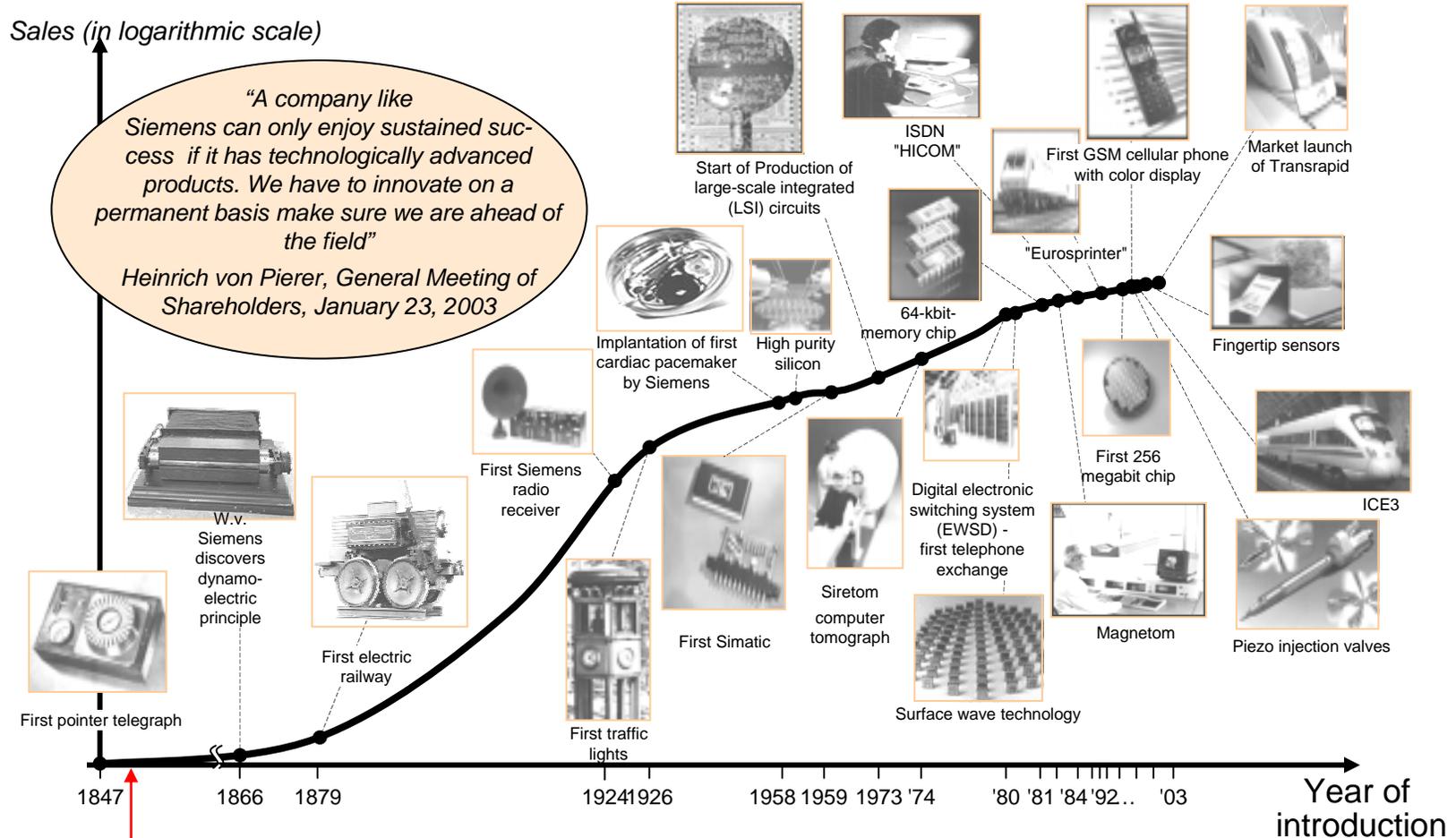


Research and Development at Siemens



Innovations have Kept Siemens Strong for 156 Years

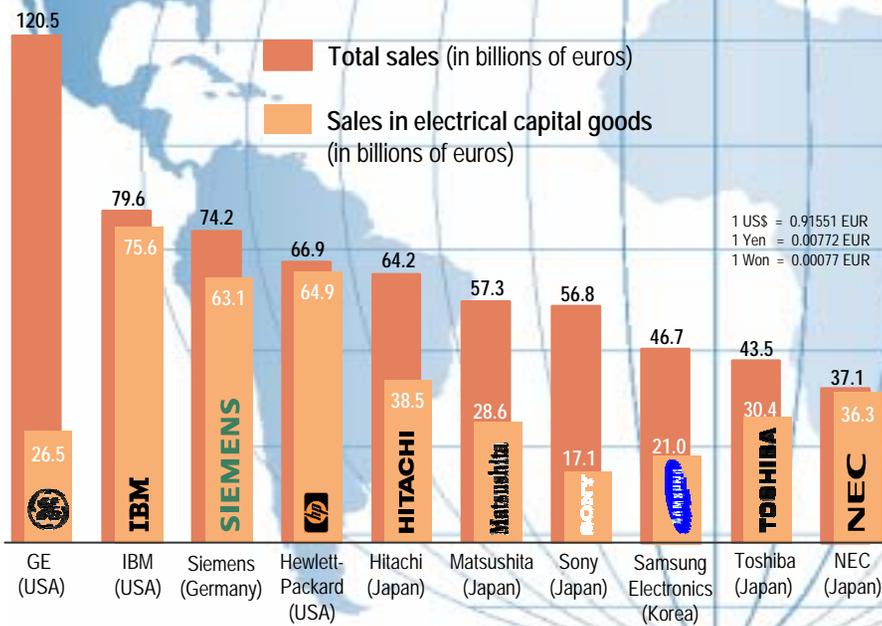
Outstanding innovations and sales development by Siemens AG, 1847 – 2003



1853 first office St. Petersburg

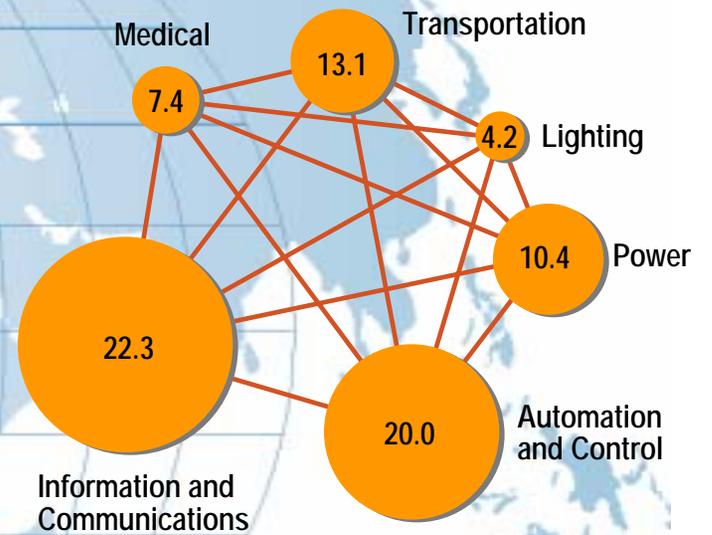
Siemens: Global network of innovation in electrical engineering and electronics

The top ten companies in our business (in fiscal 2003)



1 US\$ = 0.91551 EUR
 1 Yen = 0.00772 EUR
 1 Won = 0.00077 EUR

Source: CD S 8 - 11/03



Siemens' Business Segments: Sales in 2003 (in billions of euros, incl. internal sales)

Corporate Structure (January 1, 2004)

Managing Board

Operations

Information and Communications

Information and Communication Mobile (ICM)

Information and Communication Networks (ICN)

Siemens Business Services GmbH & Co. OHG (SBS) *

Transportation

Transportation Systems (TS)

Siemens VDO Automotive AG (SV) *

Automation and Control

Automation and Drives (A&D)

Industrial Solutions and Services (I&S)

Siemens Dematic AG (SD) *

Siemens Building Technologies AG (SBT) *

Medical

Medical Solutions (Med)

Lighting

Osram GmbH *

Power

Power Generation (PG)

Power Transmission and Distribution (PTD)

Financing and Real Estate

Siemens Financial Services GmbH (SFS) *

Siemens Real Estate (SRE)

Corporate Departments

Corporate Development (CD)

Corporate Finance (CF)

Corporate Personnel (CP)

Corporate Technology (CT)

Corporate Centers:

Corporate Communications (CC)

Corporate Information and Operations (CIO)

Global Procurement and Logistics (GPL)

