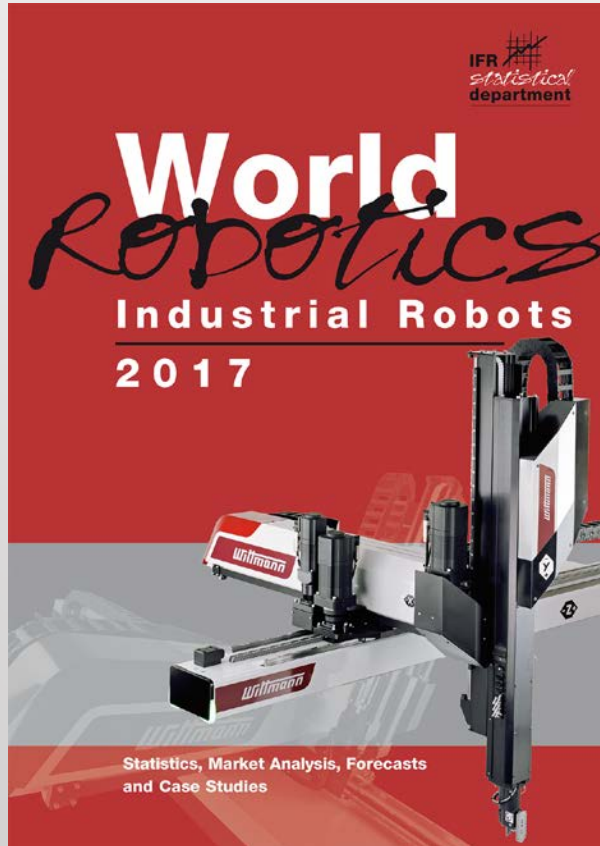




How robots conquer industry worldwide

IFR Press Conference, 27 September 2017
Frankfurt

Schedule



- Welcome and introduction of the panelists
- Global robot market up to 2020 by Joe Gemma
- Today's trends – tomorrow's robots by Steven Wyatt
- 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



