Honeywell Process Solutions Outlook
Vimal Kapur, President, Honeywell Process Solutions (HPS)
Welcome

1st Japan Technology Summit

250 Attendees
170 End Users
80 EPC’s
Agenda

1. Who is Honeywell?
2. Honeywell in Japan & Key Focus Areas
3. Summary
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Who is Honeywell...

$40.3B in sales*

55% sales outside U.S.

Honeywell Businesses

Aerospace, $15.6B

Automation & Control Solutions, $14.5B

Performance Materials & Technologies, $10.2B

“Breakthrough Seen Transforming Plastics Industry”

“Jet Green” – Honeywell’s Green Jet Fuel powers world’s first Transatlantic Bio-fuel flight

22,000 Technologists Worldwide

106 Research & Engineering Facilities

32,000 Patents Granted or Pending

Global Technology and Manufacturing Leader
Honeywell Process Solutions Profile

- Operates in more than 125 countries around the world
- *$3.1B Revenue
- 12,500 Employees
- 14 factories worldwide
- 200+ Local Offices
- > 90 Local Service Centers worldwide
- Over 2000 Service Technicians

Revenue by Vertical
- Oil & Gas 39%
- Refining 17%
- Mining & Paper 15%
- Chemicals 13%
- Other 16%

Revenue by Region
- Asia Pacific 26%
- Americas 32%
- Europe & MEA* 41%
- Middle East Africa

Industry Leader
- Our solutions are installed at more than 10,000 sites around the world

Global Leader in the Process Automation Industry

*2014

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Enterprise-wide Solutions

LEVEL 1
Smart, connected I/O, transmitters, devices, sensors

LEVEL 2
Automation, HMI, DCS, SCADA, Networks, PLC

LEVEL 3
Manufacturing Operations Management & Manufacturing Execution Systems

LEVEL 4
Business Planning, Logistics and ERP Systems

The Expertise to Optimize the Entire Operation
Increasing Large Project Wins Across The World & Across Verticals

Caribbean
Mining
21M

Norway
Offshore O&G
15M

Turkey
Refining
11M

Kuwait
Refining
32M

Russian Federation
Refining
20M

Canada
Unconventional
79M

Spain
Mining
20M

Japan
Refining & Petrochem
6M

Kazakhstan
Pipeline
33M

US
Oil & Gas, Power & Batch / Pharma

Suriname
Mining
23M

Brazil
Mining
21M

Chile
Mining
19M

Iraq
Refinery
21M

South Africa
Power
48M

UAE
Oil & Gas and Mining
60M 80M 30M

Vietnam
Oil & Gas Refining
13M 10M

Papua New Guinea
Oil & Gas
32M

Kuwait
Power
13M

Qatar
Oil & Gas
13M

Caribbean
Mining
20M

South Africa
Mining
33M

Turkey
Refining
41M

Norway
Offshore O&G

Peru
Refining

Project List
Not Exhaustive
## Innovating To Win In The Market

<table>
<thead>
<tr>
<th>Automation Offerings</th>
<th>HPS Innovations</th>
<th>Leadership Position</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Control &amp; Safety Systems</strong></td>
<td><img src="image" alt="Collaboration Station" /></td>
<td><img src="image" alt="Universal I/O" /> <img src="image" alt="Virtualization Cloud Engineering" /></td>
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<tr>
<td><strong>SCADA</strong></td>
<td><img src="image" alt="Experion® SCADA" /></td>
<td><img src="image" alt="RTU 2020" /></td>
</tr>
<tr>
<td><strong>Services</strong></td>
<td><img src="image" alt="Assurance 360" /></td>
<td><img src="image" alt="Cyber Security" /></td>
</tr>
<tr>
<td><strong>Field Devices</strong></td>
<td><img src="image" alt="SmartLine Transmitter" /></td>
<td><img src="image" alt="Gas Metering" /></td>
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<tr>
<td><strong>Plant Optimization Software</strong></td>
<td><img src="image" alt="DynAMo" /></td>
<td><img src="image" alt="Mobility" /></td>
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Global Team of 5000 Engineers and R&D Personnel
Operation Effectiveness Innovations

