Values of Technology Foresight

Contribute to sustainable growth of customers’ business

Develop technologies and create services that anticipate changes in the business environment

Create a future vision through PoC (Proof of Concept) together with the customer
TT DATA analyses trends of our society and changes of key information technologies based on researches and interviews with industry experts.

**Information Society Trend**

1. **Source of competitiveness shifting towards application of knowledge and information**
   Sophistication in data analysis technology promotes a shift to a knowledge-based society.

2. **From a mass-oriented society to a society that focuses on the individual**
   Personalization services (taking into account of personal values or interests) will grow dramatically.

3. **Increasing demand for real-time response to ever-changing environment and needs**
   Advancement in sensing and other technologies (as well as big data analysis) supports transformation toward a resilient and sustainable society.

4. **More accessible and user-friendly IT that can be used by anyone**
   IT will be a primary tool to connect people overcoming gaps in language, distance and other barriers in aging and globalizing society.

**Analysis of changes and challenges**

**Business & Social Issues**

1. **Real time prediction of demand and supply of electricity based on usage data and supply capacity.**
   As a guide for consumption, effective use of power will be achieved by adjusting its price dynamically.

2. **Forecast power demand**

3. **Set electricity price to eliminate supply-demand gap**

**Technology**

1. **Hydraulic power/wind power generation**

2. **Electricity stand**

**Technology Trend**

1. **Human-oriented IT that recognizes individuals**
   Human-oriented IT will be a key technology for personalization services and human motivation.

2. **Cyber-physical computing**
   Sensor networks, robotics, and other technologies will benefit real world by utilizing physical assets, improving QOL, and enhancing experiences.

3. **Environment-adaptive, resilient IT infrastructure**
   Autonomous optimization will be a requirement for IT infrastructure to meet changing circumstances and become more resilient against threats.

4. **Ultra-high-speed development for prompt delivery**
   The speed of delivery will be dramatically shortened by utilizing technologies and methods without losing quality.

**Case 1**

**Dynamic pricing of electricity**

Joint research with Ireland

Real time prediction of demand and supply of electricity based on usage data and supply capacity. As a guide for consumption, effective use of power will be achieved by adjusting its price dynamically.

- **Hydraulic power/wind power generation**
- **Electricity stand**
- **Forecast power demand**

**Case 2**

**Alleviate traffic congestion through traffic control**

Joint investigation with Asian countries

Using data obtained through sensors such as speed and location information, we forecast future movements in simulations. We are able to alleviate traffic congestion by controlling the intervals between signals and traffic lanes.

- **Traffic congestion forecast**
- **Signal and lane control**
- **Indication of state of congestion**

**Keywords**

- **Summarize**
- **Strategic data collection and analysis**
- **Data analysis technology**
- **Set electricity price to eliminate supply-demand gap**
- **Hydraulic power/wind power generation**
- **Forecast power supply**
- **Forecast power demand**
- **Human-oriented IT that recognizes individuals**
- **Cyber-physical computing**
- **Environment-adaptive, resilient IT infrastructure**
- **Ultra-high-speed development for prompt delivery**
- **Case 1**
- **Case 2**