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W e l c o m e
to IFR Press Conference

29 September 2016
Frankfurt

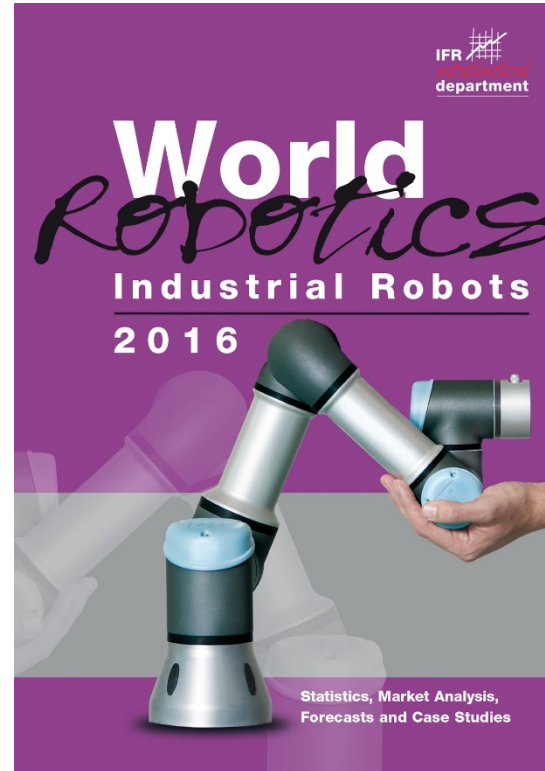
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How Robots protect the EU in Global Competition

- Welcome and introduction
- World Robotics 2016 - Results, Forecast, Trends
- Robotics & Industrie 4.0
- Get together and personal interviews



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Speakers on the panel



Joe Gemma

IFR President

President and CEO,
KUKA Robotics Corp, USA



Professor Alexander Verl

Chairman IFR Research Committee

General Head of Institute Control Engineering of
Machine Tools and Manufacturing Units
University of Stuttgart, Germany



Gudrun Litzenberger

IFR General Secretary, Frankfurt

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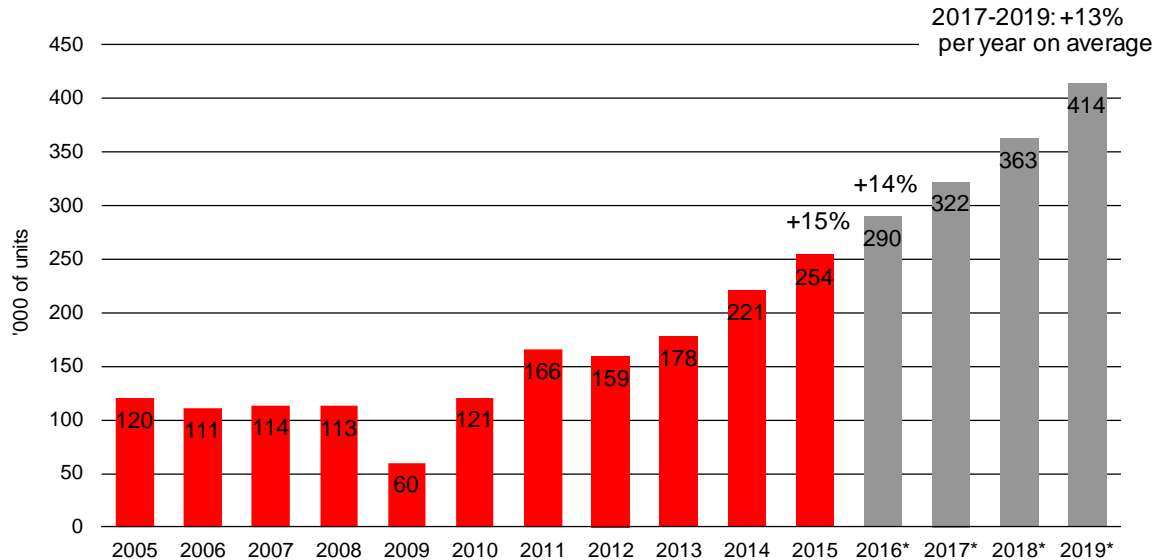
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1.4 million industrial robots between 2016 and 2019

