Sustainability – It's Just Good Business

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Empowering Business in Real-time

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OSIsoft -- Thriving for 30 Years

- We are focused on our core competencies
  - Understand, leverage and invest in the right technology to build the best software possible
  - Kept our infrastructure message & market positioning consistent
  - Use our resources wisely & streamlined product distribution
  - Think and plan for the long term
  - Aligned with our customers
    - Invested heavily in customer support
    - Provided flexibility with the enterprise agreement
    - Developed the Center of Excellence
  - We have sustained ourselves -- and we want to help you do the same into the future

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Why Sustainability Now?

- 5 Crucibles of change reshaping the global economy*
  - Growing demand for resources & a supply straightjacket
  - Pronounced gains in productivity needed in developed world to continue economic growth
  - Emerging market economies contribute more growth than developed ones
  - The globe is becoming interconnected
  - Globalization affects governance

* McKinsey Quarterly, June 2010

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What is Sustainability?

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)

"A sustainable United States will have a growing economy that provides equitable opportunities for satisfying livelihoods and a safe, healthy, high quality of life for current and future generations. Our nation will protect its environment, its natural resource base, and the functions and viability of natural systems on which all life depends."

Sustainable America: A New Consensus (Washington: President's Council on Sustainable Development, 1996), p. iv.

(http://clinton2.nara.gov/PCSD/)

(http://clinton2.nara.gov/PCSD/Overview/index.html)

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What is Sustainabilty?

- Sustainability encompasses **People** (safety, hiring practices, workplace, community), **Planet** (energy, raw materials, environment, waste footprint), and **Profit** (operations, regulatory compliance, stakeholder relations).

  "The Triple Bottom Line"

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What is Sustainability?

- A business approach that creates long term shareholder value by embracing opportunities and managing risk deriving from economic, environmental and social developments.

  Dow Jones Sustainability Index

- Imagined and fully implemented, sustainability drives a bottom line strategy to save cost, a top line strategy to get new customers and a talent strategy to get, keep and develop employees, customers and your community.

  Adam Werbach, Strategy for Sustainability, A Business Manifesto, 2009

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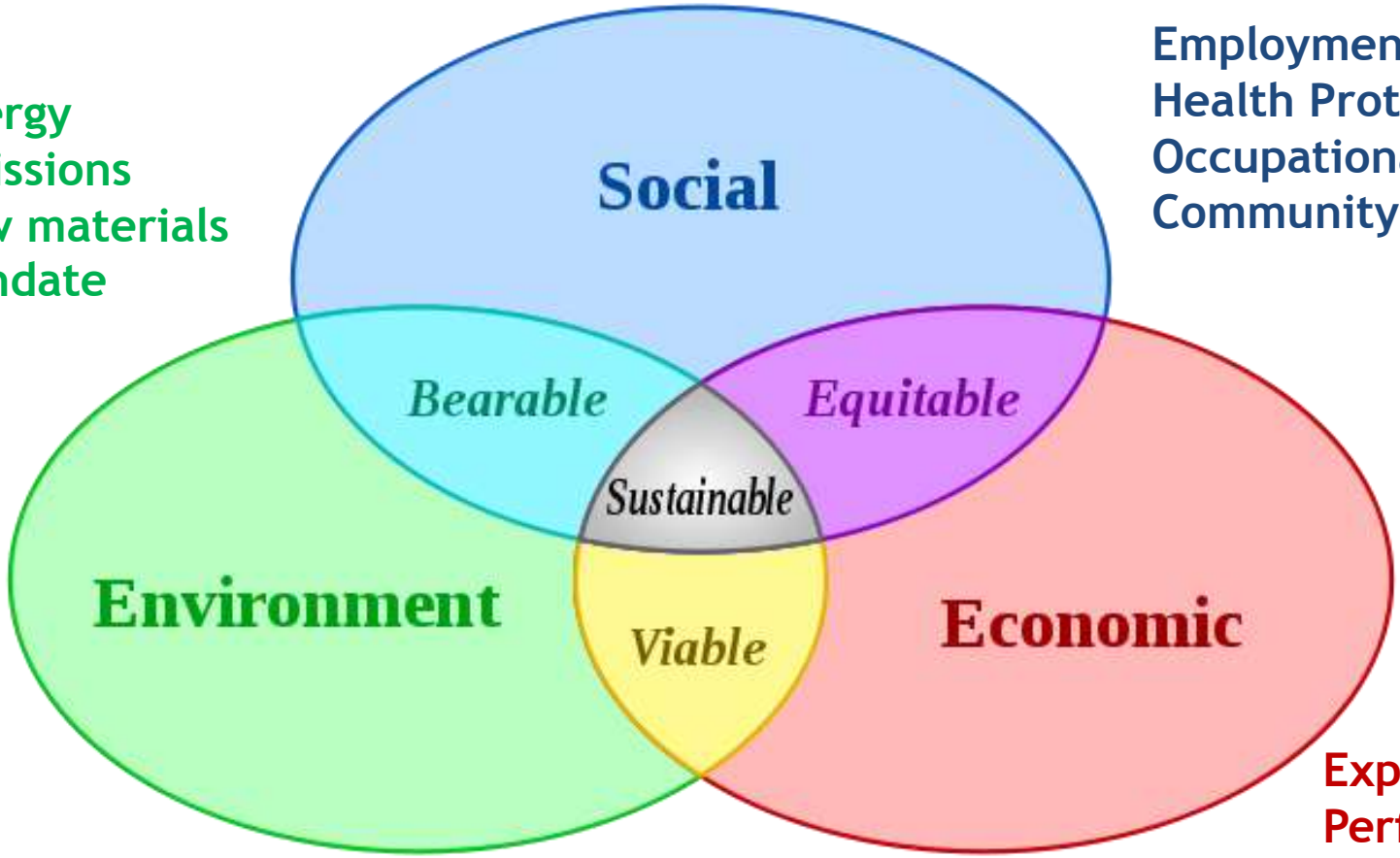
Sustainability is not a Green Strategy & Not Just a Project