Chief Economist / Corporate Relations (ECR)

Management Consulting Personnel (MCP)

Regional Units

Regional Offices, Regional Companies, Representativ Offices, Agencies

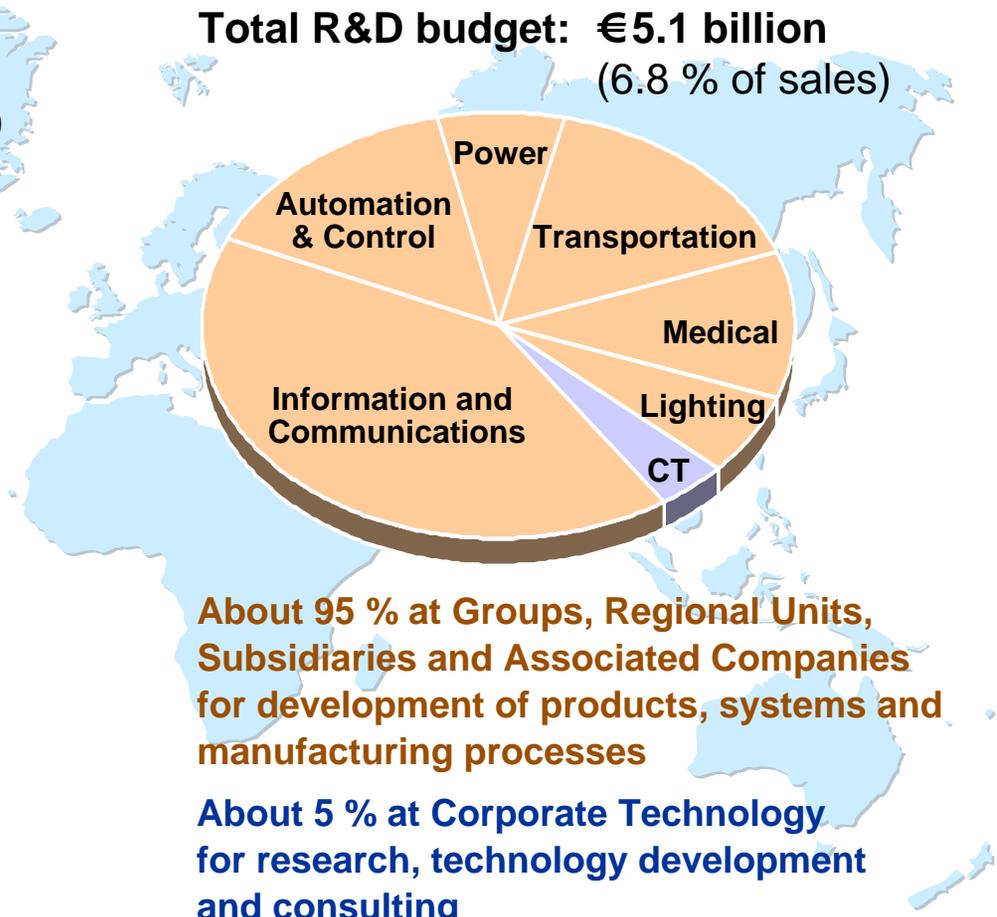
**) Legally Separate Group*

R&D at Siemens (2003)

R&D employees: 50,000
(employees worldwide: 416,000)



Total R&D budget: €5.1 billion
(6.8 % of sales)