Worldwide annual supply of industrial robots
2001 - 2019*



*forecast

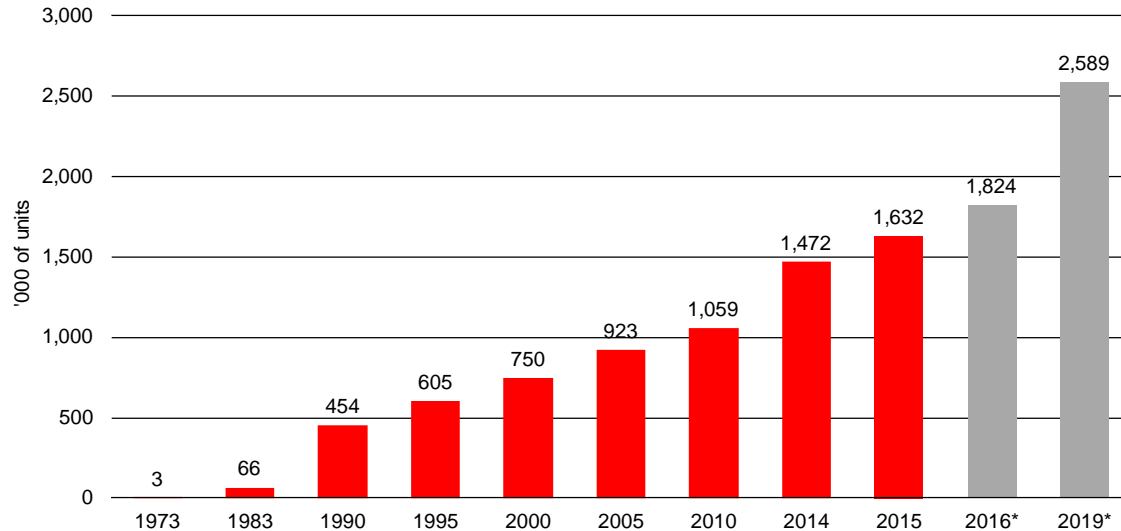
Source: IFR World Robotics 2016

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2019: 2.6 million robots in operation

Worldwide estimated operational stock of industrial robots



*forecast

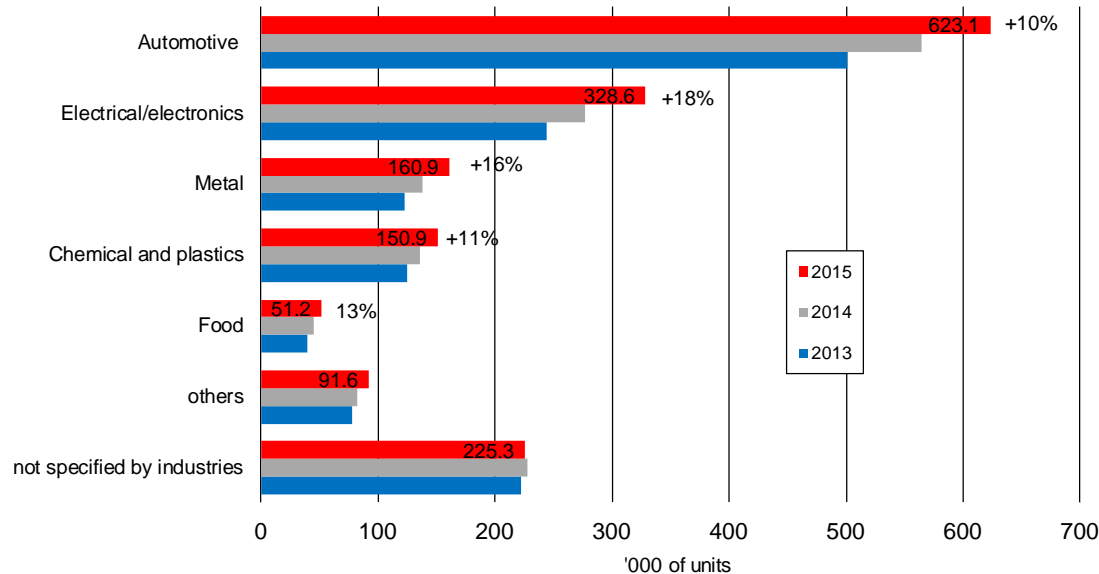
Source: IFR World Robotics 2016

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Almost 70% in three main industries