Energy
Emissions
Raw materials
Mandate



Employment
Health Protection
Occupational Safety
Community

Expenses
Performance
Opperational efficiency

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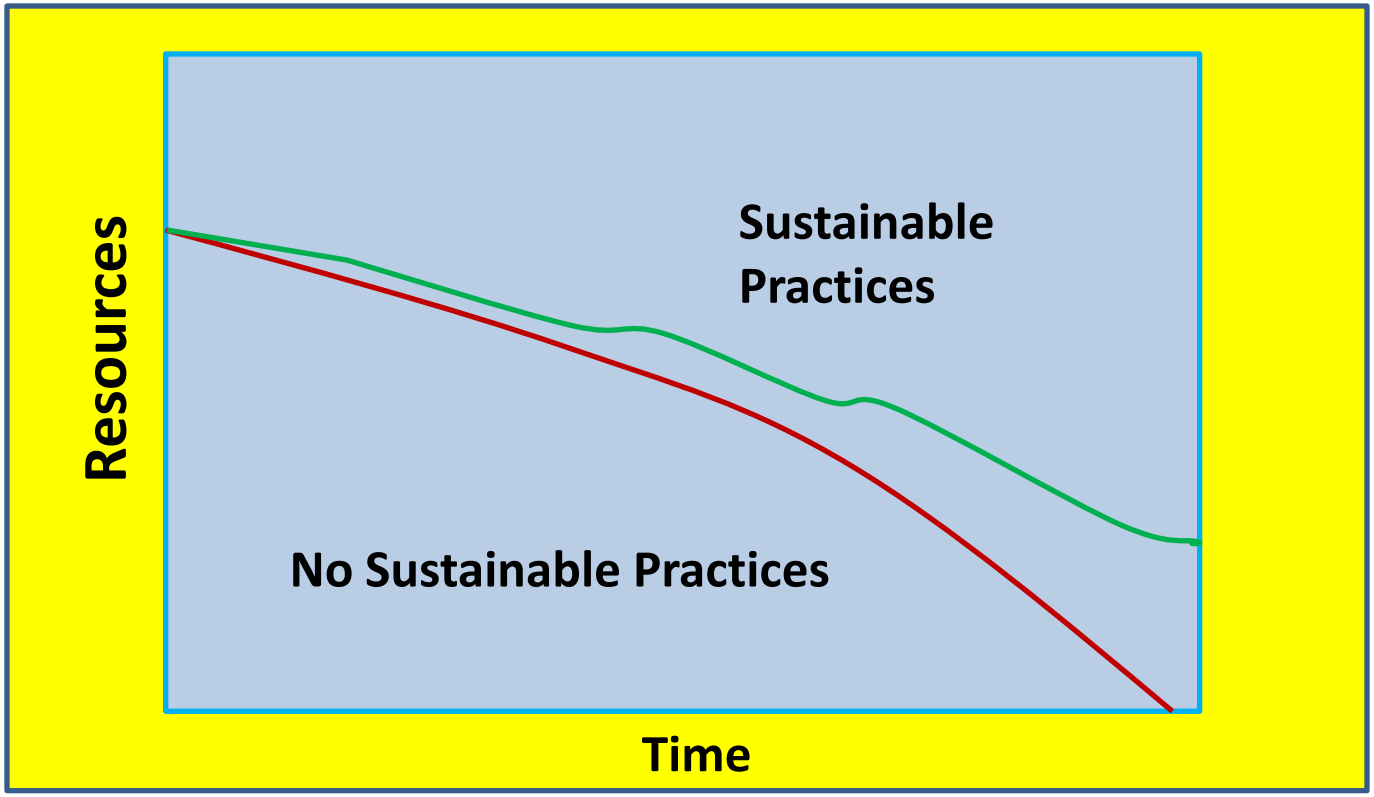
The Sustainability Challenge?

