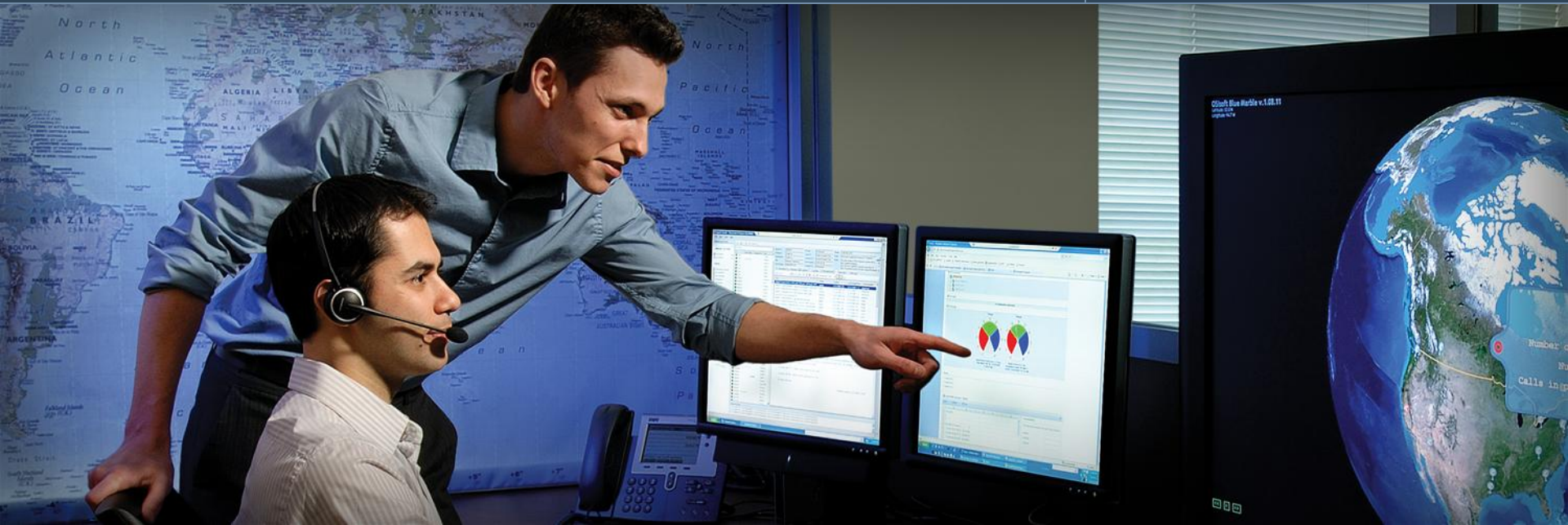**OSIsoft®**

Regional Seminar Series
Aberdeen, UK

Sustainability – It's Just Good Business

David Parsons
Account Executive
OSIsoft UK Ltd

Sept 28, 2010
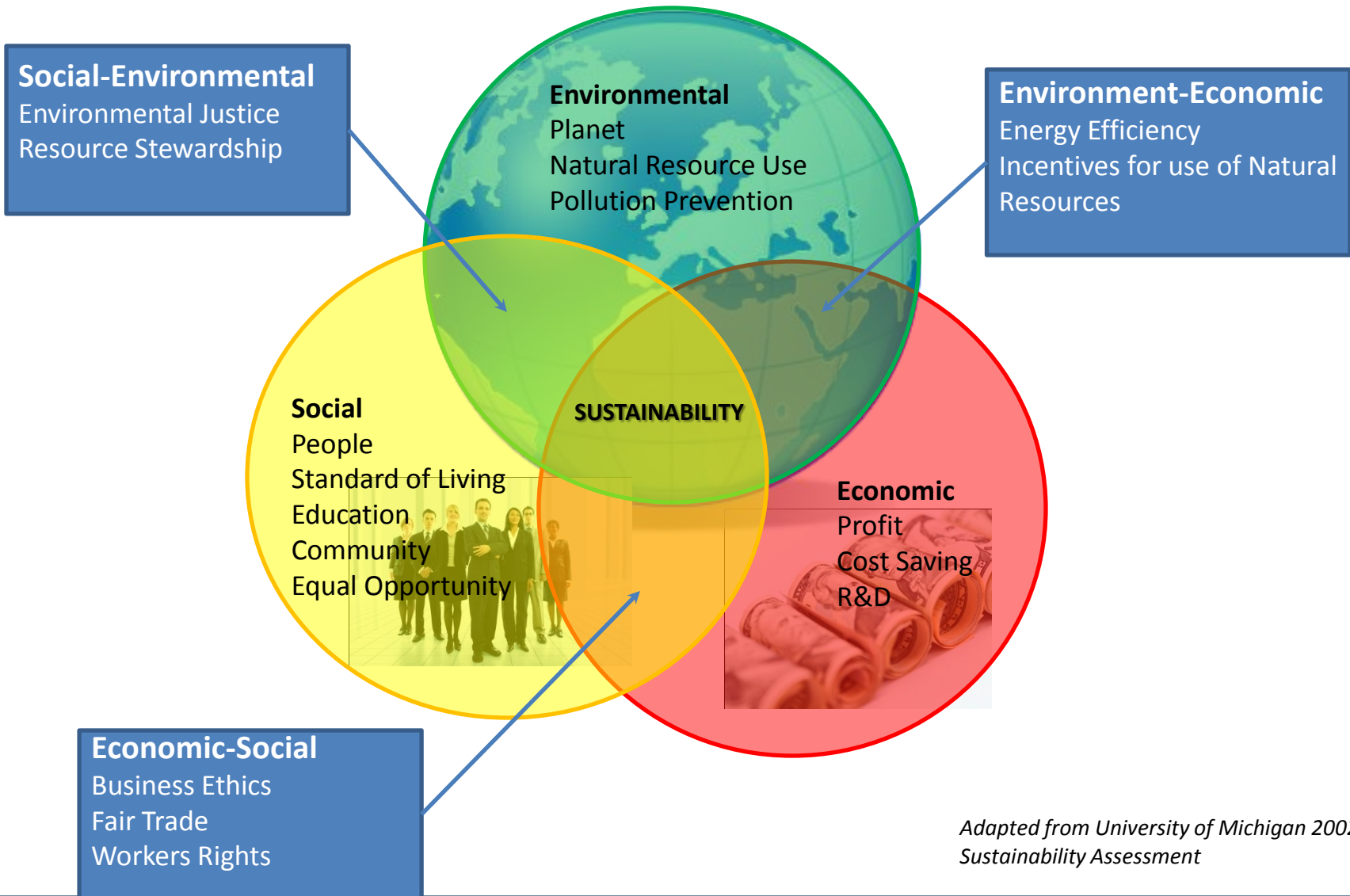
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The United Nations' "World Commission on Environment and Development" definition of *sustainable development*: "…meet the needs of the present without compromising the ability of future generations to meet their own needs."