Estimated worldwide operational stock of industrial robots
at year-end by main industries 2013 - 2015



Source: IFR World Robotics 2016

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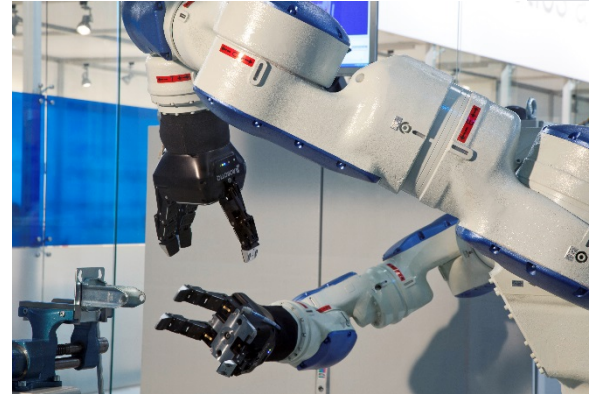


Increasing need of robots in all industries

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- Continued strong demand from the automotive industry
- Increasing high volume order from the electronics industry
- The General Industry is more and more inclined to use robots
- Small and medium sized companies will increasingly use industrial robots.



Source: Yaskawa

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Trends fueling robot installations 2016 to 2019

- Human-robot collaboration will have a breakthrough in this period.
- Compact and easy-to-use collaborative robots will drive the market in the coming years.
- Energy-efficiency and using new materials require continued retooling of production



Source: KUKA

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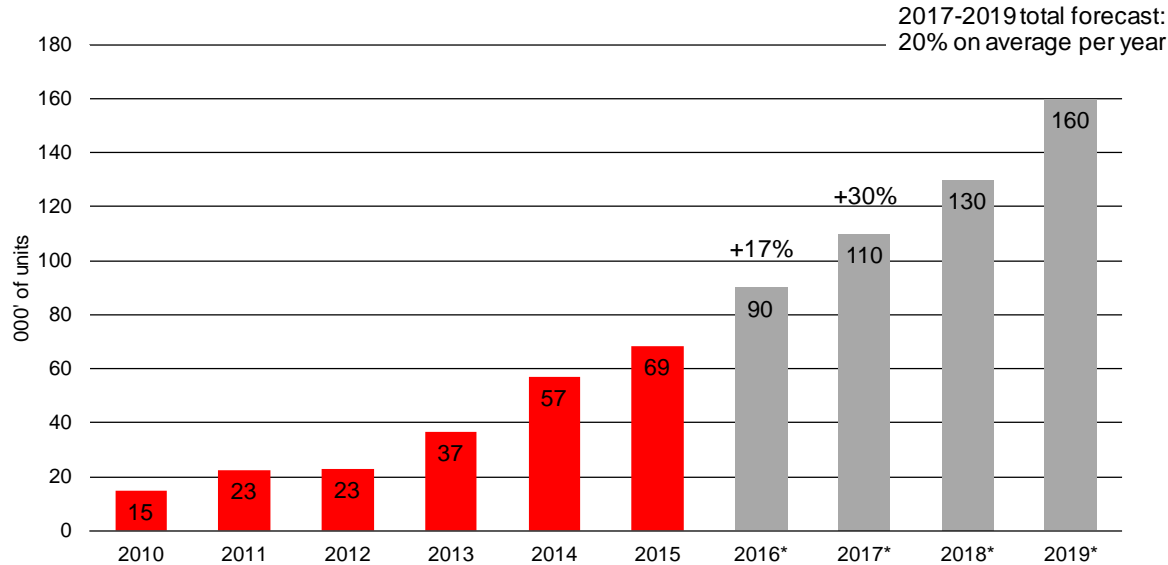
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2019: 40% of the global supply will go to China

