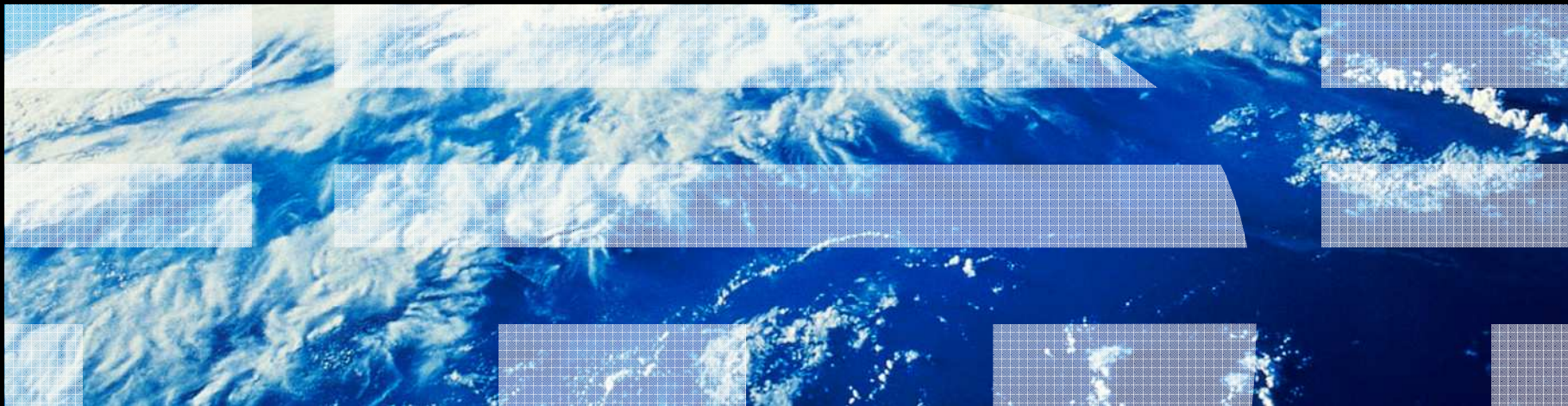# Building a Smarter Planet:

OVERCOMING STRATEGIC CHALLENGES FOR UK UTILITIES

John Granger, IBM

The Future of Utilities – 17th March 2009

The need for progress is clear.

Lack of investment

66% are not confident that the necessary levels of investment made in water and energy in the next 5-10 years will meet future needs.

Cost of capital

91% believe that the regulator may be over-optimistic in its judgement about the cost of capital in the forthcoming pricing reviews.

Consumer debt

68% are concerned that utilities will themselves be affected by 'bad debt' increasing among cash-strapped consumers.

Reducing demand peaks

60% believe smart networks would help smooth peaks in demand and 55% believe it would help allocate network capacity more effectively.
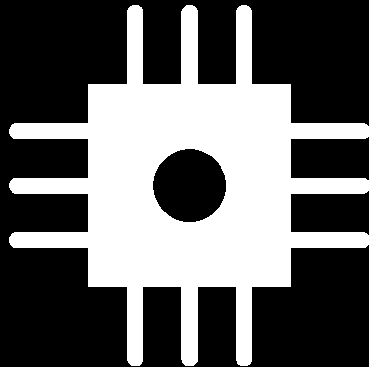
Smarter technology

89% would like to see the 'agenda set' for smart technologies, including smart metering.

Government led

74% would like to see the UK adopt the kind of Government-led investment now being made in the US.

Smart is about organisations and societies becoming

instrumented, interconnected and intelligent.

INSTRUMENTED

We now have the ability to measure, sense and see the exact condition of everything.

- Today, there are 1 billion transistors for each person on the planet.
- **In 2008, 6.7 million intelligent meters were used for advanced metering in the U.S., compared to 947,000 in 2006.**

Remote monitoring and metering devices tell when and where faults occur and where the inefficiencies are, enabling smarter sourcing and distribution of power and water.
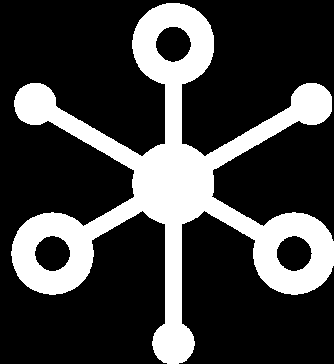
INTERCONNECTED

People, systems and objects can communicate and interact with each other in entirely new ways.

