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19-21 March 2013

Lyon, France

# ROBOTICS IN EUROPE

DISRUPTIVE INNOVATIONS AND CONVERGENCES OF THE ECOSYSTEM AT LARGE  
TO ACCELERATE THE EMERGENCE



# EUROPEAN ROBOTICS – MARKET



- INDUSTRIAL ROBOTICS
  - European market figures 2011
  - Unequally distributed in Europe
  - To experience disruptive innovations
  - Potential growth through SME's automation
- PROFESSIONAL SERVICE ROBOTICS
  - Niche markets with European excellence
  - Field robotics, Logistics, Medical
  - Energy savings
- PERSONAL SERVICE ROBOTICS
  - Domestic tasks dominated by USA
  - Entertainment robots come from Asia and Europe





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# INDUSTRIAL ROBOTICS IN EUROPE

MARKET DATA FOR 2011

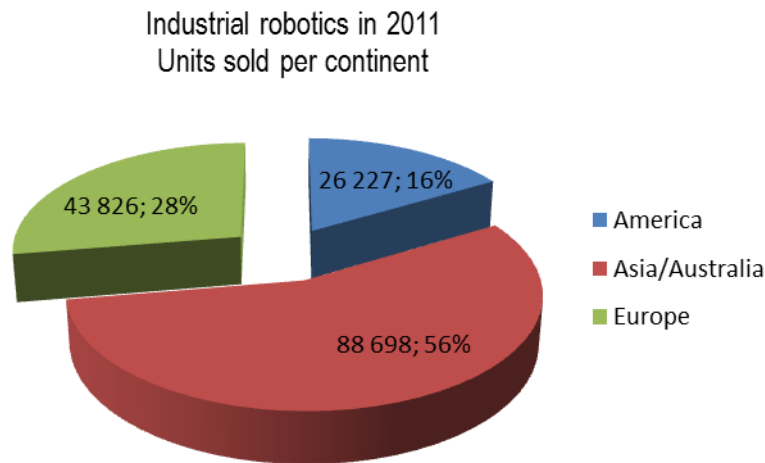
PERSPECTIVES





# INDUSTRIAL ROBOTICS IN 2011

- 2011: A PEAK YEAR AFTER THE CRISIS INTERRUPTION
- WORLDWIDE INDUSTRIAL ROBOT SALES VALUE
  - US\$ 8,5 Billion in 2011
  - US\$ 25,5 Billion including software, engineering, etc.
- EUROPE REPRESENTS ALMOST 1/3 OF INDUSTRIAL ROBOTICS WORLDWIDE



# INDUSTRIAL ROBOTICS IN 2011

- 2011: A PEAK YEAR AFTER THE CRISIS INTERRUPTION
- ASIA IS STILL THE WORLDWIDE BIGGEST MARKET
  - Japan and Korea are yet uncontested leaders
  - China will become from far the largest robot market in the world if robot installations dynamic growth is continued and/or if Foxconn achieves its goal



*Foxconn seems to build its own robots*



# INDUSTRIAL ROBOTICS IN 2011

- 2011: A PEAK YEAR AFTER THE CRISIS INTERRUPTION
- USA EXPERIENCED THE HIGHEST GROWTH RATE
  - +53% in units
  - Modernization of the production facilities is gaining momentum
  - US President Obama is supporting industry automation & robotics