Joe Gemma

IFR President

President and CEO,
KUKA Robotics Corp., USA



Steven Wyatt

IFR Executive Board Member

Group Vice President,
and Head of Marketing &
Sales Robotics, ABB, CH



Gudrun Litzenberger

IFR General Secretary
Frankfurt



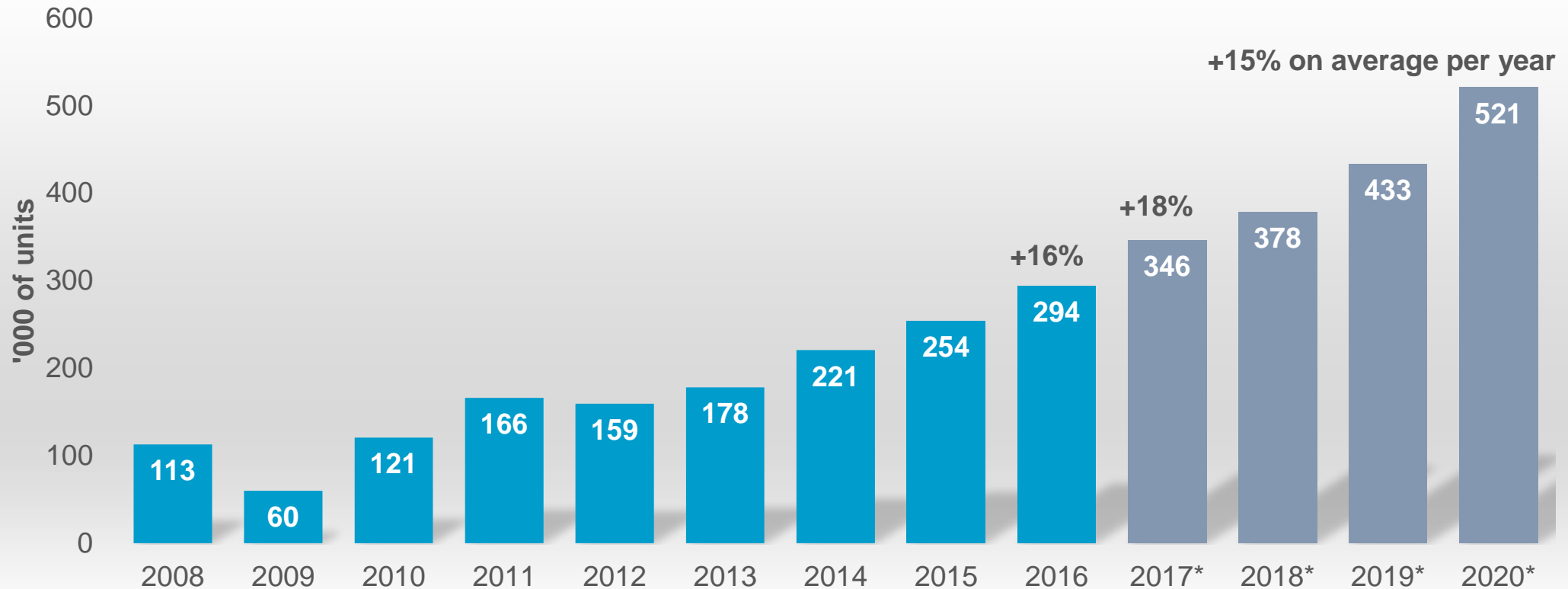
Joe Gemma, IFR President

Global Robot Market up to 2020

1.7 million new industrial robots by 2020

Double-digit average annual increase

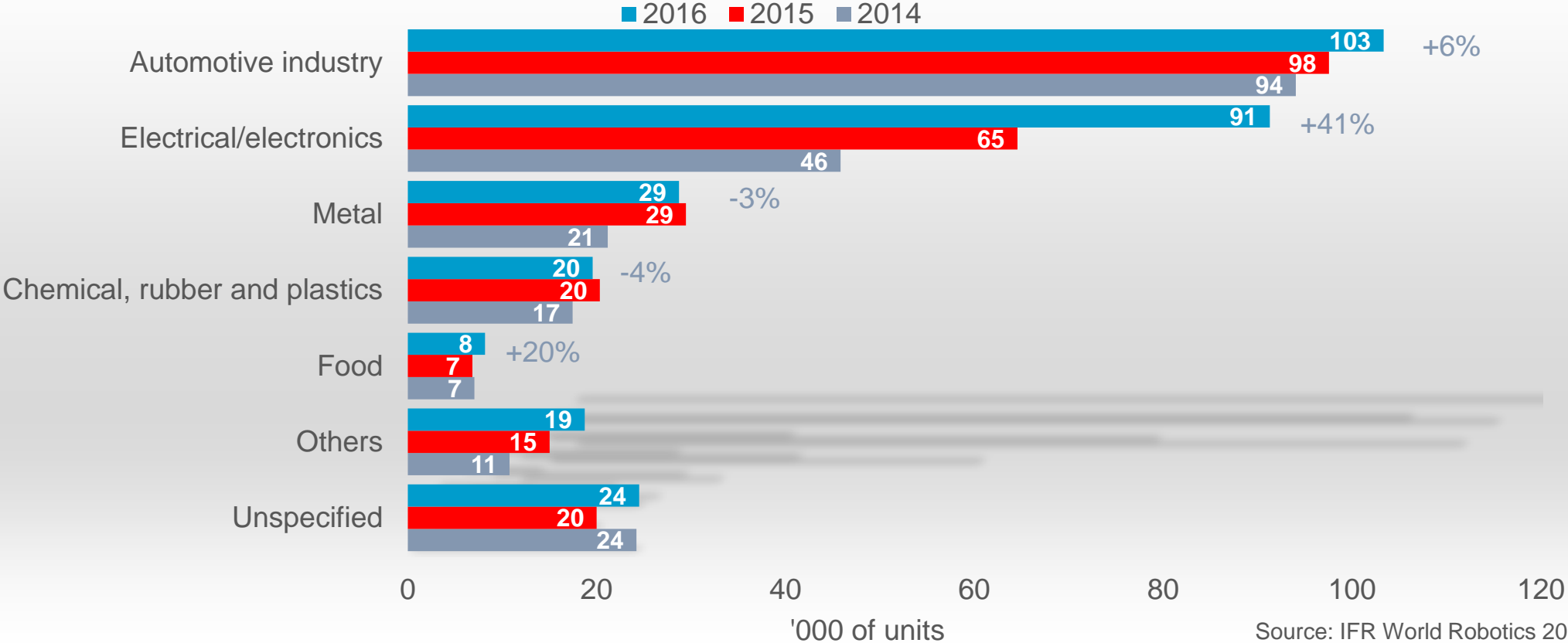
Estimated annual worldwide supply of industrial robots
2008-2016 and 2017*-2020*



Source: IFR World Robotics 2017

Continued increase in major industries

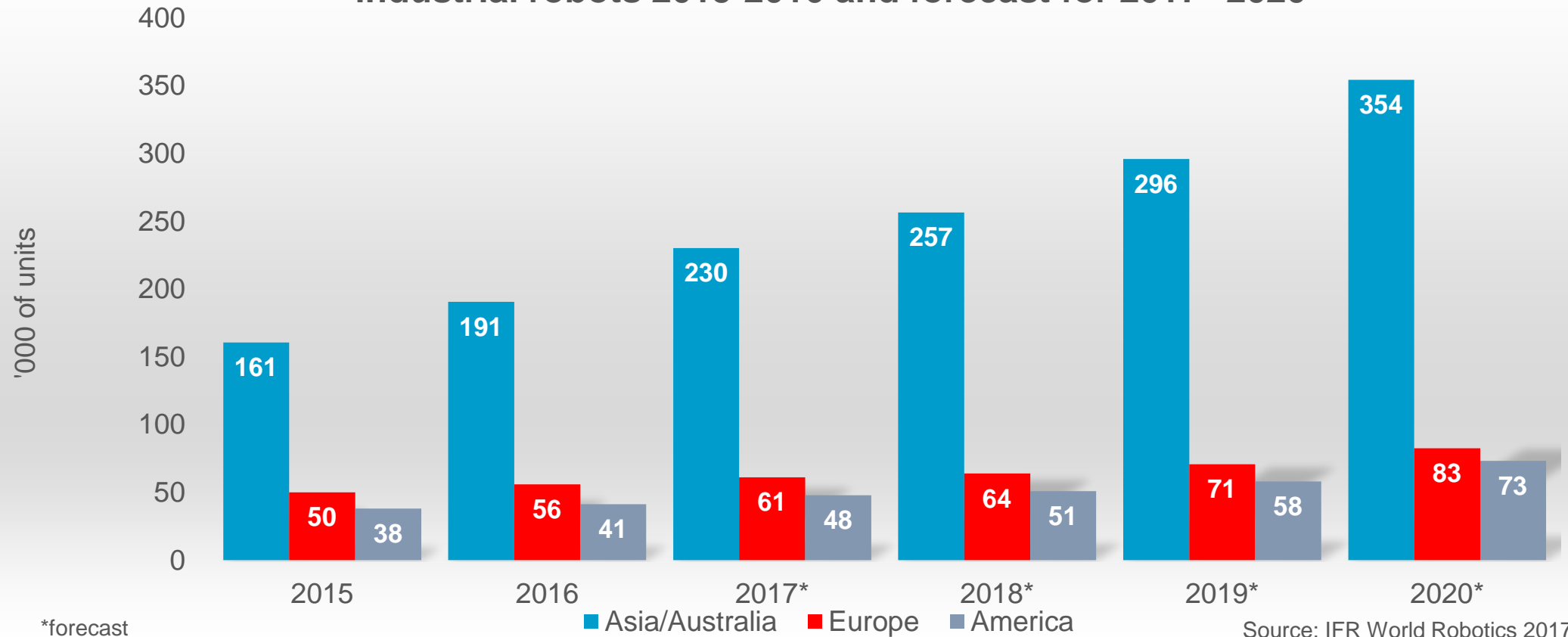
Estimated annual supply of industrial robots at year-end by industries worldwide 2014-2016