- Can we meet our current needs and grow the economy -- without compromising the future?
- Sustainability depends on innovation which in turn is nurtured by a strong and innovative industrial base.



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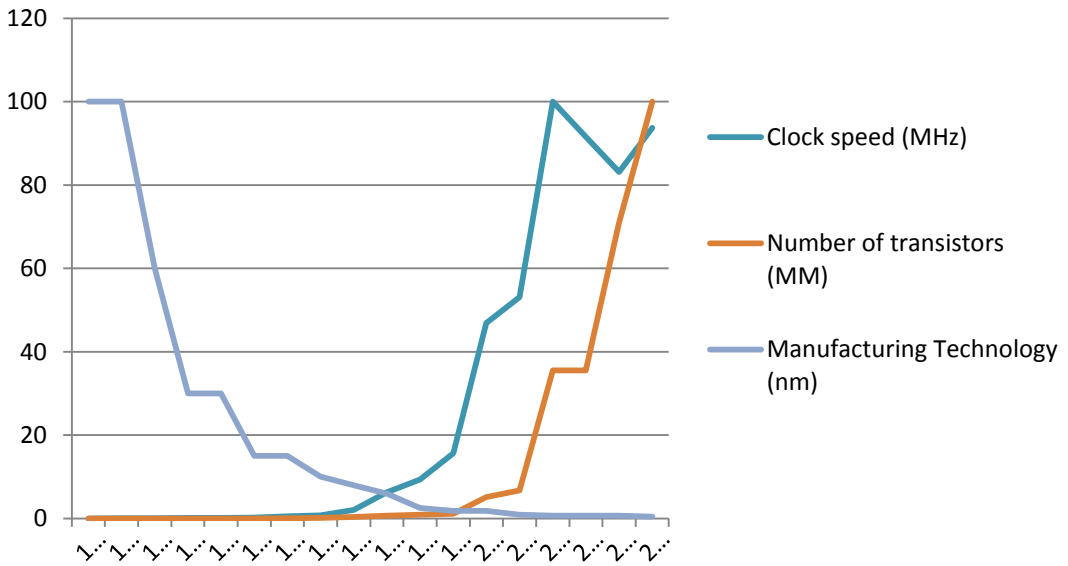
Sustainability Example: Intel and Moore's Law

- Moore's law:

  "In 1965, Intel co-founder Gordon Moore predicted that the number of transistors on a chip would double about every two years. Since then, Moore's Law has fueled a technology revolution as Intel has exponentially increased the number of transistors integrated into its processors for greater performance and energy efficiency."

