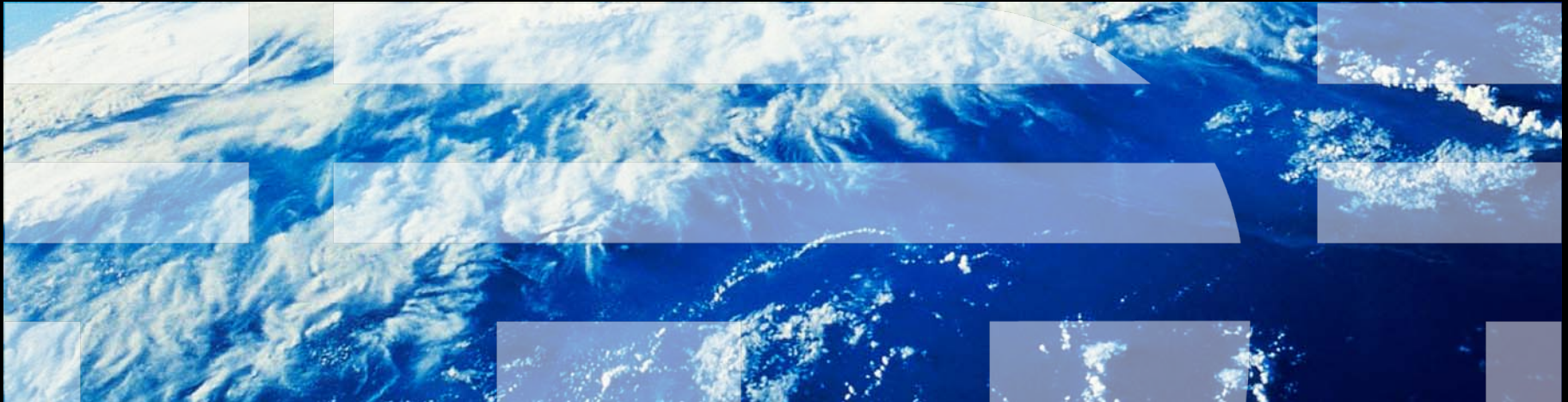


Green Strategies: Technology Leading Eco-efficiency



Agenda

Dave Lubowe, Vice President and Partner, Global Operations Strategy,
IBM Global Business Services

