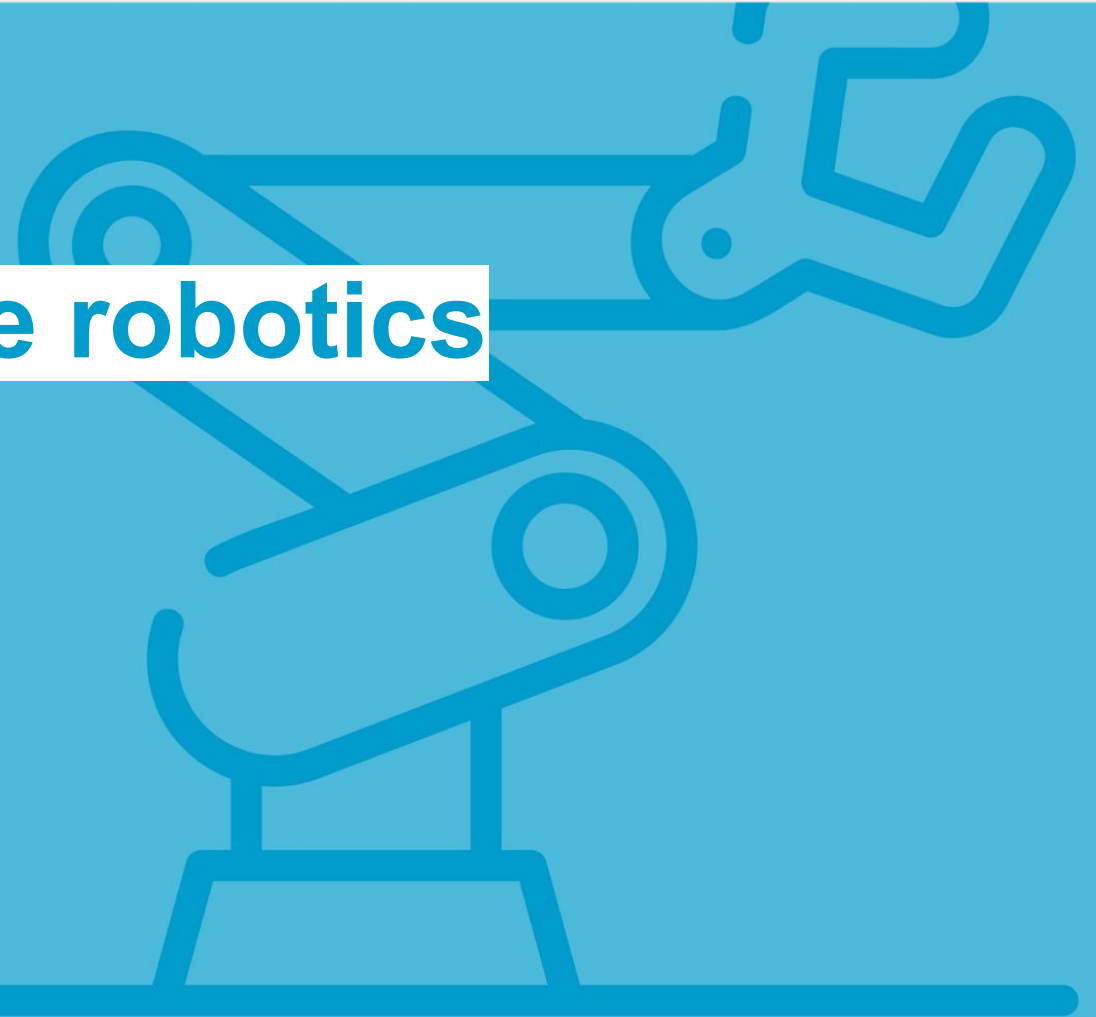


Dr. Susanne Bieller, General Secretary

Enhancing responsible robotics in Europe

A global perspective



AI in robotics – what's new?