- More of a challenge that Intel lives by than a law.
  - F = ma is a law of nature
  - Moore's law is based on sustained human innovation

Trends in Intel Process and Technology



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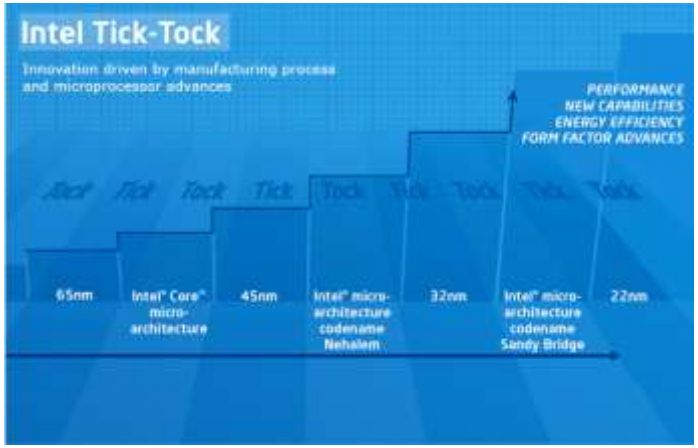
Intel and Moore's law

- **At its foundation it is a set of business and technology processes**
  http://www.intel.com/technology/tick-tock/index.htm
- Chip technology is governed by two main factors:
  - Chip fabrication technology
  - Chip architecture
- Two year cadence
  - Tick: on even years deliver new silicon process technology
  - Tock: on odd years deliver entirely new processor microarchitecture

"Intel has successfully implemented a product development strategy that has truly transformed the industry and created a ***sustainable*** competitive advantage"

Diane Bryant, VP/CIO, Intel Corporation



Source: http://www.intel.com/technology/tick-tock/index.htm

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eBay, Intel, and Sustainability

- eBay is a transaction intensive business
- Data centers are key but are limited by:
  - Power, Space and Cooling needs
- Running out of capacity often means building a new data center – which is a large CAPx cost
- eBay manages capacity by proactively replacing servers after 18-24 months
  - **Moore's law brings more compute capacity for about the same power requirements**
  - **Most cost effective way to grow and sustain their business**

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Kodak Park Case Study - Energy

- Fuel and purchased power are significant cost
  - Company wide effort needed
  - PI system: 100K tags, 150 Webpart users, 250+ SAP iView pages, 30 interfaces
  - Energy use and production volume not correlated
- "There was no 'Big Bang." Rather a 1,000 little bangs
  - Established a culture of continuous process improvement utilizing kaizen and gemba approaches
  - Results are socialized via browser

http://videostar.osisoft.com/uc2010/Sustainable_Seminar/video/SSS_UC2010_Opening_Kodak_Breeze.wmv

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Kodak Park Case Study - Energy

- Reduced utility costs with improved "Demand Side Management"
- Saved $100 million total since 2007 – more than 50% are from ongoing operations
  - Heating and cooling at the same time
  - Conditioning process air when machine is idle or shutdown
  - Left some pumps running between product runs
  - Consolidate two High Purity Water Systems and a de-mineralized water system down to just one High Purity Water System

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Kodak Park Case Study - Water

- Kaizen and Gemba applied to water efficiency
- Project started 15 months ago
  - Use 18 million gal/day of water
  - It's free from lake but expensive to pump and treatment
- Examples
  - Synthetic chemical manufacturing
  - Water use should be zero on holidays – found valves failed open
  - Water down 43% from the 3 largest buildings

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Kodak Park Case Study - Water

Water Reduction Results

- 2009 Kodak Water Reduction was 16.5%
- 1,087,000,000 Gallons (or 1,087,000 K Gallons) saved in 2009
- 1st Quarter of 2010 – an additional savings of 450 Million gallons from the 2008 Baseline
- Roughly 1.5 Billion Gallons saved in the last 15 Months
- This is enough water to fill approximately 250 average backyard swimming pools each and every day !!!
- $0.00 In Capital Spent
- These Water Savings are calculated for only the last 15 months and are totally independent of the site's energy reductions

