IFR Executive Roundtable on 28 June 2023

Building Resilience for Europe through Automation
Schedule

- Welcoming and presentation of the participants of the Executive Round Table
  Dr. Susanne Bieller, IFR General Secretary

- Preview on preliminary results of World Robotics Industrial Robots 2023
  Marina Bill, IFR President

- Discussion on “Building resilience for Europe through automation”

- Personal interviews with the participants
International Federation of Robotics

- **Non-profit organization** since 1987
- IFR represent **more than 3,000 organizations** from **25 countries**
- Robot manufacturers, national robotics associations, universities, start-ups worldwide
- Annual global **robotics turnover $50 billion** (robot systems including software & peripherals)
Your panelists today

Ralf Völlinger
GM Robot Business Division
Fanuc Europe

Enrico Krog Iversen
CEO
OnRobot

Adrien Brouillard
Global Head of General Industry
STÄUBLI INTERNATIONAL

Thomas Burger
Managing Director
SBS-Feintechnik

Your host: Susanne Bieller
General Secretary
IFR
IFR statistics 2022: preliminary results
IFR statistics and World Robotics

- Numbers presented here are **preliminary** as of May 2023

- Final results most likely are subject to changes

- They will be published in World Robotics 2023

- Available 26 September 2023
Global installations 2022: 531,060 units (+2%)
Automotive catching up – head to head with Electronics

<table>
<thead>
<tr>
<th>Industry</th>
<th>2022</th>
<th>2021</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical/electronics</td>
<td>139,745</td>
<td>137,932</td>
<td>120,747</td>
</tr>
<tr>
<td>Automotive</td>
<td>110,402</td>
<td>103,631</td>
<td>137,469</td>
</tr>
<tr>
<td>Metal and machinery</td>
<td>83,935</td>
<td>64,446</td>
<td>86,151</td>
</tr>
<tr>
<td>Plastic and chemical products</td>
<td>25,437</td>
<td>24,707</td>
<td>14,822</td>
</tr>
<tr>
<td>Food</td>
<td>24,707</td>
<td>18,728</td>
<td>13,237</td>
</tr>
<tr>
<td>All others</td>
<td>56,585</td>
<td>54,568</td>
<td>94,141</td>
</tr>
<tr>
<td>Unspecified</td>
<td>36,837</td>
<td>44,129</td>
<td>12,320</td>
</tr>
</tbody>
</table>

Source: International Federation of Robotics - preliminary results 2022
Strong growth in all regions

Note: Asia figures are very preliminary yet

Annual installations of industrial robots ('000 of units)

<table>
<thead>
<tr>
<th>Year</th>
<th>Asia/Australia</th>
<th>Europe</th>
<th>The Americas</th>
</tr>
</thead>
<tbody>
<tr>
<td>2021</td>
<td>382</td>
<td>82</td>
<td>51</td>
</tr>
<tr>
<td>2022</td>
<td>382</td>
<td>84</td>
<td>57</td>
</tr>
</tbody>
</table>

Preliminary data 2022 as of May 2023

Growth of industrial robot installations

<table>
<thead>
<tr>
<th>Year</th>
<th>Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>2021</td>
<td>+38%</td>
</tr>
<tr>
<td>2022</td>
<td>+32%</td>
</tr>
</tbody>
</table>

Source: International Federation of Robotics - preliminary data 2022
Top 5 markets in the World and the EU

**TOP5 markets in the World**

Annual installations of industrial robots
5 largest markets 2022 - World

- China: 267,726
- Japan: 51,558
- United States: 39,94
- Rep. of Korea: 30,336
- Germany: 26,344

**TOP5 markets in the EU**

Annual installations of industrial robots
5 largest markets 2022 - EU

- Germany: 26,344
- Italy: 11,62
- France: 7,449
- Spain: 3,838
- Poland: 3,128

*000 of units
Source: International Federation of Robotics - preliminary results 2022
Europe growing +3% on record level

Annual installations of industrial robots - Europe
1,000 units

Source: International Federation of Robotics - preliminary results 2022
### Annual installations of industrial robots by customer industry - Europe

<table>
<thead>
<tr>
<th>Industry</th>
<th>2022</th>
<th>2021</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automotive</td>
<td>19</td>
<td>20</td>
<td>19</td>
</tr>
<tr>
<td>Metal and machinery</td>
<td>19</td>
<td>17</td>
<td>19</td>
</tr>
<tr>
<td>Plastic and chemical products</td>
<td>9</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>Electrical/electronics</td>
<td>5</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Food</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>All others</td>
<td>9</td>
<td>10</td>
<td>9</td>
</tr>
<tr>
<td>Unspecified</td>
<td>18</td>
<td>16</td>
<td>16</td>
</tr>
</tbody>
</table>

Source: International Federation of Robotics - preliminary results 2022
European Union accounting for 85% of European Installations

Annual Installations of Industrial Robots in the European Union (EU27_2020)

1,000 units

<table>
<thead>
<tr>
<th>Year</th>
<th>Installations</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>57</td>
</tr>
<tr>
<td>2018</td>
<td>64</td>
</tr>
<tr>
<td>2019</td>
<td>61</td>
</tr>
<tr>
<td>2020</td>
<td>53</td>
</tr>
<tr>
<td>2021</td>
<td>67</td>
</tr>
<tr>
<td>2022</td>
<td>72</td>
</tr>
</tbody>
</table>