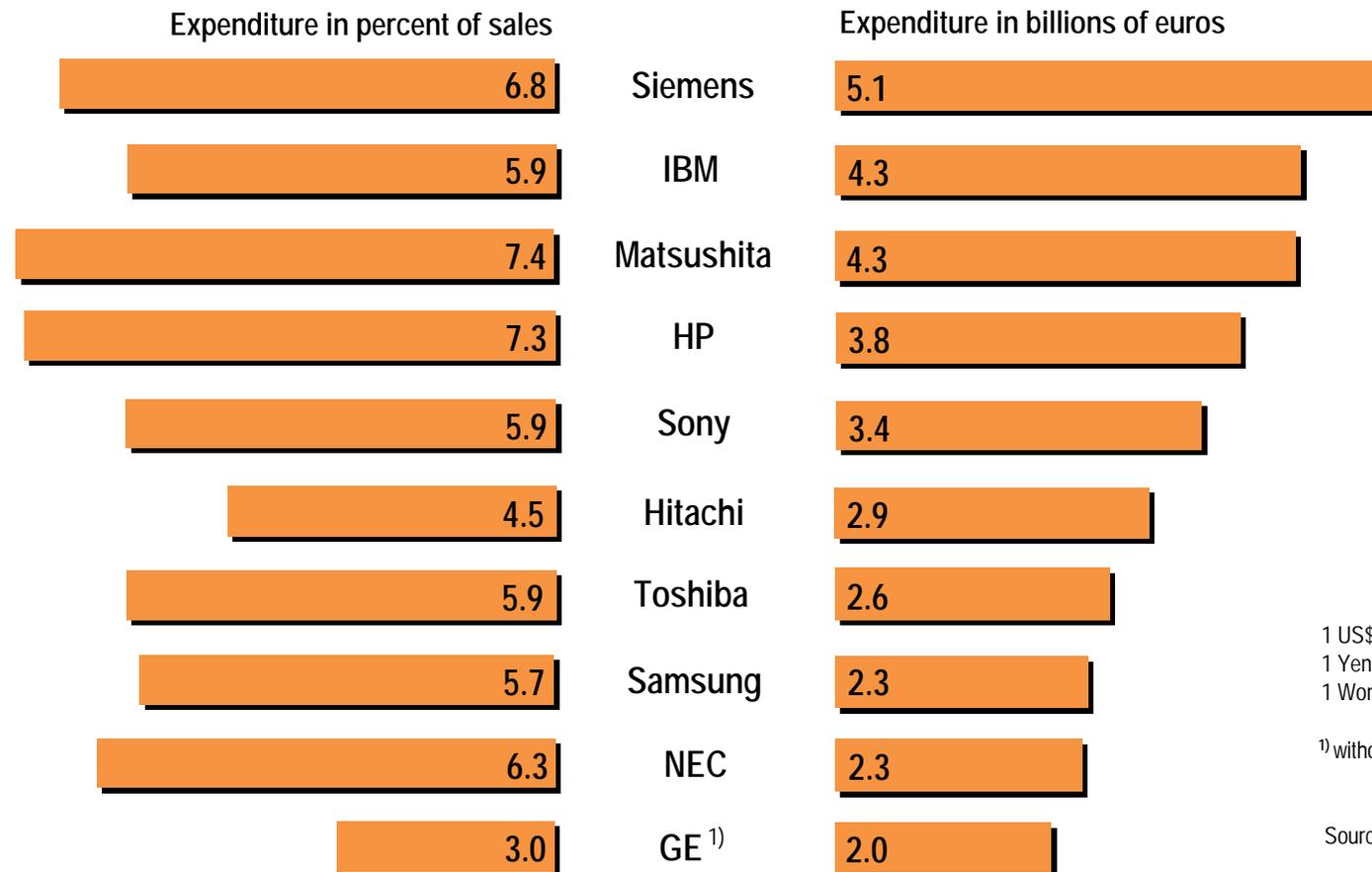


About 95 % at Groups, Regional Units, Subsidiaries and Associated Companies for development of products, systems and manufacturing processes

About 5 % at Corporate Technology for research, technology development and consulting

R&D Expenditure of the Top Ten Electrical Engineering Companies

(Based on annual reports 2002/03 and corresponding exchange rates; only partially comparable, without external R&D orders and public funding)



1 US\$ = 0.91551 EUR
 1 Yen = 0.00772 EUR
 1 Won = 0.00077 EUR

¹⁾ without GECS (GE Capital Services)