*Our Common Future (aka Brundtland Report)* (Oxford: Oxford University Press, 1987), p. 43.

(23 years old, still heavily referenced in UN documents)

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# Sustainability – It's Just Good Business

**Social-Environmental**
Environmental Justice
Resource Stewardship

**Environmental**
Planet
Natural Resource Use
Pollution Prevention

**Environment-Economic**
Energy Efficiency
Incentives for use of Natural Resources

**Social**
People
Standard of Living
Education
Community
Equal Opportunity

SUSTAINABILITY

**Economic**
Profit
Cost Saving
R&D

**Economic-Social**
Business Ethics
Fair Trade
Workers Rights

*Adapted from University of Michigan 2002 Sustainability Assessment*

# OSIsoft – A Sustainable Business for 30 Years

- Core competencies
  - Strategic Focus
    - Customer Value
    - One product - The PI System
  - Expanding Infrastructure
    - Customer Support
    - Increased Local Presence.
  - Continuous Improvement
    - Agile Product Development
    - Standards Adoption (DEC/VMS/Unix -> Windows, 64bit)
- OSIsoft's energy and resource efficiency efforts
  - Significant move to remote installs—on site is rare today
  - Less shipment of products—downloads are preferred by many customers
  - Electronic books, CBT
- OSIsoft is an Enabler of Sustainability Initiatives

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# Industry Roles in Sustainability

**POWER & UTILITIES**

Utilities supply the electrical energy and water infrastructure society cannot function without

**OIL & GAS**

Oil and Gas supply the energy source for many uses

Very important in transportation

**CHEMICALS & PETROCHEMICALS**

Strong light-weight polymers and fibers required for efficient transportation, renewable generation and many other structures

**PHARMACEUTICALS, FOOD & LIFE SCIENCES**

Extremely important for quality of life
Natural resources saved through disease prevention and cure

**MATERIALS, MINES, METALS & METALLURGY**

Fundamental to the modern infrastructure. Mechanical structures, electrical conductors, catalysts.

**PULP & PAPER**

True renewable resource. Very important to packaging and communication.

**DATACENTERS, IT & TELECOM**

Data and transactions for the information driven economy

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OSIsoft

Shell 2009 Annual Report

"Making the world's energy supply secure, affordable and sustainable is not just a worthy goal; it is a global imperative. It will take time, and it will take a lot of effort. But with our far-sightedness and technical prowess, we can contribute to the endeavour even as we deliver the results that our shareholders expect in the long term."
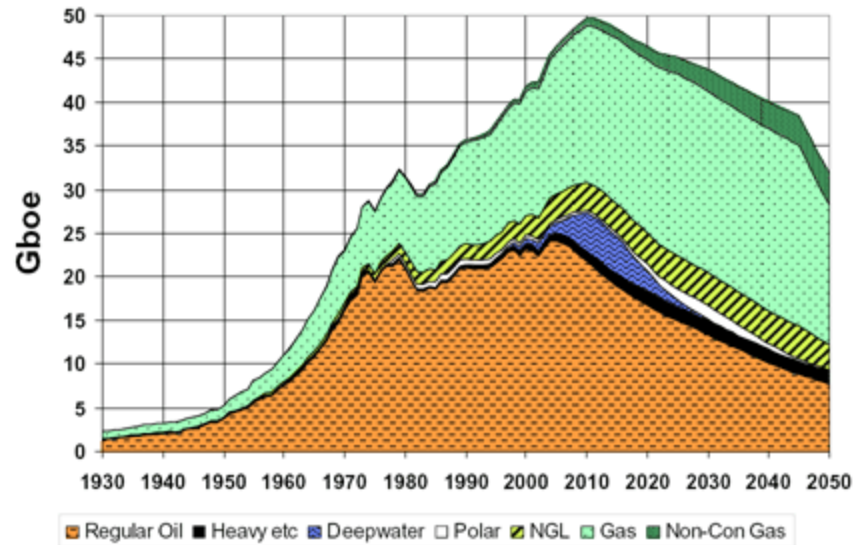
**Jorma Ollila**

*Chairman*

BP 2009 Annual Report

"We are looking to build a future energy industry that provides energy that is available, sustainable, secure and affordable".

**Tony Hayward**

Former Group Chief Executive

**ASPO: OIL & GAS PRODUCTION PROFILES**
**2005 Base Case**



Legend: Regular Oil | Heavy etc | Deepwater | Polar | NGL | Gas | Non-Con Gas

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| Abatement Leaders | | | | | | |
|---|---|---|---|---|---|---|
| Sector | Name | Ticker | Return on capital (CROCI) | | Climate change score | |
| | | | Percentile rel to sector | 09-11E aue | Percentile rel to sector | % of max |
| Utilities | Eselon Corp. | EXC | 92% | 12% | 100% | 85% |
| | Centrica | CNA.L | 98% | 16% | 94% | 75% |
| | Fortum | FUM1V.HE | 75% | 8% | 92% | 73% |
| | Verbud | VERB.VI | 59% | 8% | 88% | 68% |
| | Entergy Corp. | ETR | 61% | 8% | 75% | 65% |
| Non-power utilities | National Grid | NG.L | 54% | 7% | 81% | 68% |
| Steel & aluminium | POSCO | 005490.KS | 50% | 7% | 95% | 82% |
| Airlines | Deutsche Post | DPWGn.DE | 66% | 9% | 100% | 75% |
| Chemicals | Syngenta | SYNN.VX | 75% | 11% | 93% | 85% |
| | Givaudan | GIVN.VX | 56% | 9% | 90% | 83% |
| | Praxair Inc. | PX | 71% | 10% | 84% | 77% |
| | PPG Industries, Inc. | PPG | 53% | 9% | 78% | 71% |
| | Sigma-Aldrich Corp. | SIAL | 84% | 14% | 81% | 75% |
| Mining | Vale | VALE | 89% | 18% | 100% | 86% |
| | BHP Billiton | BLT.L | 73% | 17% | 85% | 82% |
| Oil & Gas | Sterlite Industries | STRL.BO | 94% | 21% | 80% | 74% |
| | EnCana Corp. | ECA | 68% | 13% | 100% | 83% |
| | Chevron Corp. | CVX | 55% | 12% | 98% | 80% |
| | Suncor Energy Inc. | SU | 72% | 14% | 90% | 74% |
| | BG Group | BG.L | 88% | 17% | 90% | 74% |
| | Exxon Mobil Corp. | XOM | 87% | 16% | 83% | 72% |
| | Hess Corp. | HES | 77% | 14% | 79% | 70% |
| | PTTEP | PTTE.BK | 94% | 18% | 75% | 68% |
| Road & rail | Burlington Northern Santa Fe | BNI | 90% | 11% | 100% | 70% |