AI itself is not new to robotics

- Use of AI: opportunity for the robotics industry to respond to customer and societal needs
 - Demographic change, need for sustainability and resilience
- Vision and learning intelligence has been built into robots for many years.
- AI can make robots better at fulfilling tasks humans find difficult, strenuous, repetitive, dull, dirty or dangerous
 - more capable of learning;
 - able to learn by experience, rather than programming
 - able to work in dynamic environments, or around people.
 - AI planning and programming software making automation quicker and easier
 - address demands for sustainability (energy efficiency, waste reduction, smaller operational footprints)

⇒ **AI is rapidly changing what is possible, to make work better.**

Europe needs robotics and automation



INDUSTRIAL ROBOTS

- improved **resilience**
- **energy** and resource **efficiency**
- workplace quality



PROFESSIONAL SERVICE ROBOTS

- **improved**, more reliable **services**
- better quality of work



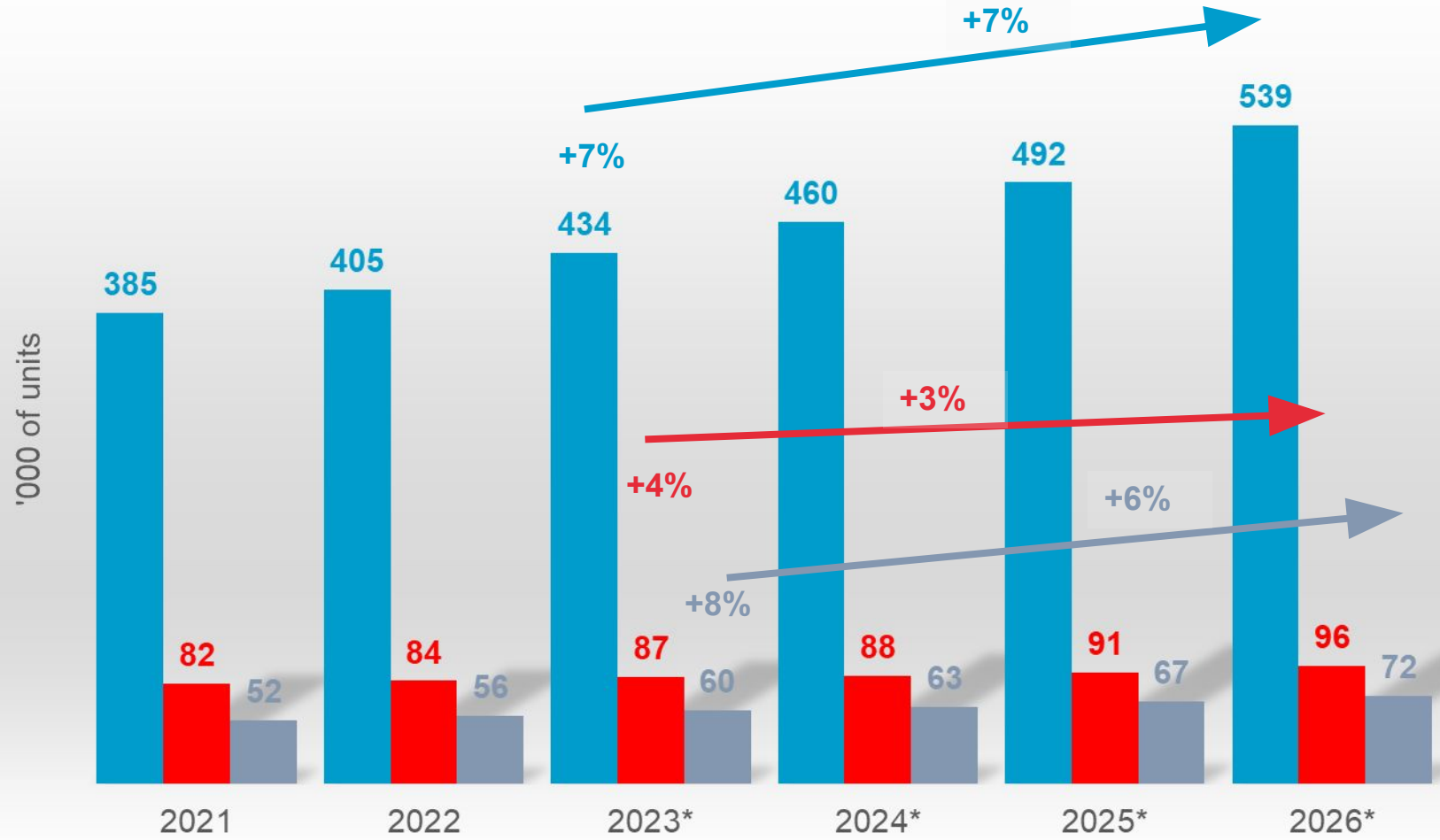
