

Honeywell



automation

GEN NEXT

Honeywell

**Operational Improvement with
Advanced Automation**

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Honeywell Process Solutions Overview

\$2.2B Revenue

10,000+ Employees

95+ Countries

Products

Field Devices,
Tank Gauging,
Sensors, Wireless,
Control Systems,
Advanced Applications



Projects

Integrated System
Applications



Project Services



Refining,
Pulp & Paper,
Mining



Oil & Gas,
Power



Life Sciences,
Chemicals



Aftermarket Services

Maintenance,
Software Upgrades,
Parts Management,
Remote Diagnostics,
Lifecycle
Management,
Safety and Security



**Nearly 50% of Honeywell Portfolio helps improve
Energy Efficiency**

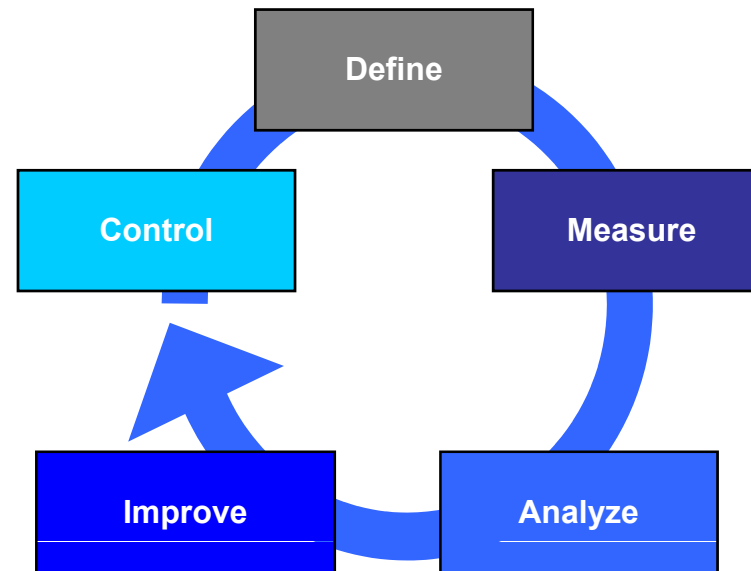
6-Sigma Approach for Sustainable Value

Site Benchmarking

- Site audit – Determine current state and improvement opportunity
- Benchmark with best in class – create site KPI's e.g. fuel consumption, emission etc.

Sustain the Benefits

- Training of operators
- Long term Maintenance Program
 - Remote Monitoring
 - Updates/upgrades of software



Measure Emissions, Efficiency, Load Profile

- Sensors deployment
- Performance monitoring Tools.

Plant Optimisation

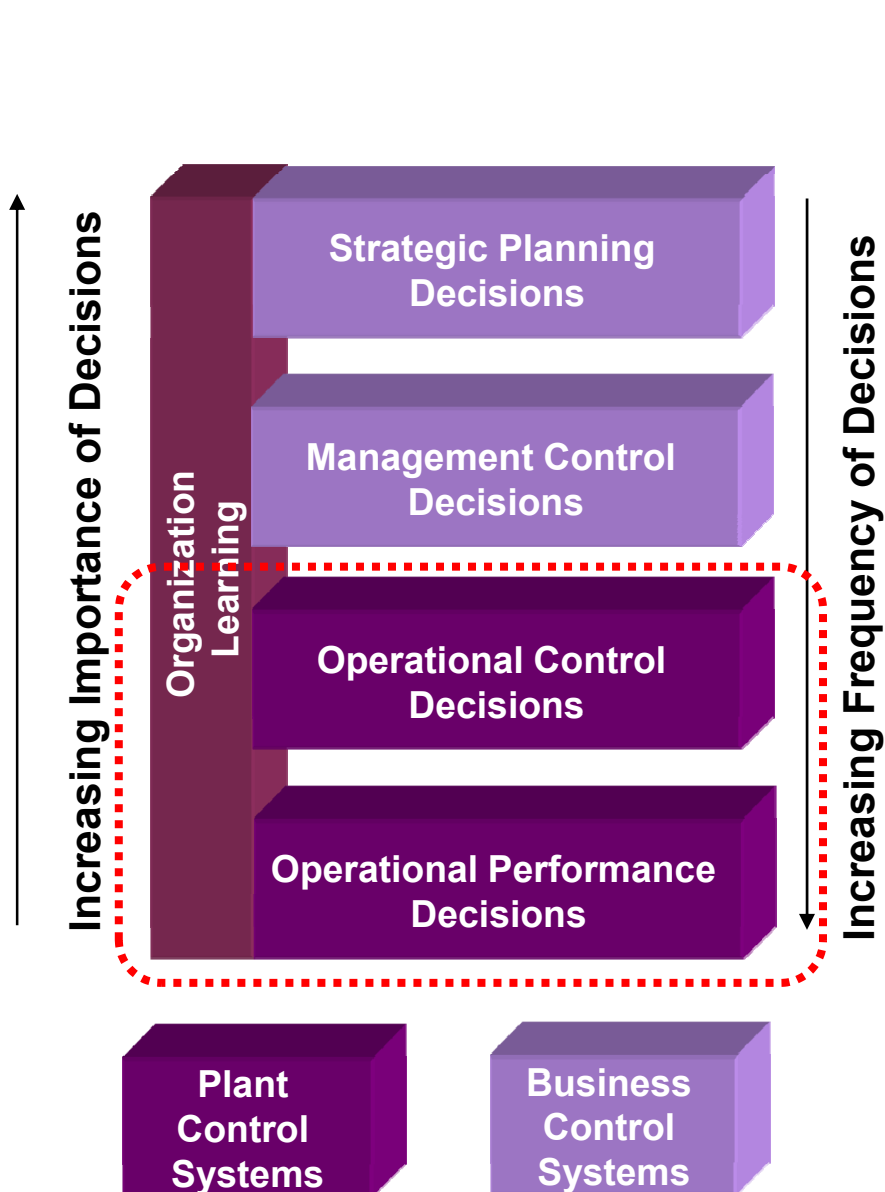
- Deploy appropriate Advanced Control Solutions tools to mitigate value at risk
- Solution tuning
- Performance assessment