Source: IFR World Robotics 2017

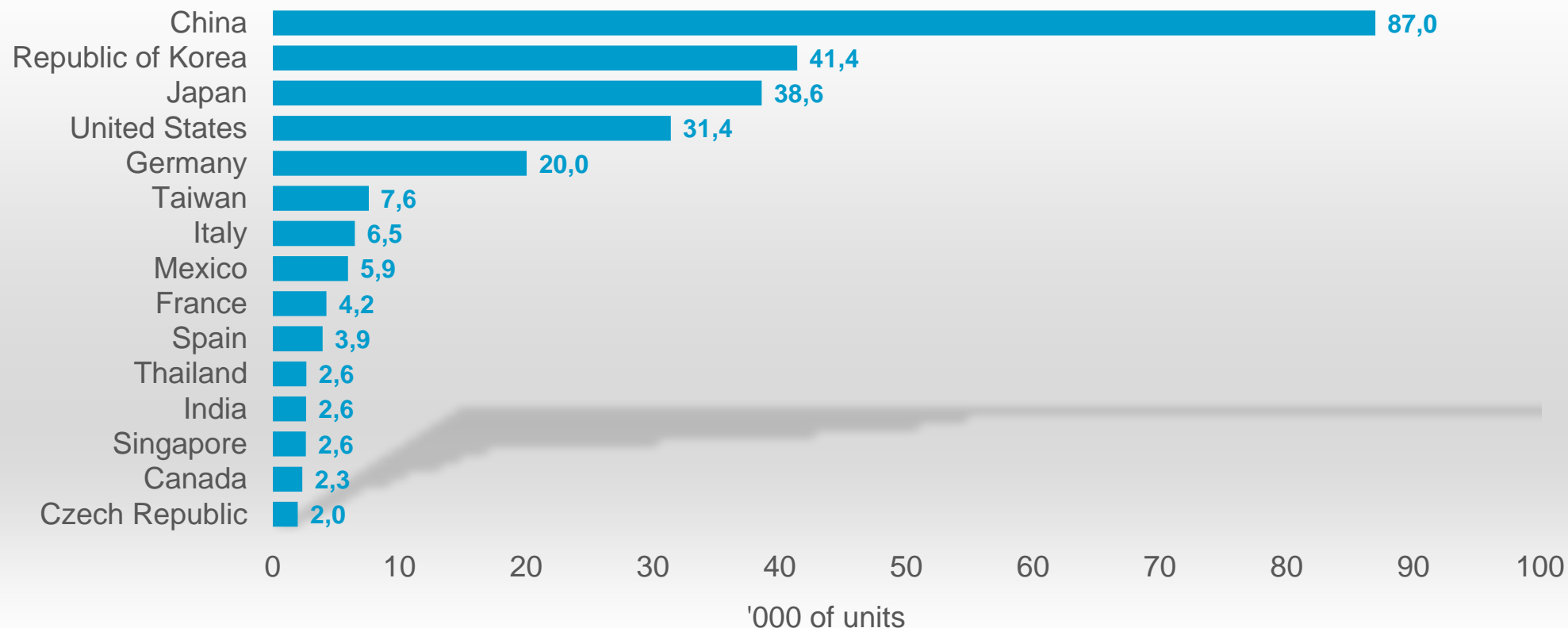
Main driver of the growth: Asia

Estimated worldwide annual supply of industrial robots 2015-2016 and forecast for 2017*-2020*



2016: 5 markets account for 74% of total supply

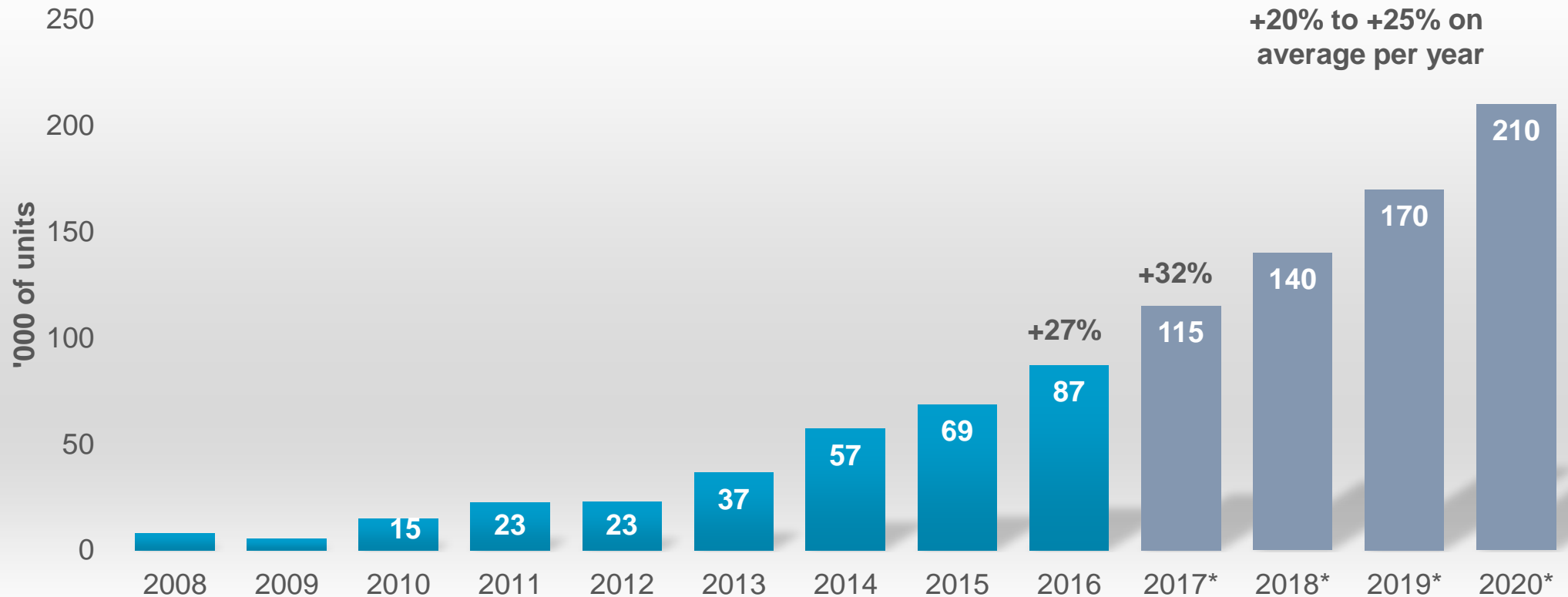
Estimated worldwide annual supply of industrial robots
15 largest markets 2016



