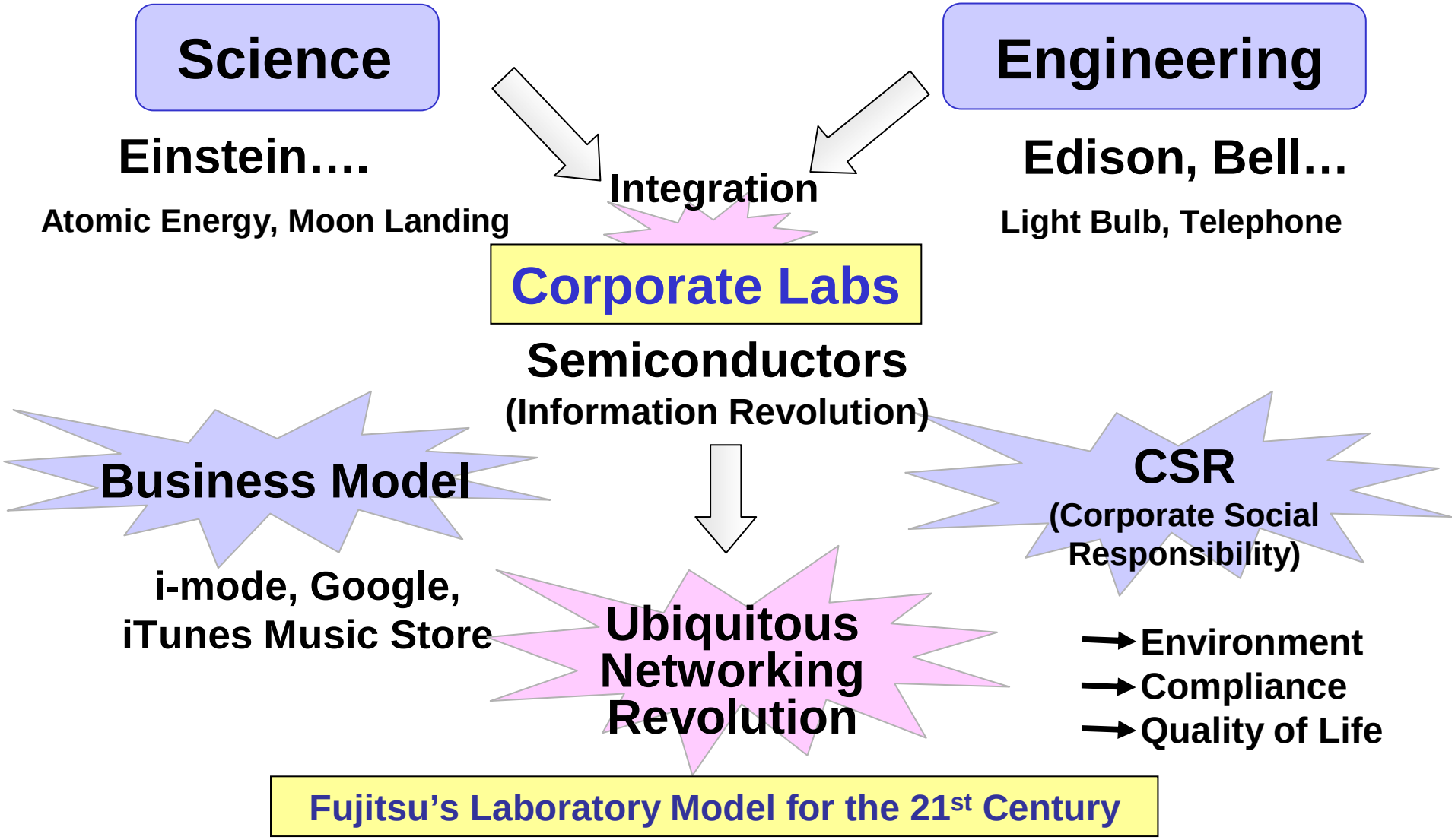
Fujitsu Laboratories' Research Activities

April 12, 2006

Kazuo Murano
President
Fujitsu Laboratories Ltd.

What mankind can dream, technology can achieve

Our R&D Laboratory Model for the 21st Century



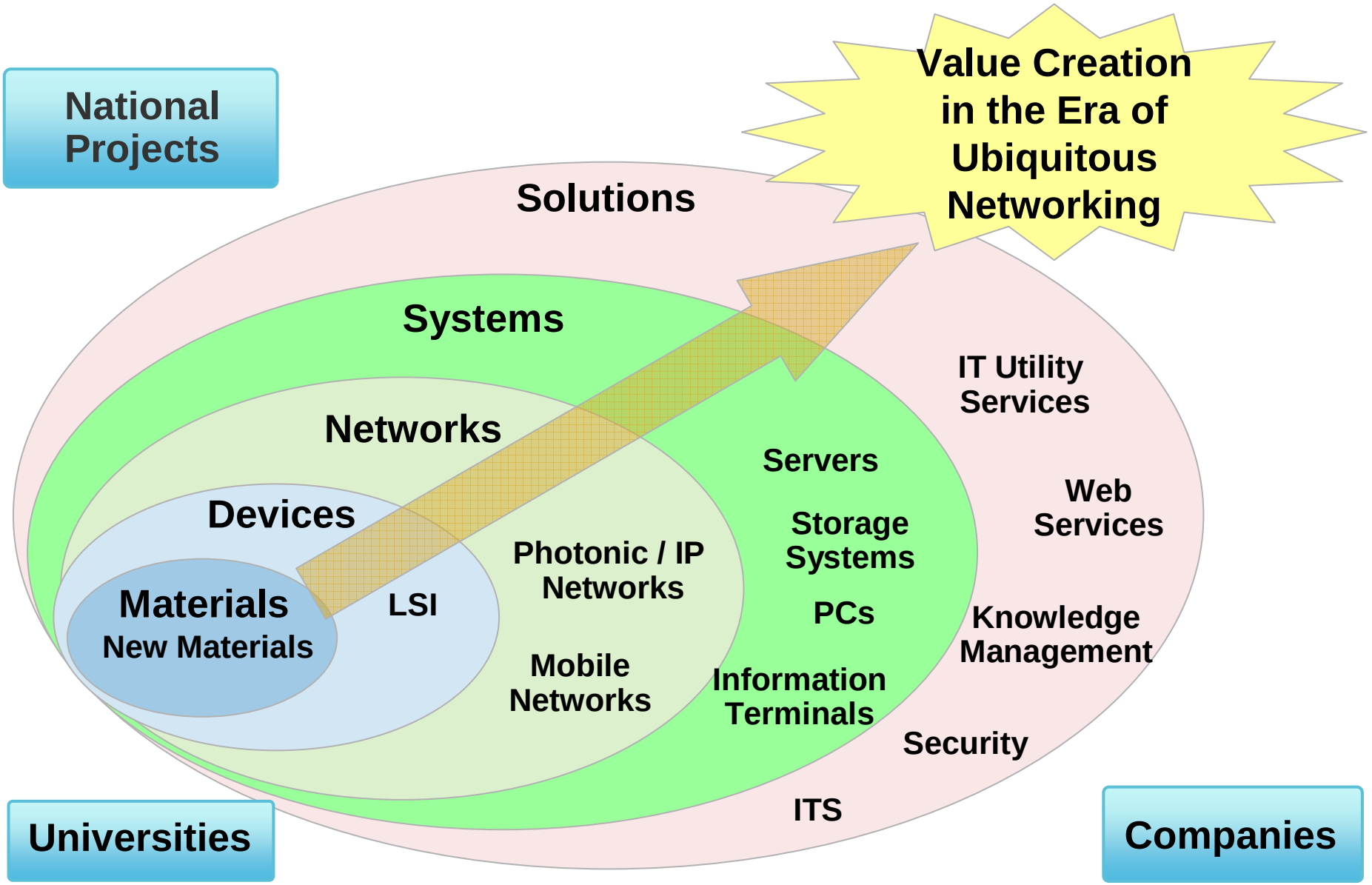
- i-mode is a registered trademark of NTT DoCoMo, Inc.
- Google is a registered trademark of Google Inc.
- iTunes is a registered trademark of Apple Computer, Inc. in the United States and other countries.