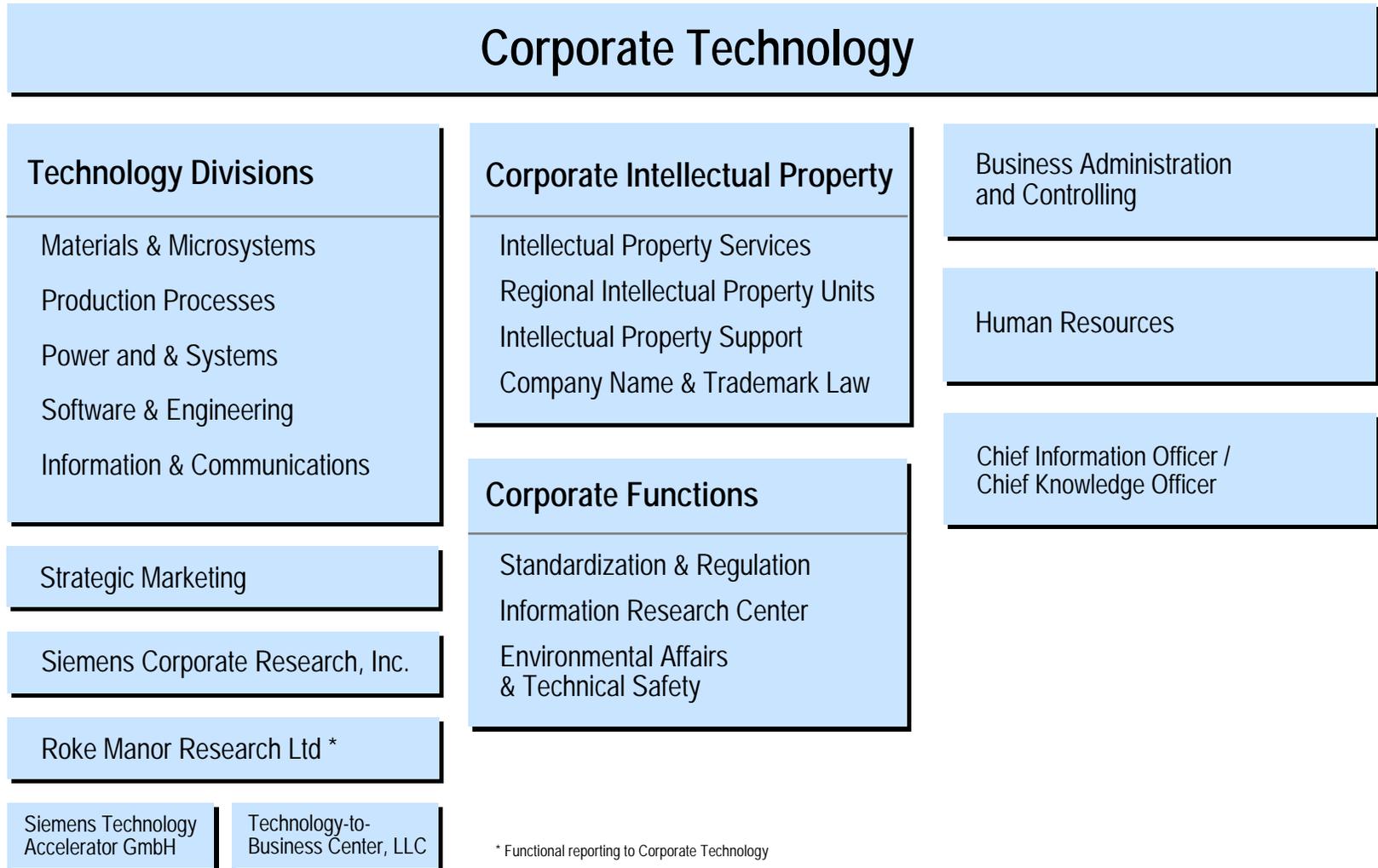
Source: Siemens AG, CD S 8 - 11.03

Aspects for the Internationalization of R&D

- 
- Close to the customer
 - Close to the production
 - Networking to the scientific community
 - Costs
 - Recruiting
 - Corporate Citizenship
 - Cultural diversity

▶ **R&D goes where the businesses and the markets are growing**

Corporate Technology



* Functional reporting to Corporate Technology

Corporate Technology – worldwide 2,400 employees at 24 sites (20% outside Germany)

CT Technology Divisions

9 sites, thereof 4 main sites with more than 100 employees

CT Intellectual Property

20 sites worldwide, thereof 7 in Germany



Berkeley, CA



Roke Manor, Romsey



Berlin



Erlangen



Beijing



Tokyo



Munich Perlach

- R&D - Activities
main sites: underlined – more than 100 employees
- Technology Office
- ▲ Technology Scouts
- CT IP Main Sites
- CT IP others



Further CT IP sites
Karlsruhe
Konstanz
Düsseldorf
Frankfurt / Main

Business Model of Corporate Technology

**Goal:
Creation of Economic
Value Added for the Company**

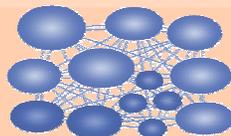
- Pictures of the Future
 - Markets
 - Trends
 - Technology
 - Business Opportunities
- Technology Screening & Analysis