SERVICE ROBOTS FOR PRIVATE USE

- convenience
- entertainment

⇒ **quality of life**

Forecast

Annual installations of industrial robots 2021-2022 and 2023*-2026*

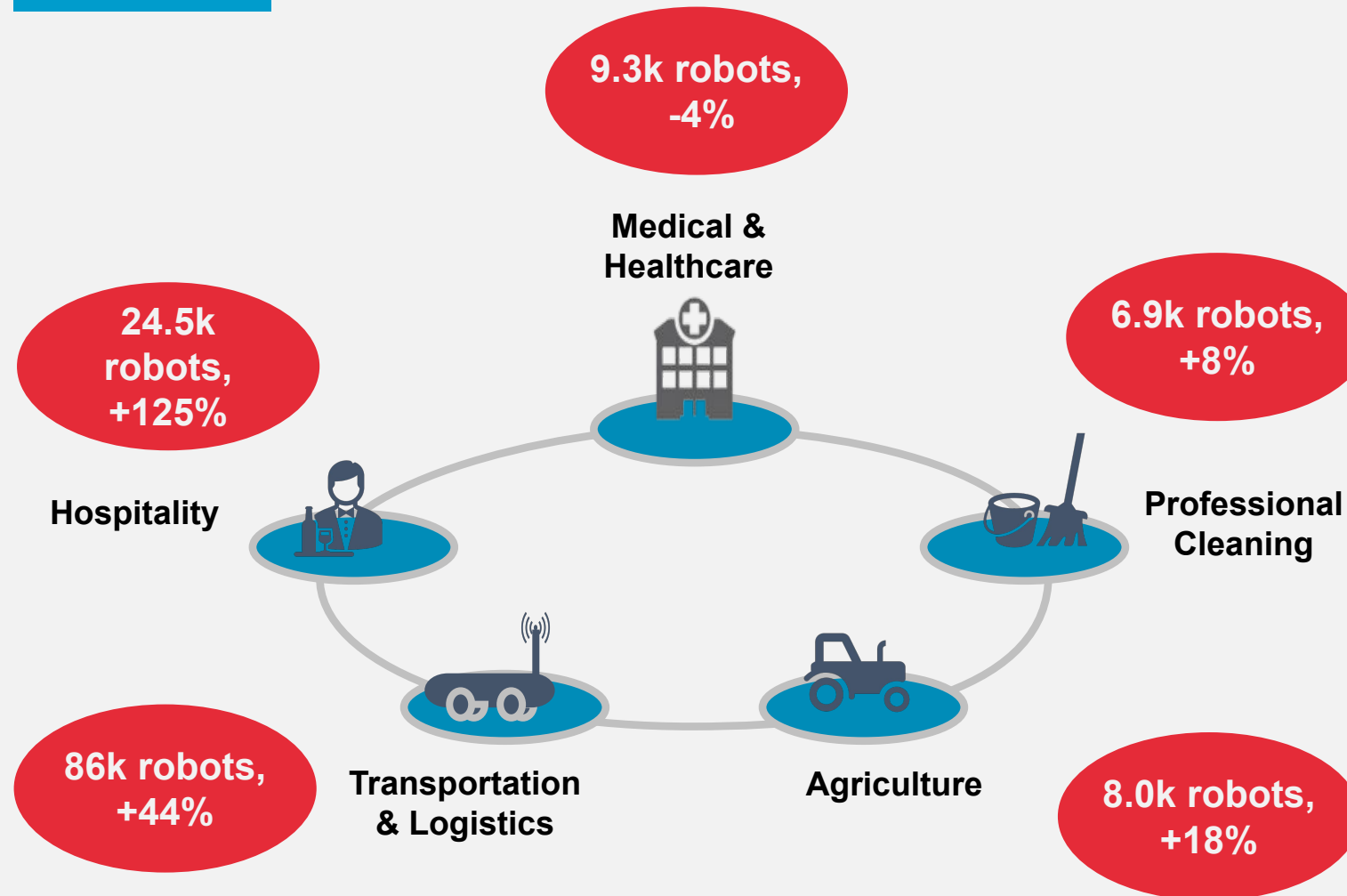


*forecast

■ Asia/Australia ■ Europe ■ The Americas

Source: World Robotics 2023

Top 5 application areas for professional service robots



- Growth is driven by application areas with increasing shortage of staff
- Robots are not replacing, but supporting human staff
- Humans in the lead
- AI used to navigate in unstructured environments and react to people

Demographic change and labor shortage



- Lack of skilled labor: companies are struggling to fill vacancies – in Europe, but also in US, Japan and China.
- Key skills in manufacturing are lost (e.g. welding)
- People available for work are increasingly rejecting intensive manual jobs
- Companies need to bridge these labor gaps with intelligent robotics, including a growing number of AI-powered solutions
- Intelligent automation can
 - support an aging workforce
 - enable inclusion