Fujitsu Laboratories' Mission

Contribute to Fujitsu's Technology Value Chain

- Promote the Creation of New Businesses
- Develop and Expand Leading-edge Technologies
- Create a Global Value Chain
- Fulfill Social Responsibilities

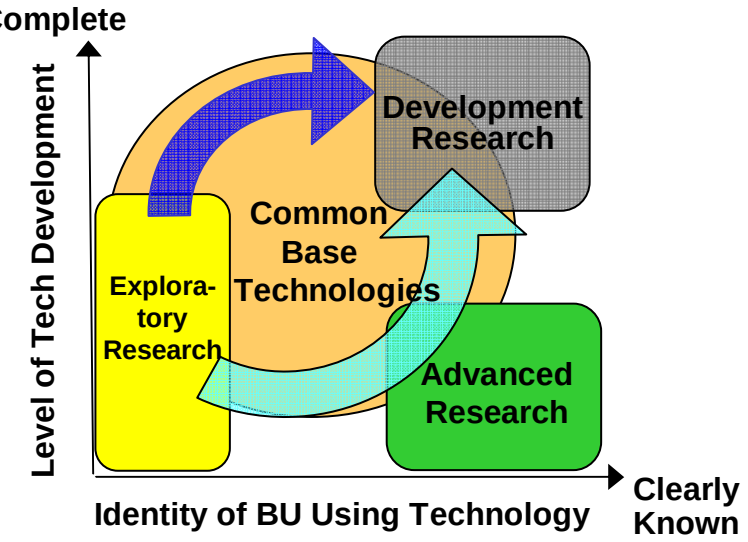
Technology Value Chain



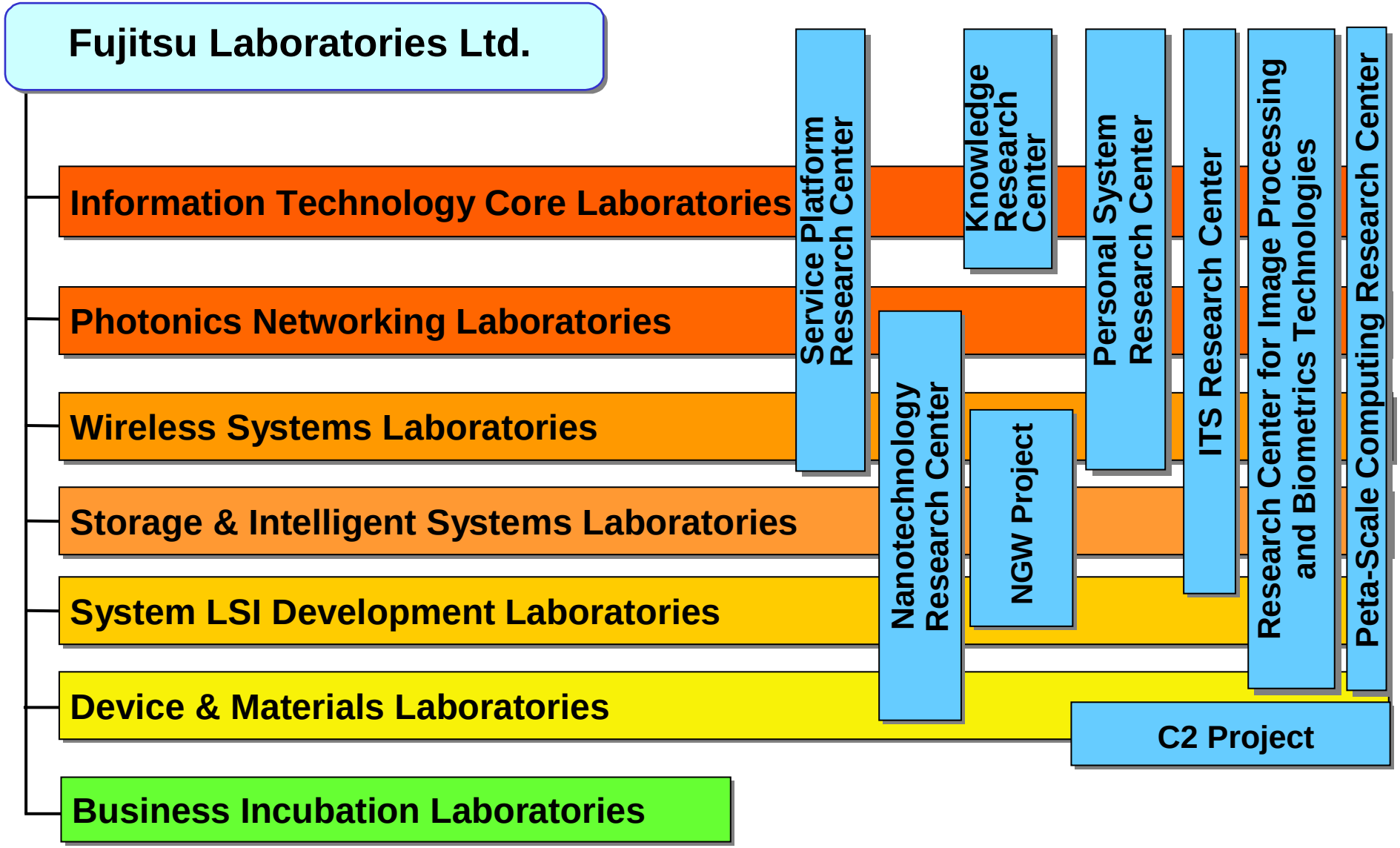
Overview of Fujitsu Laboratories

Overview of Fujitsu Laboratories

- Capital: 5 billion yen
- Budget: 40 billion yen
  (Fujitsu's FY 2005 consolidated R&D expenditure: 245 billion yen)
- R&D Portfolio:
  - Business Unit-commissioned projects: 55%
    HQ-commissioned projects: 45%
  - Development Research: 15%; Advanced Research: 35%;
    Common Base Technologies: 30%, Exploratory Research: 20%
- Employees: 1,500 in Japan,
  150 at Overseas Labs
  (US, Europe, China)
- Organization (Japan):
  7 Research Labs
  7 Centers
  2 Project Groups

