robotics suppliers: logistics, field, inspection/maintenance, construction



# 75% of European service robot suppliers are SMEs



# Start-up examples (I): Service robotics in agriculture

Fresh fruit picking robot    Platform for vineyard maintenance



FF Robotics (Israel)



WALL-YE (France)

Robotic weeder for vegetable farms



Naïo Technologies (France)

# Start-up examples (II): Service robots in public-relations



Unity Robotics (D)



Bots and us (UK)



Promobot (RU)

# Start-up examples (III): Service robots in logistics



Mobile Industrial Robots MiR (DK)



Fetch Robotics (USA)



Robotnik (ES)

# Creating a European Eco-System in robotics

- **Robotic key-technologies:** perception, human-machine-interaction, mechatronics, safety, ...
- **Software:** Major cost-/performance factor in service robotics, 30+% cost share
- **Supply industry** for robotics key-components, software (computer vision, motion control, mobile navigation etc.) emerges
- **Open Source Software** systems hugely popular; e.g. >2/3 of all service robot suppliers use Robot Operating System ROS (and other OSS)
- With **€700M in funding from EU 2014 – 2020, SPARC** is the largest civilian-funded robotics innovation initiative in the world.



# Thank you!