Jeremy Michael Vincent, Chief Information Officer,
Jaguar and Land Rover

Peter O'Shea, Chief Information Officer,
Electricity Supply Board, Ireland

Questions & Discussion

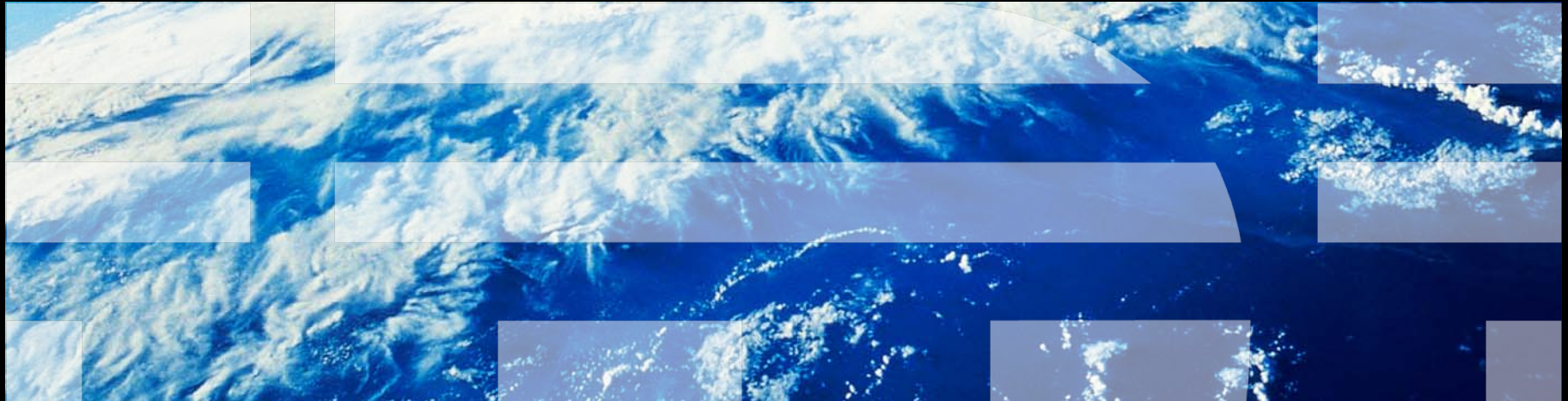
Dave Lubowe

Vice President and Partner, Global Operations Strategy,
Global Business Services

IBM Corporation

IBM Green Sigma™

Working Together to Build a Smarter Planet