**"GS SUSTAIN"**
**An emerging investment theme**
Population growth and economic development are resulting in increasing pressure on the environment and climate. We are approaching a tipping point at which the issue's importance to business performance and investors will escalate.
The equity market is only just beginning to reflect the magnitude of change that lies ahead.
*Goldman Sachs, 2009*

# Sustainability – O&G – "doing more with less"

## Increasing Complexity…

**Social**
Expectations
Energy Demand and Diversity
Constraints and considerations

**Environmental**
Regulations
Legislation
Implications

**Economic**
Challenges
Opportunities
Risks

**Information**
Operational
Business
Social

## Decreasing Resources…

**Human Resource**
People
Knowledge
Experience
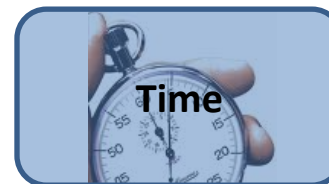
**Time**
Global Competition
Information Technology
Expectations and Norms

**Reserves**
Depletion
Security / Diversity
Nationalization

**Flexibility**
Regulations
Expectations
People & Processes

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# E&P Operations Initiatives

- Emissions / GHG monitoring
- Emissions prediction/ GHG forecaster
- Energy tracking
- Produced water monitoring
- Corrosion monitoring
- Condition Based Maintenance
- Well and reservoir performance monitoring
- Field / Production Optimisation Initiatives

SHELL
Smart Fields®

BP
Field of the
Future ™

Chevron
iField

Etc.

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# What is Sustainability? An OSIsoft Perspective
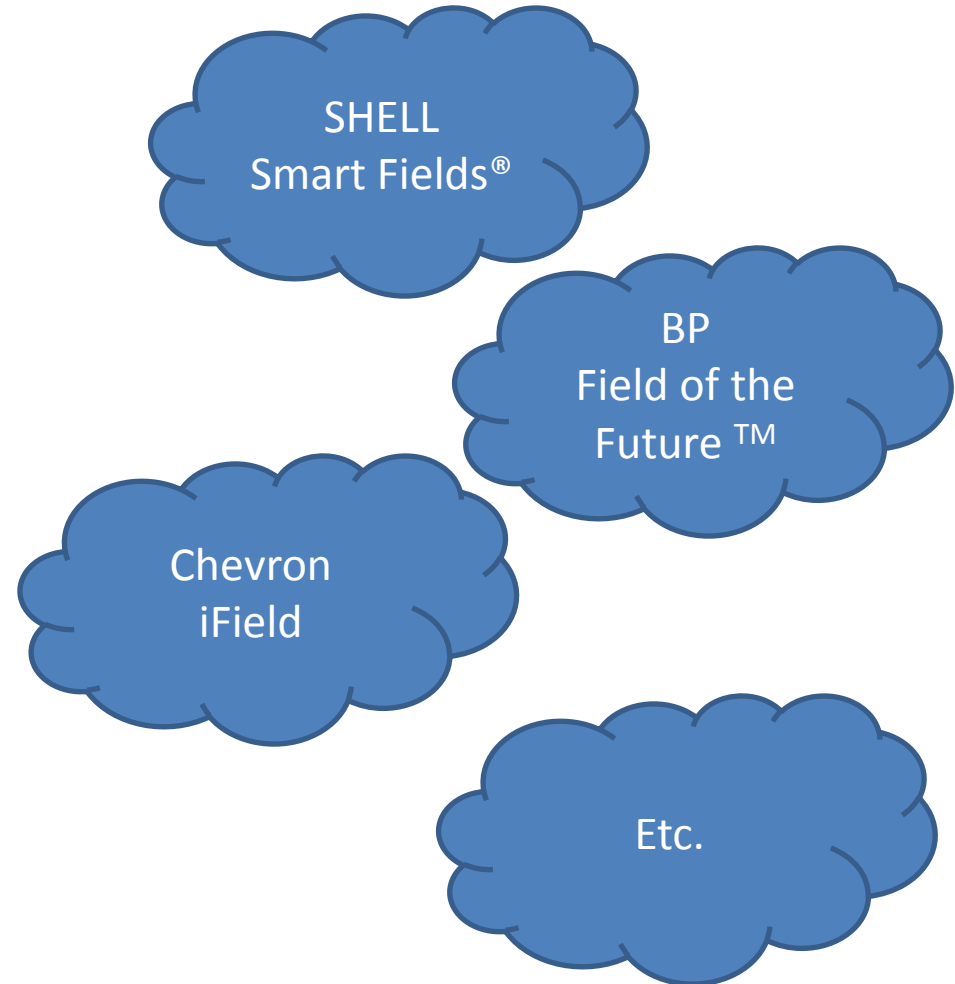
Sustainability in its simplest terms is about an enterprise's enduring success.

❑ It's about conducting business in a way that protects and preserves economic and environmental resources while also upholding social responsibilities.

❑ It requires a comprehensive enterprise wide approach.

Organizations that tackle sustainability driving innovation and capitalizing on a culture of continuous improvement can  simultaneously address profitability, pre-compliance, and public mandate.

OSIsoft as the maker of the PI System has been helping its customers better manage existing resources and empower data-driven decision-making for nearly 30 years.