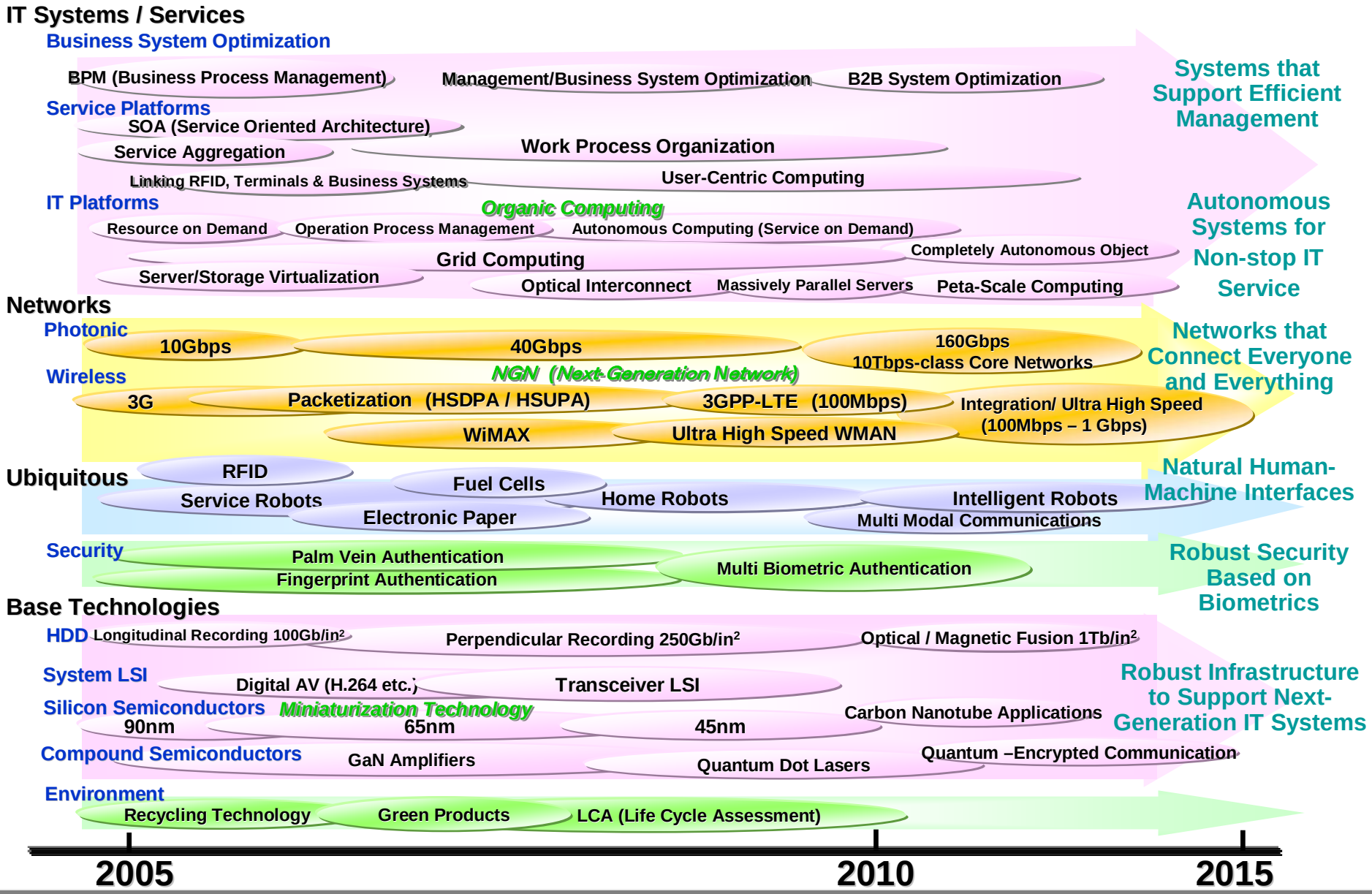


Organization

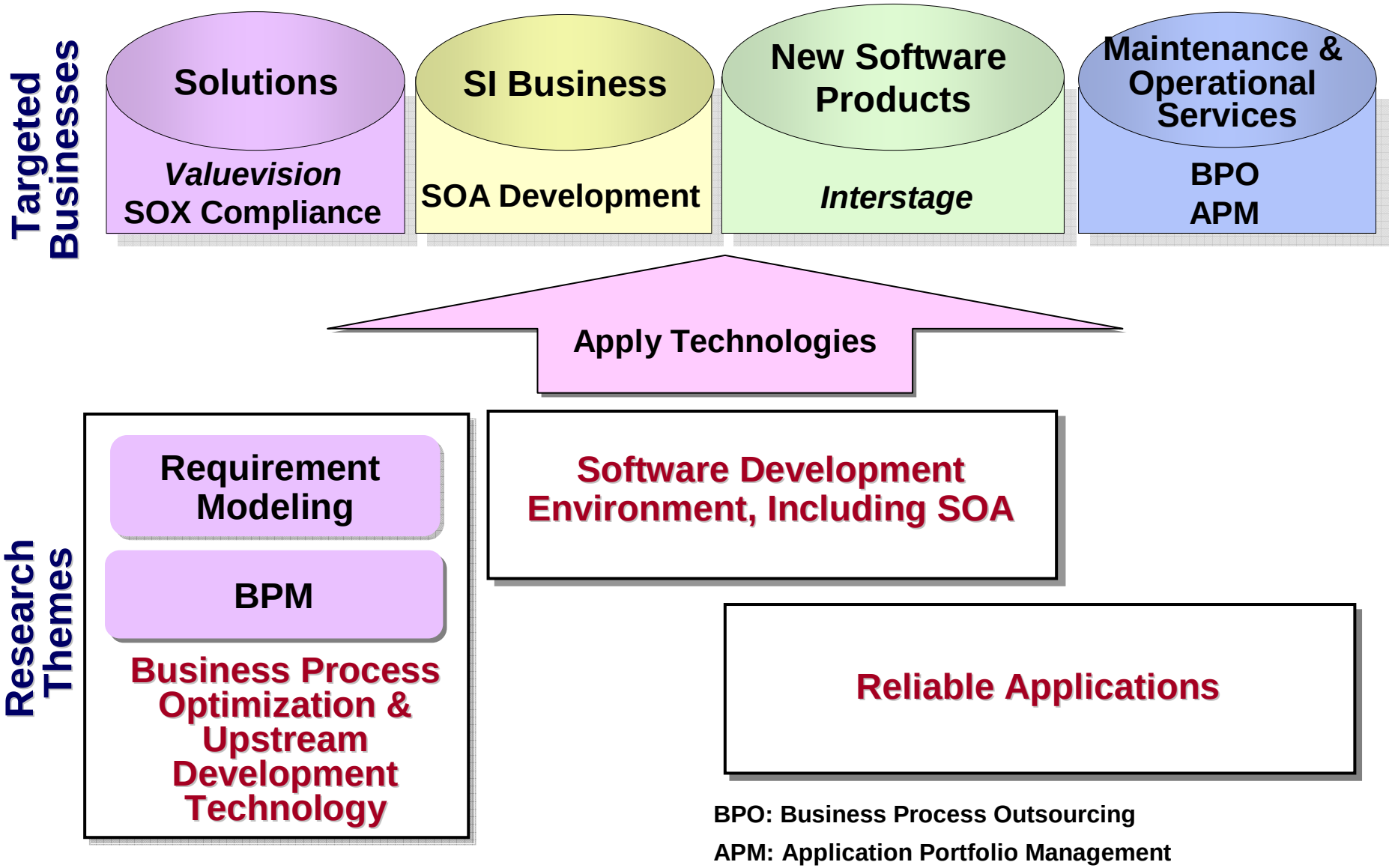


Content of Research

Main Research Areas & Roadmap of Achievements



Software & Services Business Research Themes

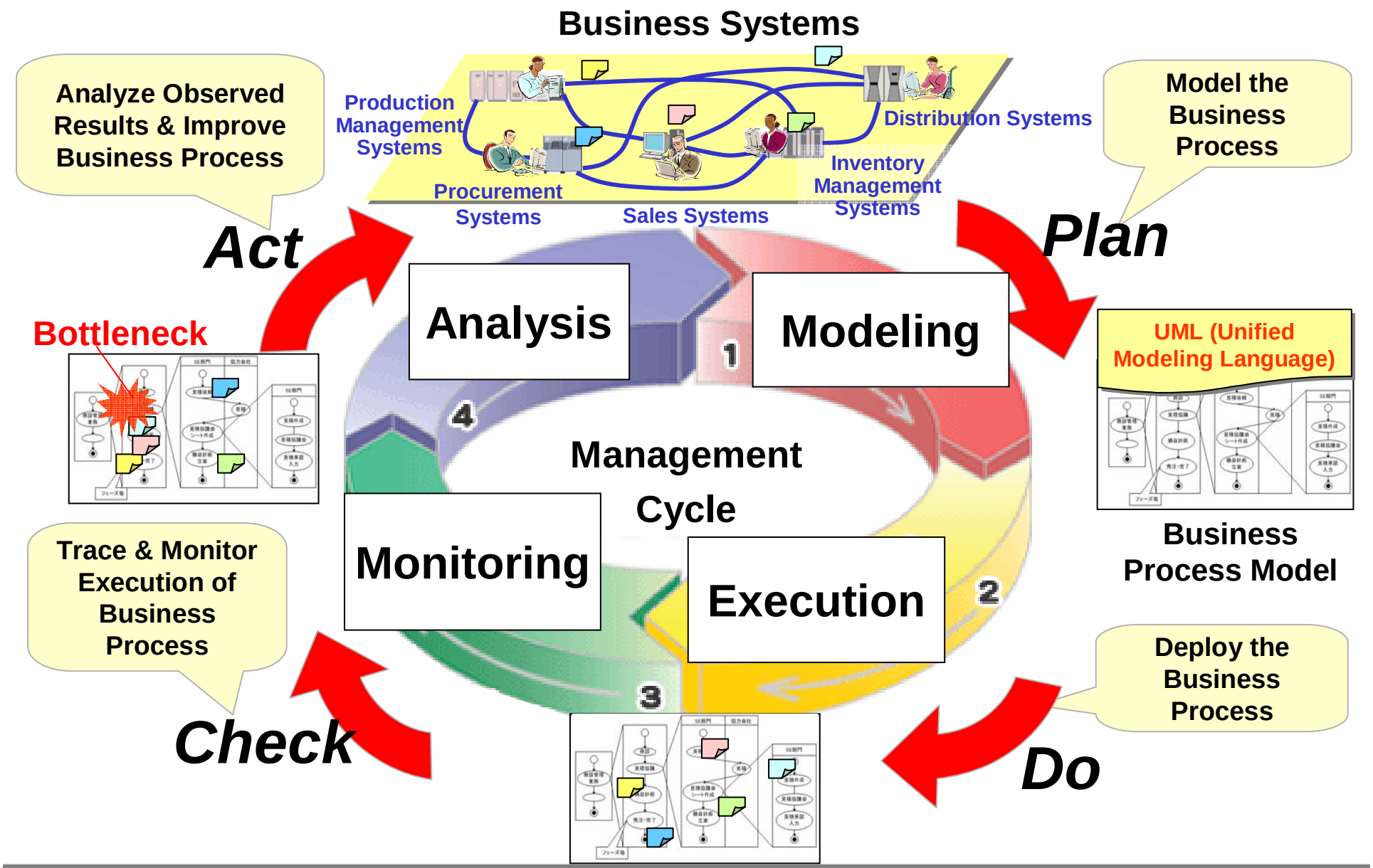


BPO: Business Process Outsourcing

APM: Application Portfolio Management

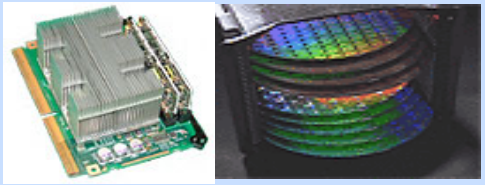
Business System Development

Business Process Management: BPM



High-End Servers

Advanced 90nm Semiconductor Technology



Advanced Network Technology

Optical Interconnect*

World-Leading Performance

World's Best Performance High-Reliability UNIX Server
PRIMEPOWER

Pioneering Linux/Windows Server
PRIMEQUEST

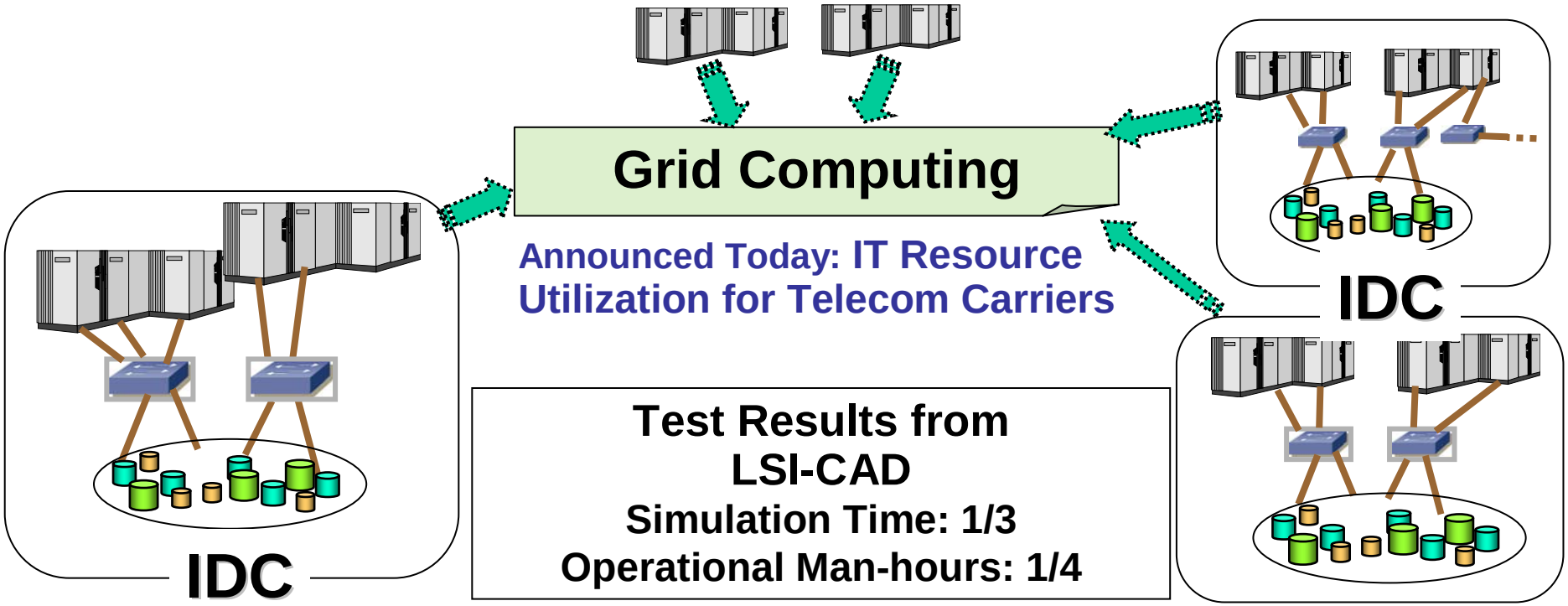
2006	PRIMEPOWER Achieves World-Record Performance in Java Application Benchmark
2006	PRIMEQUEST Achieves World-Record Performance in Java App. Benchmark for Linux Servers
2004	PRIMEPOWER Is First Unix Server to Use 90nm Process Semiconductor Technology
1995	GS8000 Global Server Series Uses World's Fastest Mainframe CMOS Processor
1992	VPP500 Series Is World's Fastest Vector Parallel Supercomputer
1974	M-190 Mainframe Features World's Largest and Fastest LSI
1954	FACOM100 Is Japan's First Relay-type Computer