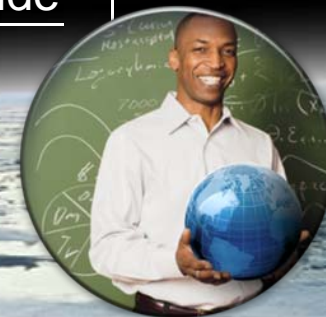
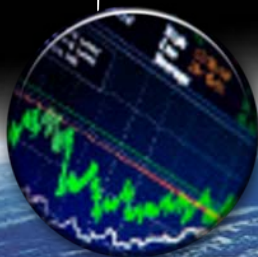
The ecological reality of living in a globally integrated world is upon us

Economic downturn and uncertainty about the future

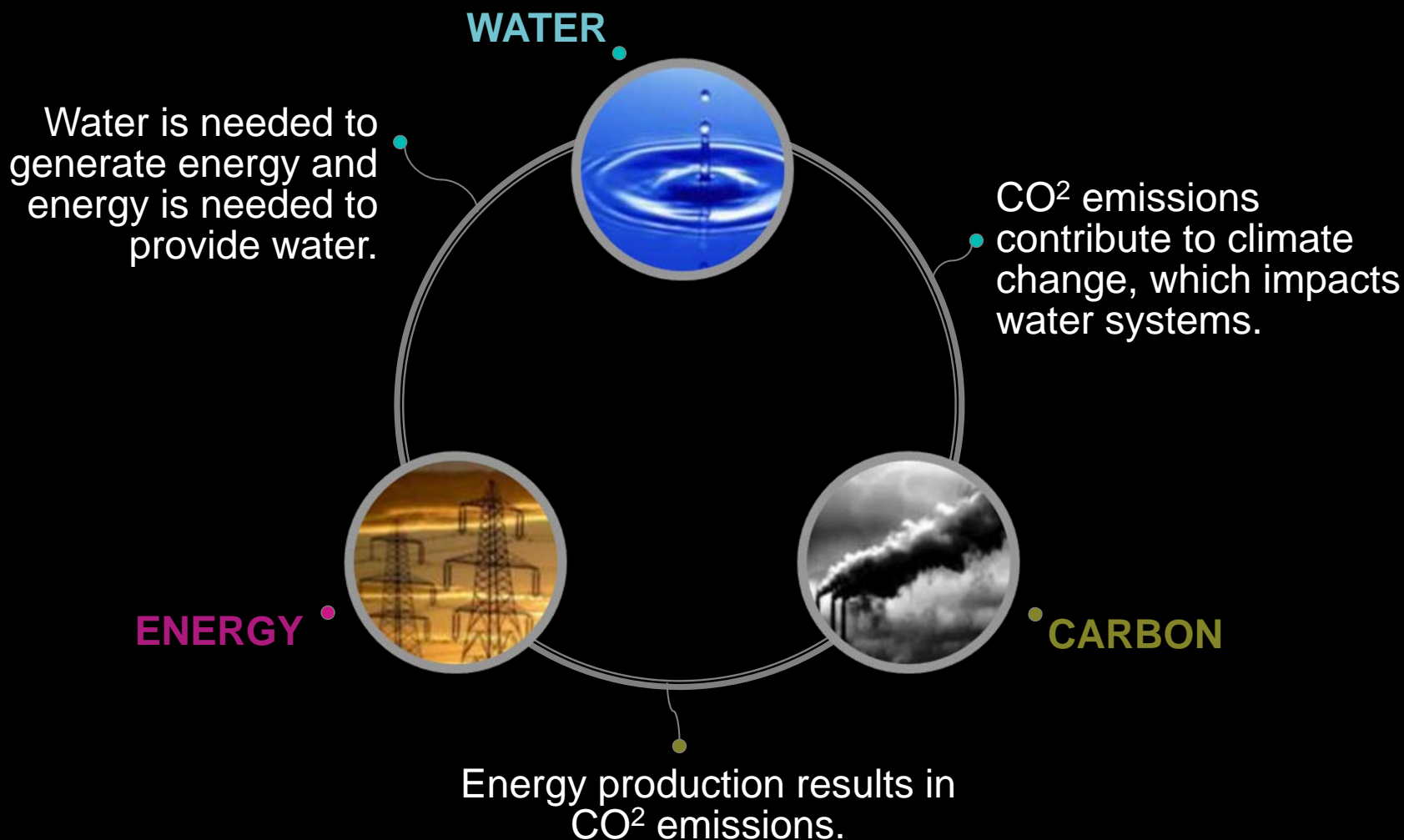
Increasingly empowered and interconnected customers demand more responsible business practices