❑ The PI System helps drive Sustainability efforts by creating an infrastructure for innovation and continuous improvement resulting in positive business impact with ongoing payback.
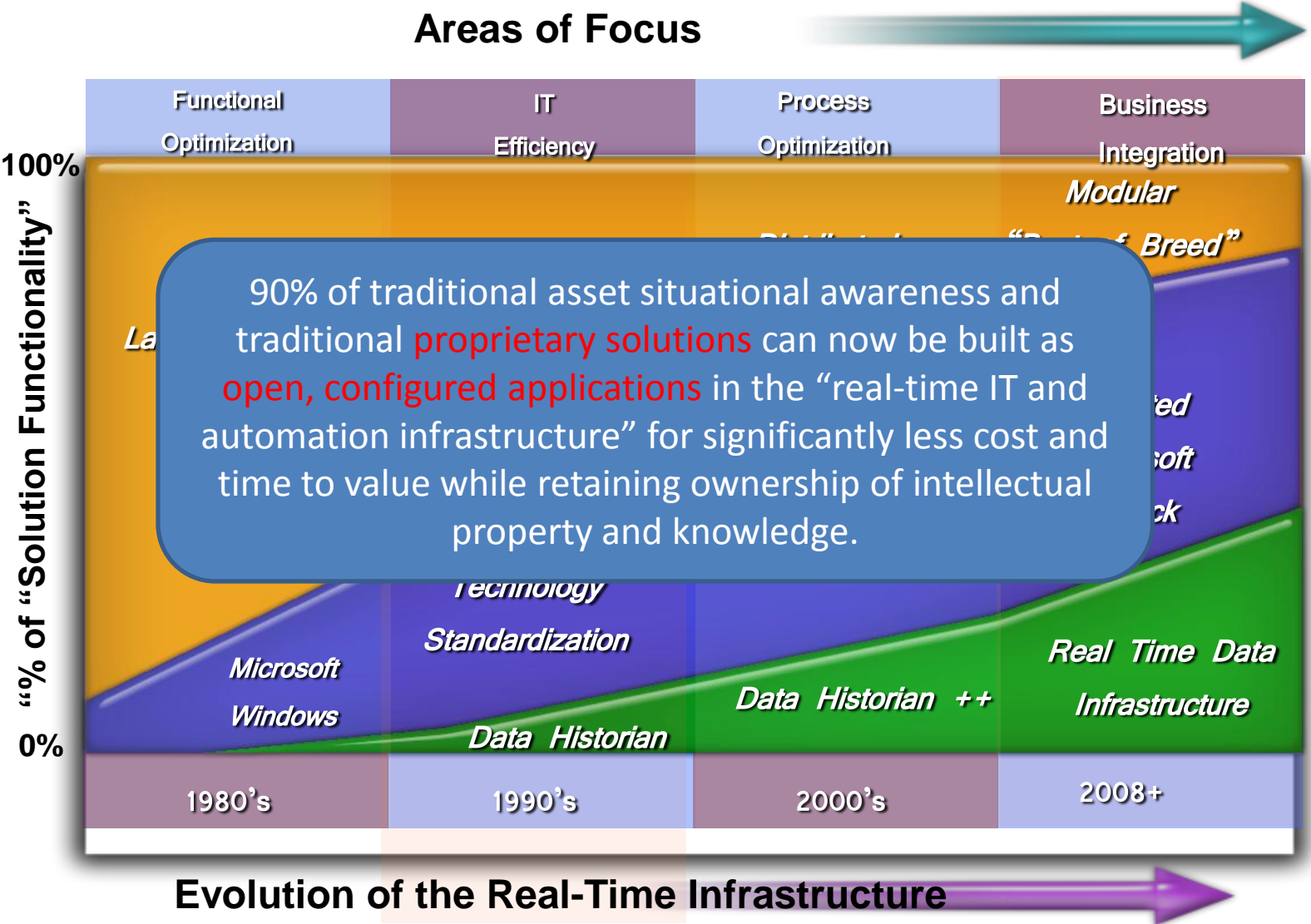
**The PI System provides answers to today's business problems and an infrastructure for tomorrow's opportunities.**
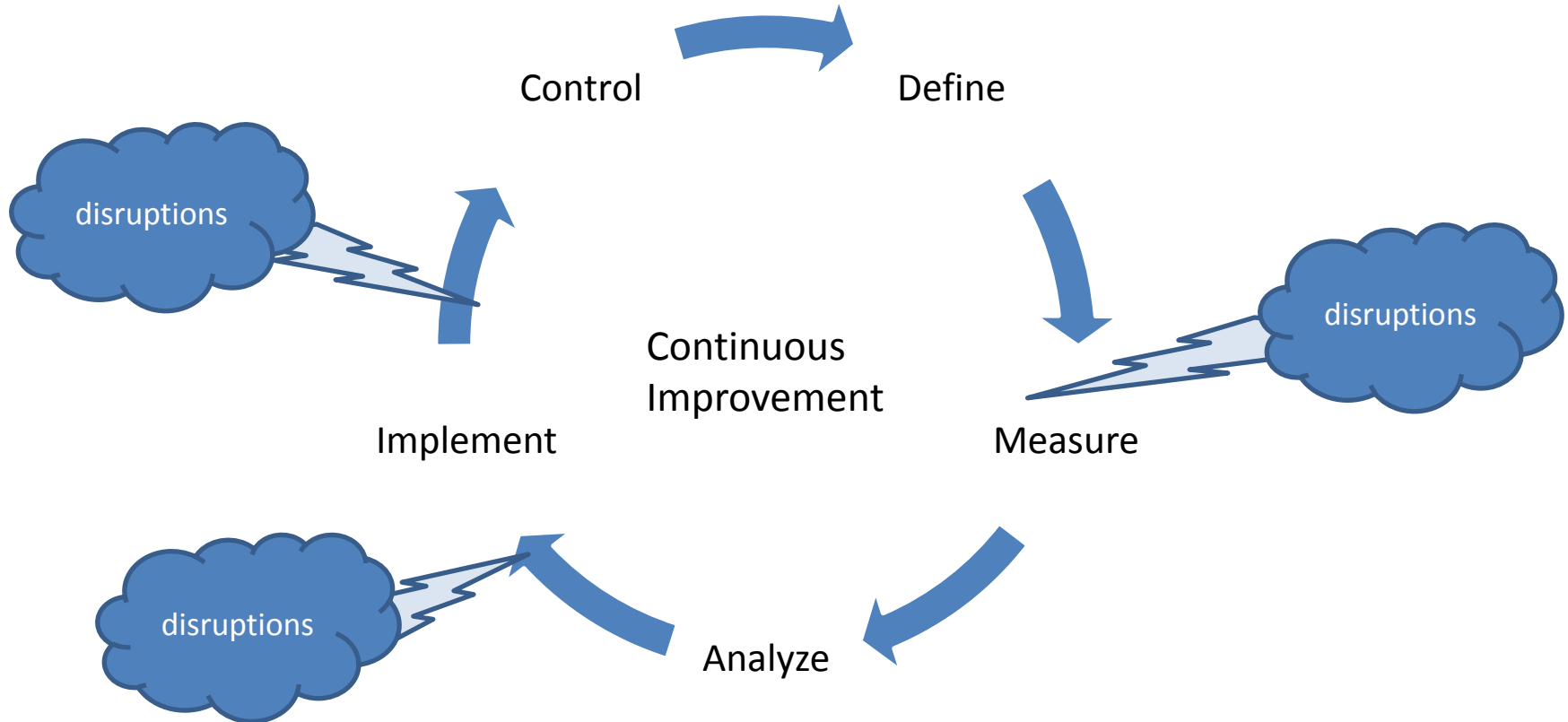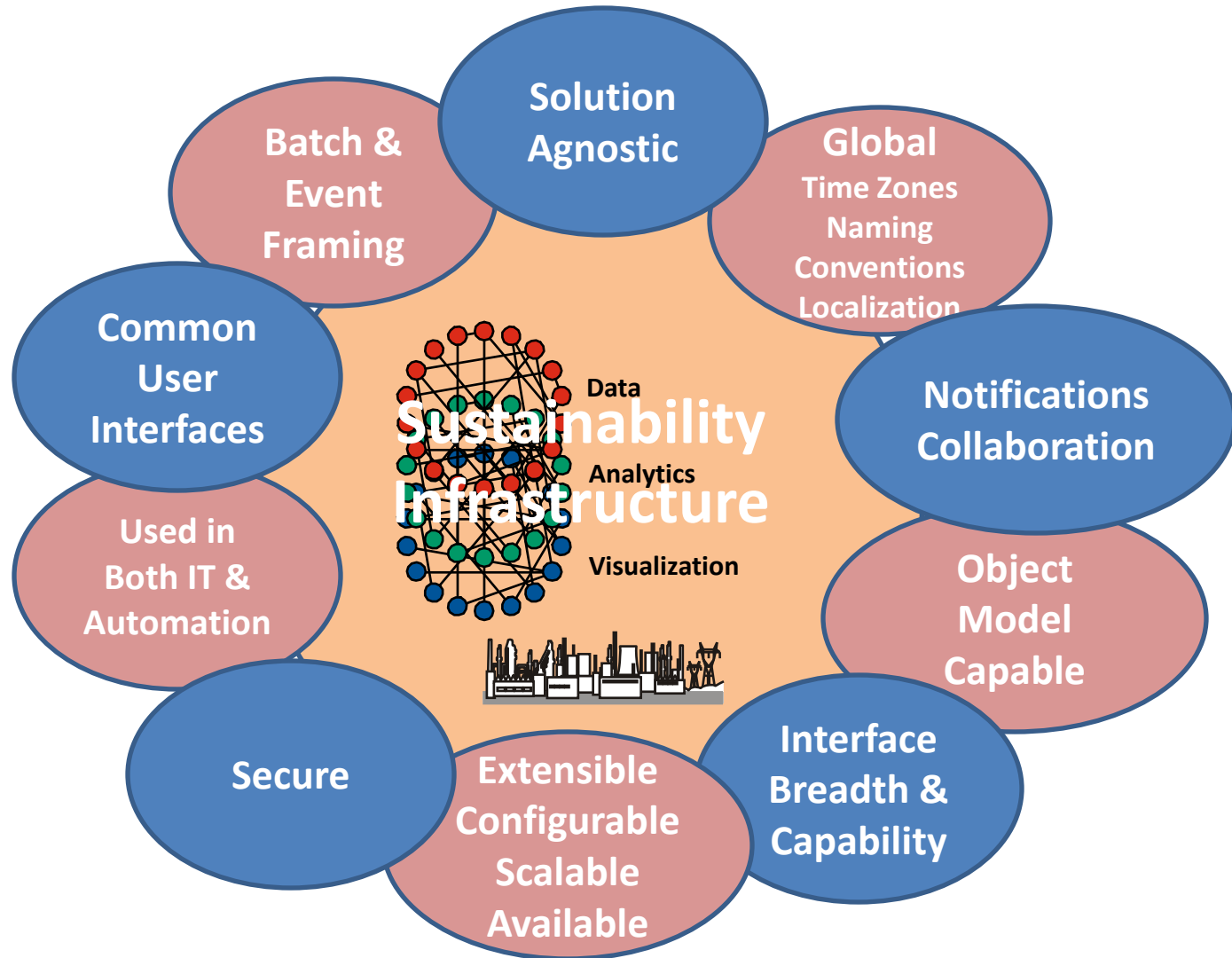
"By far, the greatest benefit to IP was Environmental Monitoring, and *this requirement wasn't even on the radar screen when we justified the Enterprise roll-out*.  This came up very immediately after the deployment, and we were able to quickly respond to this operational challenge because we had a common infrastructure to integrate with.  We had disguised many disparate systems under a common real-time layer, so our programs had enterprise applicability."
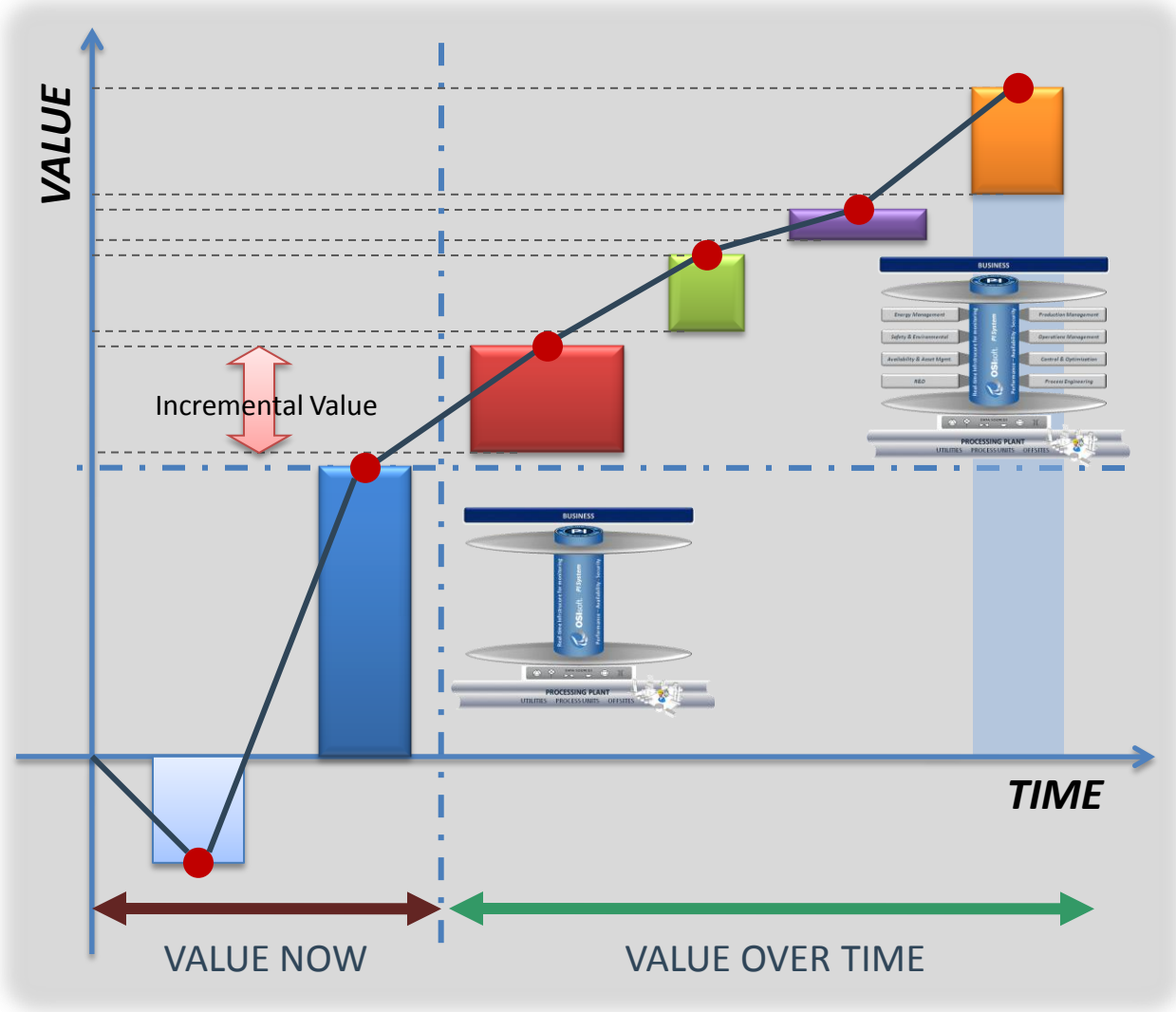International Paper Company

