Hitachi Agrees to Acquire JR Automation a Robotic System Integrator in the US

Hitachi will be entering the high-growth robotic SI business in North America and accelerate the global development of its digital solution business, which connects the workplace and management, by acquiring a customer base, technology, and know-how in the Operational Technology (OT) domain

Masakazu Aoki
Executive Vice President and Executive Officer
Hitachi, Ltd.
Chairman of the Board
Hitachi Industrial Equipment Systems Co., Ltd.
Contents

1. About JR Automation
2. Hitachi’s Robotic System Integration Strategies
3. Summary
## 1-1. Outline of JR Automation

Hitachi to acquire a leading robotic Sier for approx. 158.2 billion yen (US$1,425 million)

<table>
<thead>
<tr>
<th>Company name</th>
<th>JR Automation Technologies, LLC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>US$ 603 million (approx. 67 billion yen) (consolidated: 2018)</td>
</tr>
<tr>
<td>Head Office</td>
<td>Holland, MI (US)</td>
</tr>
<tr>
<td>CEO</td>
<td>Bryan Jones</td>
</tr>
<tr>
<td>Established</td>
<td>1980</td>
</tr>
<tr>
<td><strong>Employees</strong></td>
<td>Approx. 2,000</td>
</tr>
<tr>
<td>Main business</td>
<td>Robotic SI business (building production lines and logistics systems)</td>
</tr>
</tbody>
</table>
# 1-2. Robotic Solution of JR Automation

Provide diverse robotic solutions in a wide range of industries

<table>
<thead>
<tr>
<th>No.</th>
<th>Industry</th>
<th>Solution example</th>
<th>(Photos are not from actual project sites)</th>
</tr>
</thead>
</table>
| 1   | Automotive | - Door panel interior assembly and welding line  
       - Truck bed sheet metal welding line | ![Photo](image1.jpg) |
| 2   | Aerospace  | - Assembly line including rivet connection | ![Photo](image2.jpg) |
| 3   | E-Commerce (Logistics) | - Palletizing* and picking system utilizing robots and rack equipment | ![Photo](image3.jpg) |
| 4   | Medical device | - Plastic IV** pack manufacturing equipment | ![Photo](image4.jpg) |

* Positioning and fixing units and containers on pallets at the end of a production line  
** Intravenous drip
1-3. JR Automation’s Strengths

JR Automation has achieved over 20% revenue growth in the last 3 years (CAGR)*, and successfully built up a strong customer base including top players in each industry.

① Strong value proposition for various lines

- Automotive: Conveyor system, welding, and assembly
- Aerospace: Rivet connection
- E-Commerce: Picking and palletizing

Rich track records and expertise

② Implementation capability assuring high quality

- Aerospace: High quality to meet the standard of industry requirements
- Medical device: Strong engineering and line-building capability

③ Strong and loyal customer base

Build good relationship with promising customers

Over 90% repeat customer rate

* Pro-forma basis
1-4. Business Opportunities for Growth

Robotic SI market expands with high growth rate, JR Automation’s target industries have huge opportunities

<table>
<thead>
<tr>
<th>Growth drivers</th>
<th>Business opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automotive</td>
<td>Shift to electric vehicles</td>
</tr>
<tr>
<td></td>
<td>Increasing labor costs</td>
</tr>
<tr>
<td>Aerospace</td>
<td>Expanding aircraft market</td>
</tr>
<tr>
<td></td>
<td>Weight reduction with new material</td>
</tr>
<tr>
<td>E-Commerce</td>
<td>High-frequency deliveries, increasing number of warehouses</td>
</tr>
<tr>
<td></td>
<td>Labor shortage</td>
</tr>
<tr>
<td>Medical device</td>
<td>Medical device innovations</td>
</tr>
</tbody>
</table>

Global robot-based automation market CAGR (2018-2023) More than 10%*

*Source: Hitachi estimate based on IFR2017 report

Strong demand for automation

Increasing the number of Tier1-3 suppliers

Automation of entire process (Picking, etc.)

Compliance with strict FDA standards

*Source: Hitachi estimate based on IFR2017 report
1-5. Growth of Robotic SI Market

Robotic SI market continues to expand by realizing complex automation system with a lot of robots

Market size*  
(US$ billion)

Average annual growth rate; 2018-2023  
More than 10%

<table>
<thead>
<tr>
<th>Year</th>
<th>Market Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>51 (13)</td>
</tr>
<tr>
<td>2016</td>
<td>61 (16)</td>
</tr>
<tr>
<td>2017</td>
<td>75 (19)</td>
</tr>
<tr>
<td>2018</td>
<td>85 (21)</td>
</tr>
<tr>
<td>2019</td>
<td>97 (24)</td>
</tr>
<tr>
<td>2020</td>
<td>111 (28)</td>
</tr>
<tr>
<td>2021</td>
<td>127 (32)</td>
</tr>
<tr>
<td>2022</td>
<td>145 (36)</td>
</tr>
<tr>
<td>2023</td>
<td>166 (43)</td>
</tr>
</tbody>
</table>

* Source: Hitachi estimate based on IFR2017 report
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2-1. Manufacturing Trends

On-going shift from machine operation by human to robot applied automation

Just replacing human operation with robots does not improve productivity

Current

Manufacturing process based on human operation

Intensified global competition
Increasing labor costs

Future

Expansion of applying robots
Demand expansion of safety and quality

Optimization】【AI】【Predictive diagnosis】

Management data  Design data  4M* data  Quality data

Manufacturing process based on robot applied automation

The key of robot applied automation is line-building SI and end-to-end data SI

* 4M: huMan, Machine, Material, and Method
2-2. Manufacturing Evolution Hitachi Will Provide