Source: IFR World Robotics 2017

China: 40% of the global supply by 2020

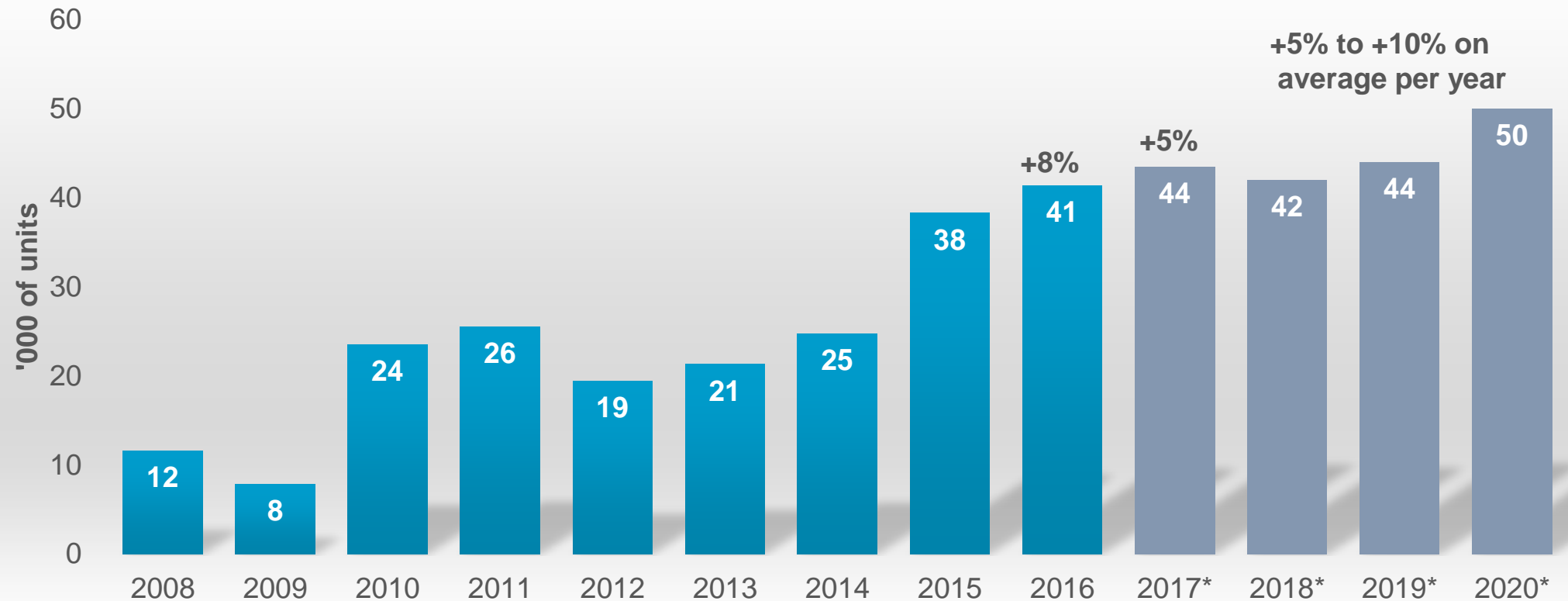
Estimated annual supply of industrial robots
in China 2008-2016 and 2017*-2020*