Cross Business Group/Segment Technology Strategies for the Company

- ▶ Projects for the Business Group (Contract R&D)
- ▶ Projects to build up new competences

New Business opportunities by external commercialization of technologies and IPRs

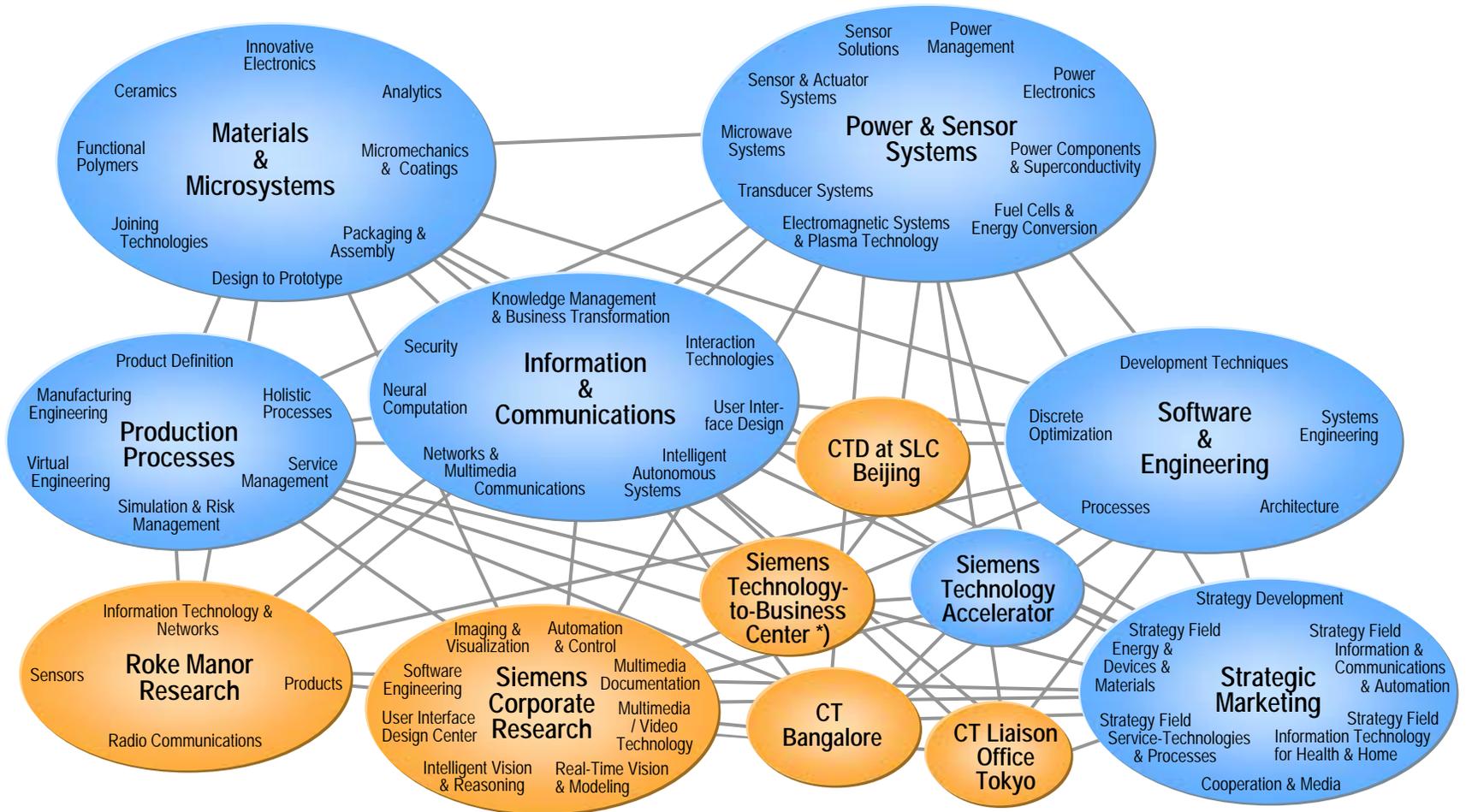
- Spin off's (STA, TTB*)
- IP marketing
- External marketing of technological services



**Network of Competences-
Partner for Innovation**

* Partnership with A&D, arising also for Spin-in's

Technology Divisions and Core Technologies: Network of Competences – Partner for Innovations