*Adept robots: Adept is one of the US largest industrial robot manufacturer*





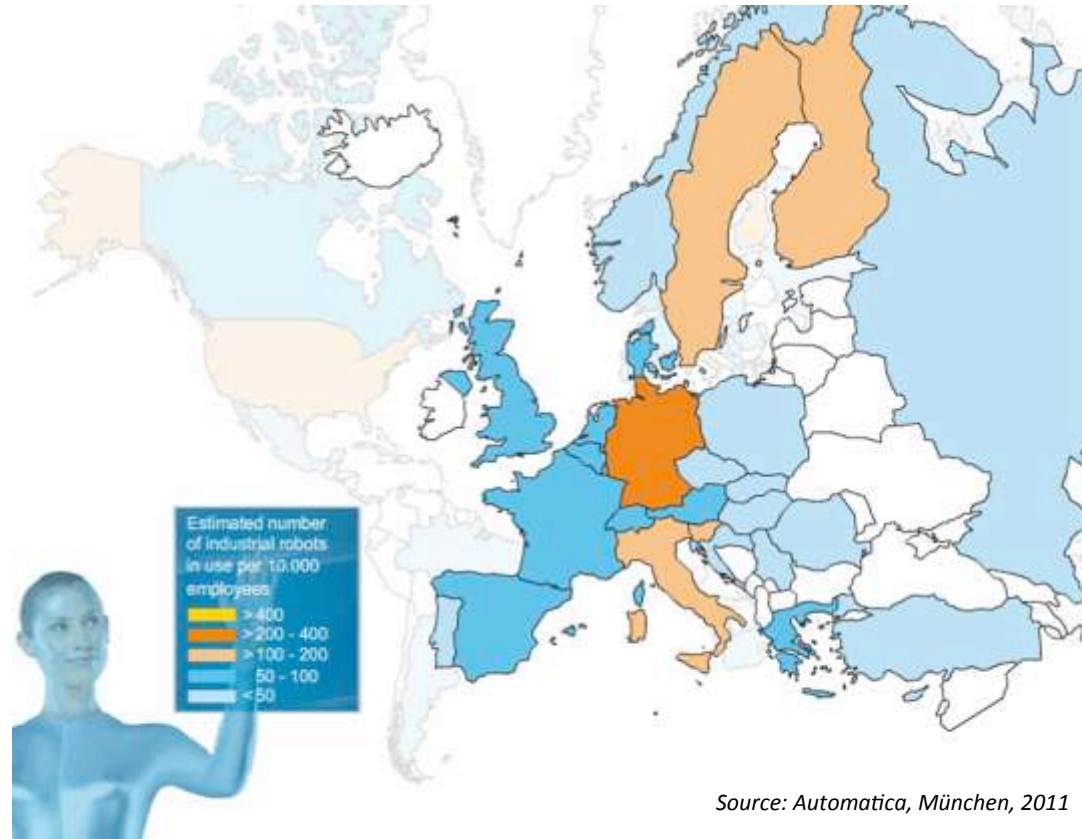
# INDUSTRIAL ROBOTICS IN 2011

- 2011: A PEAK YEAR AFTER THE CRISIS INTERRUPTION
- IN EUROPE, ALMOST 44.000 INDUSTRIAL ROBOTS SOLD IN 2011
  - 43% growth rate in units
  - Germany represents 45% of the total supply to Europe
  - France robot purchase increased by 49%
  - Recovery of Italy and Spain is on its way, but slower
  - Central & Eastern Europe sales surged by 89%