Energy shortfalls combined with volatility in price and demand for energy worldwide

Transience in price and availability of shrinking natural resources, worldwide



Organizations will need to satisfy new requirements while operating more responsibly with a new range of issues and expectations around:



Green Sigma™ grew from IBM's deep internal experience in facilities and manufacturing process improvement

- Green Sigma™ is aimed at reducing energy & water, waste generation and CO₂ emissions throughout a company's operations, resulting in:
 - Lower environmental impact
 - Increased efficiency
 - Reduced costs
- The key components are:

1 Metering and Monitoring

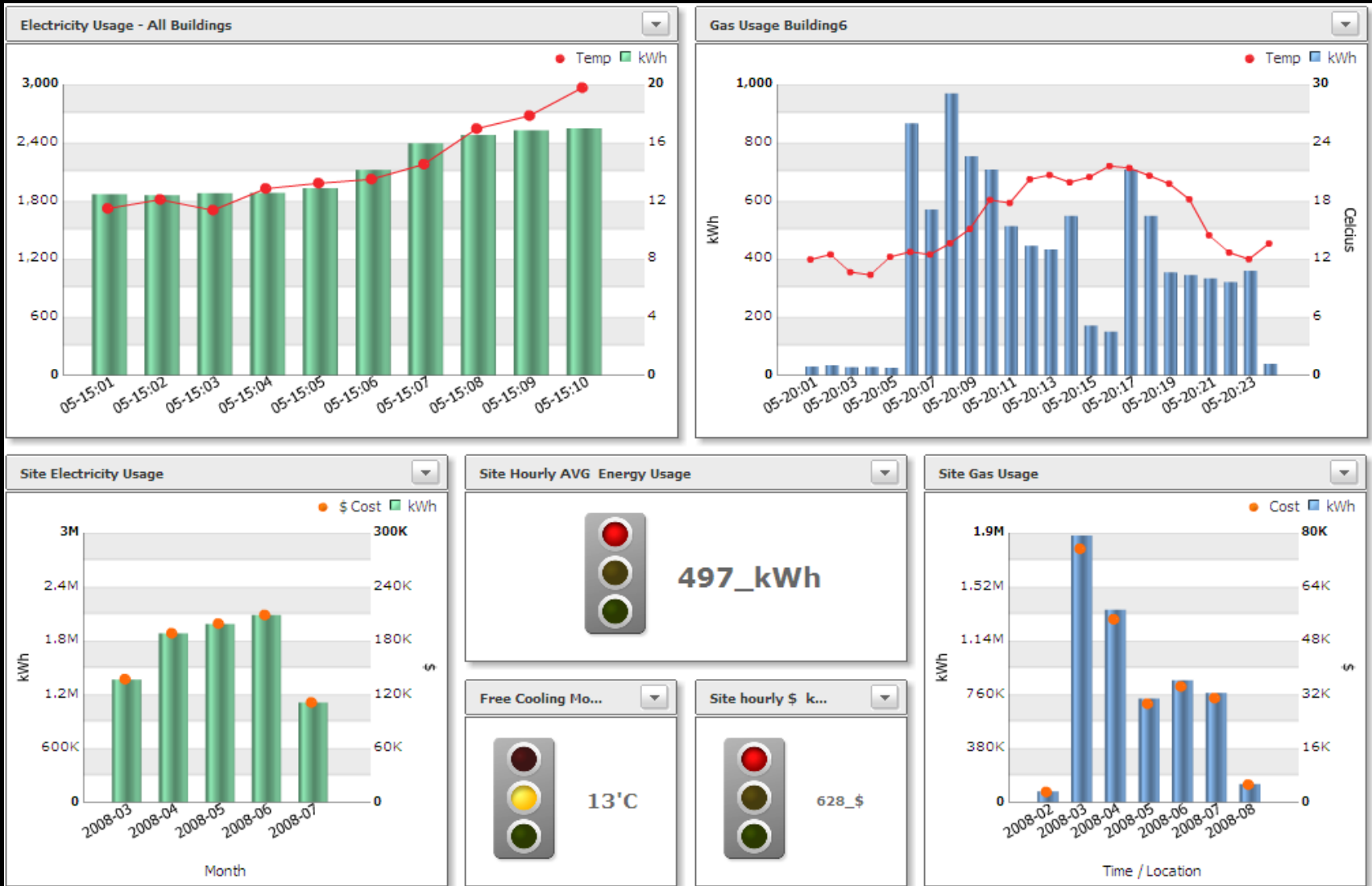
2 Management through the Green Sigma™ Dashboard