Kodak

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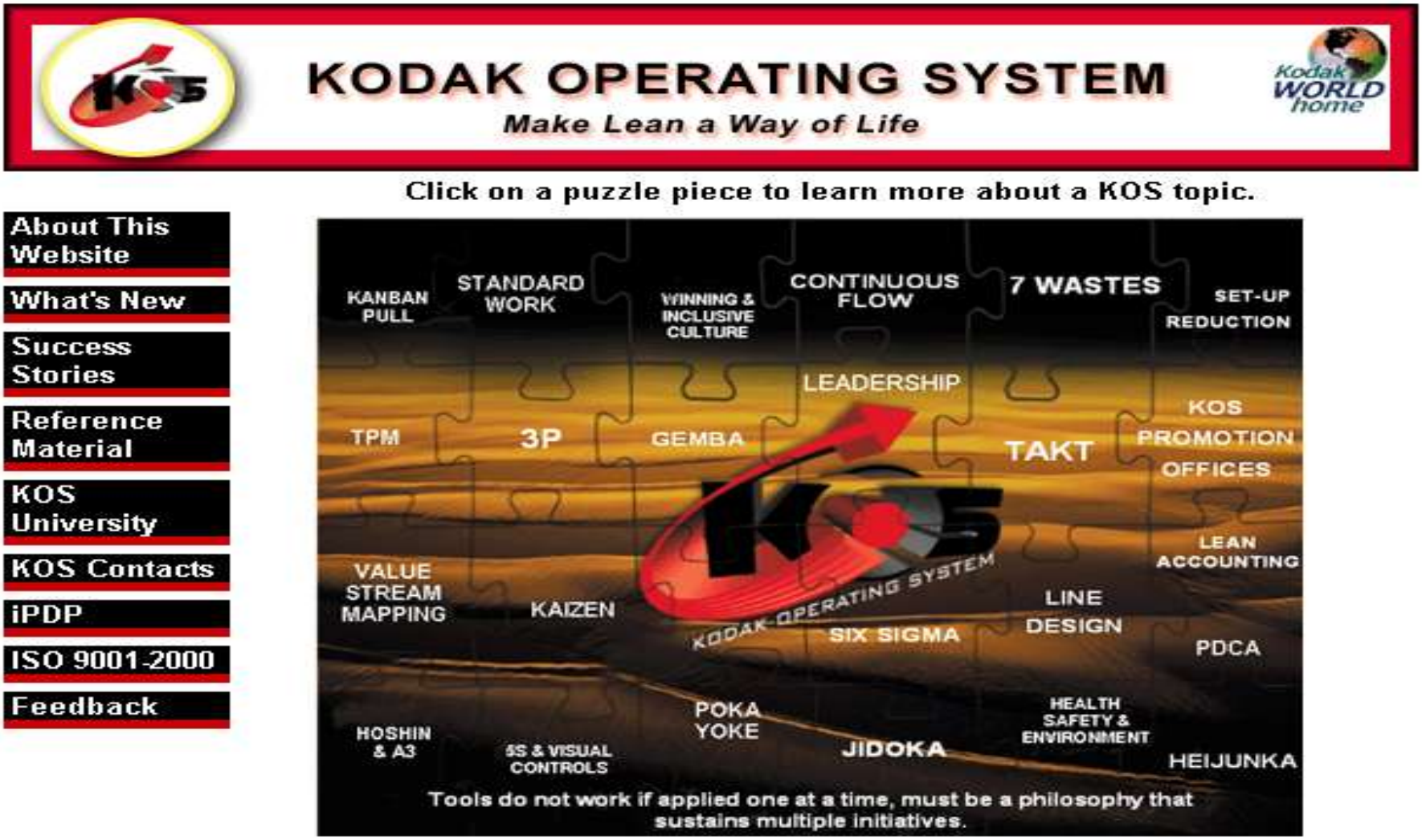
Kodak Park Operating System



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IBM Case Study

- IBM Burlington Vermont is a large semiconductor manufacturing site
  - 3.2 million gpw and 446 million kwh consumed annually
  - 3.5 million square feet of manufacturing space
- Challenge
  - Reduce water consumption to reduce cost
  - Less water = energy, chemicals, maintenance and labor reductions
  - Environmental impacts also reduced
  - Leverage data acquisition, storage and visualization tools to monitor water use and improve efficiency