Orion Console

Changing the way plants operate

Enhance Operator Effectiveness

• Advanced Display Technology
• Improved Ergonomics
• Mobile Tablet

Improved Collaboration

• Interactive collaboration to pull remote experts in real time

Alarm Management

• Assess and respond faster to abnormal situations

More Effective Operations Platform
Pulp & Paper Innovations

Key Products

Experion MX
Optimize quality & productivity of paper machines & coaters

Fiber Optic Sensors
Unique sensor technology to monitor quality parameters on the machine

Zipline Scanner
Revolutionary Wireless Measurement device for Continuous Web Applications

Unique Solutions for
- Fiber Line & Recovery
- Paper Machine & Finishing
- Continuous Web Solutions

Dedicated R&D Centers for Pulp and Paper
Customer Issue: Gap Between Business Case and Reality

Project overruns driven by:
- Project scale and complexity
- Multiple stakeholders: Owners & EPCs
- Labor scarcity
- Late changes

The Solution: LEAP™ – Lean Execution of Automation Projects

Example benefits (not all inclusive):
- 90% reduction in marshalling cabinets
- 50% reduction in servers and cabinets
- Shipment of I/O hardware up to 6 months earlier

Reduces Project Costs, Time And Risks
Getting more value from Field Devices

Configure Right First Time

Reduce Errors Configuration and Set Up

Commission Faster

Reduce Start – Up Time
Up to 50% on loop check

Maintain Proactively

Built in auto alerts and diagnostics tools to enable predictive maintenance

Pressure

Temperature

Level

Flow
Addressing both your Needs & Challenges

**Needs**
- Safety
- Reliability
- Capacity
- Efficiency

**Challenges**
- Skilled operator scarcity
- Remoteness of new locations
- Cyber security

**Advanced Solutions**
- Alarm Management
- Mobility Solutions
- Advanced Process Control

**Lifecycle Solutions & Services**
- Assurance 360
- Migration Planning
- Cyber Security Offering
Agenda

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Committed to Japan

Honeywell in Japan

- ~$1B Revenue; 400 employees
- Tokyo, Japan headquarters
- 2 Plants in Kodama and Yaita
- UOP Joint Ventures:
  - Nikki Universal: JV with JGC for Refining & Petrochemical licensing, catalysts, etc.
  - Union Showa: JV with Showa Denko for Adsorbents
- Growing steadily in a competitive market

Revenue Share by Business Unit

- Automation & Control Solutions
- Aerospace & Transportation Systems
- Performance Materials & Technologies

HPS in Japan

- Tokyo, Japan headquarters
- 100 employees
- 70% Engineers
- 7 Service Centers
- Enhancing local Engineering, Project Management and Delivery capabilities
- Global connectivity with wider HPS
Migration of Old Systems

Impact of Obsolescence

Product no longer available on the market and has limited serviceability remaining

Can disrupt plant operations and impact:
- Safety
- Reliability
- Capacity
- Efficiency

Why Choose HPS?

Lean Execution for Migrations

Proven Project Execution Capability

Maintain, Support, and Optimize

Global Center of Excellence Dedicated to Migrations of Old Systems

21st Century technology to reduce risk, improve operability and efficiency
Driving Value in Japanese Migration Projects

**Key References**

**Pipeline SCADA Replacement**
Renewal of a 20 year old overseas system for Japan’s Leading Oil & Gas E&P Company

**Refinery DCS Migration**
Competitive upgrade of an obsolete system at one of Japan’s largest refineries

**Chemicals DCS Replacement**
Competitive Displacement of a DCS provided by a leading Japanese automation player

**HPS Differentiators**

1. Global Experience
2. Modern Technology
3. Defined Obsolescence Roadmap
4. Minimal disruption to plant’s existing systems
5. Seamless integration with enterprise networks
Global Projects with EPCs