- More than 14 million (56%) UK households now have broadband internet access.
- By 2012, £1 in every £5 of all new commerce in the UK will be online.
- **Italy now has 30 million smart meters all interconnected to one single point of control that allows them to partially shed load in periods of peak demand.**
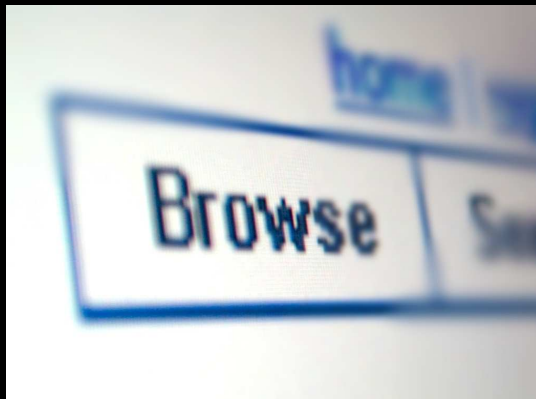
Virtual marketplaces between consumers and providers allow consumers to trade flexibility in usage for lower costs.

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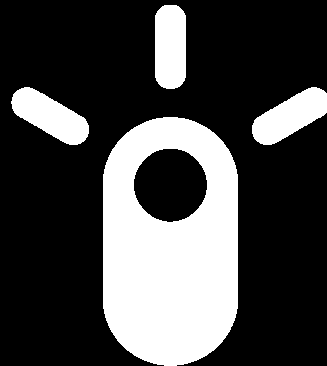
INTELLIGENT

We can respond to changes quickly and accurately, and get better results by predicting and optimising for future events.

- Every day, 15 petabytes of new information are being generated. This is 8x more than the information in all U.S. libraries.

- **Great Britain has committed to replace every gas and electricity meter with a smart meter by 2020. By this time, the industry will be processing over 450 billion meter readings per year - 1.2 billion reads per day.**