Identify Value at Risk

- Analysis of Re loss due to boiler in-efficiency
- Re Value due to GHG emissions
- Commercial impact of not meeting the contractual obligations

Proven Methodology to delivery Higher Value

Across the Fleet



- **Consistency in operational decision** making across the whole fleet.
- Allow expertise to be deployed across entire fleet regardless of **geographical** location. (Centers of excellence applied across entire fleet)
- Integration of local **expertise** and global expertise
- Allowance for integration of new assets into fleet wide systems **without disruption** of site based operation.
- **Closed Loop Optimization Automation** (Boiler, Turbine, Unit, Station)
- **Knowledge Automation** (early warning, root cause etc)

Functionality



Capability	Functionality	Benefits
Hybrid model and analysis framework	First Principle Thermodynamic model with adaptive capability	Benefits realized in conjunction with appropriate other modules (not used standalone) High fidelity first principle engine
Boiler Optimisation	Combustion system and boiler optimization	Reduced Emissions CO2 CO NOX Reduced Fuel consumption
Soot blower Optimization	Control blowers individually based on heat transfer deterioration	Minimizes blowing related combustion upsets Improves average unit heat rate Reduces steam losses Adapts to coal changes No additional instruments
Turbine Optimisation	Unit Optimisation	Maximizes MW from Turbine whilst minimizing fuel consumed
Multi Unit Optimization	Dispatch of next most cost effective MW	Automated least cost generation dispatch
Performance monitoring	Performance calculations Comparison with best possible and design performance	Accurate best possible performance assessment based on current asset status as well as verses design
Early Warning System	Identifies deviation in plant or component performance	Increased Plant load factors, decreased forced outages, reduced maintenance costs
Root cause analysis system	Accurate and reliable analysis tool allowing assessment reasons for failure and plant deterioration	Maximizes effectiveness of limited skilled asset managers
Knowledge management	Leverages and captures expert knowledge across multiple assets, allows what if analysis.	Reduces unforced outages, leverages limited availability of skilled asset engineers
Creep and fatigue monitoring system	Assess deterioration of high temp components based on operating regime	True cost of ownership - Increases ability to manage assets strategically

➤ Technology

- *Best in Class Technology ownership of products and solutions offered thus safeguarding investment and ensuring future Technology enhancements through **Continuous R&D investments***
- ***Broad portfolio***

➤ Delivery & Local Support capabilities

- *Best in class **Project execution** of large integrated solutions*
- ***Local Capabilities** and infrastructure to deliver project on Schedule*
- *Necessary **Domain Expertise** to deliver quantifiable business benefits.*

➤ Life Cycle Services & Support

- *Unmatched local capabilities to **support** products and solutions through **lifecycle**.*
- *Continuous **Technology enhancement** to deliver life cycle benefits.*
- *Sustaining benefits from automation investments through lifecycle services.*

➤ Secure Financial Position

- *A **secure financial position** and a **robust business model** to sustain it through different business cycles*

Thank You



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www.honeywell.com/ps/india