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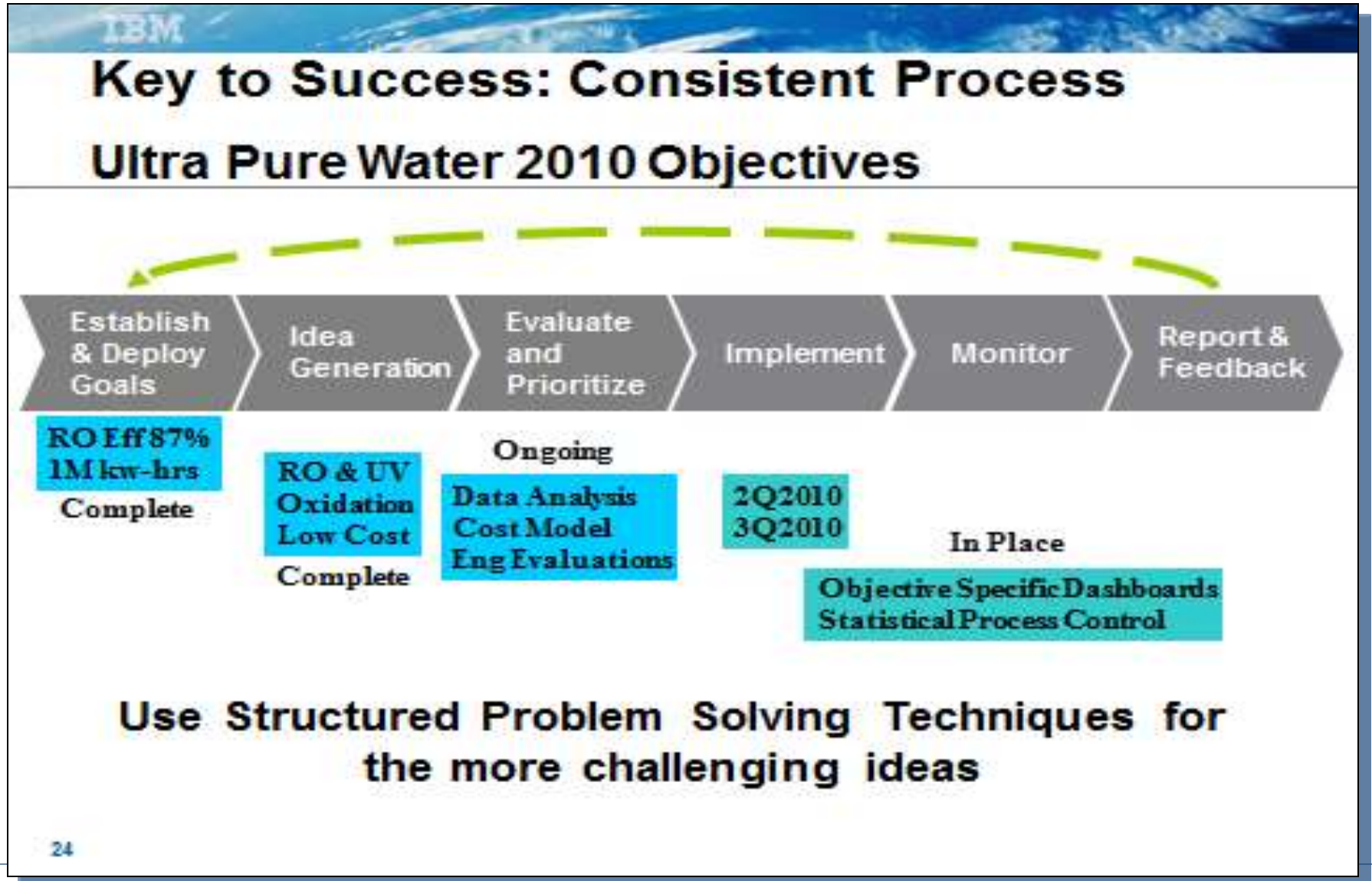

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IBM Case Study

- Approach
  - Used the PI System to collect/store data from sensors, IT network and servers
  - Statistical process control techniques used to continually analyze operational data
  - Identifies process improvements that reduce water consumption, electrical consumption, and cooling load
- Results
  - IBM achieved over $3.6M in annual savings
  - Reduced water usage 27% while increasing manufacturing capability 30% in last 10 years
- Case study available on OSIsoft website: http://osisoft.fullviewmedia.com/uc2010/12-IBM.html