3 Applied Statistical Techniques

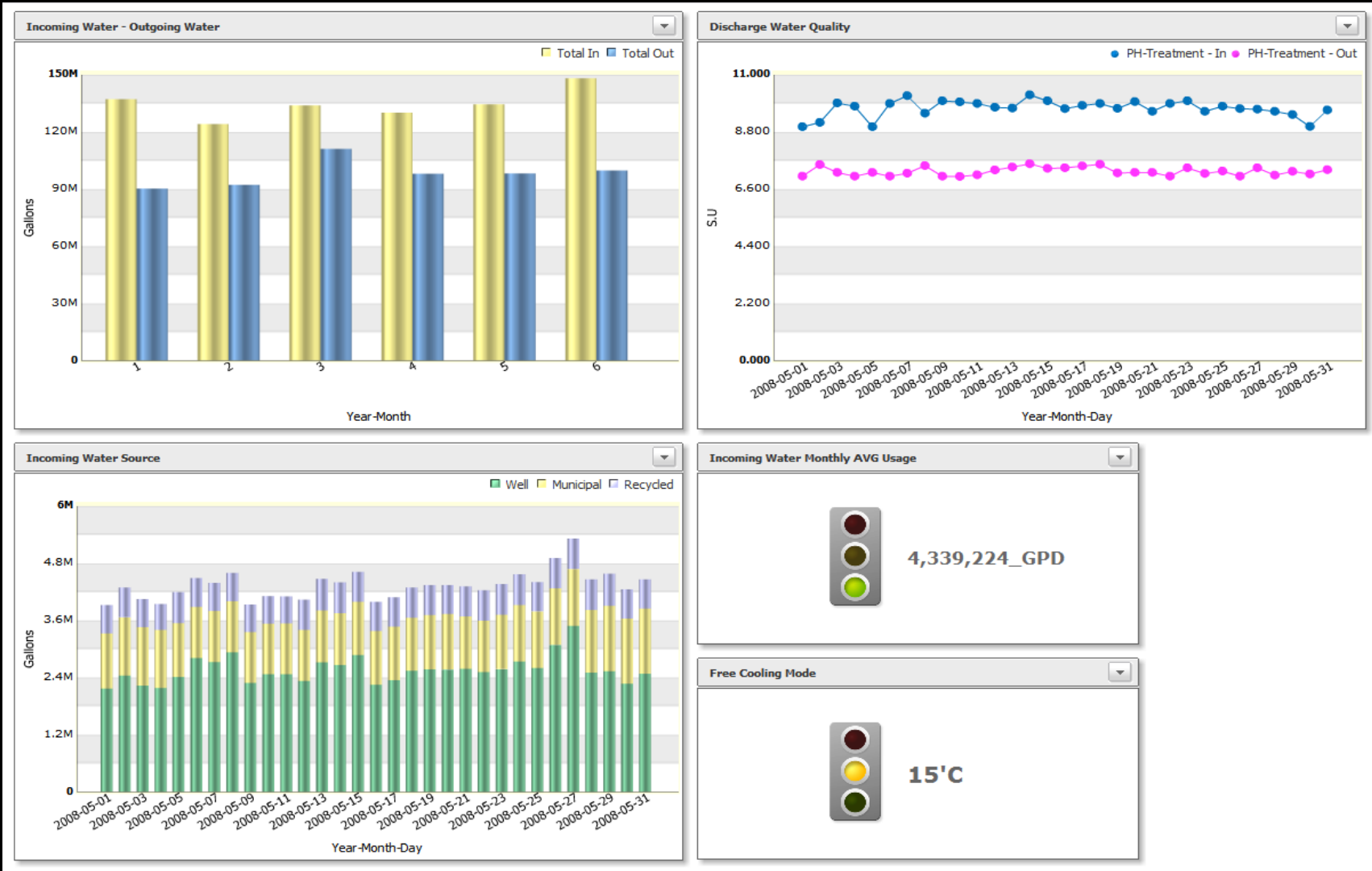


“If you can measure it, you can manage it”

The Green Sigma™ Dashboard for Energy proactively monitors KPI data, alerts and trends, and enables drill-down analysis...



Similarly, the Green Sigma™ Dashboard for Water monitors KPI data, alerts and trends to drive Water related benefits



Energy Reduction - Manufacturing Operations and Facilities

Challenge

- Reduce environmental impact
- Energy reduction and cost savings

Approach

- Started at one manufacturing site. Now implementing worldwide
- Deployed metering to monitor infrastructure
- Applied Lean Six Sigma process measurement and process transformation concepts of Green Sigma™
- Utilized Green Sigma™ Dashboard to provide alerts for out of tolerance conditions, feed analysis and show trends analytics
- Utilized this information to redesign operations processes and optimize infrastructure equipment



Results

- Operations team knows where and why all energy is being consumed
- Ongoing conservation efforts and Green Sigma analyses yielded 10% reduction in energy use over a 12 month period
- Including a 23% improvement in the most recent 5 months

Water Management - Manufacturing Process

Challenge

- Reduce water consumption (and associated need for energy, chemicals, maintenance and labor) to reduce operating cost and minimize environmental impacts
- Leverage end-to-end data acquisition, storage and visualization techniques to monitor water usage and improve efficiency

Approach

- Water usage broken down by process and managed through key process indicators
- Implemented data collection and storage infrastructure: sensors, IT network and servers
- Statistical process control techniques used to continually analyze vast amounts of operational data and present information in efficient, concise interface