*) subsidiary to Siemens Corporate Research



Ultrafast Ceramics for Computed Tomography



Functional Materials for Optoelectronics



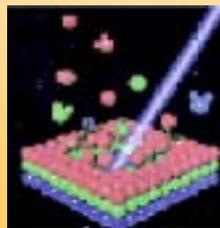
Polymerelectronic



Multichip Module for Radar Evaluation



Eco-Design of Products



Materials Analysis by Ion Bombardment



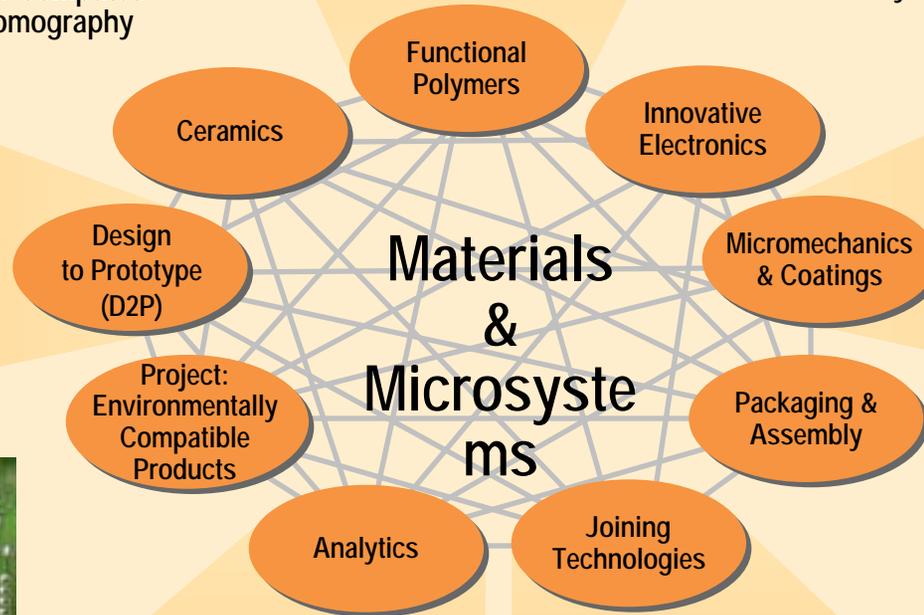
Joining of Plastic Materials



Parallel Optical Link



Electronic Assembly





User Interface Design
Usability Lab



Intelligent Robots
and Software Agents
assist everywhere

... Everywhere



Interaction Technologies:
Speech Processing
Gesture Processing
Biometrics
Document Interfaces

Interaction Solutions:
E-communication
Command & Control
Documentation



Protection of critical I&C
infrastructure: Hacking prevention,
incident handling

User
Interface Design

Computer
Emergency
Response Team
(CERT)

Knowledge Man-
agement & Business
Transformation

Intelligent
Autonomous
Systems

Information
&
Communications

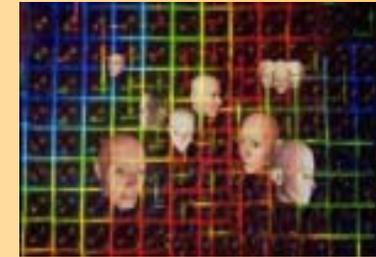
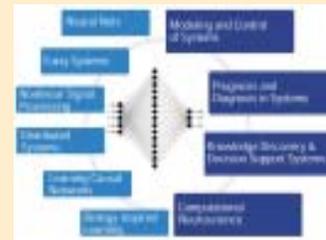
Networks &
Multimedia
Communications

Interaction
Technologies

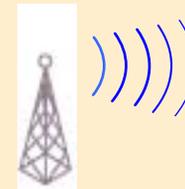
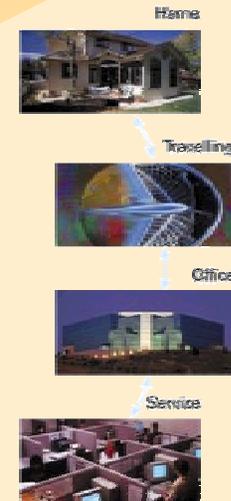
Neural
Computation