Source: IFR World Robotics 2017

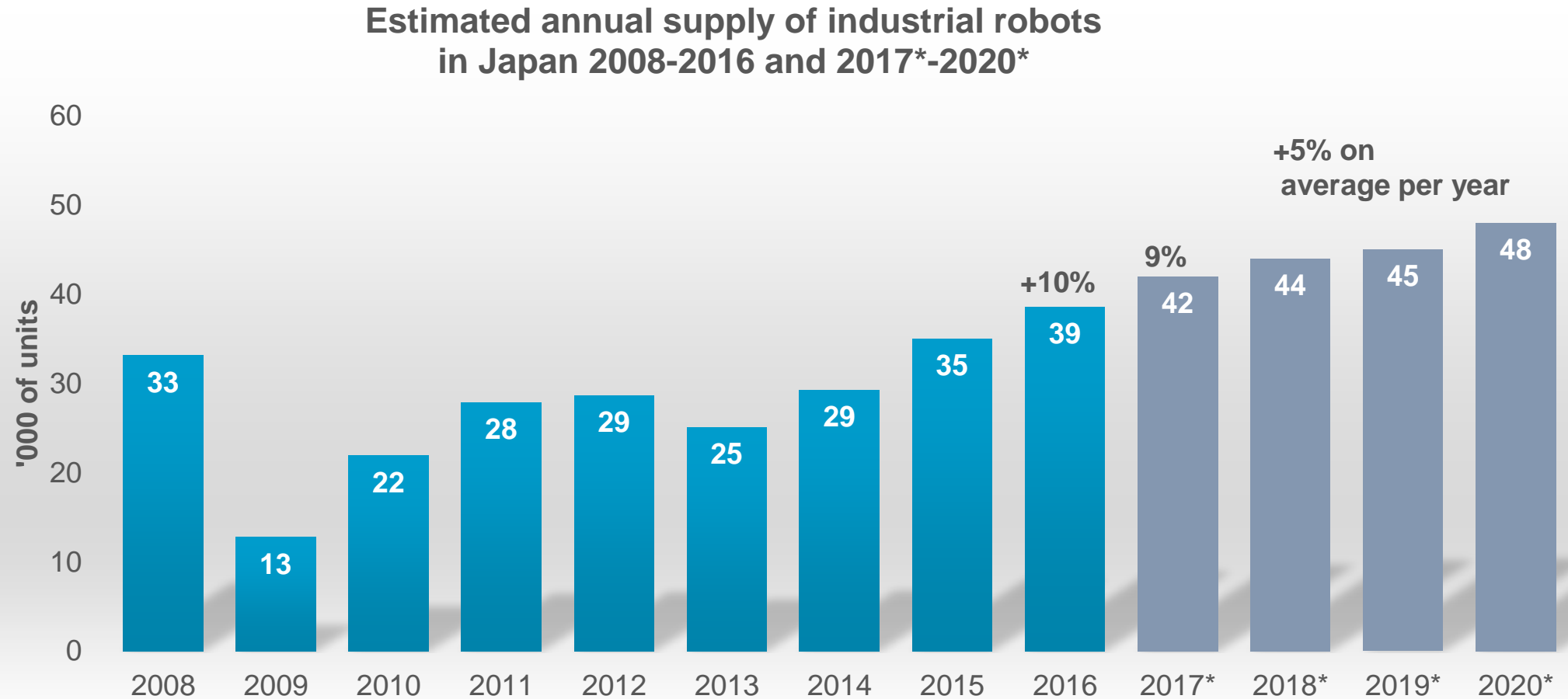
Rep. of Korea: considerable increase since 2010

Estimated annual supply of industrial robots
in the Rep. of Korea 2008-2016 and 2017*-2020*