# EUROPEAN INDUSTRIAL ROBOTICS

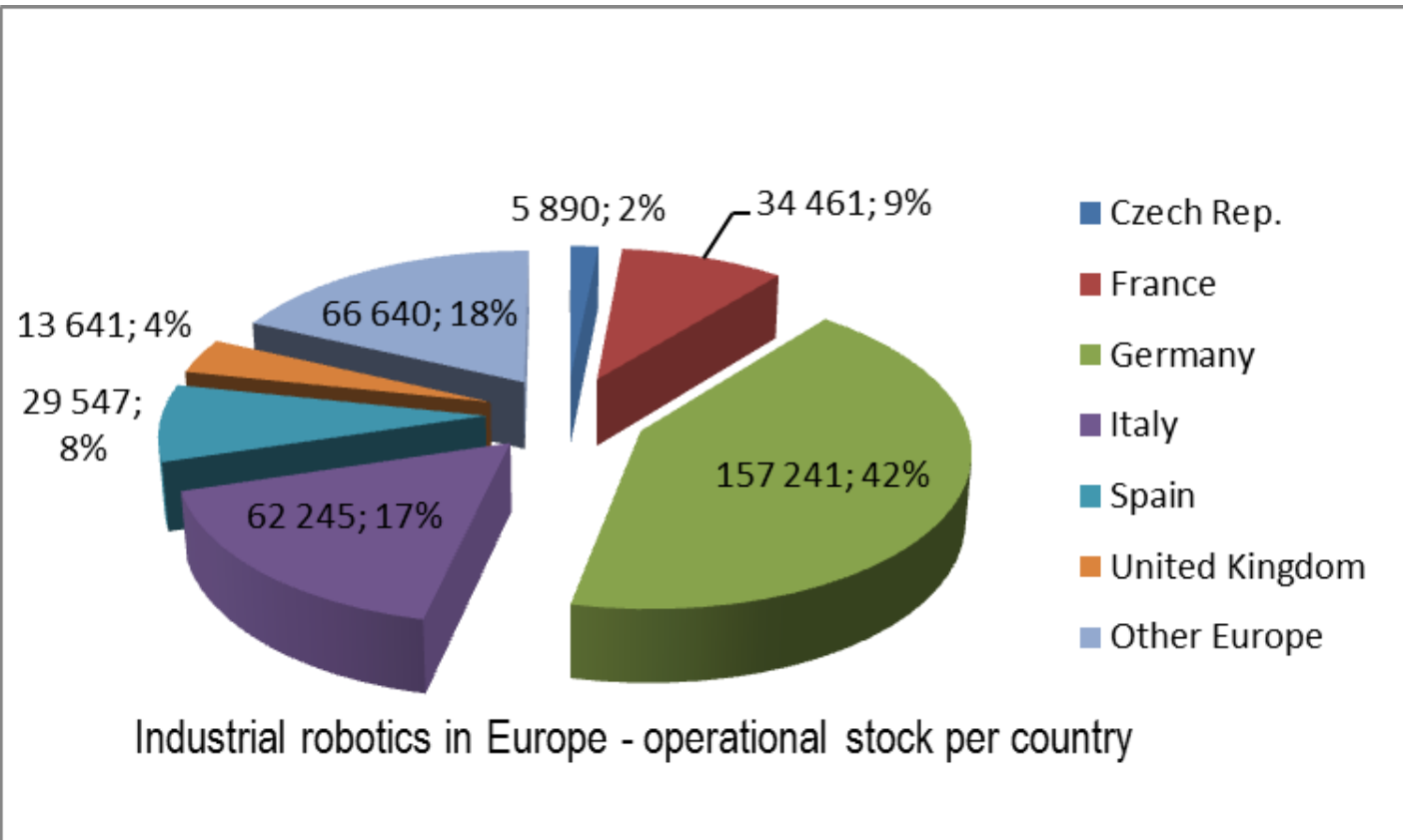
- INDUSTRIAL ROBOTICS UNEQUALLY DISTRIBUTED IN EUROPE



- Top 4 countries in robot density : Germany, Italy Sweden and Finland.
- Automotive market is leading the industrial robotics applications
- Potential in other industries such as metal & machinery, food and beverage, electronics.