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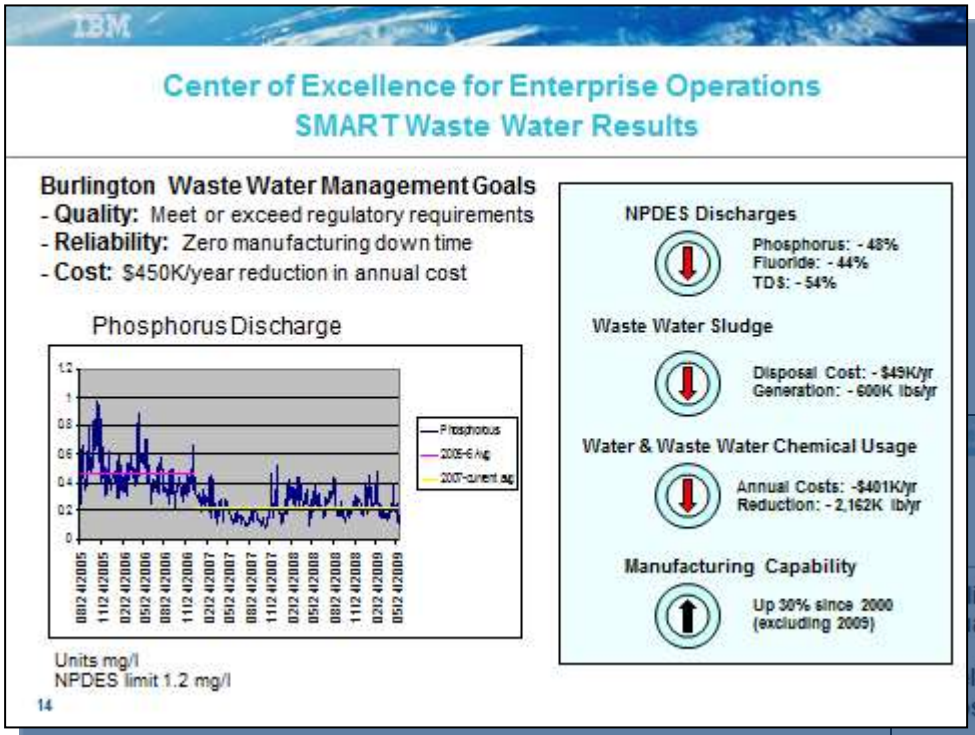
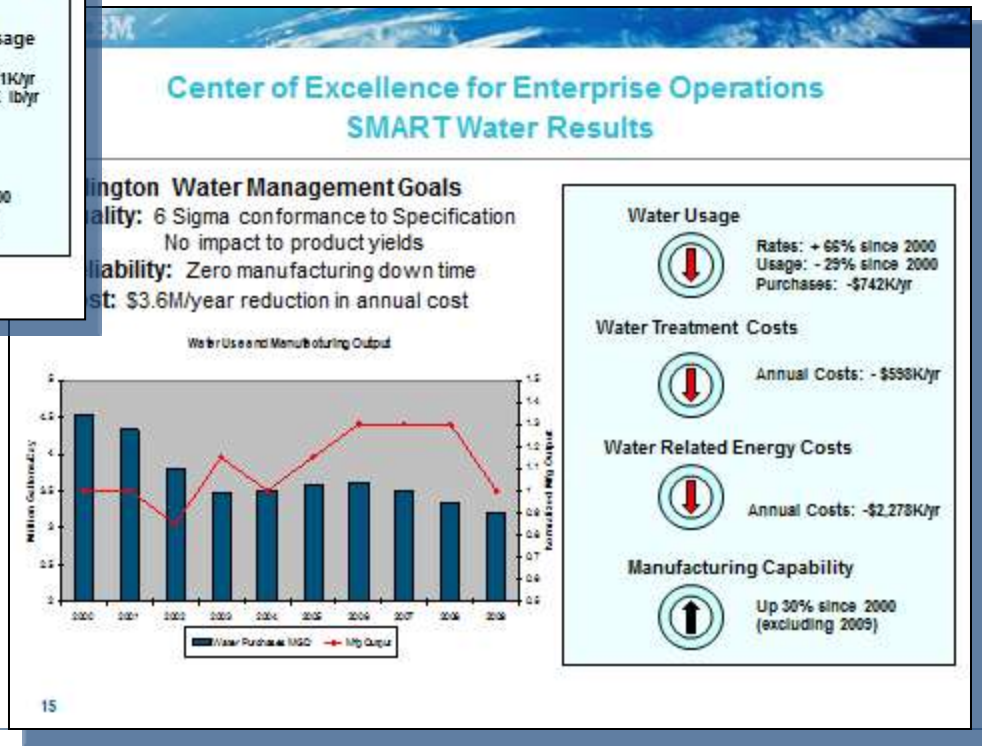
IBM Case Study