* In collaboration with Fujitsu Limited. Part of Fujitsu Limited's research was consigned by the National Institute of Information and Communication Technology of Japan.

Grid Computing

Automatically Optimizes Allocation of Work Among Multiple Computers

- **Speed: Responds Quickly to Changing Business Needs**
- **Efficiency: Maximizes Utilization of Existing Resources**
- **Continuity: Provides Continuous Operation**

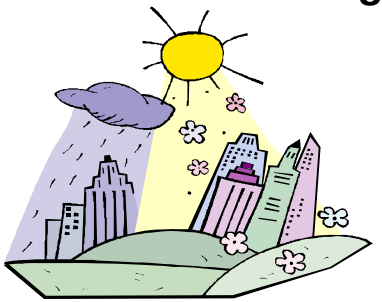


- **Hiroshima University Campus Grid (2005)**
- **METI Business Grid Computing Project (FY 2003 – 2005)**

Peta-Scale Computing

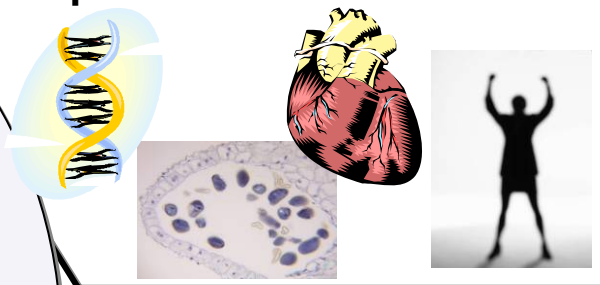
Weather Forecasting

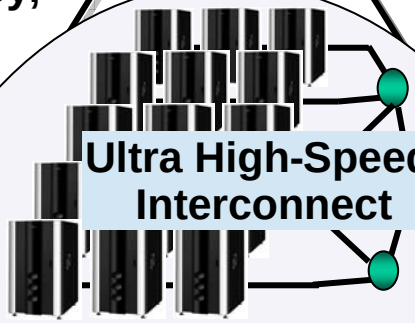
Higher Granularity of Analytical Mesh
→ Increased Forecasting Accuracy, Localized Forecasting



Biotechnology

DNA, Protein Analysis
→ Personalized Medicine / Drug Development





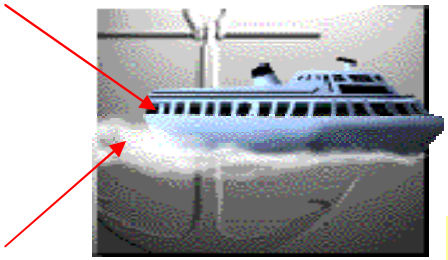
10^5 Order Processors

High-Precision Mounting Tech,
Low Power Consumption Tech

Peta-Scale Computing System

CAE

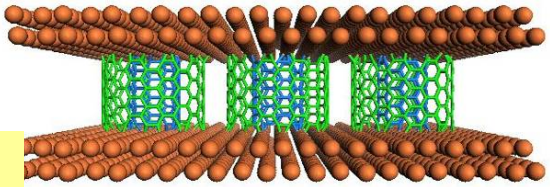
Structural Analysis



Hydrodynamic Analysis

Nanotechnology

Atomic Level Simulation
→ Ultra-fine Devices



2010 Targets

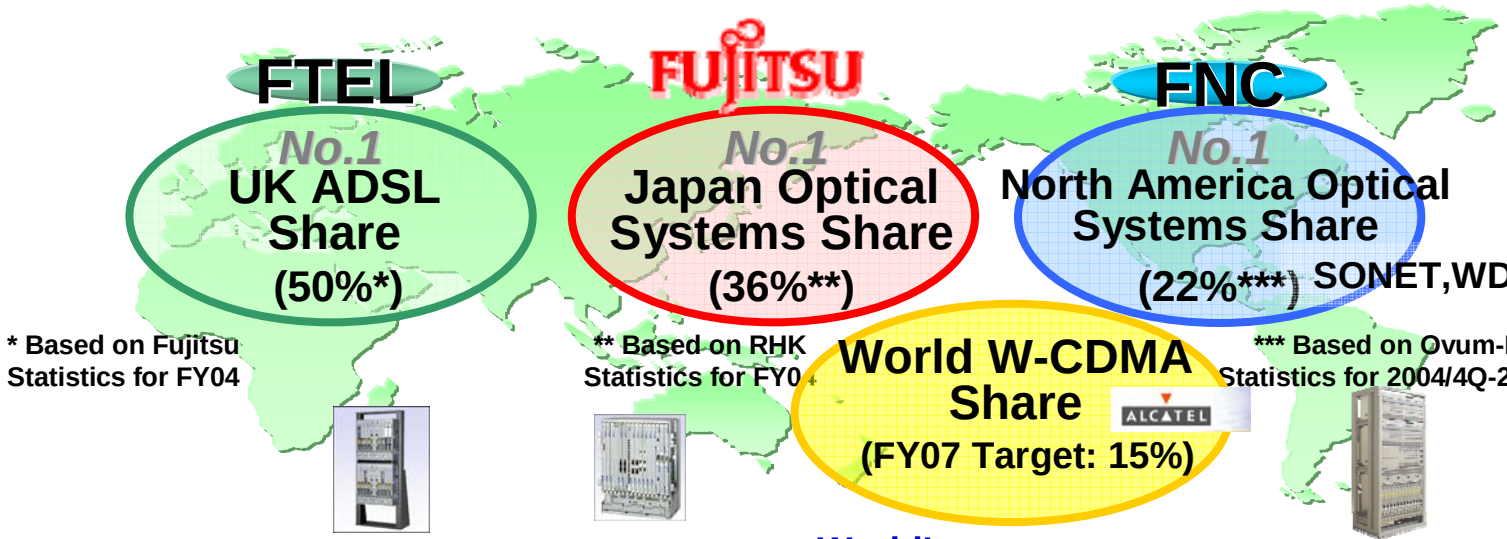
Peak performance: 10 petaflops
Effective performance: 1 petaflops