Cultural and national differences in the attitude towards robots and AI

Europe

Trustability
Explainable AI

strong competences in
hardware engineering

high ethical standards
very concerned, critical,
fearful society

America

Data driven SR start-ups
Strong VC support

advantages in data collection
and AI

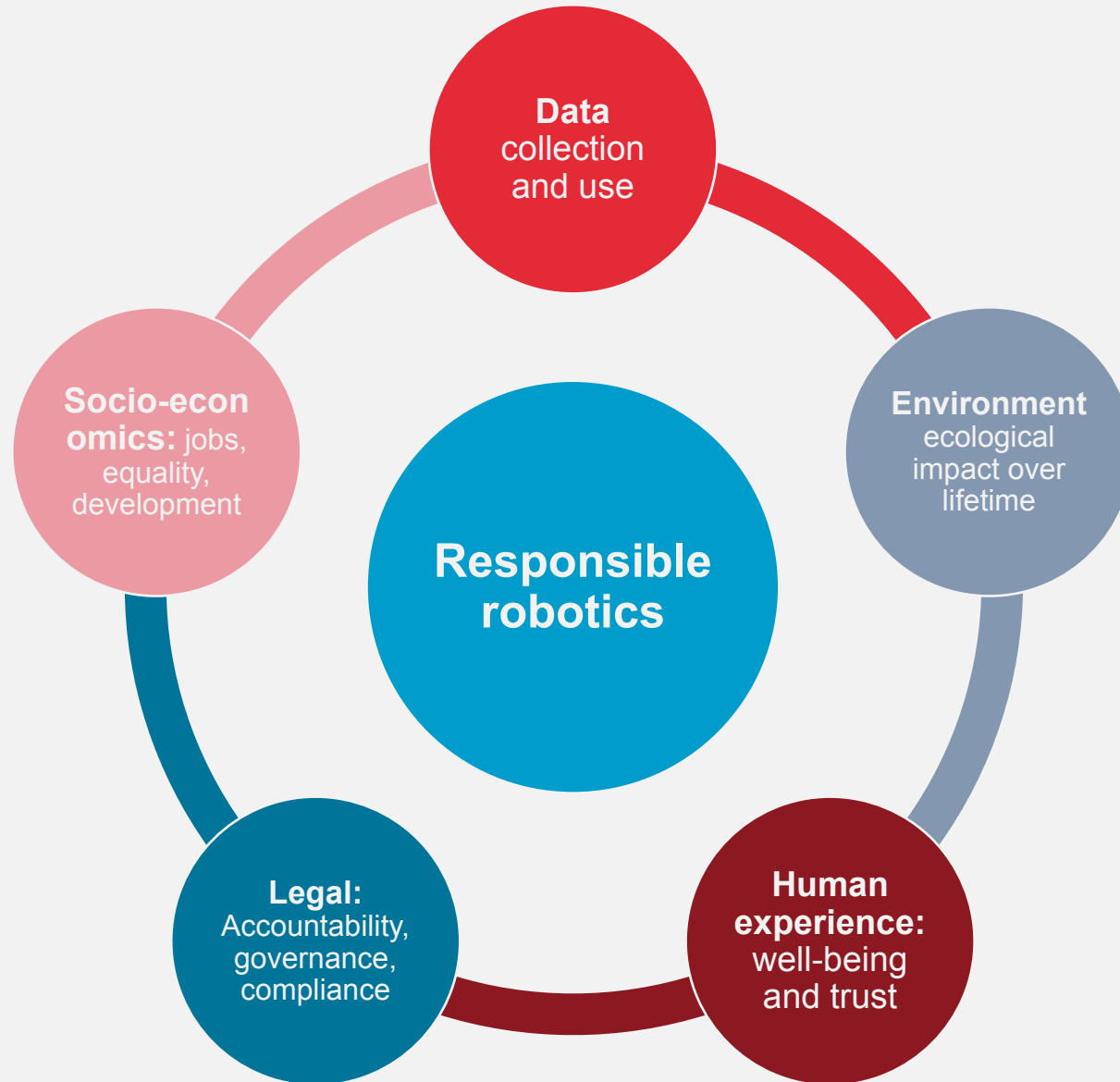
de-regulated, liberal economy

Asia

Financial support
Technology enthusiasts

strong competences in CE
and hardware engineering

Embracing new technology
ELSE issues not a concern



Responsible robotics is not new to the robotics industry

- Awareness of risks vs. seizing opportunities
- More nuances look at different application areas needed.
- Pay attention to particularly vulnerable groups