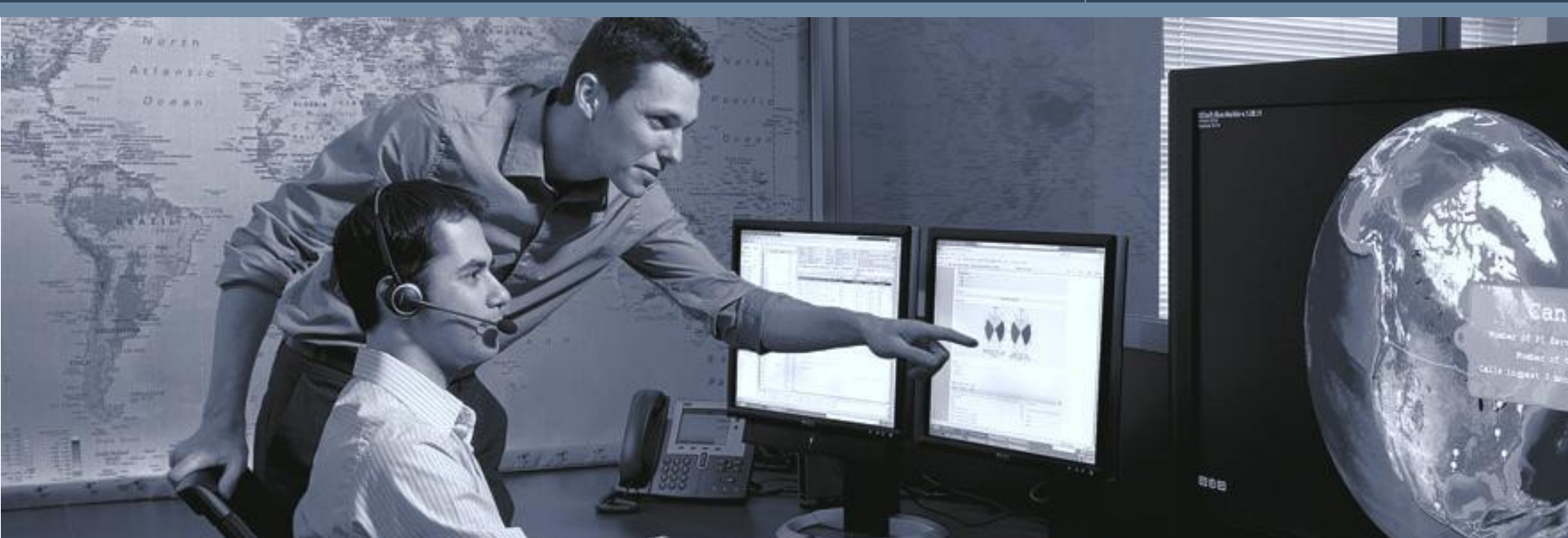# The Evolving Capability & Role of IT Infrastructure