Security

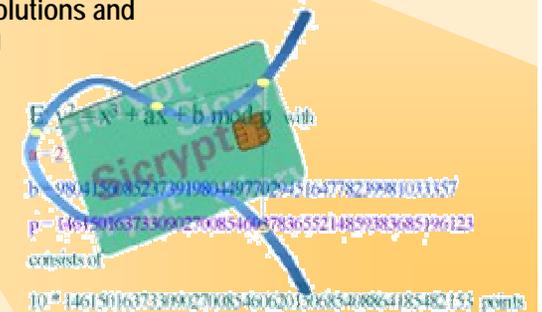
Neuro-Fuzzy Techniques for
Systems & Industrial Projects



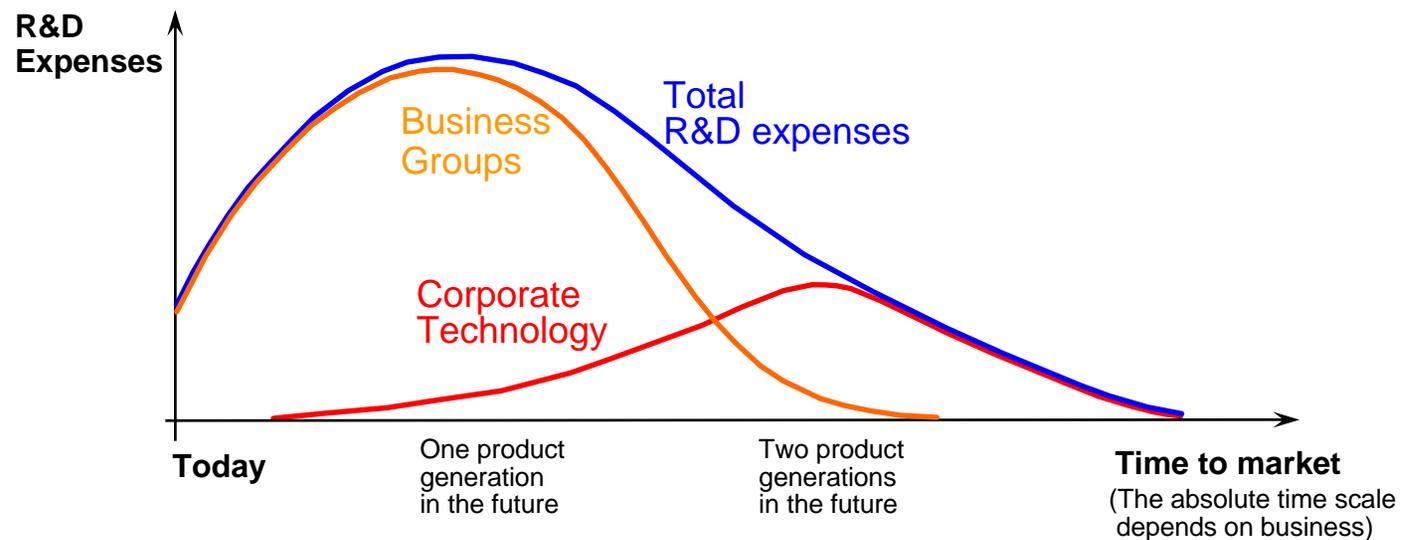
Knowledge Management:
Processes, Methods and Tools
for distributed Organizations



Cryptographic Algorithms and
Security Solutions and
Consulting



The Time Horizons of the R&D Activities of the Business Groups and of Corporate Technology are Different



A seamless transition from R&D in Corporate Technology to the Business Groups is crucial for our success

Pictures of the Future : Detailed Description of All Relevant Trends of Our Business Segments



- **Socio-economic trends**
 - society
 - life of work
- **Market trends**
 - size / growth
 - structure
 - geographical
- **Customer / business trends**
 - value chains / networks
 - company's structure
 - processes
- **Technological trends**
 - strategic importance
 - multiple impact
 - disruptive

Pictures of the Future : Main Technological Trends

- ▶ New materials
- ▶ Miniaturization
- ▶ Software substitutes hardware
- ▶ Increasing complexity
- ▶ Modularization
- ▶ Decentralization of intelligence
- ▶ Standardization
- ▶ Individualization
- ▶ Virtualization
- ▶ Sustainability
- ▶ Service technologies
- ▶ Knowledge management



“The best way of predicting the future is to invent and to shape it yourself”

Heinrich v. Pierer
 CEO and President
 of Siemens AG