Annual supply of industrial robots to China 2010 - 2019*



* forecast

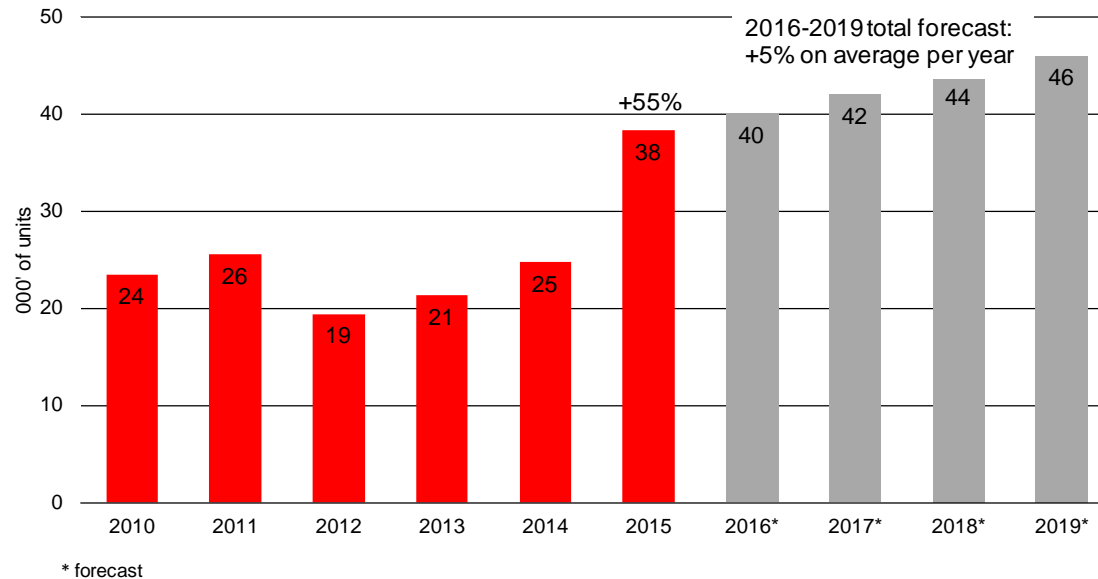
Source: IFR World Robotics 2016

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Republic of Korea: Continued increase 2016-2019

