



IFR CEO Round Table, April 3, 2017

Automation and the Future of US Manufacturing

Schedule

- **Welcome and introduction of the participants of the CEO Round Table**
Gudrun Litzenberger, IFR General Secretary
- **Presentation of the latest figures on the global robot market**
Joe Gemma, IFR President
- **Discussion: “Automation and the Future of US Manufacturing”**
- **Get together and personal interviews with international robot experts**

International Federation of Robotics

Representing the global robotics industry

- Robotics turnover 2015: \$35 billion
- More than 50 members:
 - National robot associations
 - R&D institutes
 - Robot suppliers
 - Integrators
- Sponsor of the annual International Symposium on Robotics (ISR)
- Co-sponsor of the IERA Award
- Primary resource for world-wide data on use of robotics – IFR Statistical Department



Speakers on the Panel – Robot Users



Jon Battles

Director WW Engineering
Advanced Technologies

Amazon, USA



Mark Franks

Director Global Automation and North
America Vehicle Launch

General Motors, USA



Craig Hertig

Director of Engineering
Engineered Machined
Products, USA

Expert



Professor Howie Choset
CTO

Advanced Robotics Manufacturing
Institute, USA

Robot Supplier



Per Vegard Nerseth
Group Senior Vice President

ABB, Switzerland

Robot Integrator



Michael P. Jacobs
President

Applied Manufacturing
Technologies AMT, USA

Presentation of WR data



Joe Gemma

IFR President

President and CEO
KUKA Robotics Corp., USA

Moderator



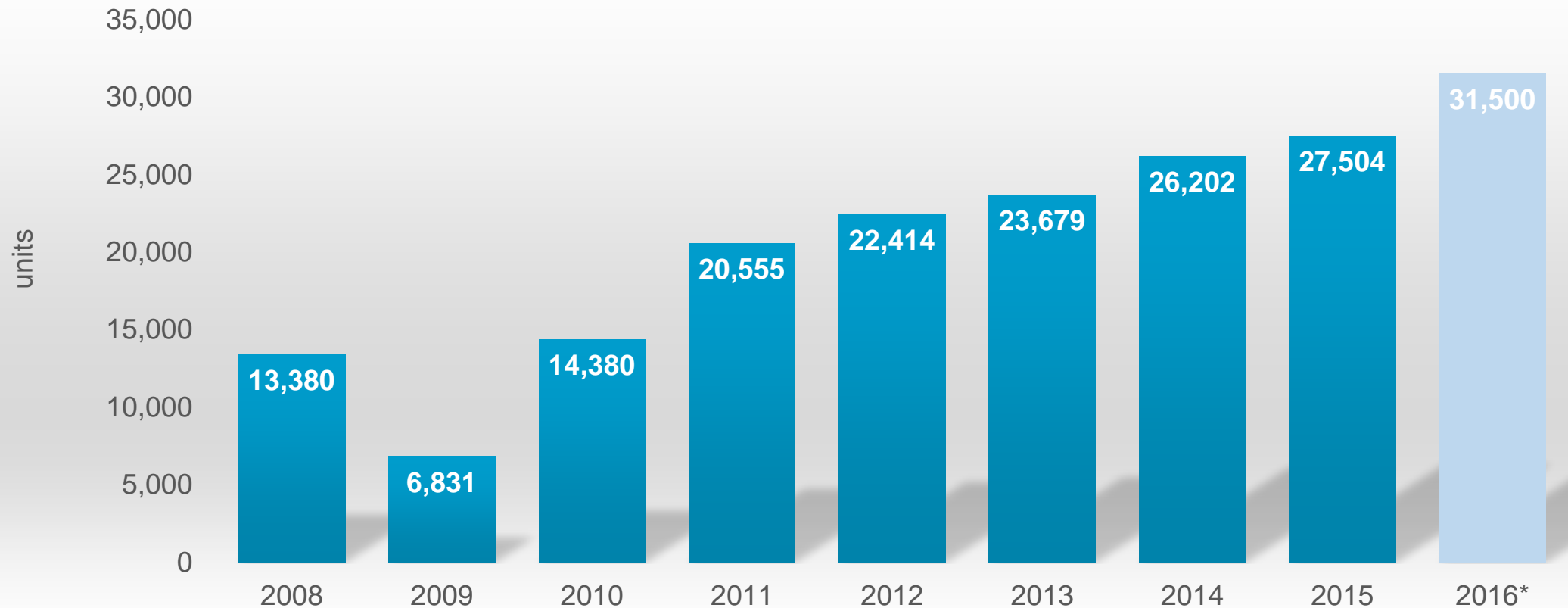
Timothy Ward

Journalist and co-owner of
Intermedia Communications,
USA

USA: new peak in 2016

About 31,500 industrial robots installed, 15% more than 2015

Estimated annual supply of industrial robots
in the United States 2008-2016*



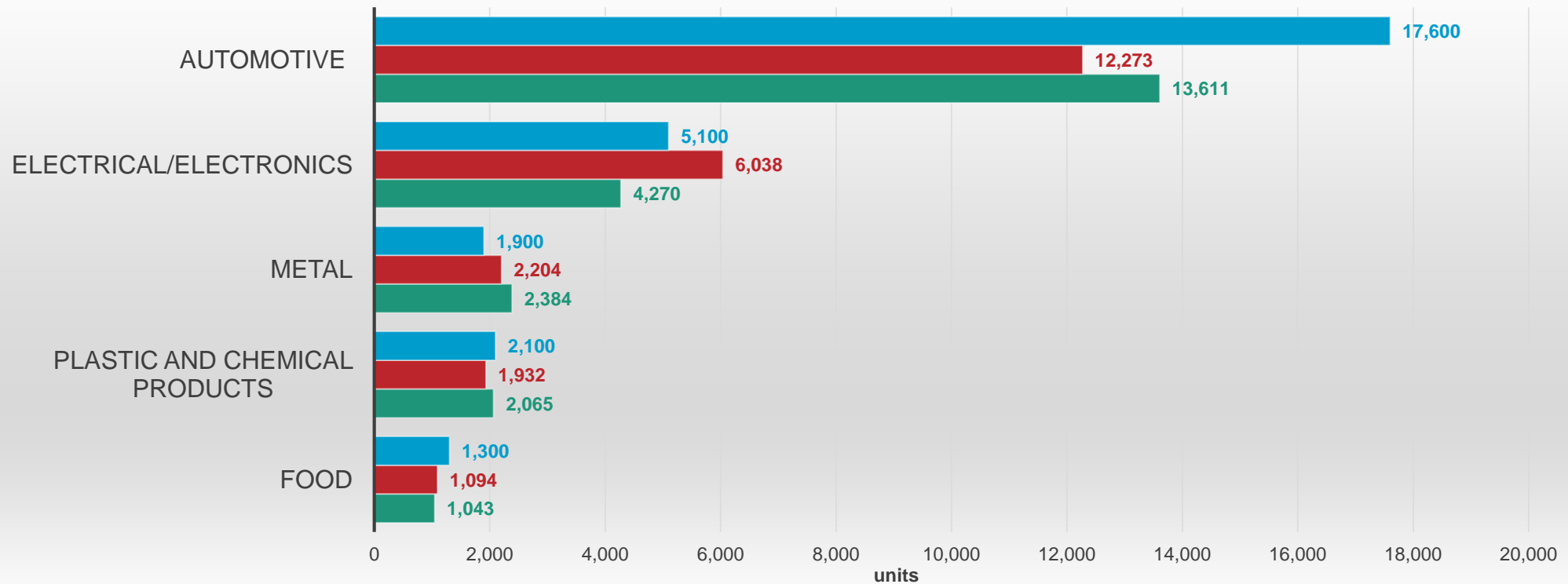
*preliminary results

Source: IFR Statistical Department

Driver of the growth in 2016: Automotive

About 17,600 industrial robots installed, 43% more than 2015

Estimated annual supply of industrial robots
In the United States - main industries 2014 - 2016*