Most important applications of robots



INDUSTRIAL ROBOTS

- Automotive
- Electronics (3C)
- Metal & machinery
- Chemicals, plastics, pharmaceuticals
- Food & Beverages



PROFESSIONAL SERVICE ROBOTS

- Logistics
- Hospitality
- Inspection
- Field (agriculture)
- Healthcare
- Cleaning



SERVICE ROBOTS FOR PRIVATE USE

- Domestic (Household chores)
- Entertainment (Education)
- Elderly care & assistance

NO CONTACT /
ONLY TRAINED PERSONNEL

CONTACT TO UNTRAINED /
UNINFORMED PERSONS

Strategic positioning of Europe

Carefully consider the impact of European regulation and specific requirements on

EUROPEAN ROBOTICS INDUSTRY

PROVIDING RESPONSIBLE SOLUTIONS TO THE EUROPEAN MARKET

PROVIDING COMPETITIVE SOLUTIONS TO THE GLOBAL MARKET

AI CAN SUPPORT INNOVATIVE SOLUTIONS ADDRESSING A LARGE MARKET DEMAND

LOCAL SUPPLIERS ARE THE BACKBONE TO SOLUTIONS FOLLOWING EUROPEAN VALUES

EUROPEAN MANUFACTURING INDUSTRY

NEED FOR SMARTER, FASTER, MORE EFFICIENT AND MORE ACCESSIBLE AUTOMATION.

FACING TREMENDOUS LABOR SHORTAGE

SUSTAINABLE PRODUCTION

NEED TO MANUFACTURE ON GLOBALLY COMPETITIVE CONDITIONS

PRODUCTION SHOULD STAY IN EUROPE (JOBS AND TAX INCOME)

EUROPEAN SOCIETY AT LARGE

SUPPLY OF SERVICES WE URGENTLY NEED (ELDERLY CARE, CLEANING, LOGISTICS)

HIGH QUALITY, AFFORDABLE PRODUCTS/SERVICES

JOBS AND VALUE CREATION IN EUROPE

SAFETY AND QUALITY AT WORK

HIGHER STANDARD OF LIVING

SUSTAINABLE SOLUTIONS

Huge potential for European enterprises

- Continued convergence of AI and robotics has huge potential
 - for overcoming challenges of today and
 - opening up new opportunities for tomorrow.
- Ease of use and access to automation is more important than ever for more industries, segments and geographies
 - making robots accessible for small and medium-sized businesses
 - making programming and coding faster and easier
 - lowering barriers even further for robots to be integrated and adapted to different environments.
- Need to think and act more as an ecosystem: encouraging start-up and early-stage businesses in new applications for AI, and collaborating, co-inventing and educating between industry, academia, schools, and the whole value chain.
- **Educating society in where robotics and AI can be beneficial and used without risk, to bridge the growing labor and skills gaps.**

Keys to success

Education is key

- Educating society in where robotics and AI can be beneficial and used without risk
- Educating today's workforce in new skills, to continue to break the shackles of labor-intensive manual work, and instead manage and share such tasks with intelligent robots.
- Educating tomorrow's workforce in the possibilities of AI, to create new opportunities we haven't even thought of yet.

Keeping regulation at the right level

- Sensible and proportionate regulation – building guardrails, not walls – is needed to encourage innovation

Take home messages

Robots and AI can help in decision making

Responsibility stays with humans/organizations developing and using the systems

Be aware of the risks, but also seize the opportunities

EU needs AI driven robotics for competitiveness (supporting SMEs & manufacturing industry at large)

Education and skills are most important elements to build trust

Thank you for your attention.

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<https://www.linkedin.com/company/international-federation-of-robotics/>

International Federation of Robotics

Who we are



- **Professional non-profit organization**
- **Established in 1987**
- **Communication and networking platform**
- **About 90 members**
 - National robotics associations, R&D institutes, robot suppliers, integrators
- **Over 3000 organizations represented indirectly**

Members

NATIONAL ASSOCIATIONS



INDUSTRIAL ROBOT MANUFACTURERS



SERVICE ROBOT MANUFACTURERS



COMPONENT SUPPLIERS & INTEGRATORS



R&D INSTITUTES



Three pillars of IFR activities