Source: International Federation of Robotics - preliminary results 2022

+6%
Germany: Largest European market

Long-term growth

Annual installations of industrial robots - Germany
units

2012: 17,526
2013: 18,297
2014: 20,051
2015: 19,945
2016: 20,074
2017: 21,267
2018: 22,298
2019: 22,354
2020: 25,616
2021: 26,344
2022: +3%

Source: International Federation of Robotics - preliminary results 2022

Automotive down - general industry remains strong

Annual installations of industrial robots by customer industry - Germany
units

<table>
<thead>
<tr>
<th>Industry</th>
<th>2022</th>
<th>2021</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automotive</td>
<td>7,127</td>
<td>9,167</td>
<td>9,670</td>
</tr>
<tr>
<td>Metal and machinery</td>
<td>4,235</td>
<td>3,522</td>
<td>2,538</td>
</tr>
<tr>
<td>Plastic and chemical products</td>
<td>2,175</td>
<td>2,041</td>
<td>1,419</td>
</tr>
<tr>
<td>Electrical/electronics</td>
<td>1,489</td>
<td>1,398</td>
<td>1,053</td>
</tr>
<tr>
<td>Food</td>
<td>427</td>
<td>572</td>
<td>424</td>
</tr>
<tr>
<td>All others</td>
<td>1,849</td>
<td>2,127</td>
<td>1,175</td>
</tr>
<tr>
<td>Unspecified</td>
<td>6,789</td>
<td>6,075</td>
<td>9,042</td>
</tr>
</tbody>
</table>
Italy: Second largest European market

Annual installations of industrial robots - Italy
units

+10%, new record level

Source: International Federation of Robotics - preliminary results 2022

Growth driver: general industry

Annual installations of industrial robots by customer industry - Italy units

- Metal and machinery: 3,670 (2022), 2,066 (2021), 1,405 (2020)
- Plastic and chemical products: 1,405 (2022), 1,351 (2021), 1,019 (2020)
- Food: 1,139 (2022), 988 (2021), 751 (2020)
- Automotive: 918 (2022), 891 (2021), 1,139 (2020)
- All others: 1,542 (2022), 1,401 (2021), 943 (2020)
- Unspecified: 2,149 (2022), 1,202 (2021), (2020)

IFR Executive Roundtable - automatica 2023
France: Third largest European market

New record level

Annual installations of industrial robots - France
units

Source: International Federation of Robotics - preliminary results 2022

Growth driver: general industry

Annual installations of industrial robots by customer industry - France
units

<table>
<thead>
<tr>
<th>Industry</th>
<th>2022</th>
<th>2021</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metal and machinery</td>
<td>1,645</td>
<td>1,333</td>
<td></td>
</tr>
<tr>
<td>Automotive</td>
<td>1,597</td>
<td>1,340</td>
<td>1,329</td>
</tr>
<tr>
<td>Plastic and chemical products</td>
<td>869</td>
<td>835</td>
<td>703</td>
</tr>
<tr>
<td>Food</td>
<td>532</td>
<td>457</td>
<td>436</td>
</tr>
<tr>
<td>Electrical/electronics</td>
<td>327</td>
<td>286</td>
<td>266</td>
</tr>
<tr>
<td>All others</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unspecified</td>
<td>1,681</td>
<td>1,551</td>
<td>1,293</td>
</tr>
</tbody>
</table>

2022: 2021:2020
Spain: fourth largest European market

12% growth but still shy off the pre-pandemic level

Annual installations of industrial robots - Spain

units

Source: International Federation of Robotics - preliminary results 2022

Growth driver: general industry

Annual installations of industrial robots by customer industry - Spain

units

<table>
<thead>
<tr>
<th>Industry</th>
<th>2022</th>
<th>2021</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automotive</td>
<td>907</td>
<td>865</td>
<td>1,065</td>
</tr>
<tr>
<td>Metal and machinery</td>
<td>743</td>
<td>888</td>
<td></td>
</tr>
<tr>
<td>Food</td>
<td>538</td>
<td>421</td>
<td></td>
</tr>
<tr>
<td>Plastic and chemical...</td>
<td>327</td>
<td>326</td>
<td>321</td>
</tr>
<tr>
<td>Electrical/electronics</td>
<td>79</td>
<td>98</td>
<td>59</td>
</tr>
<tr>
<td>All others</td>
<td>564</td>
<td>595</td>
<td></td>
</tr>
<tr>
<td>Unspecified</td>
<td>429</td>
<td>535</td>
<td>771</td>
</tr>
</tbody>
</table>

Source: International Federation of Robotics - preliminary results 2022
Poland: Fifth largest market in the EU

Second strongest year ever

Annual installations of industrial robots - Poland
units

Strong demand for low-cost robots

Annual installations of industrial robots by customer industry - Poland
units

Source: International Federation of Robotics - preliminary results 2022
Outlook

„Boom after crisis“ decelerating

- Turnover in Europe was still growing strongly in Q1/2023 *
- Order intake in Q1/2023 slightly down (0% to -5% yoy) *

Sources:
* IFR Quarterly Survey
Global trends:
- Uncertainty factors weigh on willingness to invest
- Central bank policy in the US and in the Euro Area burden investments
- Chinese economy softer *
- Political tensions

Outlook for Europe
- Order backlog in German mechanical engineering continues at a high level (almost 1 year) +
- Tight labor markets driving demand for automation in many countries

Source: * VDMA Machinery & Equipment in China Q1/2023
+ VDMA Incoming Order and Turnover Statistics