*preliminary results

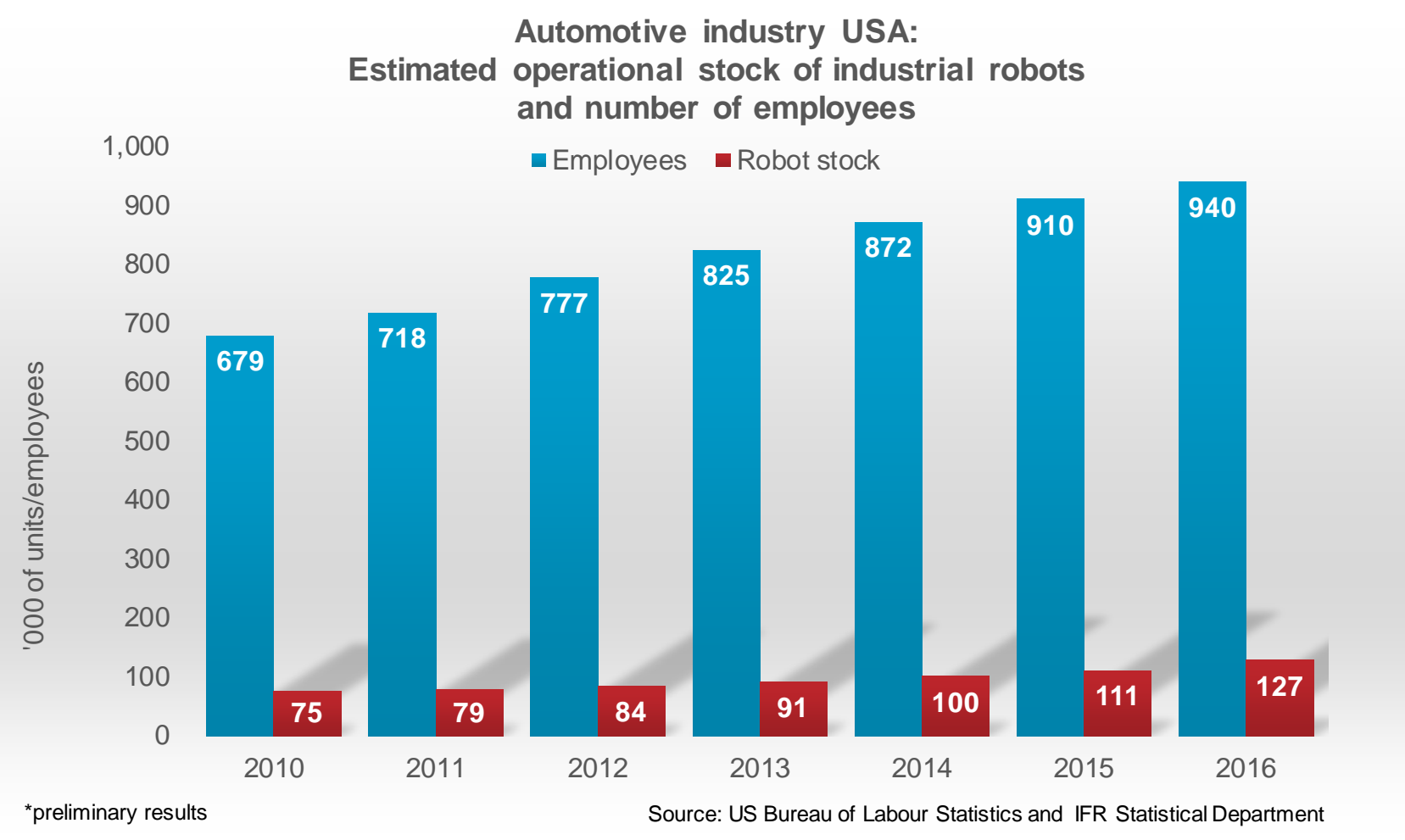
■ 2016 ■ 2015 ■ 2014

Source: IFR Statistical Department

Automotive industry USA: increase of robots and jobs

+9% CAGR
Stock of industrial robots
2010-2016

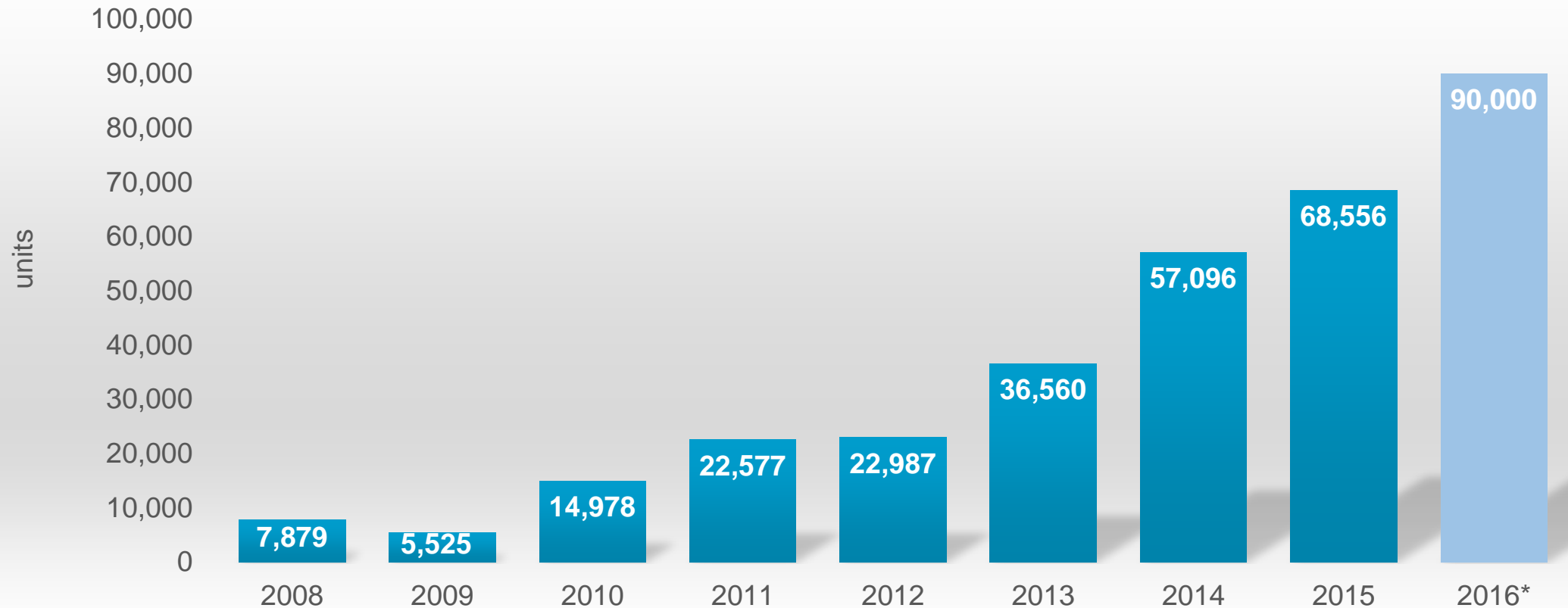
+6% CAGR
Employees
2010-2016



China : new peak in 2016

Almost 90,000 industrial robots installed, 31% more than in 2015

Estimated annual supply of industrial robots
in China 2008-2016*



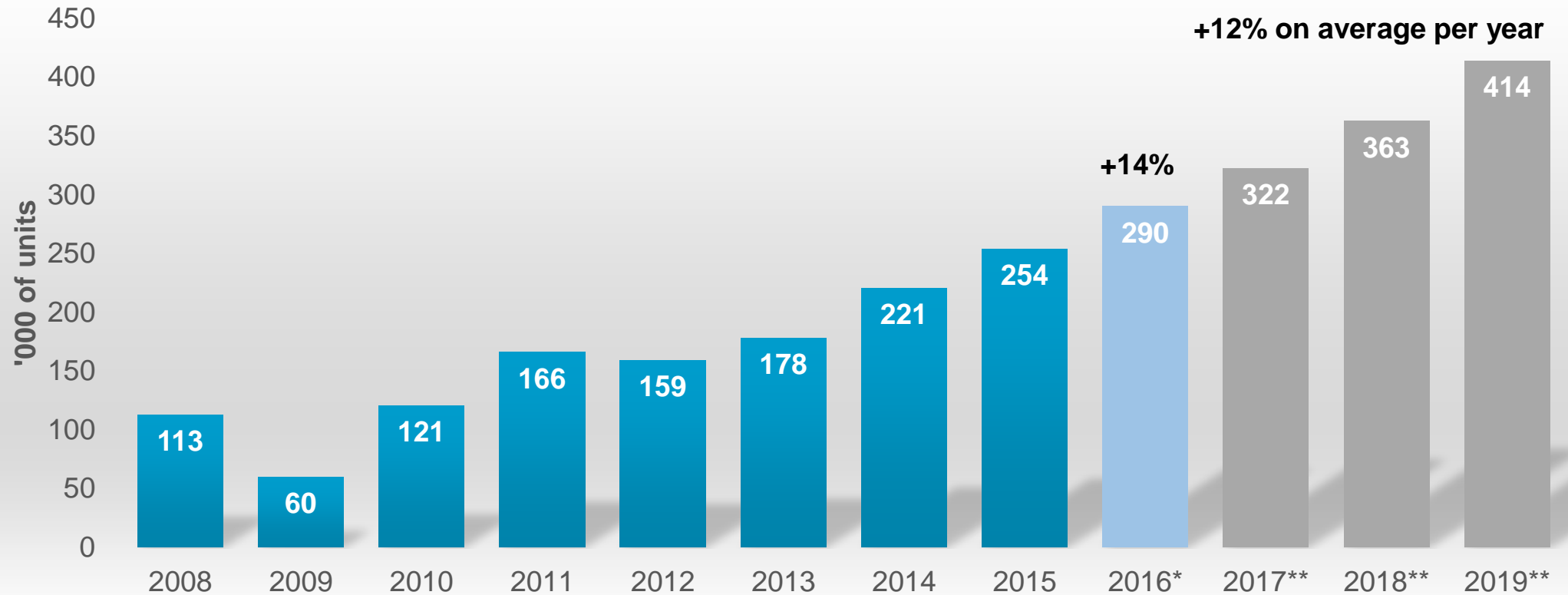
*preliminary results

Source: IFR Statistical Department

World: new peak in 2016

About 290,000 industrial robots installed, 14% more than in 2015

Estimated annual worldwide supply of industrial robots
2008-2016* and 2017-2018**



* preliminary results