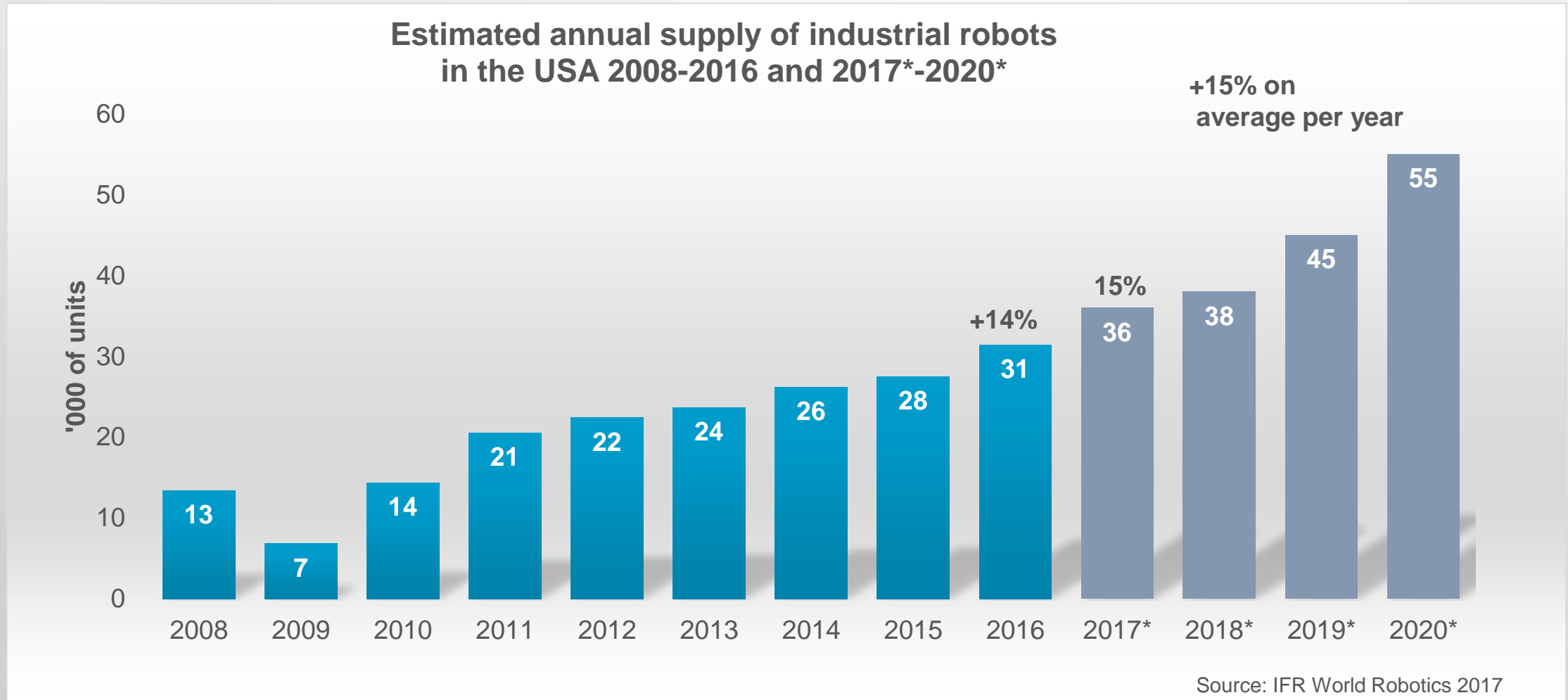
Source: IFR World Robotics 2017

Japan: significant recovery and continued growth

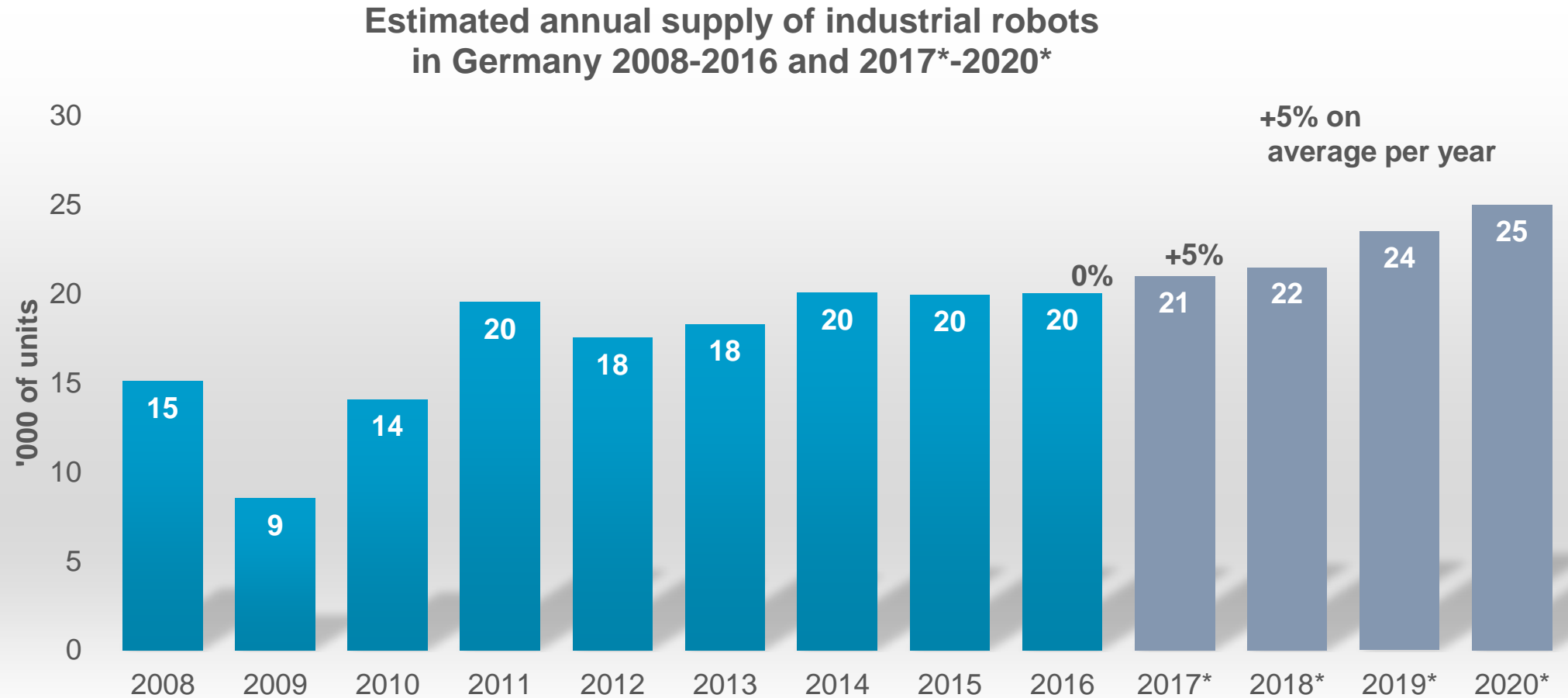


Source: IFR World Robotics 2017

USA: considerable increase since 2010



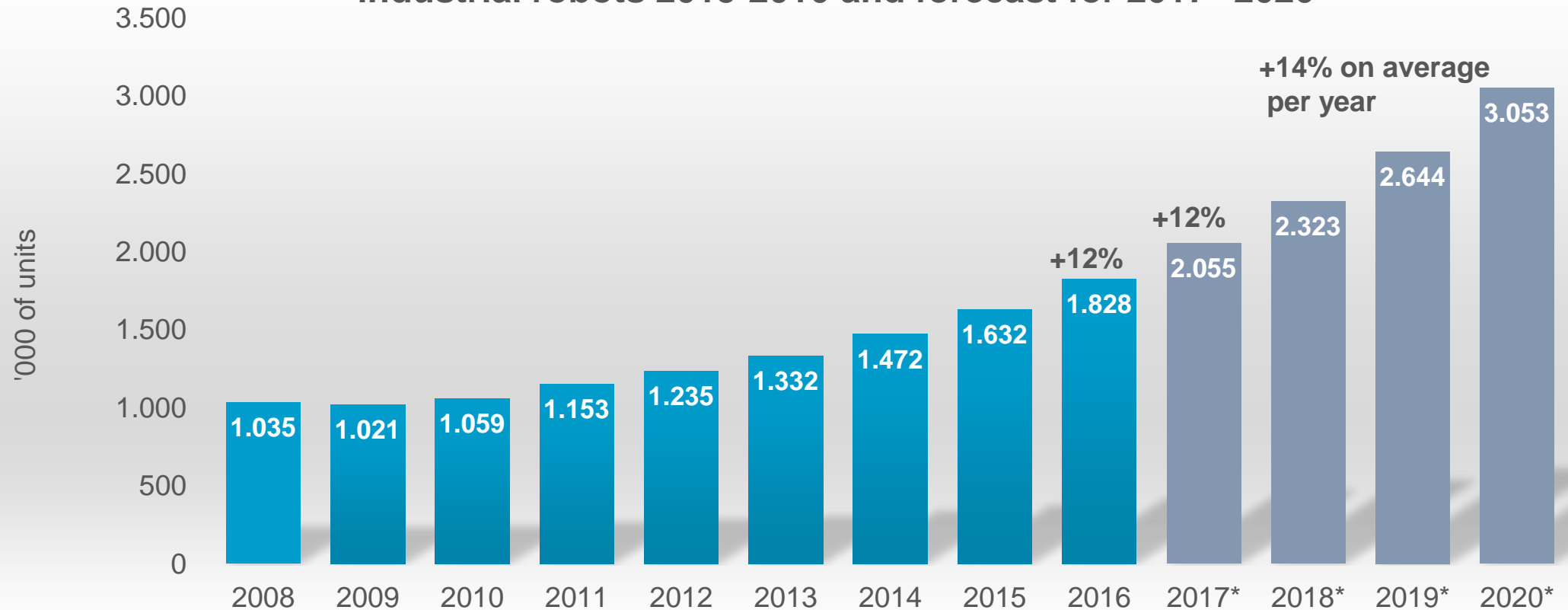
Germany: moderate increase at record levels