Annual supply of industrial robots to the Rep. of Korea 2010 - 2019*



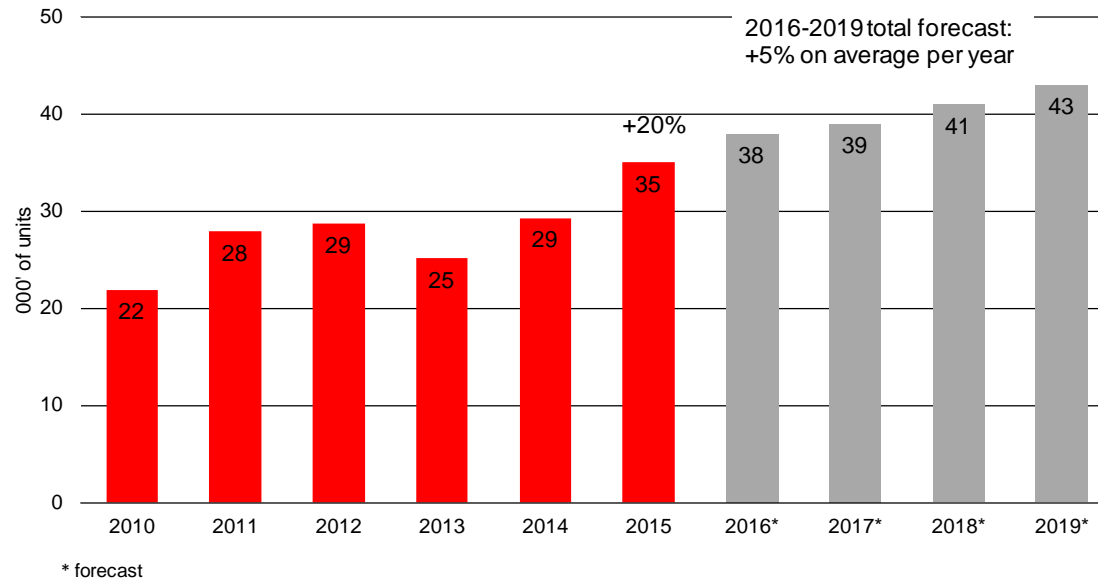
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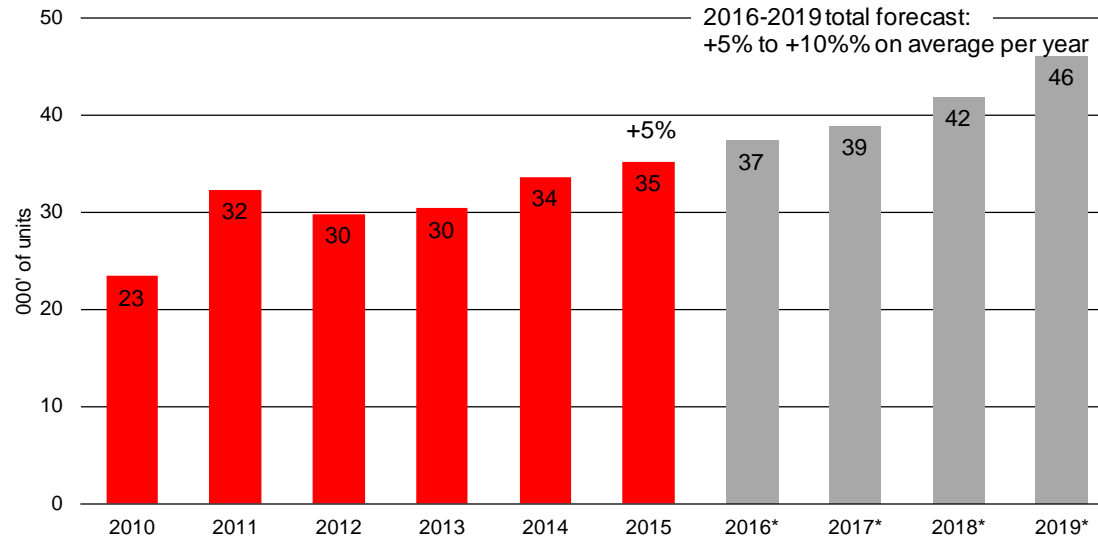
Japan: continued increase 2016 and 2019

Annual supply of industrial robots to
Japan 2010 - 2019*



Continued increase in main Western EU markets

Annual supply of industrial robots to
main Western European** markets 2010 - 2019*