# INDUSTRIAL ROBOTICS IN EUROPE IS DOMINATED BY GERMANY





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# INDUSTRIAL ROBOTICS

## PERSPECTIVES

GROWTH RATE DEPENDS ON THE ECONOMIC SITUATION

INDUSTRIAL ROBOTICS ADAPTED TO SMEs

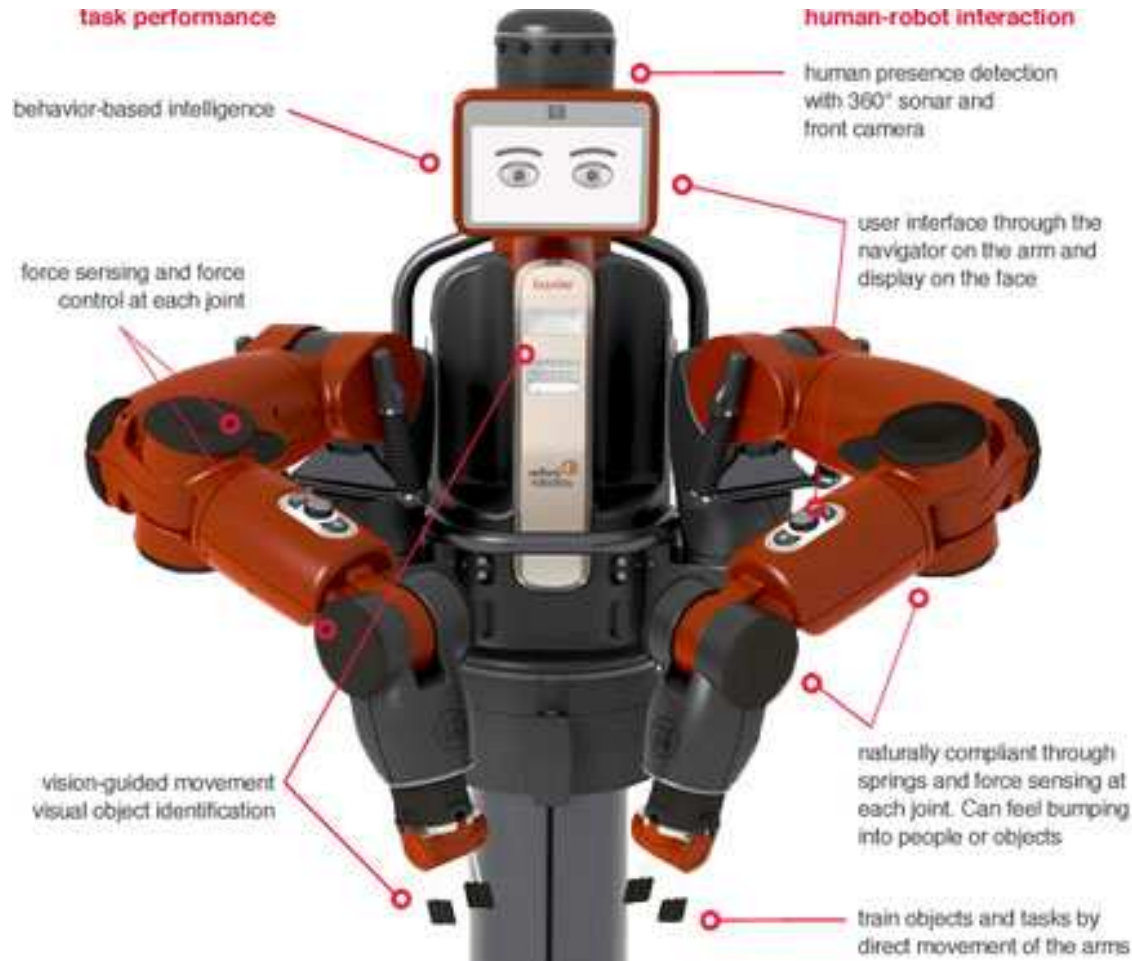
DISRUPTIVE INNOVATIONS TO CHALLENGE THE MARKET PLACE



# INDUSTRIAL ROBOTICS PERSPECTIVES

- CONTINUED INCREASE WITH LOWER GROWTH RATE DUE TO WEAK GLOBAL ECONOMIC SITUATION
  - Growth rate forecasted at about 5% per year for 2012 through to 2015
  - Sales increase driven by the automotive industry and electronics
  - Highest growth rate to be from the USA, China and BRIC countries + Japan in its reconstruction effort.
- REINDUSTRIALIZATION OF WESTERN COUNTRIES THROUGH ROBOTICS IN SMES
  - Cobotics Supply of more easy-to-use collaborative robots
    - *Understanding human-like instructions*
    - *Human-aware and space sharing*
    - *Safe and productive, modular plug and produce*

# DISRUPTIVE INNOVATIONS TO MODIFY THE INDUSTRIAL ROBOTICS MARKET PLACE



- US\$ 22 000 / UNIT
- NO PROGRAMMING
- NO SAFETY CAGES
- NO INTEGRATION
- PLUGS INTO STANDARD SOCKET
- WORKS INTELLIGENTLY
- VERSATILE & CAPABLE
- EXTENSIBLE PLATFORM

Baxter from Rethink Robotics (USA)

# INNOVATIVE START-UPS TO BOOST GROWTH OF INDUSTRIAL ROBOTICS IN EUROPE

- A FEW VERY LARGE COMPANIES – LESS THAN 30

- Kuka (Germany)
- Schunk (Germany)
- ABB (Sweden)
- Staubli (Switzerland)
- Robo Group – Tek (Israel)
- Thales (France)
- Eca-robotique (France)



- A LARGE NUMBER OF SMALL FIRMS – MORE THAN 1000

- Robosoft (France)
- Bluebotics (Switzerland)
- Universal robots (Denmark)
- Robsys (France)...







