Open Innovation @ Siemens

April 24th 2006

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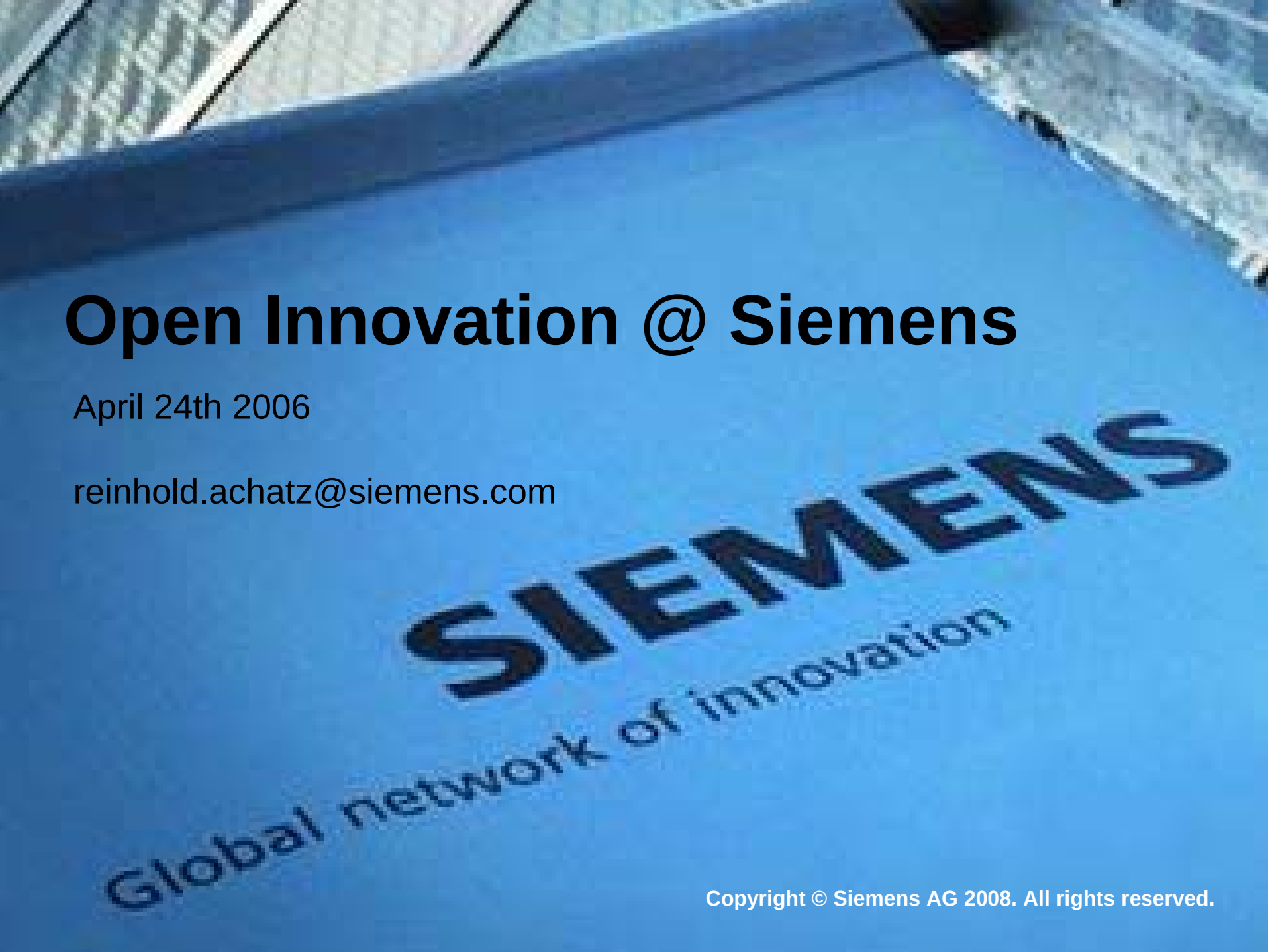