Networks

Network Systems

Products Supported by World-Class R&D

Exhibit



* Based on Fujitsu Statistics for FY04

** Based on RHK Statistics for FY04

*** Based on Ovum-RHK Statistics for 2004/4Q-2005/3Q

FLASHWAVE 7500 (WDM)

FLASHWAVE 4500 (SONET)

W-CDMA Base Station

World's First

2005	640Gbps Optical Switching Device
2002	Compact Tunable Dispersion Compensator
2000	1.7Tbps WDM System
1997	WDM Optical Submarine System
1992	2.5Gbps LiNbO3 External Modulator
1988	Commercialization of SONET
1986	1.55μm Optical Transmission
1983	Long-haul Single Mode Fiber System
1980	1.3μm Band Semiconductor Laser

First in North America

World's Fastest

2005	GaN HEMT for Mobile Base Stations
2003	Ultra-Efficient Base Station Amp
2002	High-Capacity 3G Base Stations
1980	Ultra-fast Semicon. Element HEMT

World's First

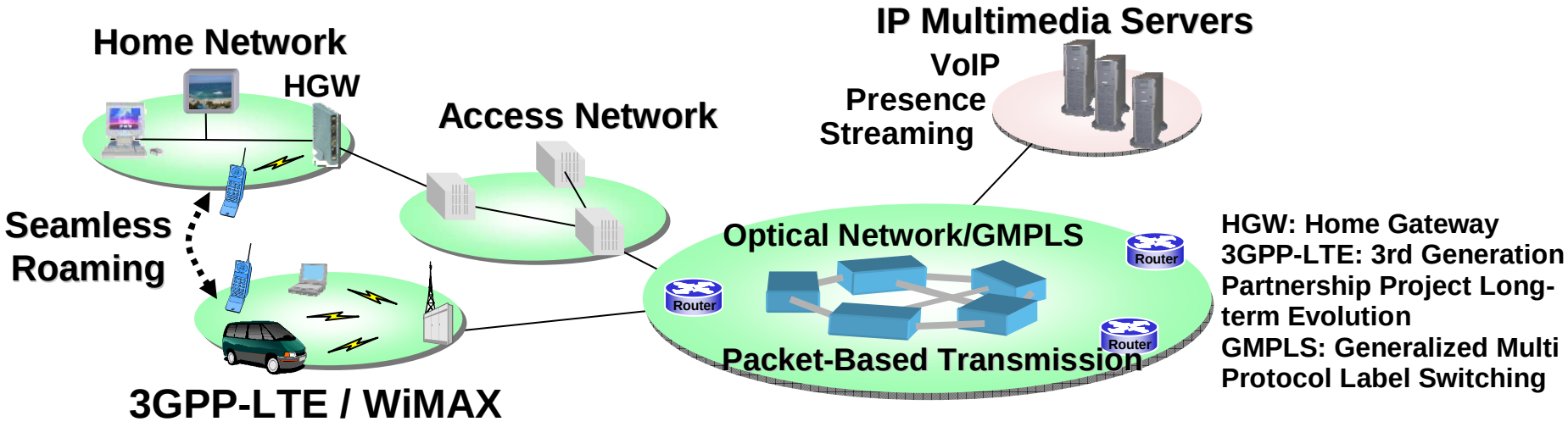
W-CDMA	Wideband Code Division Multiple Access
WDM	Wavelength Division Multiplexing
SONET	Synchronous Optical Network

GaN HEMT: Gallium Nitride High Electron Mobility Transistor

Realizing Next-Generation Networks (NGN)

- Integrated Network Transmission over Packet-based Network (IP-based)
- Fixed Mobile Convergence
- Maintain Interconnectivity with Existing Networks
- Technology for Stable IP Network Operation

IP: Internet Protocol



- Received Access Network Equipment Order for British Telecom's 21st Century Network Project (BT21CN): March 8, 2006
- Selected as MSPP Equipment* Vendor for Verizon and AT&T (formerly SBC)

*Multi Service Provisioning Platform

Accelerate Global Deployment

Electronic Paper

World's First Bendable Color Display

New Kind of Display With a Wide Variety of Potential Applications

No Power Consumption
(Low Power for re-writing)

Thin

Bendable

Lightweight

Security

Palm Vein Authentication

Exhibit

- **Contactless Design Is Hygienic, Promoting High User Acceptance**
- **Highly Reliable Authentication**

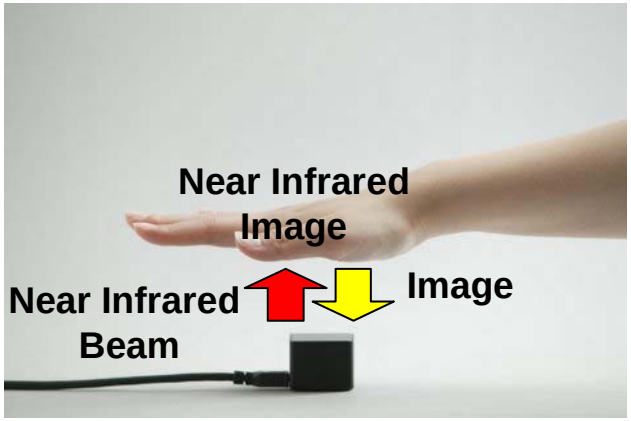
  Verified in Tests with Data from 150,000 Palm Vein Patterns

  99.99% Recognition Rate

  False Acceptance Rate Less than 0.00008%

Enhanced Performance and Reduced Sensor Size (March 9, 2006)

1. **More Compact than Previous Model** *7cm X 7cm → 3.5cm X 3.5cm*
2. **Enhanced Authentication Speed** *1 sec. to scan + 0.5 sec. to verify*
   Less than half the time of previous model