* forecast

**Germany, Italy, Spain, France, UK

Source: IFR World Robotics 2016

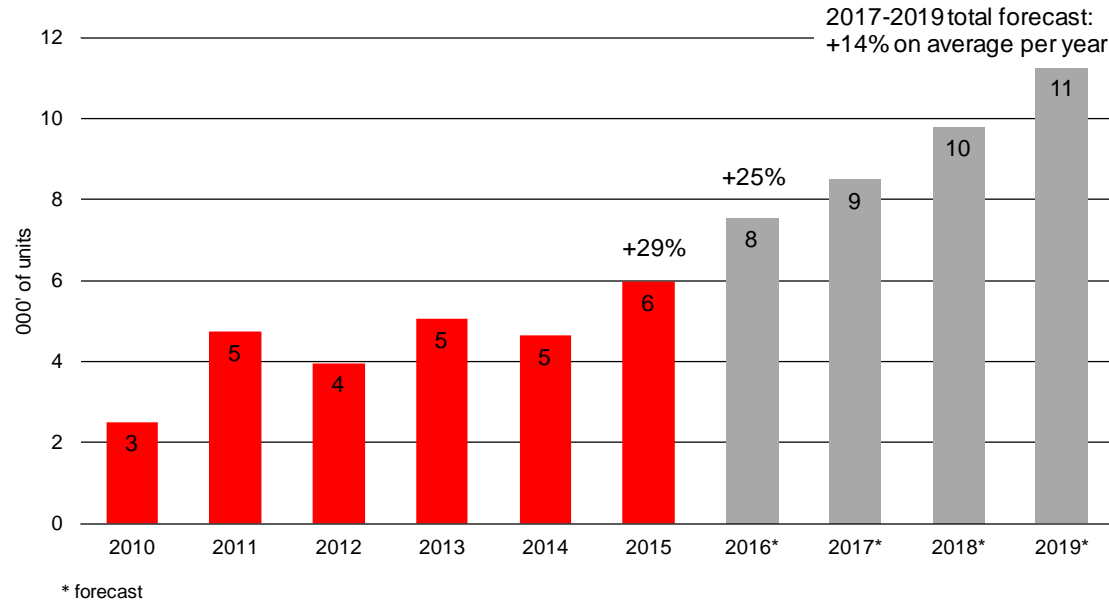
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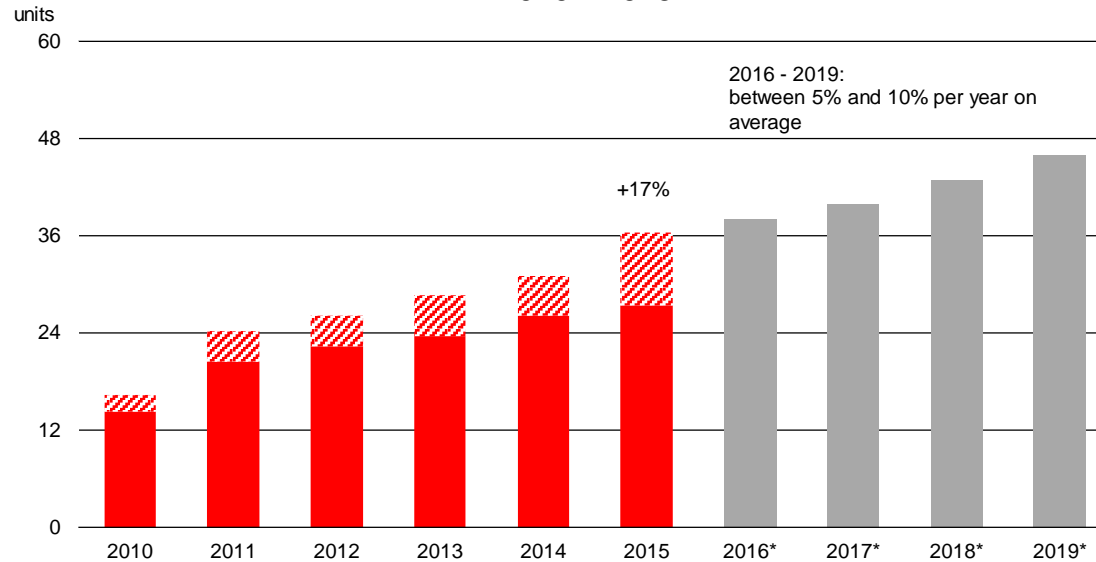
Substantial increase in main Eastern EU countries