Source: IFR World Robotics 2017

2020: 3 million industrial robots in operation

Estimated worldwide operational stock of industrial robots 2015-2016 and forecast for 2017*-2020*

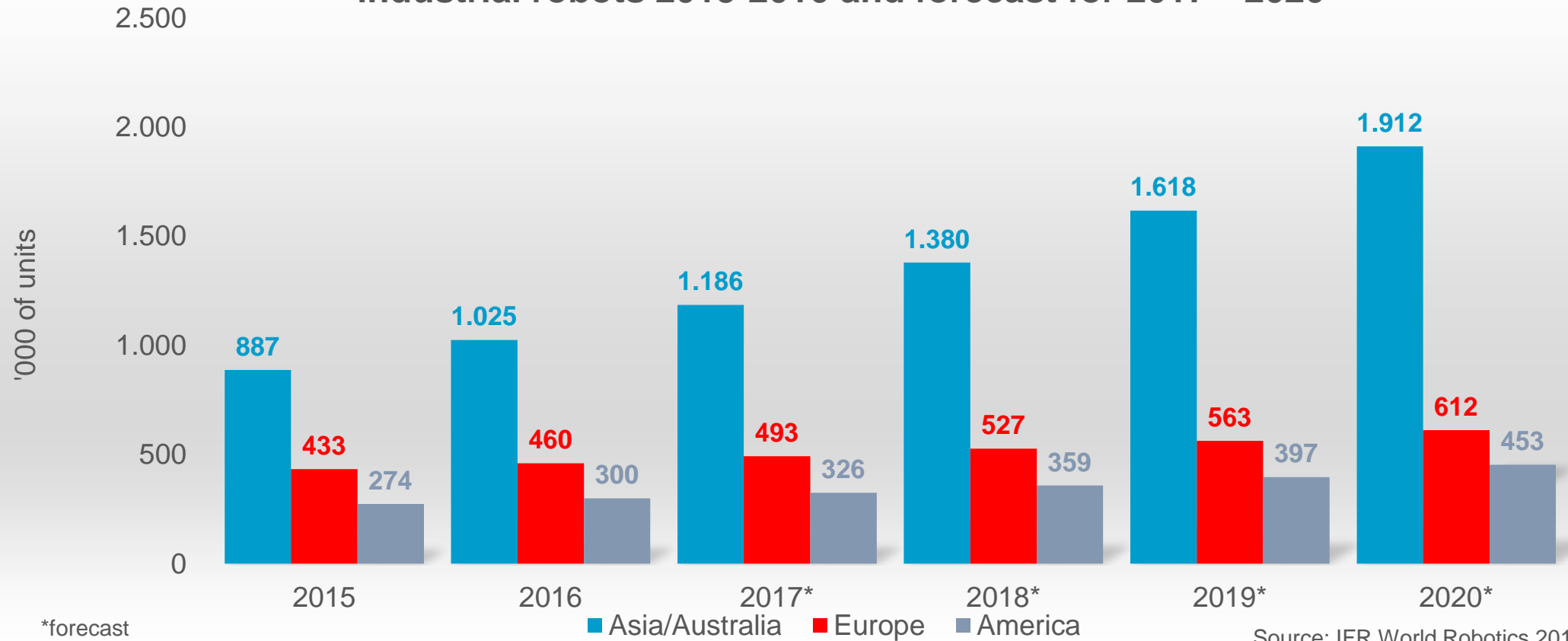


*forecast

Source: IFR World Robotics 2017

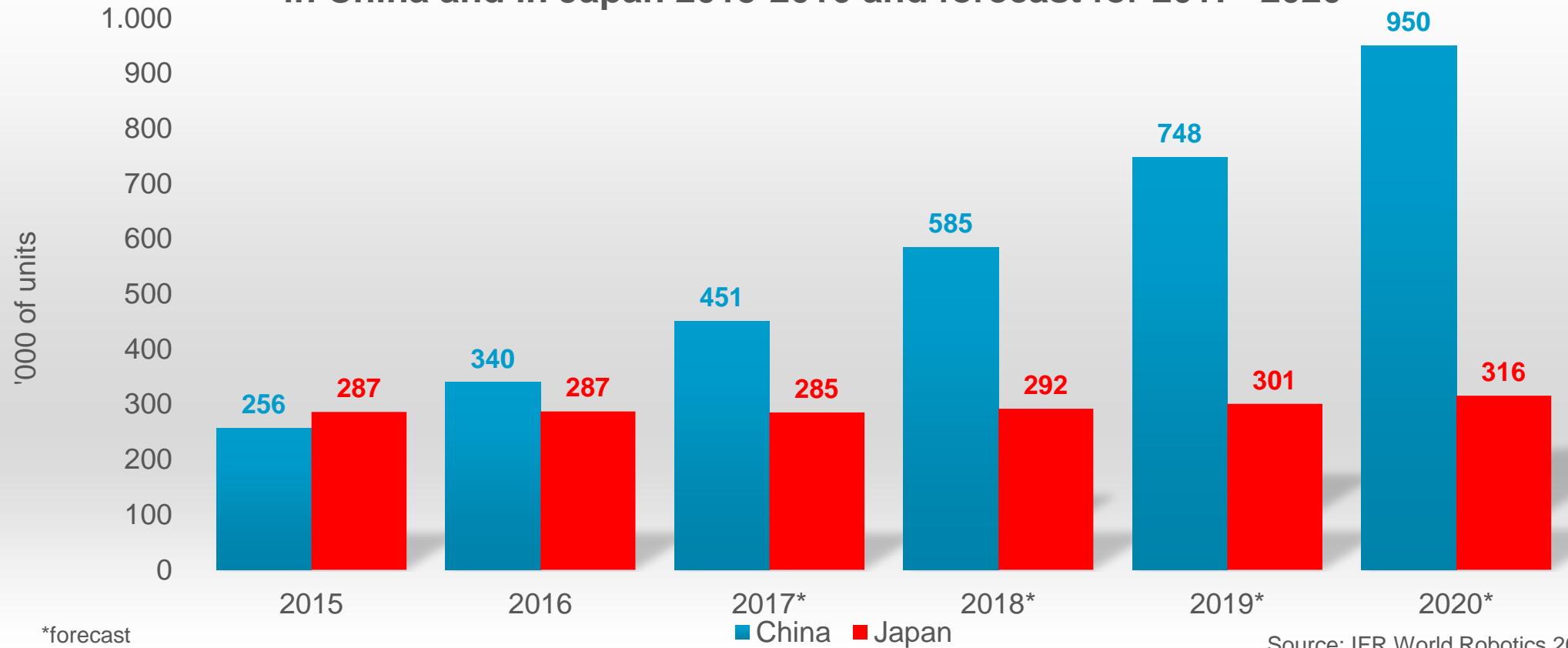
2020: 1.9 million operating in Asian factories

Estimated worldwide operational stock of industrial robots 2015-2016 and forecast for 2017*- 2020*



2020: 950,000 robots operating in China

Estimated operational stock of industrial robots
in China and in Japan 2015-2016 and forecast for 2017*-2020*



Source: IFR World Robotics 2017








Steven Wyatt, IFR Executive Board

Today's trends, tomorrow's robots!

The Changing Nature of Manufacturing & Work

- Shift from high volume/low mix to low volume/high mix is having a profound impact on manufacturing.
- Many industries facing acute shortages of skilled labor.
- Quicker automation ROIs and rising wages bringing an end to labour arbitrage.
- Increasing focus on workplace safety.

Addressing these Realities : a Huge Opportunity

	The Trends	The Challenges	The Enablers
	Low volume high mix	Automation complexity and unpredictability	Collaborative automation for greater flexibility
	Shorter cycles, faster launches	Shop floor disruptions and high engineering costs	Better software for engineering efficiency
	Increased need for automation and scalability in SMEs	Lack of robot integration and programming expertise	Easier to use robots with more intuitive programming
	Rising cost of downtime	Higher lifetime TCO due to increase in planned downtime	Advanced analytics and services for greater reliability