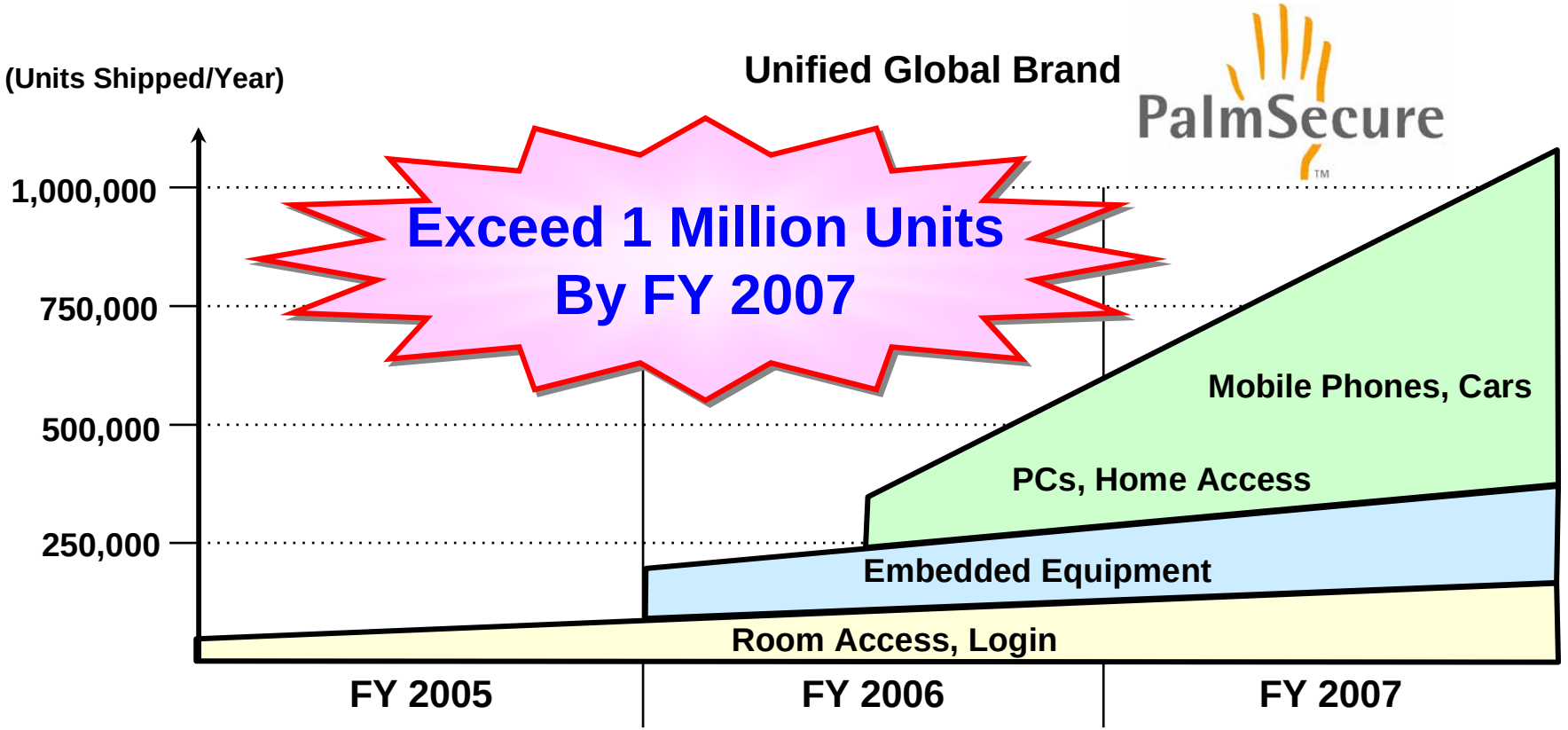


New Sensor

Palm Vein Pattern Image

Increasing Use of Palm Vein Authentication

Worldwide Expansion Spurred by Reductions in Size & Cost



■ **Customer Deployment Examples**

The Bank of Tokyo-Mitsubishi UFJ, Ltd. / Hiroshima Bank Ltd. / Suruga Bank Ltd., University of Tokyo Hospital / Chiba Institute of Technology / HASEKO Corporation

System LSI

H.264 Image Coding Technology

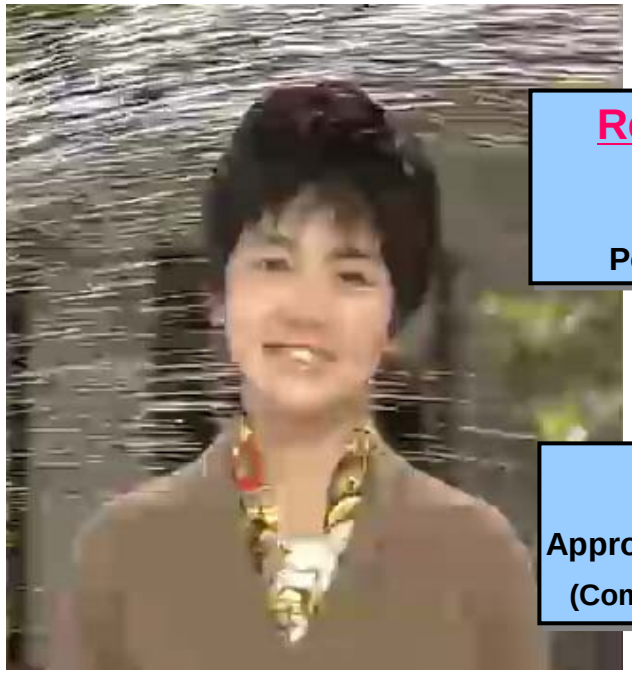
Exhibit

“For Image Processing, It’s Fujitsu”

Developed High-Quality Image Coding Technology Based on H.264, the Latest Standard for Image Compression (November 14, 2005)

Enables Recording & Playback of Standard TV Images with Very Low Power Consumption

International Standard Software — Contributed — **Fujitsu’s Original Algorithm**



Reduced Data Volume & Power Consumption

1/5 Processing Volume、
Power Consumption of 100mW

Higher Quality Image

Approximately 30% Better Image Quality
(Comparison Using Bit Rate Conversion)

Note: Comparison Is for Standard TV Image (720 X 480) at 2Mbps (Using Test Chart from The Institute of Image Information & Television Engineers)

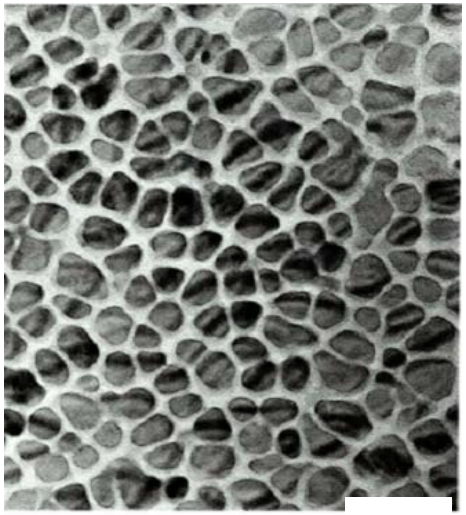
HDD

Perpendicular Recording

Developed Perpendicular Recording Technology for High-Volume/High-Density HDDs

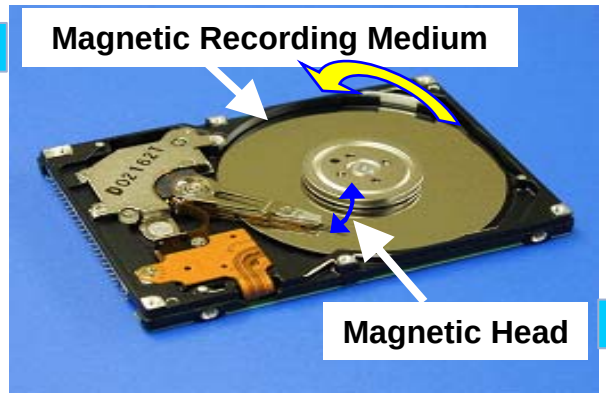
- Developed Leading-edge Technology for Magnetic Heads (Perpendicular Recording and Playback) and Perpendicular Recording Medium
- Plan to Commercialize Large-Capacity Perpendicular Recording Drive Products in 2006
- Targeting Top 3 Spot Worldwide by FY 2008 (Currently Top 5)

Low-Noise Perpendicular Recording Medium

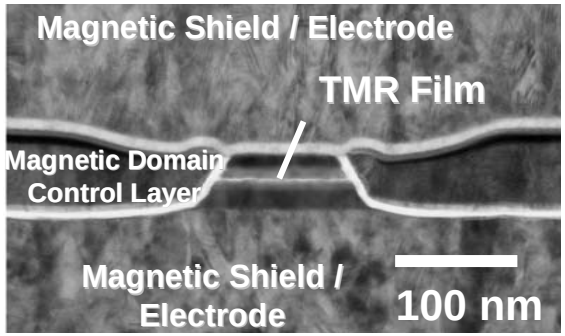


10nm

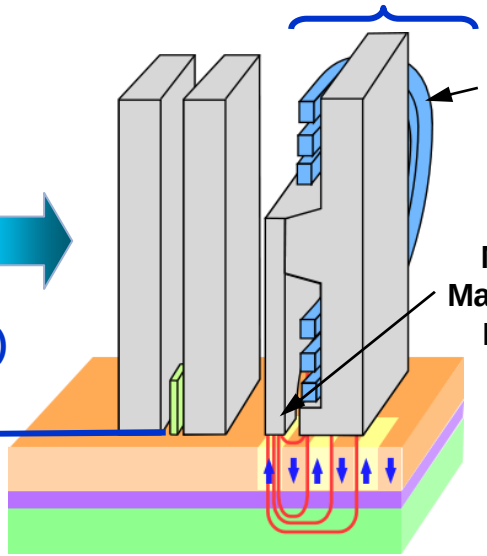
Applied **granular media**, **segmentalized** magnetic cluster



Highly Sensitive Playback Head (TMR*)



High-Performance Perpendicular Recording Head



* TMR: Tunnel Magneto Resistance

Developing **MgO-TMR head** for **higher performance**

Awarded the Production Special Award by the Okochi Memorial Foundation for "Development and Application of an Exchanged-coupled Magnetic Recording Medium (Surface Recording)" (March 14, 2006)