Innovations keep us strong – Milestones across the centuries

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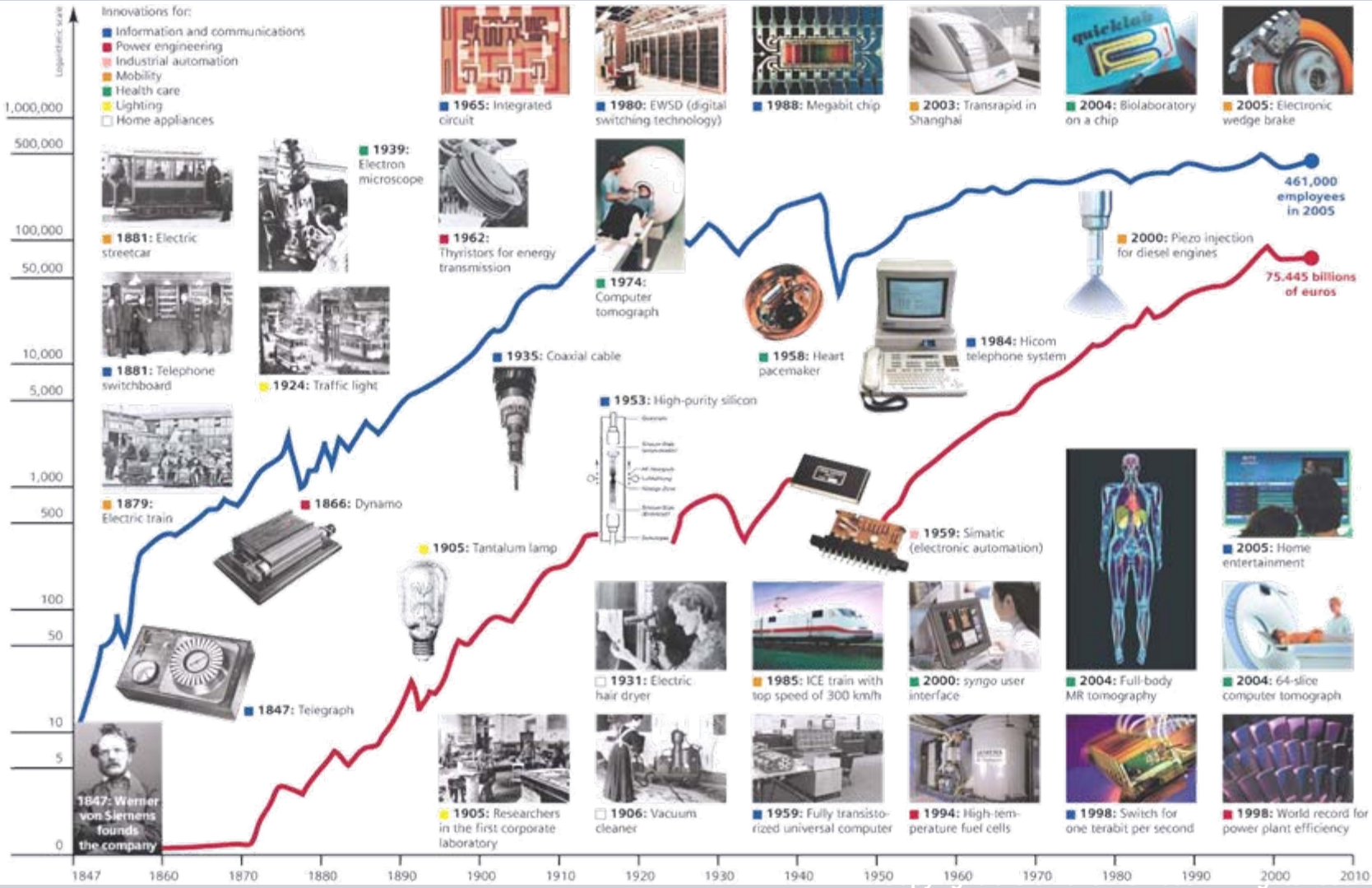

Megatrends Pose Fundamental Questions
Siemens' Answers are Technological Solutions

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How can we power a planet hungry for electricity without damaging it?

Energy

How can we produce goods efficiently in a world of constantly changing demands?

Industry

How can we detect and treat disease before it strikes?