**OSI**soft

**Areas of Focus**

**Functional Optimization** | **IT Efficiency** | **Process Optimization** | **Business Integration**

100%

"% of "Solution Functionality"

*Modular*

*"Best of Breed"*

90% of traditional asset situational awareness and traditional **proprietary solutions** can now be built as **open, configured applications** in the "real-time IT and automation infrastructure" for significantly less cost and time to value while retaining ownership of intellectual property and knowledge.

*Technology Standardization*

*Microsoft Windows*

*Data Historian*

*Data Historian ++*

*Real Time Data Infrastructure*

0%

| 1980's | 1990's | 2000's | 2008+ |

**Evolution of the Real-Time Infrastructure**

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Empowering Business in Real Time

# Infrastructure for Continuous Improvement

Sustainability – It's Just Good Business

# A PI Infrastructure – Enabling Real-Time Sustainability



| Operations Monitoring | Energy Management | Maintenance Management (CBM) | Asset Optimization |
|---|---|---|---|

**SAP** · **maximo** · **Meridian** SYSTEMS

**Microsoft**

'Sustainability' applications

Individual/Organizational Analytics & Visualization With Microsoft Tools

Real-Time Data
Batch Data
Relational Data
Quality Data
Manual Data
Structure/Asset Data
Web Data
Applications Data
Maintenance Data
ERP Data

**PI SYSTEM**
VALUE NOW, VALUE OVER TIME
POWERING THE REAL-TIME ENTERPRISE

**ENTERPRISE**
**REGION**
**Territory**
**PLANT**
**UNIT**
**MACHINE**

Across the Value Chain                    Across the Infrastructure

| Exploration | Production | Gas & Liquid Pipelines | NGL & LNG | Refining | Chemicals | Distribution & Marketing | Alternative Energy | R&D | Data Centers | IT Infrastructure | Trading |

1000's of different real-time data sources and associated interfaces that propagate through the automation space

DeltaV · ROSEMOUNT Analytical · GE FANUC · FISHER · ABB · Rockwell Automation RSView · Honeywell Plantscape · invensys. FOXBORO · ROCKWELL SOFTWARE · TECNOMATIX FACTORYLINK 7.5 · EMERSON · Bailey

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# IBM Vermont: Advanced Industrial Water & Energy Management saves $10 M annually