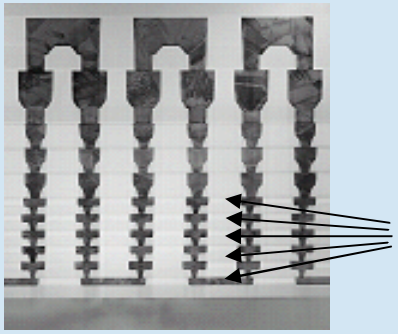
Semiconductor Microfabrication Technology

Fujitsu Was First to Successfully Mass Produce 90nm LSI Devices

90nm = 1/1000 the Width of a Hair

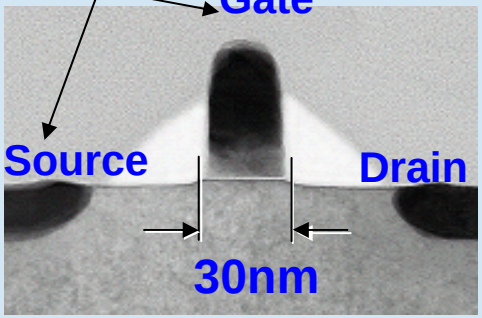
Targeting 65nm

- Interlayer Dielectric Film Materials
- Ultra-fine Process Technology



Multi-layer Interconnects (12 Layers)

Low-k Materials



65nm-Generation Transistor

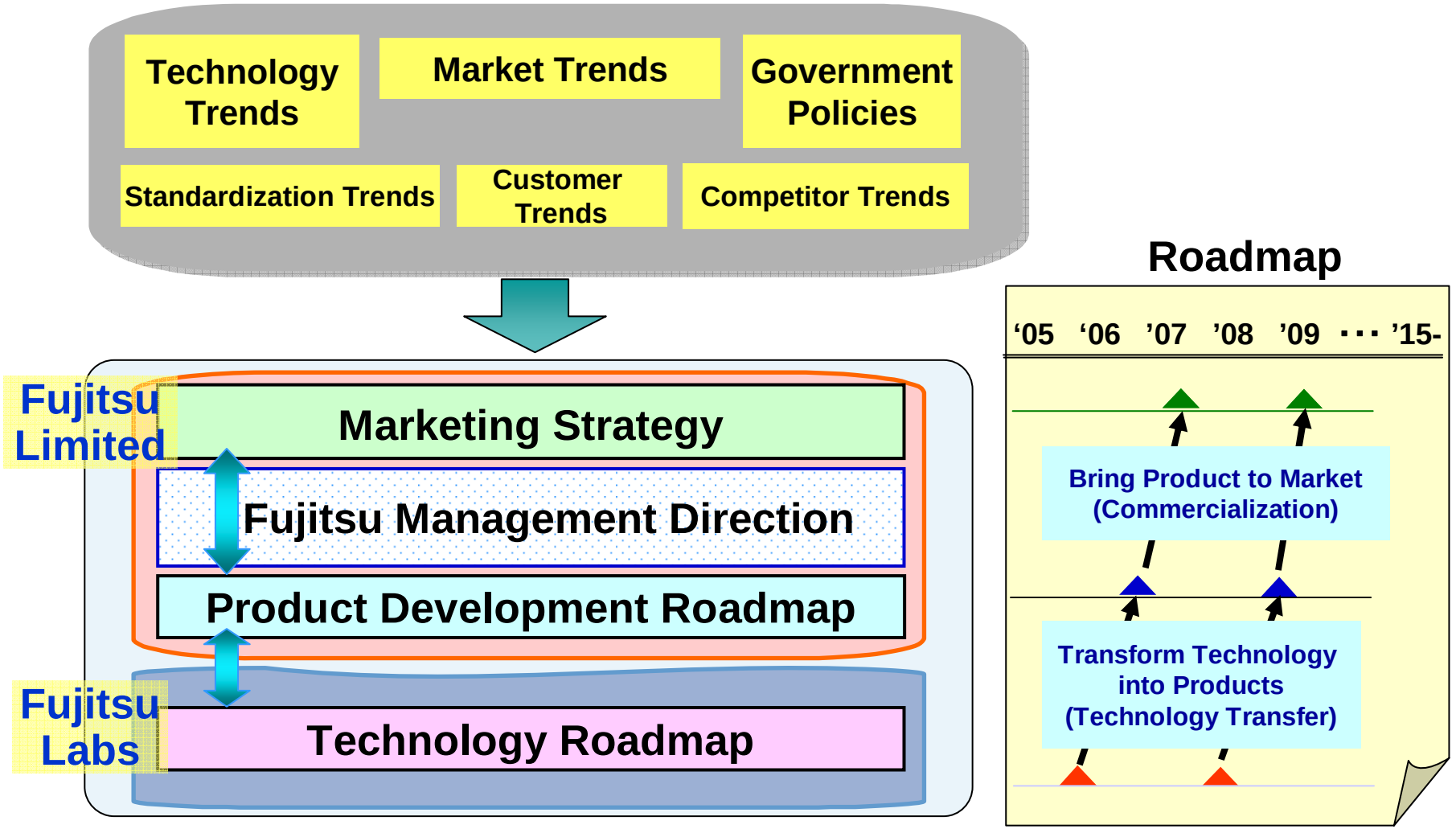
Challenges at 45nm & Beyond

- Increasing Yield
- Achieving Low Power Consumption

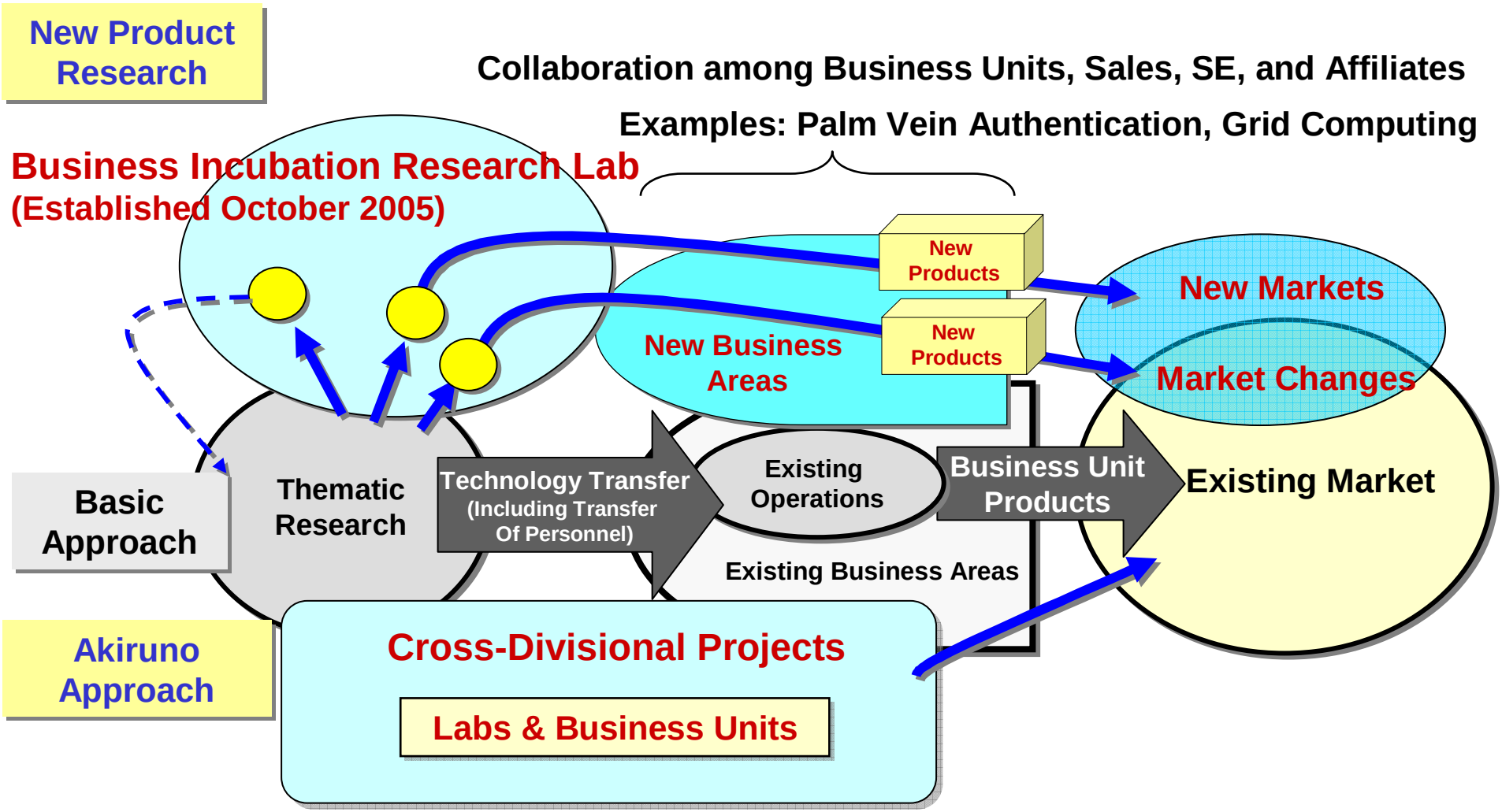
Real Application of Nanotechnology

Market-Oriented R&D

Roadmap as Cornerstone of R&D Strategy



Accelerating Commercialization of R&D Results



Examples: 90nm LSI (Concentrated at Akiruno Technology Center)
HDD Technology, 3G/3.5G Mobile Communications Base Stations