# EUROPEAN INDUSTRIAL ROBOTICS STRENGTHS AND CHALLENGES

## ■ EUROPEAN STRENGTHS

- World class Research labs
- Innovative SMEs
- Major Worldwide Manufacturers
- Strong software skills
- Active cooperation (clusters, federations, international partnerships)

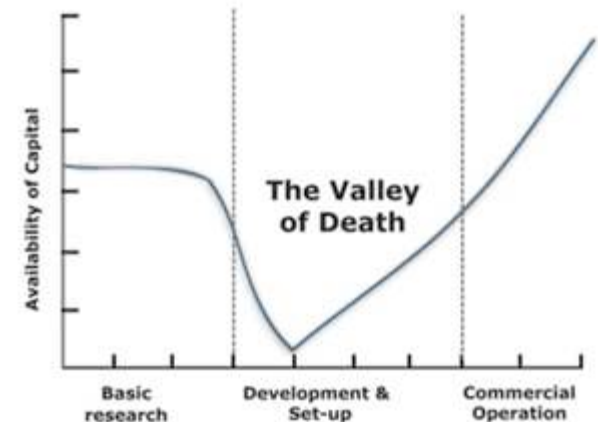


## ■ EUROPEAN CHALLENGES

- Overcoming the Valley of Death
- Increasing awareness and capital availability
- Cultural distrust of robots

## ■ GLOBAL OPPORTUNITIES

- New segments and applications





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# SERVICE ROBOTICS IN EUROPE

PROFESSIONAL AND PERSONAL SERVICES ROBOTICS MARKET DATA FOR 2011

EUROPEAN EXCELLENCE

KEY SUCCESS FACTORS





# SERVICE ROBOTICS MULTIPLE FIELDS OF APPLICATIONS

## Professional service robotics



### ⇒ « Field » Robotics

Agriculture, mines, forestry, breeding, space



### ⇒ Construction & demolition

Building, roads, bridges...



### ⇒ Inspection & maintenance

Plants, sub-marine inspection, pipelines, ...



### ⇒ Logistic

Warehouse Picking, Goods transportation...



### ⇒ Medical & Health

Surgery, diagnostic, re-education... assistance to people



### ⇒ Transportation

Autonomous Vehicles, Automatic trains, ...



### ⇒ Representation Robots

Waiter Robots, Guide robots, Tour Robots...



### ⇒ City Services

Fireman, police officer, information



## Personal service robotics

### ⇒ Home automation



### ⇒ Personal assistance robots

Assistance to senior at home, well-being, E-Health



### ⇒ Domestic Robots

Security, surveillance, internet, « tasks robots



### ⇒ Education

Robotic Kits, Research, Labs, Training, coach...



### ⇒ Entertainment

Toys, leisure parks, soccer bots, social robots,...  
Mainstream High Tech & electronic