Advanced Water Management Case Study:
IBM 200 mm Wafer Fabricator in Burlington, Vermont
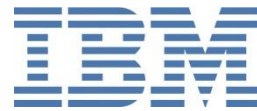
**Jeff Chapman**
Ultra Pure Water Engineer, Senior Technical Team Leader
Center of Excellence for Enterprise Operations
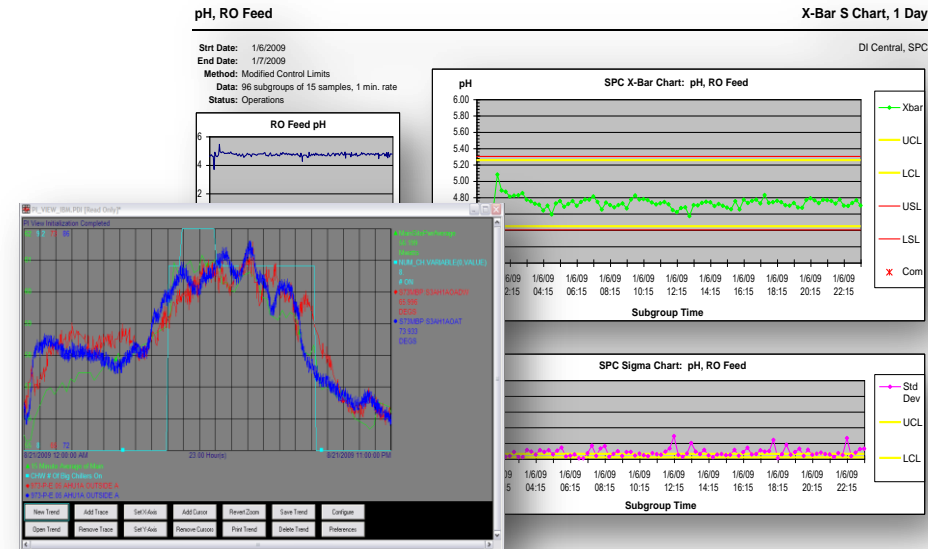
## Customer Business Challenge

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

## Solution

- 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
- IBM's Green Sigma methodology – for reducing water and electrical power consumption and increase process efficiency.
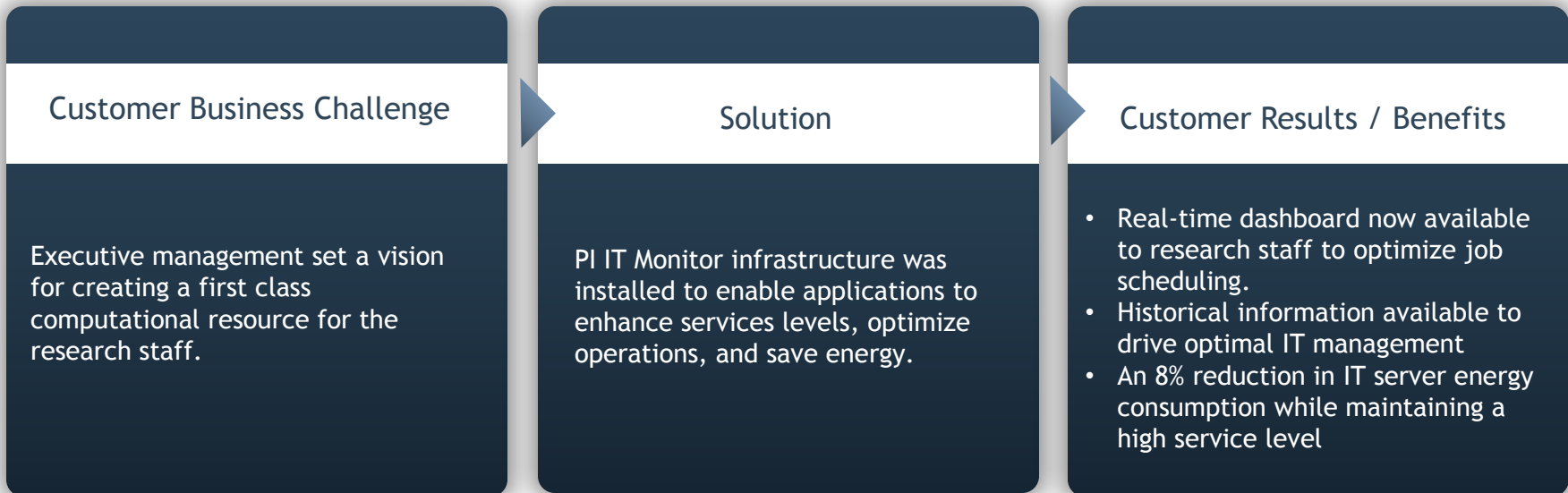
## Customer Results / Benefits

- IBM has achieved over $3.6M in annual savings, reduced water usage by 27% while increasing manufacturing capability over 30%

# Cornell Medical College: High Performance Computing

With the creation of the Institute for Computational Biomedicine (ICB),Weill Medical College of Cornell University will realize the full potential of mathematics and computation to enhance the study of medicine. Employing the tools of applied mathematics and computer-based technologies will enable physician-scientists to attack complex medical problems formerly beyond their reach.

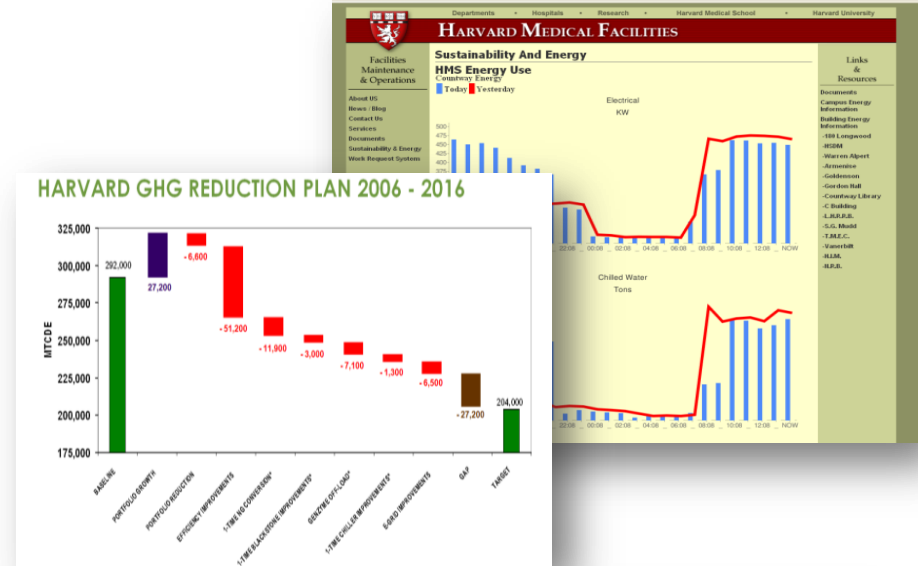| Customer Business Challenge | Solution | Customer Results / Benefits |
|---|---|---|
| Executive management set a vision for creating a first class computational resource for the research staff. | PI IT Monitor infrastructure was installed to enable applications to enhance services levels, optimize operations, and save energy. | • Real-time dashboard now available to research staff to optimize job scheduling.<br>• Historical information available to drive optimal IT management<br>• An 8% reduction in IT server energy consumption while maintaining a high service level |