Through optimizing manufacturing by robot applied automation, Hitachi to contribute to business value improvement for customers

[Current] Manufacturing by people and machine

[Now-on] Robot applied manufacturing

Line-building SI and end-to-end data SI for robot applied automation

Field operation capability accumulated with people

[Future] Manufacturing linking workplace and management

Seamless collaboration between workplace and management, optimization of management efficiency

[Future]
Manufacturing linking workplace and management

LUMADA

OT

Robotic SI

Products

OT

IT

Management

Workplace

huMan

Machine

Material

Method

4M data

Line-building SI and end-to-end data SI for robot applied automation

Field operation capability accumulated with people
2-3. Realize Business Environment
Linking Workplace and Management

Advanced value chain for various market by integrating Hitachi’s AI technology (IT) and robotic SI (OT)

Market
Various huge amount of order information

Technology
4M data
Integration of production progress, or workplace information

IT
ERP
IoT

OT
Line Building

4M data
Integration of production progress, or workplace information

ScM
Product
Procurement
Manufacturing
Logistics
Sales

On-demand direction for production

Flexible manufacturing

Optimized production

Lumada

Implementation capability
2-4. Expansion of Robotic SI Business through Acquisitions

Hitachi will acquire the two companies in the US and Japan, and take advantage of acquired customer base and expertise in order to expand robotic SI business globally.

<table>
<thead>
<tr>
<th>Technology layer</th>
<th>North America Hitachi Gr.</th>
<th>Japan Hitachi Gr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LUMADA</td>
<td></td>
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<tr>
<td>Manage-</td>
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<td>ment</td>
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<td>IT</td>
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<td>OT</td>
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<tr>
<td>Workplace</td>
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<td>huMan</td>
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<tr>
<td>Machine</td>
<td></td>
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<tr>
<td>Material</td>
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<tr>
<td>Method</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4M data</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Robotic SI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>products</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Hitachi

This transaction

Agreed to acquisition in Mar 2019

(Hitachi Industrial Equipment Systems)

Acquired in Jul 2017

(Hitachi Industrial Equipment Systems)
2-5. Synergy

JR Automation and Hitachi Group mutually leverage each customer base and resource.

Sales synergy

① Cross-selling
Realize cross-selling by mutually leveraging a customer base, solutions and products

② Expand JR Automation’s after market business
Strengthen after service utilizing Hitachi’s platform and AI technology

③ Expand JR Automation’s SI in E-Commerce
Enhance robotic SI by Hitachi’s control technology and Lumada

Cost synergy

④ Establish efficient operation
Leverage Hitachi’s management and resources for efficient operation

⑤ Realize joint procurement
Reduce procurement costs by joint activity of Hitachi Gr. and JR Automation
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3-1. Accelerate North America Business Growth in Hitachi Industry Sector

Strengthen North America business by M&A

Realize more than 130B yen North America business in Industry Sector

Consider investment for further growth

Key points for growth investment

① Realize business environment linking workplace and management

② Expand recurring business (after service, etc.)

③ Strengthen products with IoT capability

Base business

Further growth investment

Agreed to acquire JR Automation in April 2019

Acquired Sullair in July 2017
### 3-2. Summary

Agreed to acquire JR Automation as our global growth strategy

1. Strengthen North American business base of Hitachi Industry Sector through the acquisition of JR Automation after Sullair acquisition

2. Achieve growth opportunity in the robotic SI market with high growth rate (CAGR: over 10%)
   ⇒ Industry Sector’s North American Sales target is more than 130 billion yen

3. Provide new value for customers’ management and entire business by seamlessly linking workplace and management
Appendix.

• About Industry Sector of Hitachi
Vision: Best Solution Partner for industrial customers
Leverage strengths in Products, OT, and IT in the rollout of Lumada Solutions
Appendix 2.
Industry Sector’s Business Areas and Acquired Area

<table>
<thead>
<tr>
<th>Needs</th>
<th>Advanced manufacturing</th>
<th>Advanced logistics</th>
<th>Advanced maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT Management</td>
<td></td>
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<tr>
<td>Security</td>
<td>Cloud</td>
<td>AI</td>
<td>Analytics</td>
</tr>
<tr>
<td>Production planning /</td>
<td></td>
<td>Logistics</td>
<td>Maintenance &amp; repair</td>
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<tr>
<td>control optimization</td>
<td></td>
<td>optimization</td>
<td>Quality</td>
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<tr>
<td>Manufacturing execution</td>
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<td>Safety</td>
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<tr>
<td>systems</td>
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<tr>
<td>Advanced utilities</td>
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<tr>
<td>(water, power sources,</td>
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<td>heat, air)</td>
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<tr>
<td>OT Workplace</td>
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<td></td>
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<tr>
<td>Acquiring area</td>
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<tr>
<td>(Building production lines</td>
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<td></td>
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<tr>
<td>and logistics systems)</td>
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<tr>
<td>Products</td>
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<tr>
<td>Air compressors</td>
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<tr>
<td>Inverters</td>
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<tr>
<td>IoT controllers</td>
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<tr>
<td>Material handling robots</td>
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<tr>
<td>Remote monitoring systems</td>
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</table>

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