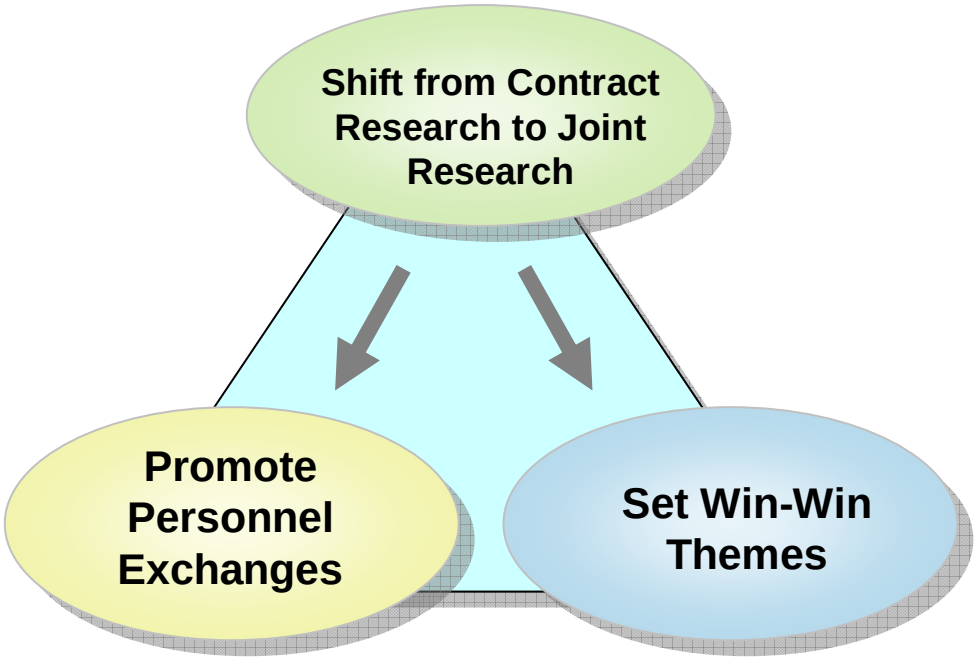
Collaboration with Academic Institutions

Collaborations with Academic Institutions

Leverage University Research Mainly in New Research Areas

Japan Gov't Policy: Increased Budget to Promote Industry-Academic Collaboration

Strengthen Partner Relationships



Japan (Comprehensive Contracts)

- University of Tokyo, ARA Program
- Tokyo Institute of Technology
- Osaka University
- Kyushu University
- Waseda University, GITI/GITS

Overseas (Main Partners)

US
- Stanford University, University of Maryland

Europe
- Heinrich Hertz Institute
- Munich University of Technology

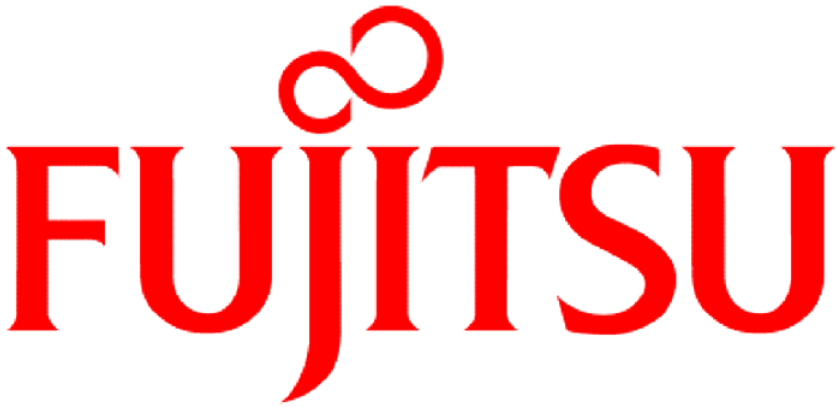
China
- Beijing University, Shanghai Jiao Tong University

- Example 1: Quantum Dot Lasers (Tokyo University Arakawa Lab)
- Example 2: 640Gbit/s Optical Signal Processing (Heinrich Hertz Institute)

Cautionary Statement

These presentation materials and other information on our meeting may contain forward-looking statements that are based on management's current views and assumptions and involve known and unknown risks and uncertainties that could cause actual results, performance or events to differ materially from those expressed or implied in such statements. Words such as "anticipates," "believes," "expects," "estimates," "intends," "plans," "projects," and similar expressions which indicate future events and trends identify forward-looking statements.
Actual results may differ materially from those projected or implied in the forward-looking statements due to, without limitation, the following factors:

- general economic and market conditions in the major geographic markets for Fujitsu's services and products, which are the United States, EU, Japan and elsewhere in Asia, particularly as such conditions may effect customer spending;
- rapid technological change, fluctuations in customer demand and intensifying price competition in the IT, telecommunications, and microelectronics markets in which Fujitsu competes;
- Fujitsu's ability to dispose of non-core businesses and related assets through strategic alliances and sales on commercially reasonable terms, and the effect of realization of losses which may result from such transactions;
- uncertainty as to Fujitsu's access to, or protection for, certain intellectual property rights;
- uncertainty as to the performance of Fujitsu's strategic business partners;
- declines in the market prices of Japanese and foreign equity securities held by Fujitsu which could cause Fujitsu to recognize significant losses in the value of its holdings and require Fujitsu to make significant additional contributions to its pension funds in order to make up shortfalls in minimum reserve requirements resulting from such declines;
- poor operating results, inability to access financing on commercially reasonable terms, insolvency or bankruptcy of Fujitsu's customers, any of which factors could adversely affect or preclude these customers' ability to timely pay accounts receivables owed to Fujitsu; and
- fluctuations in rates of exchange for the yen and other currencies in which Fujitsu makes significant sales or in which Fujitsu's assets and liabilities are denominated, particularly between the yen and the British pound and U.S. dollar, respectively.



THE POSSIBILITIES ARE INFINITE

Exhibits

IDC Lab

- **Grid Computing**

  Announced Today (April 12)

  Successful Test of IT Resource Utilization for Telecom Carriers

BB & Ubiquitous Lab

- **H.264 Image Coding Technology**
- **Palm Vein Authentication**

Lobby

- **W-CDMA Base Transceiver Station**
- **WDM Optical Transmission System, Optical Modules**
- **Silicon Semiconductor Products**

Guide

- **Service Robots (enon)**

Main Terminology

- **BPM (Business Process Management):** A method for continuous improvement that models business operations as well as monitors and analyzes the status of business operations in order to increase business efficiency.
- **SOA (Service Oriented Architecture):** Architecture that enables rapid and flexible construction of value chains by linking repeatable services (business processes) such as inquiry, order and warehoused stock confirmation.
- **NGN (Next-Generation Network):** Integrated fixed and mobile packet-based (IP-based) network offering wide array of multimedia services, including not only voice but also video and data.
- **HSDPA/HSUPA (High Speed Downlink/Uplink Packet Access):** A standard set by the 3GPPI industry association that enables about a five-fold increase in comparison with conventional packet transmission speeds.
- **3GPP-LTE (Long-term Evolution):** Next-generation mobile phones that provide transmission speeds several times faster than 3.5G mobile phones.
- **WiMax (Worldwide Interoperability for Microwave Access):** A wireless communications technology enabling transmission speeds up of to 70Mbit/second and coverage/reception within a 50km radius with a single antenna.
- **GaN Amp:** A gallium nitride amplifier that, due to its superior amplification performance, can be used to reduce the power consumption and size of wireless base station systems.
- **Quantum Dot Lasers:** Lasers with the structure of very tiny semiconductors (laser dots) that regulate electrons and emit light. Due to the quantum mechanics effect, they greatly minimize temperature-sensitive light fluctuations.
- **Quantum-Encrypted Communication:** With quantum encryption, a single photon is utilized for data transmission. Because there are quantum mechanical changes in the photon in the event of wiretapping, the receiving party is able to detect that wiretapping is occurring.
- **LCA (Life Cycle Assessment):** A comprehensive method for assessing the environmental burden resulting from all the processes relating to a product, including raw material procurement, manufacture, use and disposal.