Overview Of Honeywell Process Solutions
Introduction

Industry Challenges

Unique Enterprise-wide Approach

Honeywell Solutions and Applications

Summary
Honeywell Today

- A Fortune 100 Company – $36.5B In Sales
- 130,000+ employees in 100 countries

Diverse Businesses, Technologies And Products
Honeywell In The Middle East

By SBU
- HPS
- UOP
- ATR
- ESS
- BSD
- Other

By Country
- UAE
- Saudi Arabia
- Qatar
- Other

- Middle East ~0.6B In Sales, 20%+ Growth In 2011

Large Footprint From HPS And UOP
Honeywell Process Solutions Middle East Overview

ACS Overview

$15.5 Billion in Sales  65,000 Employees  1,000 Facilities

- Safety
- Security
- Comfort
- Convenience
- Productivity
- Energy Efficiency

HOMES  BUILDINGS  INDUSTRIAL

Offering Broader Scope Of Solutions
HPS Overview

$3B+ In Sales, 11,000+ Employees Working In 120+ Countries

• Safety
• Reliability

• Efficiency
• Sustainability

GLOBAL

LOCAL

MULTIPLE INDUSTRIES

Improving Business Performance
HPS Business Overview

Revenue by Region

Revenue by Market

Business Model

Systems: winning more projects, grow safety & security business, enhance productivity offerings

Life Cycle Services: legacy install base protection, tailored offerings for emerging regions, remote services

Field Solutions: build systems integrator channel, expand RMG sales, update field instrument platform

Advanced Solutions: Drive scale and cross selling strategies,
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Summary
Industry Challenges

Safety
• Protecting greatest assets

Reliability
• Aging plant infrastructure

Efficiency
• Demand volatility
• Fuel price volatility

Sustainability
• Global Warming
• Emissions regulations and carbon tax regimes
• Renewable resources
Improve Business Performance

Business performance & bottom-line results are impacted by:

- Safety incidents
- Security threats
- Downtime
- Lost productivity
- Regulation
- Aging plants & workforce
Honeywell Delivers Bottom-line Results:

- Reduce Total Installed Costs
  - Save ~15% on a retrofit
  - Save ~25-30% on a new system
- Increase Reliability by 7-10%
- Reduce Cost of Emissions by Up to 70%
- Protect Assets & People With Integrated Safety, Physical, and Cyber Security
Honeywell Process Solutions Middle East Overview

Improve Business Performance

Safety
- Protect People, Assets & Processes

Reliability
- Improve Availability
- Reduce Downtime

Efficiency
- Improve Productivity
- Reduce Cost

Sustainability
- Maximize Return on Investment

Honeywell Solutions Address These Critical Business Performance Issues
What Are The Business Pressures?

Safety

- Reduce and Mitigate Incidents
- Comply With Critical Infrastructure Protection (CIP) Regulations
- Reduce Human Error
- Improve Emergency Response
What Are The Business Pressures?

Reliability

• Maximize Asset Availability
• Protect High Capital Cost Assets
• Enhance Plant Asset Life
• Migrate / Extend Investment in Aging Assets
What Are The Business Pressures?

Efficiency

- Increase Process Efficiency
- Increase Capacity Utilization / Reduce Downtime
- Get More Resource Productivity
What Are The Business Pressures?

Sustainability

- Maintain & Increase Benefits of Investment
- Meet Environmental Regulatory Requirements
- Transfer Knowledge from Aging to New Workforce
- Use Alternative Energy Resources Where Available
Introduction

Industry Challenges

Unique Enterprise-wide Approach

Honeywell Solutions & Applications

Summary
You Know Us For Process Automation

Automation & Control

MES & ERP Integration

Plant Performance Solutions

Advanced Control

Simulation

Field Instruments & Sensors

Lifecycle Services
Get To Know Our Enterprise-Wide Solutions

Automation & Control

MES & ERP Integration

Plant Performance Solutions

Advanced Control

Simulation

Field Instruments & Sensors

Lifecycle Services

Demand-side Management

Emissions & Environmental Management

Fire & Gas Monitoring & Detection

Burner Management

Transmission & Distribution

Project Engineering / MAC

Physical Security

Turbine Control

Building Management

Safety Systems

Gas Management

Cyber Security

Facility Energy Management

Alternative Energy Technology
Honeywell's Enterprise-wide Capabilities Help You Achieve:

- Enhanced Safety, Reliability, Efficiency, and Sustainability
- Highest Asset Availability
- Lowest Risk
- Lowest Cost of Ownership
- Regulatory Compliance
- Maximum Lifecycle Value
Introduction

Industry Challenges

Unique Enterprise-wide Approach

Honeywell Solutions & Applications

Summary
# Improved Safety – Detect & Prevent Incidents

<table>
<thead>
<tr>
<th>Challenges</th>
<th>Solutions</th>
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</thead>
<tbody>
<tr>
<td>Improve Emergency Response</td>
<td>• Safety System</td>
</tr>
<tr>
<td></td>
<td>• Fire &amp; Gas Detection</td>
</tr>
<tr>
<td>Comply with CIP Regulations</td>
<td>• Industrial Security</td>
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<td></td>
<td>• Cyber Security</td>
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<tr>
<td>Reduce Human Error</td>
<td>• Operator Training</td>
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<td></td>
<td>• Procedural Operations</td>
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<tr>
<td></td>
<td>• Alarm Management</td>
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<td></td>
<td>• ASM</td>
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<tr>
<td>Reduce Incidents</td>
<td>• Asset Management</td>
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<tr>
<td></td>
<td>• Alarm Rationalization</td>
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<td></td>
<td>• Plant Performance Monitor</td>
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<td></td>
<td>• Equipment Health Monitoring</td>
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<tr>
<td>Maintain Stable Control</td>
<td>• Advanced Control</td>
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<td>• Regulatory Control</td>
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Examples Of Improved Safety

Sasol, South Africa

- Central control room improves process efficiency and plant safety
- Improved safety due to better transparency of workflow processes and conditions
- Improved communication among the different DCS operators

Honeywell Chemical Facility, USA

“Having the security system totally integrated with process control is what makes this project best in class. We are now able to get the right information out to the right people quickly and go into action immediately. This reduces risk, enhancing not only security, but safety.”

Bill Lessig, Plant Manager, Honeywell Geismar Site

To see details on these stories & more, click here to view Honeywell web site
## Improved Reliability – Detection & Prevention

<table>
<thead>
<tr>
<th>Challenges</th>
<th>Solutions</th>
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<tbody>
<tr>
<td>Increase Asset Availability</td>
<td>• Equipment Health Monitoring</td>
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<td></td>
<td>• Plant Performance Monitor</td>
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<tr>
<td></td>
<td>• Wireless Solutions / Handheld Devices</td>
</tr>
<tr>
<td>Protect High Capital Assets</td>
<td>• Migration Path Solutions</td>
</tr>
<tr>
<td></td>
<td>• Asset Management</td>
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<tr>
<td></td>
<td>• Equipment Health Monitoring</td>
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<tr>
<td>Operate Consistently</td>
<td>• Boundary Management</td>
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<td></td>
<td>• Advanced Process Control</td>
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<tr>
<td>Enhance Asset Lifecycle</td>
<td>• Open Systems Management</td>
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<td></td>
<td>• Lifecycle Services</td>
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<tr>
<td></td>
<td>• Advanced Solutions</td>
</tr>
<tr>
<td></td>
<td>• Plant Performance Monitor</td>
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<tr>
<td></td>
<td>• ORP Corrosion Detection</td>
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Examples Of Improved Reliability

Formosa Chemicals, Taiwan

“Honeywell gave us insight into the energy savings applications that were possible with wireless technology for more accurate and reliable temperature measurement which in turn helped us save money, improve processes and increase safety.”

C.M. Jeng, Section Chief, Formosa Chemicals

DuPont, USA

“Since adding the online connection to our Honeywell Solution Enhancement Support Program, we have cut the time to identify and resolve system-related issues in half when the tool is used.”

Jeff Kesterson, Research Associate, DuPont

To see details on these stories & more, click here to view Honeywell web site
## Improved Efficiency – Faster & Better Decision Making

<table>
<thead>
<tr>
<th>Challenges</th>
<th>Solutions</th>
</tr>
</thead>
</table>
| Increase Thermal Efficiency         | • Advanced Control & Optimization Solutions  
• Simulation Solutions  
• Energy Dashboard  
• Energy Management |
| Increase Capacity Utilization       | • Energy Dashboard  
• Advanced Control  
• Demand-side Management |
| Capture Best Operating Practices    | • Training Simulation  
• Procedural Operations  
• Advanced Alarm Management  
• Wireless Mobility |
| Increase Resource Productivity      | • Alarm Management (ASM)  
• MES |
Examples Of Improved Efficiency

**Basell, Germany**

“MPC and RTO significantly improved the quality of control in our plant and helped us to operate the plant at the economic optimum.”