Source: IFR Statistical Department

Continued need to optimize manufacturing

- Increasing demand for consumer goods
- Decreasing life cycles
- Mass customization
- Competitive prices
- New Materials
- High quality
- Sustainability



Image: Schunk

Automation is driving productivity growth

- The Boston Consulting Group argues that wider adoption of robots will boost output per worker by up to 30 percent over the medium term.
- An OECD study found companies that employ technology innovations effectively are up to 10 times more productive than those that do not.

Robots complement labour

- The future will be robots and humans working together
- Robots substitute labour but not jobs - Less than 10% of jobs are fully automatable (McKinsey 2017)
- 50% increase in productivity with no job losses at Paradigm Electronics, Canada
 - by promoting machine operators to robot programmers and
 - using robots for polishing loud speakers, but with humans conducting final polish and quality check

Advanced Robotics

Key enablers of Smart Manufacturing

- Learning robots
- Connected robots – robots in the cloud
- Collaborative robots
- Mobile robots
- Easy-to-use robots



Image: ABB



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Federation of
Robotics

Contact:

Gudrun Litzenberger

International Federation of Robotics IFR

c/o VDMA Robotics+Automation

60528 Frankfurt Main, Germany

Email: gl@ifr.org

Phone: +49 69 6603 1502

Internet: <https://ifr.org/>