Healthcare

Corporate Research and Technologies

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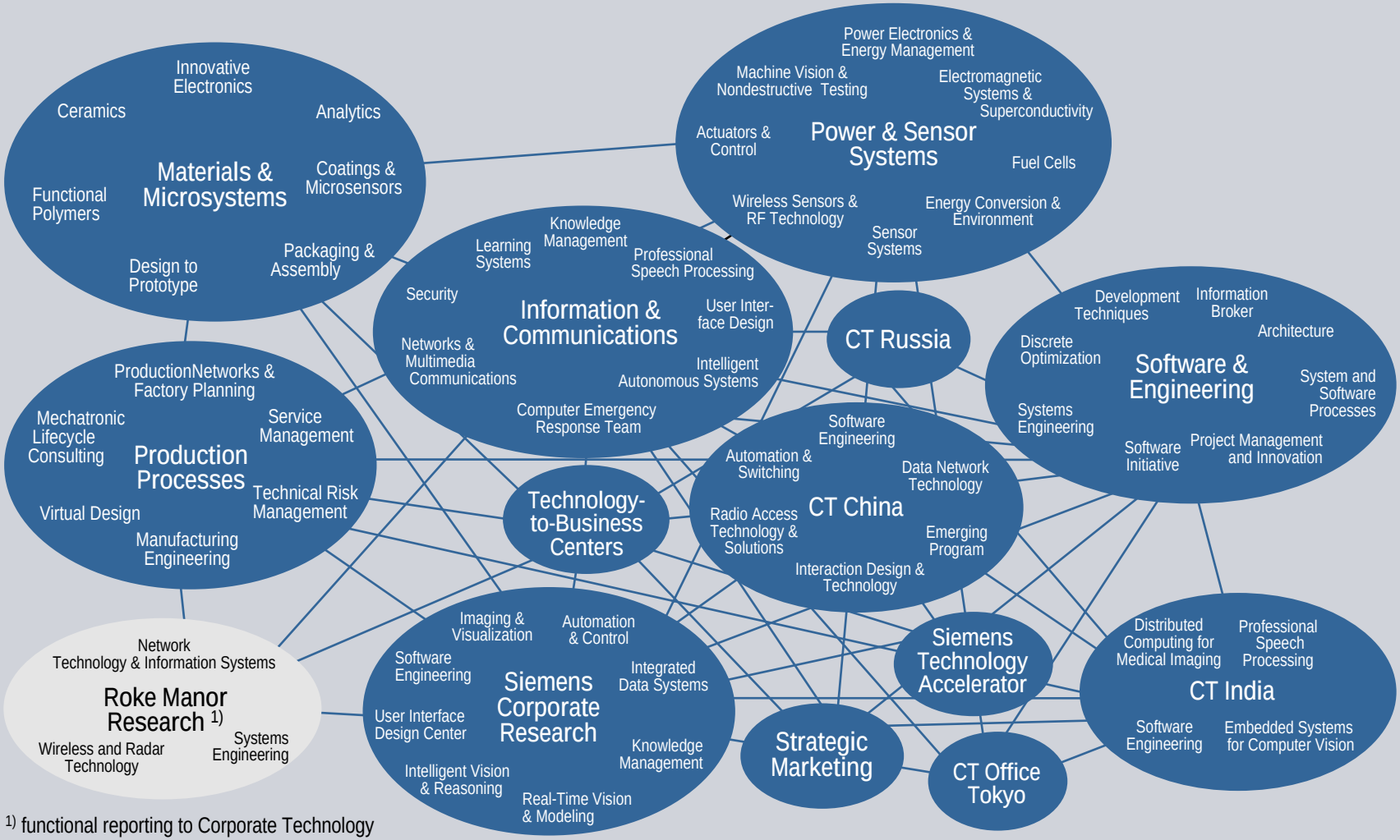
International Network of Competencies – Worldwide Partner for Innovations



1) functional reporting to Corporate Technology

Corporate Technology

Present in all leading markets and technology hot spots

SIEMENS


Berkeley


Iselin


Princeton


Romsey (RMR)


St. Petersburg


Moscow


Beijing


Tokyo

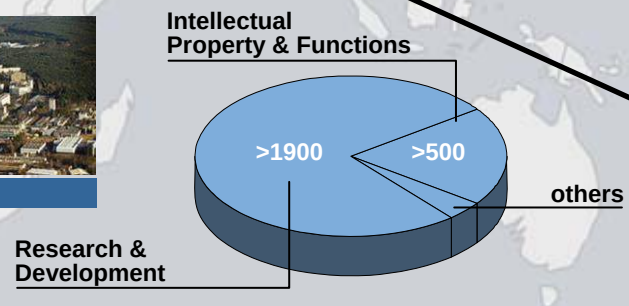

Shanghai


Berlin


Munich


Erlangen


Bangalore



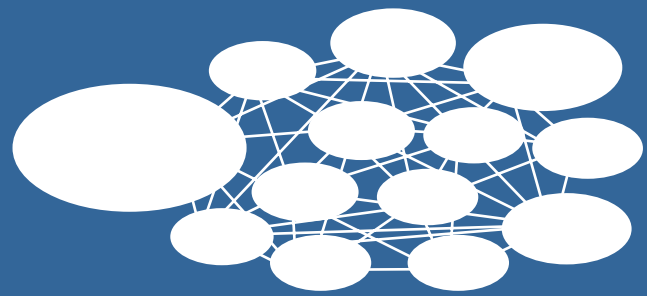
(Distribution of employees by functions)

Corporate Research and Technologies (CT T)
Vision

SIEMENS

Define and develop the technologies and processes to make Siemens a trendsetter in any industry served.