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# Harvard: Managing Critical Facilities at Harvard Medical School

Currently ranked first among American research medical schools by U.S. News and World Report

Use the PI System in 3 Major Areas:
- Facilities Management-18,000 Maintainable Assets, 24/7 Call Center, 200 Node BMS
- Energy Usage- 15 MW Electric, 70K lbs/hr Steam, 10k+ Tons Chilled Water
- Research Support- Research Trending, Infrastructure Changes, Alarm Monitoring

$44.5 Million Operation Budget- $25 Million spent on Annual Utilities



HARVARD GHG REDUCTION PLAN 2006 - 2016



HARVARD MEDICAL FACILITIES

## Customer Business Challenge

- Sustainability Commitment: Reduce Green House Gas (GHG) by 30% in 2016 (over 10 year period)

Background:
- 2006 - 57,266 Metric Tons Carbon dioxide (MTCDE)
- 2008 - 57,592 MTCDE
- Goal: 2016 - 40,086 MTCDE

## Solution

Uses the PI System to:
- Gather meter & BMS data and analyze energy usage
- Create Daily Energy Report
- Predict maintenance, event analysis
- Automatic Load Shedding
- Report real-time energy use on web for public
- Model Building Performance
- Trend "Creep"
- View Impact of Sequence / Strategy Change

## Customer Results / Benefits

- Increased O&M efficiency by providing key operational data effectively to managers and technicians
- Reliable science trending helps researchers reach their goals
- The PI system is the foundation of HMS' energy management process

# Cascades: Energy Management and Information System

Cascades' senior leadership has made energy efficiency improvement and sustainability very visible in the company in both short and long term goals. The ROI was less than a year at the Corporate Level based on the deployment speed.

**Francois Ruel, President**
**Hulix Genie Conseil**
Project: Cascades
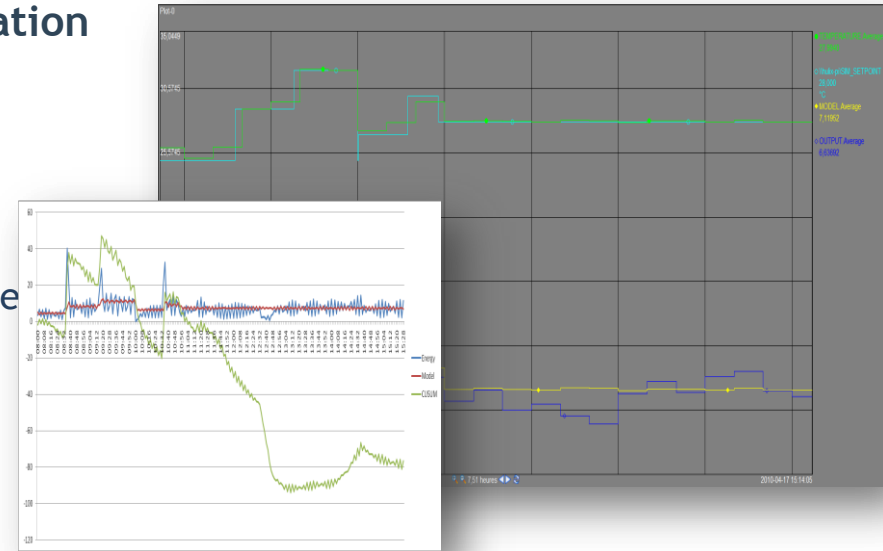


| Customer Business Challenge | Solution | Customer Results / Benefits |
|---|---|---|
| • Overall energy bill close to 350MM$<br>• Mills focus mostly on production (lean management)<br>• Corporate goal for energy consumption reduction is 2% every year<br>• Need simple Key Performance Indicator (KPI) delivered in real-time | • Install energy meters<br>• Record production parameters and energy meters info<br>• Uses the PI System to monitor and report energy usage company wide<br>• Employees can immediately see real-time energy usage data<br>• Improve the time spent analyzing production results | • Continuous reduction in energy consumption & GHG emissions<br>• Beneficial use of 63% of generated waste<br>• Decreased natural gas consumption across all assets (approx. $150K saving/year/asset)<br>• Paper mill saved 90K$ in 3 months by optimizing energy source selection based on real-time pricing |

# 'Sustainability is just good business'

❑ A.T. Kearney, Inc., titled "Green Winners: The Performance of Sustainability-focused Companies in the Financial Crisis,"

  ❑ studied the performance of 99 sustainability focused companies during financial crisis of 2008/2009

❑ **Results**

  ❑ in 16 of the 18 industries studied, companies committed to sustainability outperformed industry averages by 15% over the six months from May through November 2008.

Sustainable Practices

No Sustainable Practices
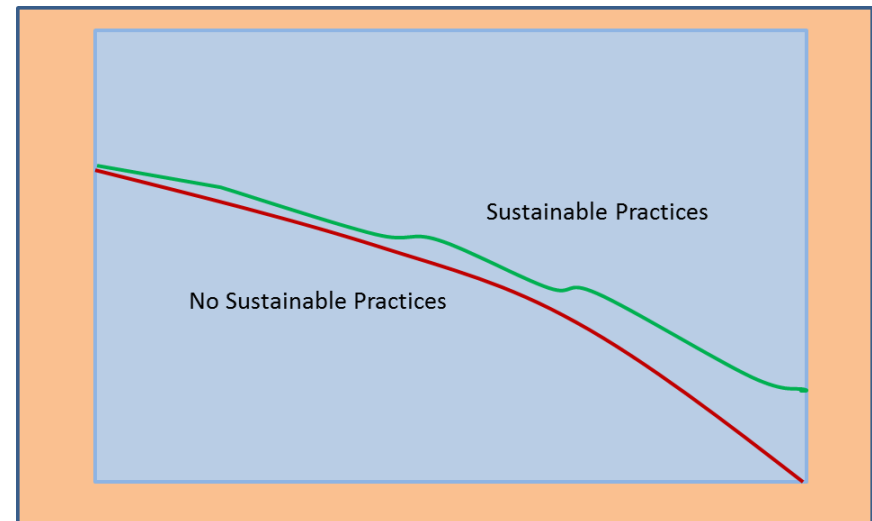
## "Create value for shareholders and society"

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❑ Sustainability is about your company's long term survival
- ❑ Not just carbon, Green House Gas (GHG) or other "green" initiatives

❑ Corporate initiatives
- ❑ engage in a culture of continuous improvement
- ❑ improve compliance, public perception, and profitability

❑ Increase profits
- ❑ Manage economic, social and environmental risks and opportunities

❑ Gain and Sustain the Trust of the general public

❑ Sustainability needs your company to sustain, to thrive

❑ **This is just good business**

Empowering Business in Real Time

# Thank you