HPS Project Execution Methodologies that benefit EPCs

1. **MAC Approach***
   - MAC selected early and designs End User requirements
   - Works closely with the EPC
   - Ensures consistency across multiple EPCs

   *Main Automation Contractor*

   MAC Saves 20% of total automation cost

2. **LEAP Execution**
   - Improve Project Schedule
   - Flexible Engineering
   - Reduce Project CapEx

   Parallel engineering and standardized design

Actively pursuing $60M+ in projects with Japanese EPCs
Supporting the Installed Base

Honeywell 40+ years of Continuous Innovation & Comprehensive Services

LIFECYCLE SERVICES

- MAINTAIN
- OPTIMIZE
- MIGRATE
- SUPPORT

- Active monitoring
- Optimize Processes & Assets
- Continuously modernize
- Align outcomes to operational goals

Exceeding Your Goals, while ensuring Lowest Total Cost of Ownership

- Industrial Cyber Security Solutions
- Engineering Services (Plan, Upgrade, Migrate)
- Maintenance Services (Parts and Labor)
- Lifecycle Service Models
- Technical Support Services
- Training Services
Long term Support – Pulp & Paper in Japan

HPS supporting the Japanese Pulp & Paper Industry since 1973

- Serving all major Japanese Pulp & Paper Companies
- Multiple Service Centers
- Highly Experienced Team
- Customized training
- 24 hour support

Service Locations aligned to serve the HPS Installed Base (~280 Systems)

- Sendai
- Sapporo
- Fuji
- Tokuyama
- Yokohama
- Nagoya
- Takamatsu
- Nagoya
- Fuji
- Sapporo
- Sendai

HPS P2/CWS Installed Base
Technical Support Services

Global Technical Assistance Center (GTAC)

- Problem resolution
  - On-site
  - Remote
- Recently introduced enhancements
  - Personalized online dashboard & support
  - Real Time Status Update
  - Knowledge Base / Searches

Honeywell Resources are Available Whenever You Need them
Advanced Solutions History in Japan
Steady Growth since 2010

From 27 customers to **50 customers in 2015**

<table>
<thead>
<tr>
<th>Before 2010</th>
<th>After 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Go – to - Market</strong></td>
<td><strong>Solutions</strong></td>
</tr>
</tbody>
</table>
| Via Azbil (Yamatake) – re-seller in Japan | • Advanced Process Control  
• Process History & Analytics  
• Planning & Scheduling |
| Directly by HPS | Expanded to include:  
• Process Simulation  
• Operations Management  
• Control Performance Monitoring  
• Corrosion Solutions |
| **Customers** | |
| • Refining  
• Petrochemicals | • Refining  
• Petrochemicals  
• EPC’s  
• Oil and Gas |

Focus on value added solutions around smart operations
**Our Solution**

Delivers complete planning, execution and performance monitoring of off-site blending and movement operations

- Centralized solution while still providing local control on ratio blending
- Open solution that can be installed on any DCS with strong service support

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**Customer Results**

- Reduce spill and dangerous mixing
- Reduce inventory & giveaways
- Easily adapt to new regulations
- Improve safety and reliability
- Optimize equipment

**Key Customers**

- IOCs
- NOCs
- Regional

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HPS Blending over 25% of the world’s refining capacity
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In Summary

Japan is a Key Focus of HPS’ Global Strategy. To ensure we grow in Japan, we will continue to:

Address your biggest concerns
a. System obsolescence
b. Staying relevant and competitive
c. Managing the skills gap

Continue to put the customer experience at the heart of everything we do

Innovate to de-risk project execution

Continue to Invest to create strong local organization
HPS Leadership Team in Attendance

VIMAL KAPUR
PRESIDENT, HPS

Pieter Krynauw
VP / GM Projects

John Rudolph
VP / GM Services

Ali Raza
VP / GM Advanced Solutions

Jason Urso
VP / GM PMC*

Andrew Hird
VP Sales

Anthony Corridore
VP Marketing

Ken Deville
GM Japan

* Process Measurement & Control

We look forward to meeting you during the Summit
Honeywell

Thank you