Result

- Reduced water consumption 27% while production increased over 30%

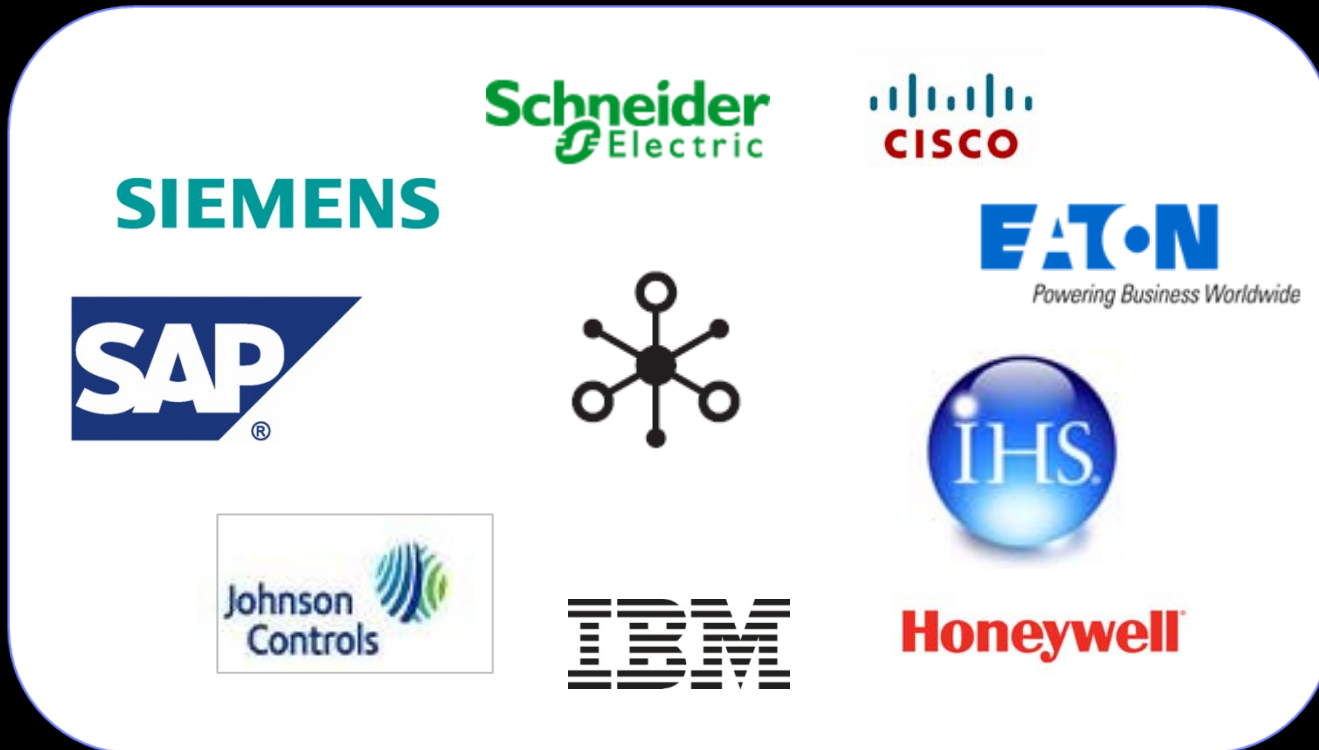


The Green Sigma™ Coalition: 9 companies (so far) working together to co-create a Smarter Planet

Accelerating the move toward sustainable enterprises

Collaborating on showcase projects to drive quick ROI & continuous improvement

Enabling public & private enterprises to reduce energy, water, waste and GHG Emissions... across the value chain





Other sustainable solutions from IBM help account for the environmental and social impacts of doing business

Governance & Business Strategy



Develop CSR and sustainability strategies

Benchmark for sustainability and corporate social responsibility (CSR)

Develop strategies to reduce energy and CO2 emissions

Provide reliable and verified collection and reporting of energy and environment data to streamline compliance

Business Process Management



Apply lean and six sigma principles to reduce energy and water usage, CO2 emissions and waste generation

Model, simulate, redesign and automate processes for energy efficiency and environmental impact

Reduce use of paper in business processes

Monitor & analyze green KPIs across operations

Adapt processes dynamically to environmental challenges that affect operations

Product & Supplier Management



Optimize the supply chain for service levels, quality, cost, and CO2 emissions

Product Lifecycle Management

Distribution & Logistics



Optimization strategies to balance environmental impact and cost

RFID tagging and tracking systems

Networked sensors and meters for environmental data collection

Workforce & Stakeholders



Travel reduction and work from home strategies

Distributed employee collaboration via email, instant-messaging, online conferences, and other tools

Online events and collaboration Jams