Smart Water Project

Phosphorous discharge well below compliance





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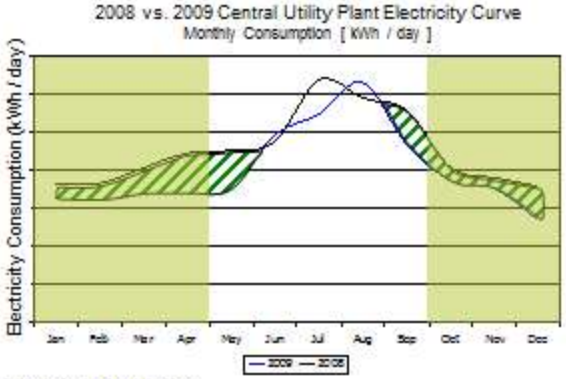
IBM Case Study

B963 / B971 Central Utility Plant Reporting Results

- Reporting Results:
  - Energy Savings: 4,800,000 kWh
  - Money Savings: $390,000
  - Annual Energy Savings equal to 650 homes electricity consumption [Vermont]



- Results Exceeded Expectations
  - Central Utility Plant personnel clearly recognized and understood goals
  - Energy Savings exceeded Goal by $40,000
  - Winter Free-Cooling Utilization exceeded expectations by 60 days

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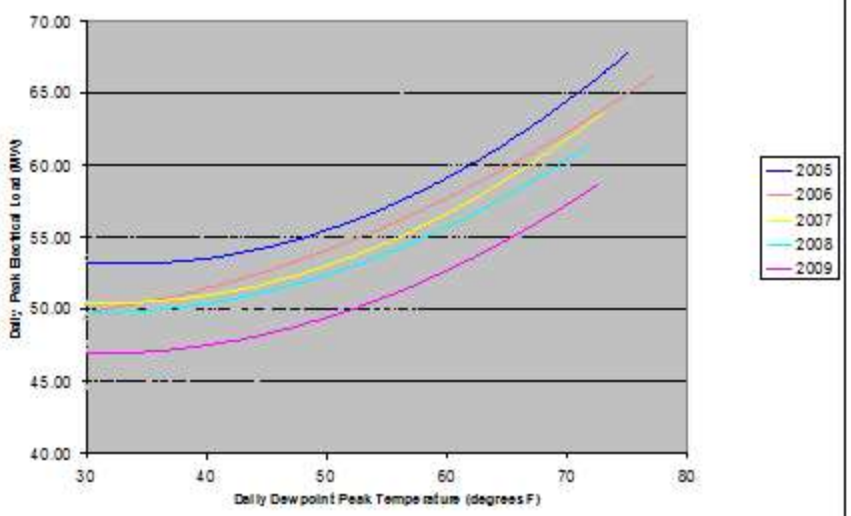
Free Cooling Project

Leverage cold ambient temperatures of Vermont

Average Peak Electrical Loads at IBM VT 2005-09



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The Triple Top Line Priorities*

- **Communication** (brand CSR/reputation)
  - Catalyst = market place & public perception
  - Performance, voluntary reporting, cost savings, carbon foot printing
- **Environmental compliance & risk mgmt.**
  - Catalyst = regulators
  - Business risk mgmt., regulated reporting, cost savings & investment decisions
- **Operational efficiency**
  - Catalyst = competitive markets
  - Operational efficiency, energy, water, raw materials use, voluntary reporting, cost savings and investment decisions.
    - Savings can be monetized

* Stephen Stokes, Gartner/AMR Research

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Sustainability Is About Your Long Term Survival

- Global forces are changing business and society
- Many government & business leaders believe we have reached a critical juncture that requires action
- *Sustainability* is a strategic response to address challenges but also provide a platform for new business value & innovation
- Moving from a world of abundant resources and little information to too few resources and abundant data
- Strong consensus that *data driven decision making* essential to devise & execute a sustainability strategy
- Organizational cultures that embrace systems of continuous improvement are the nucleus of a sustainability strategy

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Final Thoughts

- Review your corporate sustainability strategy
  - Do you have an agenda to manage information across the enterprise to "*take the guesswork out of decision making?*"
- What can you do as a knowledge worker and information champion to educate your management on your ability to leverage the PI System to contribute to that agenda?
- How can we help you make your strategic sustainability strategy more dynamic, successful and innovative?

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Thank you

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