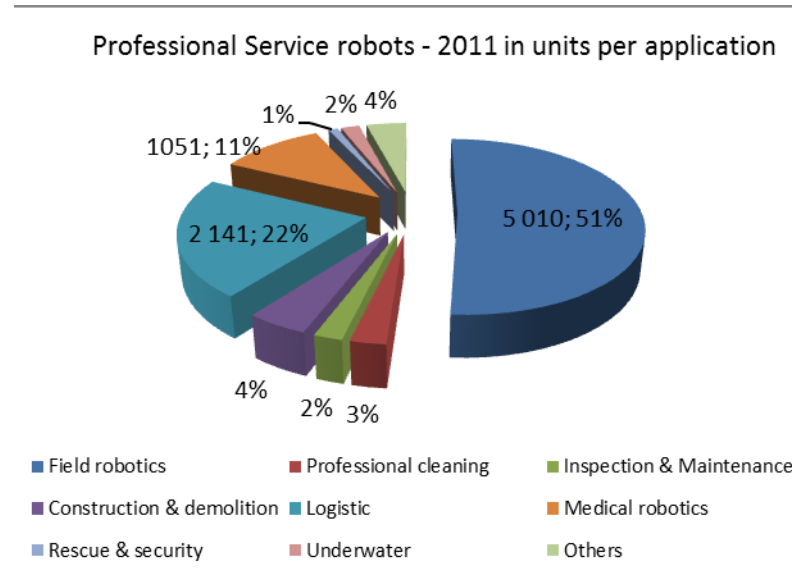




# SERVICE ROBOTICS IN 2011

## 8% GROWTH RATE - BELOW POTENTIAL AND EXPECTATIONS

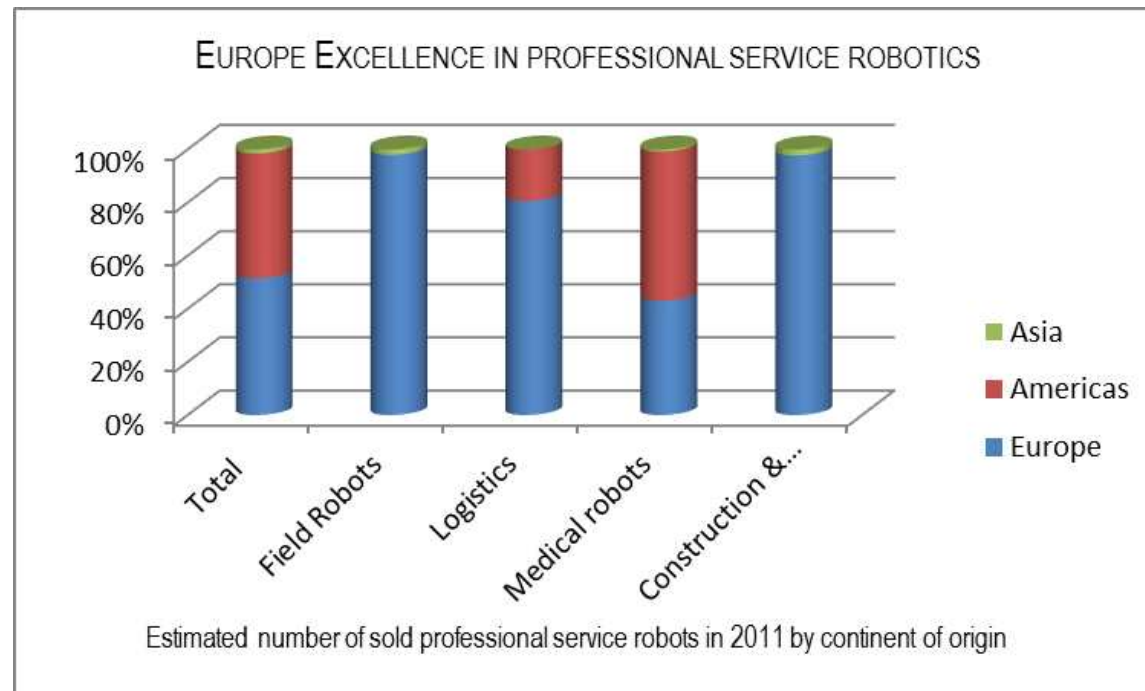
- **WORLDWIDE SERVICE ROBOT SALES VALUE**
  - US\$ 3.6 billion in 2011 for professional use
  - 6% growth rate for professional service robotics



- US\$ 0,636 Billion in 2011 for personal use
- 20% growth rate for personal service robotics

# EUROPE IS A LEADING MANUFACTURER OF PROFESSIONAL SERVICE ROBOTICS

- THREE MAJOR PROFESSIONAL SERVICE ROBOTICS FIELDS WHERE EUROPE IS A LEADING MANUFACTURER
  - Field Robotics
  - Logistics
  - Construction & demolition







# EUROPE: ZOOM ON FIELD ROBOTICS

- FIELD ROBOTICS REPRESENT A THIRD OF PROFESSIONAL SERVICE ROBOTS SOLD IN 2011 (IN UNITS)
- SUCCESS STORY IN MILKING ROBOTS
- AGRICULTURE AUTOMATION IS THE SUBJECT OF MANY RESEARCHES AND PRODUCTS' DEVELOPMENT (PLANT, HARVEST, INSECTICIDE,...) AND FORECASTED FOR EXPONENTIAL GROWTH



- MAIN EUROPEAN PLAYERS
  - Amazone Werke (Germany)
  - In Mach (Germany)
  - BA Systems (France)
  - DeLaval (Sweden)
  - Fullwood (UK)
  - Insentec (Netherlands)
  - Lely (Netherlands)
  - GEA Farm Technologies (Germany)



Ban iRob