- New computing models will give the power to process and control this data providing intelligence to model supply and demand, balance and inform strategic decision making to reduce uncertainty and manage risk.
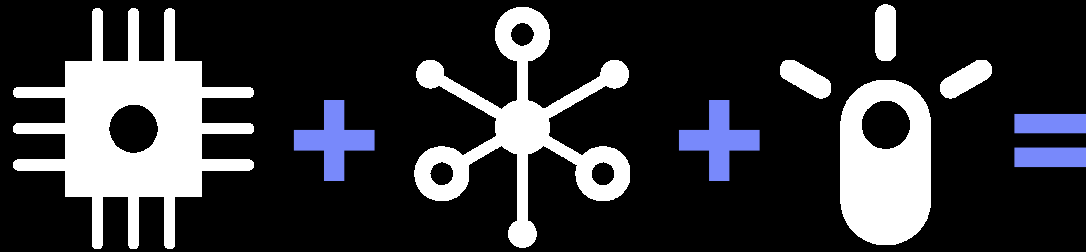
Power grids use sensors, smart meters, digital controls and analytic tools to automatically monitor and control two-way energy flow.
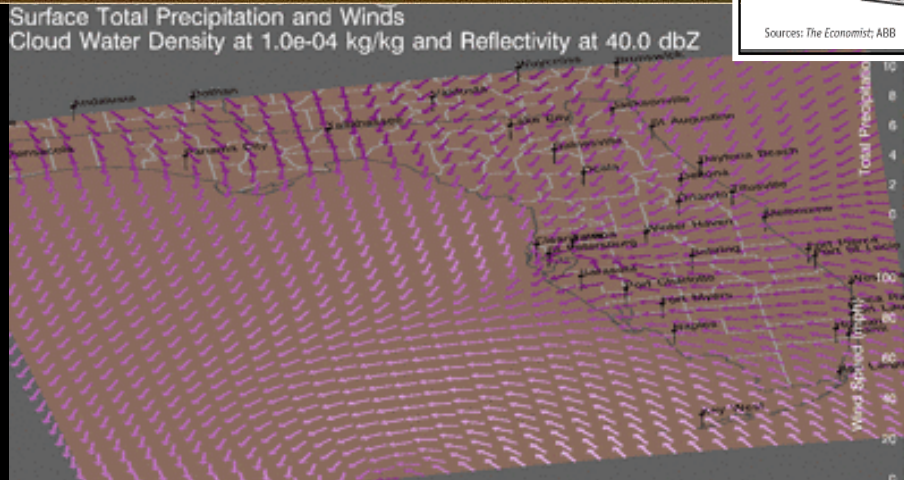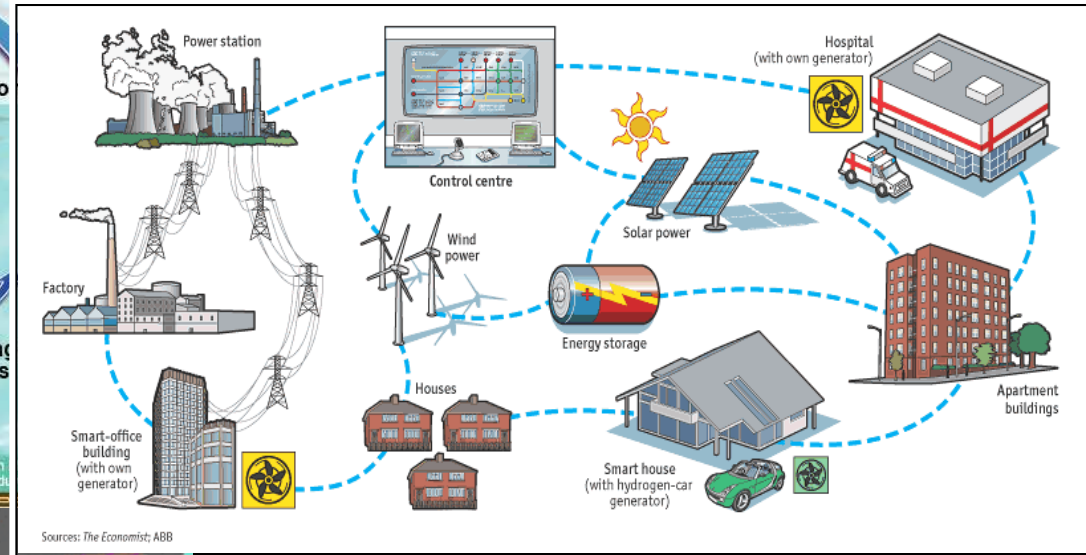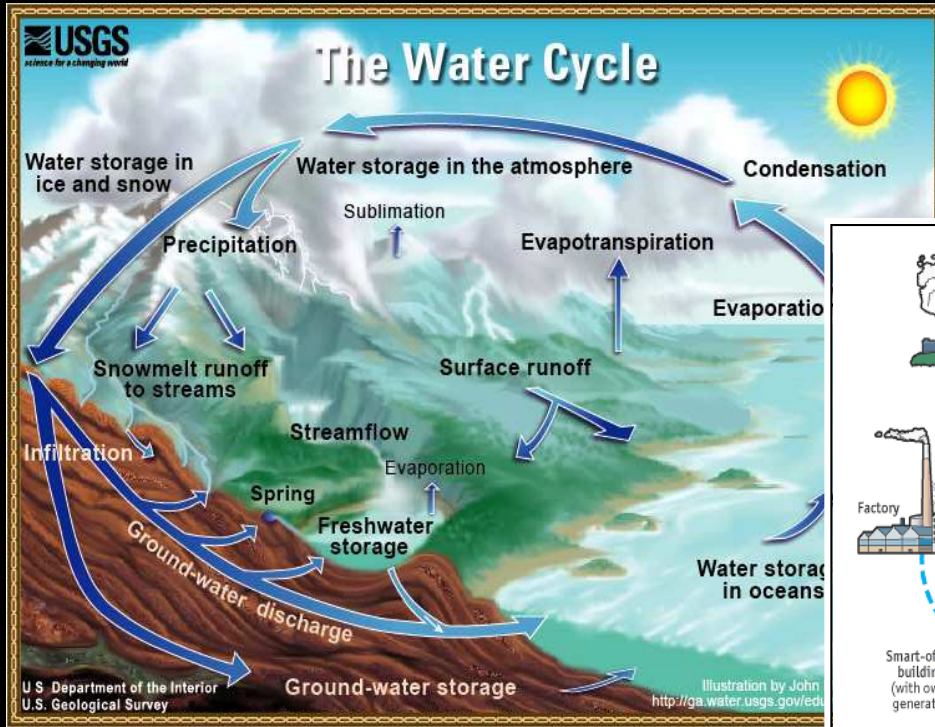
INSTRUMENTED   **INTERCONNECTED**   **INTELLIGENT**

An opportunity for energy and utilities organisations
to think and act in new ways.

What could you do in the future?

Smart energy and utilities today.

DONG Energy: Installed remote monitoring and control devices to gain an unprecedented level of information about the current state of the grid, lessening outage times by 25-50%.

Enemalta and Water Services Corporation: Are the first in the world to build a nationwide smart grid and a fully integrated electricity and water system. The solution is designed to improve operational efficiency and customer service levels by introducing smart meters that allow clients to better manage consumption.

Smart Metering and Smart Grid: IBM is involved in 14 out of the top 20 largest smart meter roll-outs, transforming business and consumer relationships. Also, IBM founded the Intelligent Utilities Network Coalition - bringing together leading utilities worldwide around a common purpose: to collaborate on driving smart grid projects.

Pacific Northwest National Laboratory: Used intelligent measurement devices, smart appliances and a virtual marketplace to help manage stress in the electric grid, achieving a 50% reduction in short-term peak electricity distribution loads and a 15% reduction in overall peak loads.

Overcoming the barriers to realising the vision.

The absence of…

Requires...

A common architecture ⟶ **Committing to open standards and common infrastructure.**

Funding ⟶ **Redefining business cases in terms of smart benefits.**

Implementation capability ⟶ **Recognising technology as a competitive advantage. Get it out of the back office.**

Vision ⟶ **Taking advantage before someone else does.**

Thank you

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