Annual supply of industrial robots to
Central and Eastern Europe 2010 - 2019*



Continued increase in North America

Annual supply of industrial robots to North America 2010 - 2019*



* forecast

■ USA ■ Canada/Mexico

Source: IFR World Robotics 2016

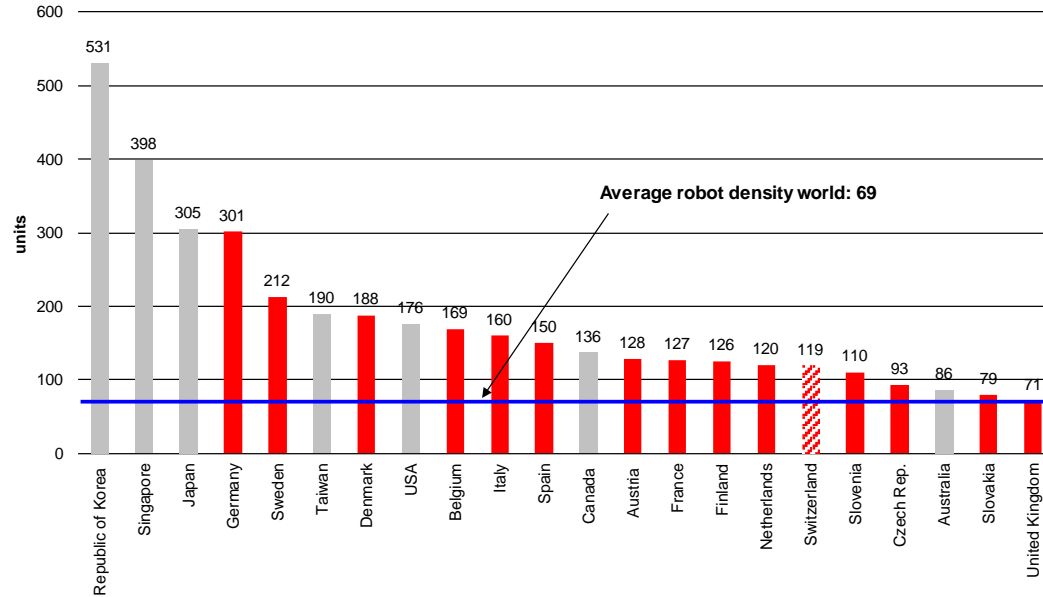
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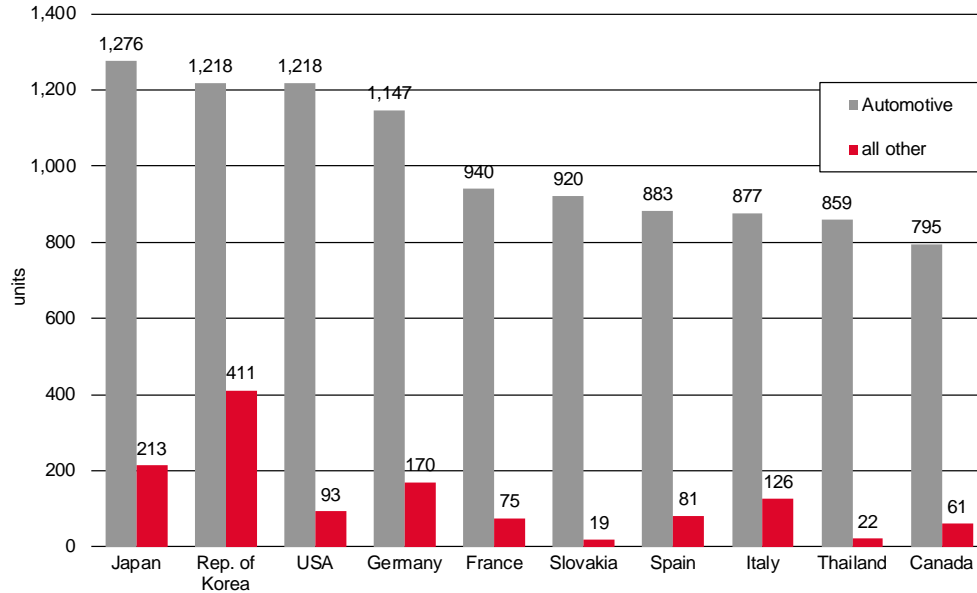
High robot density in EU countries

Figure 2.9 Number of multipurpose industrial robots (all types) per 10,000 employees in the manufacturing industry (ISIC rev.4: C) 2015



United States have caught up 5 EU countries among the top ten

Number of multipurpose industrial robots (all types)
per 10,000 employees in the automotive and in all other industries 2015



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- ZEW Study*: **Automation has a positive net effect on labour demand in Europe.**
 - Automation reduces production costs
 - Reduced product costs reduce product prices
 - Reduced product prices increase demand for products
 - Increased product demand increases employment

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*Study of Mannheim Centre for European Economic Research (ZEW) and the University of Utrecht, 2016

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- Example automotive industry **United States 2010-2015:**
 - 80,000 new industrial robots installed
 - 230,000 more employees
- Example automotive industry **Germany 2010-2015:**
 - Operational stock increased by 3% on average per year (+13,000 units)
 - Increase of employees : +2.5% on average per year (+93,000 employees)

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