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
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*

Logistic: 189,7
Defence: 46,7
Field: 27,8

*forecast

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*

*forecast

Source: World Robotics 2017
Good prospects for cleaning robots

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

*forecast

Source: World Robotics 2017
Professional service robots: increasing turnover

2016: 4.7 US$bn, +2%

Forecast 2017: +12% - 5.2 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*

Source: World Robotics 2017
Professional service robots: more than 50% from the Americas

Service robots for professional use
Unit sales 2015 and 2016 by region of origin

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)

- EU; 243
- CH, IL, NO; 50
- Asia; 134
- North America; 242
- Others; 30

Source: World Robotics 2017
Europe fares well in service robot start-up creation

Number of service robot manufacturers (professional and personal/domestic use) by country of origin

Criteria for Start-Up:
- Product/prototype on the market
- Business max 5 years of age

29% share of start-ups

Source: World Robotics 2017
European strongholds in service robotics suppliers: logistics, field, inspection/maintenance, construction

Number of service robot manufacturers by application areas (professional use) and by region of origin

Source: World Robotics 2017
75% of European service robot suppliers are SMEs

Business sizes of service robots of all types in numbers of employees (by region of origin)

- Europe
- North America
- Asia

Source: World Robotics 2017
Start-up examples (I): Service robotics in agriculture

- Fresh fruit picking robot: FF Robotics (Israel)
- Platform for vineyard maintenance: WALL-YE (France)
- Robotic weeder for vegetable farms: Naïo Technologies (France)

Source: FF Robotics, WALL-YE, Naïo Technologies
Start-up examples (II):
Service robots in public-relations

Unity Robotics (D)  Bots and us (UK)  Promobot (RU)

Source: Unity Robotics, Bots and us, Promobot
Start-up examples (III):
Service robots in logistics

Mobile Industrial Robots MiR (DK)  Fetch Robotics (USA)  Robotnik (ES)

Source: MiR, Fetch Robotics, Robotnik
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!

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