Advanced Process Control Technologist  
Ethylene Plant 4, Basell

**IRPC Petrochemicals, Thailand**

“Honeywell’s best-in-class technology and elite team of experts have supported IRPC to continuously benefit from overall improved operations. This seamlessly delivered Experion R300 platform integrated with Safety Manager is proving to be highly reliable.”

Sompas Samnianglam, Instrument Section Manager, IRPC

To see details on these stories & more, [click here](#) to view Honeywell web site.
## Improved Sustainability – Reduce Lifecycle Costs

<table>
<thead>
<tr>
<th>Challenges</th>
<th>Solutions</th>
</tr>
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</table>
| Environmental Compliance without Sacrificing Output | • Emissions Monitoring & Reporting  
• Advanced Control  
• NOx Reduction Technologies  
• Carbon Capture & Sequestration |
| Knowledge Transfer to new employees             | • Operator Training Simulation  
• Procedural Operations |
| Utilize Alternative Energy                      | • Renewable Process Technology (Pyrolysis)  
• Automation & Control Solutions               |
| Sustain Benefits Over Lifecycle of Solution     | • Performance Management Services  
• Remote Performance Monitoring  
• Lifecycle Management Services               |
Examples Of Improved Sustainability

Yara Belle Plaine, Canada

- Nitric acid plant increased energy efficiency and reduces greenhouse gas emissions with Advanced Process
- Reduced energy consumption by 5%
- Maintained tight control of NOx emissions to spec and reduced methane emissions by 25%
- Increased production capacity by 3%

Lyondell, USA

“Thanks to Honeywell’s simulation technology we have been able to increase the overall knowledge base of current operators and provide broader scenario training to future employees.”

Tommy Russell, Simulator Specialist
Lyondell Bayport Choate
The Honeywell Difference

- Products / Services / Solutions
  Developed and Delivered Specifically for Each Industry

- HPS is Currently Executing Projects
  Globally Worth $2 Billion
  - Over 150 Main Automation Contract projects executed on time & on budget

- Maintaining / Supporting Customer’s Systems for Over 30 Years
Recent Acquisitions / Alliances 2003 - 2007

- **Dec. 2005**
  - Acquisition delivering improved refinery operation solutions

- **2006**
  - Development of renewable energy & chemicals group

- **Aug. 2006**
  - Acquisition delivering comprehensive solutions for transportation, storage & blending operations
  - Global Alliance providing jointly MES/ERP solutions

- **Jan. 2007**
  - Acquisition of APC & Optimization business incl. linear & non-linear controls & optimization software + personnel

- **Jun. 2007**
  - Acquisition delivering comprehensive solutions for transportation, storage & blending operations

- **Oct. 2007**
  - Acquisition accelerating our expansion in wireless/data collection technology

- **2003**
  - Partnership with Wood Group for integrated Turbine Control

- **2004**
  - Acquisition of operator training business & HYSYS process modeling software from AspenTech

- **2005**
  - Acquisition of hazardous, flammable & combustible gas & fire detection systems
  - Acquisition of online corrosion detection & prevention systems & related services

- **2006**
  - Acquisition of operator training business & HYSYS process modeling software from AspenTech

- **2007**
  - Acquisition of operator training business & HYSYS process modeling software from AspenTech
Recent Acquisitions / Alliances 2007 - 2011

**Nov. 2007**
- Acquisition of Norcross Safety Products, a leading manufacturer of Personal Protective Equipment

**Apr. 2008**
- Acquisition of laser, mobile imaging & remote scanning leader,
- Acquisition delivering combustion burners, gas valves, low Nox burners, & engineered systems that provide industrial businesses with energy & environmental solutions

**Jul. 2008**
- Acquisition of Metrologic

**Sep. 2009**
- Acquisition of Matrikon and Matrikon OPC market leader in operations performance management

**Dec. 2008**
- Acquisition of Callidus Technologies, LLC providing design, supply & commissioning of environmental & combustion equipment & services for O&G & petrochemicals

**Jun. 2009**
- Acquisition of Germany based global leader in natural gas measuring, control & analyzing equipment, services, & integrated solutions

**Jan. 2010**
- Acquisition of Shell’s OTTER technology helping to guide field operators

**Jun. 2010**
- Partnership with Synengco to sell SentientSystem advanced control for utility power

**Jun. 2010**
- Acquisition of SentientSystem advanced control for utility power