	Increased and sporadic human intervention	Lost productivity to maintain safety	Collaborative automation to maintain safety and productivity

The Answers to these challenges lie in Simplification, Digitalisation and Collaboration

Simplification

- Robots which are easier to install, program and operate will unlock entry barriers to the large, untapped market of small and medium enterprises (SMEs).
- Trend towards having production closer to the end consumer driving the importance of standardisation & consistency across global brands.

Digitalisation

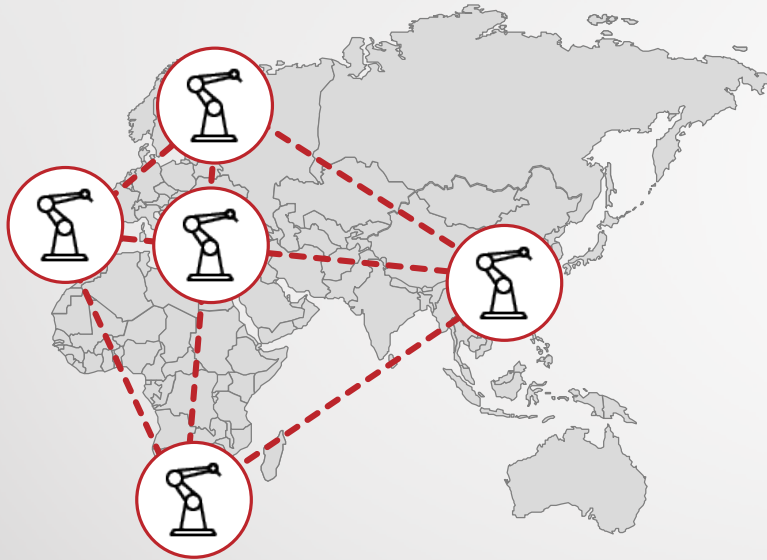
- Industry 4.0, linking the real-life factory with a virtual one, will play an increasingly important role in global manufacturing.
- Vision and sensing devices, coupled with analytics platforms, will pave the way for new industry business models.
- Machine Learning will drive many robotics developments over the coming years.

Collaboration

- Collaborative robots are shifting the traditional limits of “what can be automated?”
- Collaborative robots increase manufacturing flexibility as ‘low volume high mix’ becomes the new normal
- Collaboration is also about productivity with increased human/robot interaction

Robotics : the Connected Future

Self-optimising Production



Robots doing the same task connect across all global locations so performance can be compared and improved at the click of a button.

Self-programming Robots



Robots automatically download what they need to get started from a cloud library and then start to optimise through “self-learning”.

Thank you!