Attract the best brain in the most innovative regions of the world.



Innovation: An invention turned into business

Invention		Innovation
'Create new ideas'		‘Implement new ideas In the market’

Source: SMC

Research And Innovation are cComplementary

Research is the transformation of money to knowledge

Innovation is the transformation of knowledge to money

Consequences:

- Research is a necessary but not a sufficient condition for innovation
- Economic value is only created by successful innovations
- Business strategy drives R&D strategy

The most important innovation strategies and their positioning along the technology lifecycle

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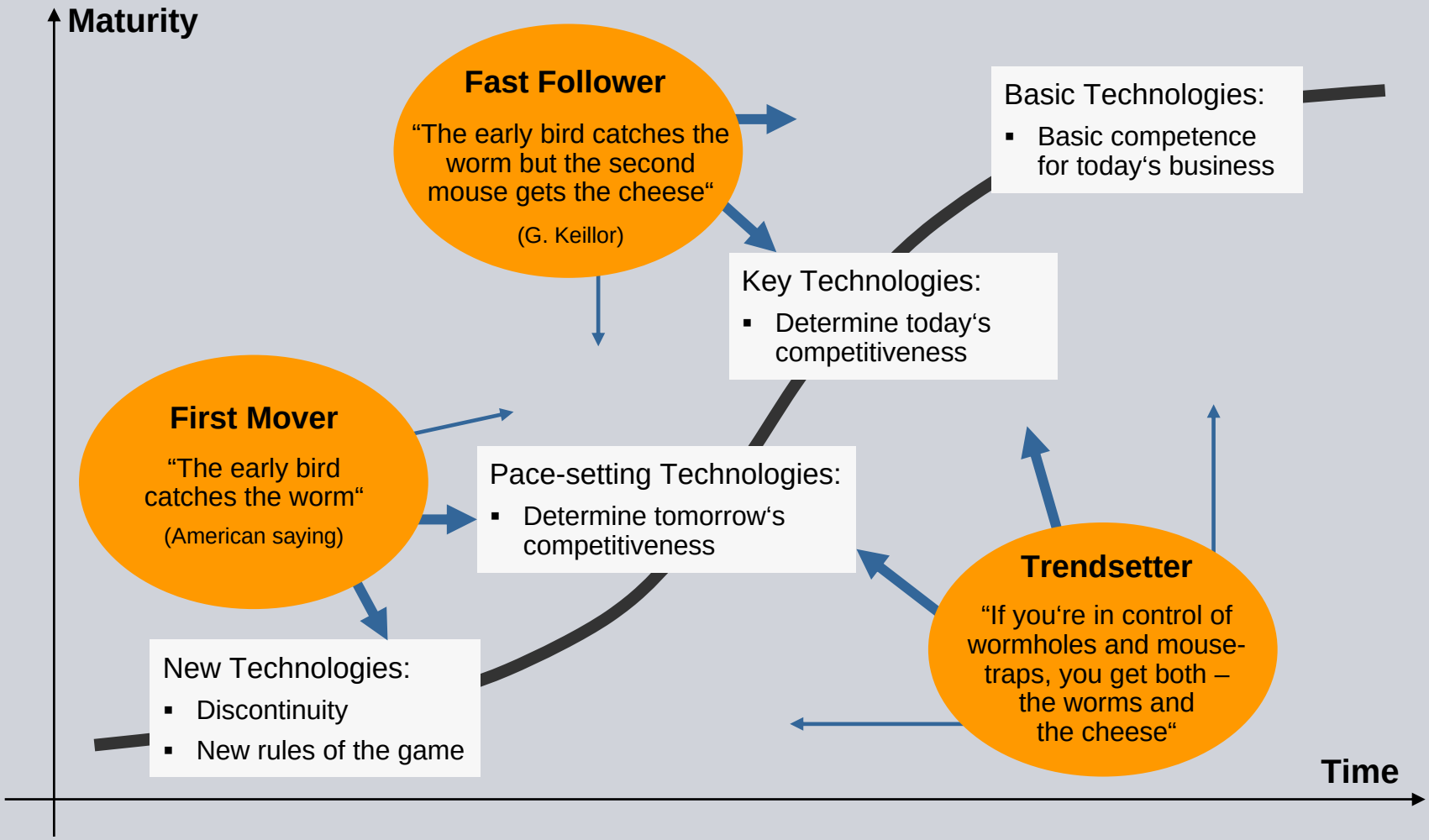

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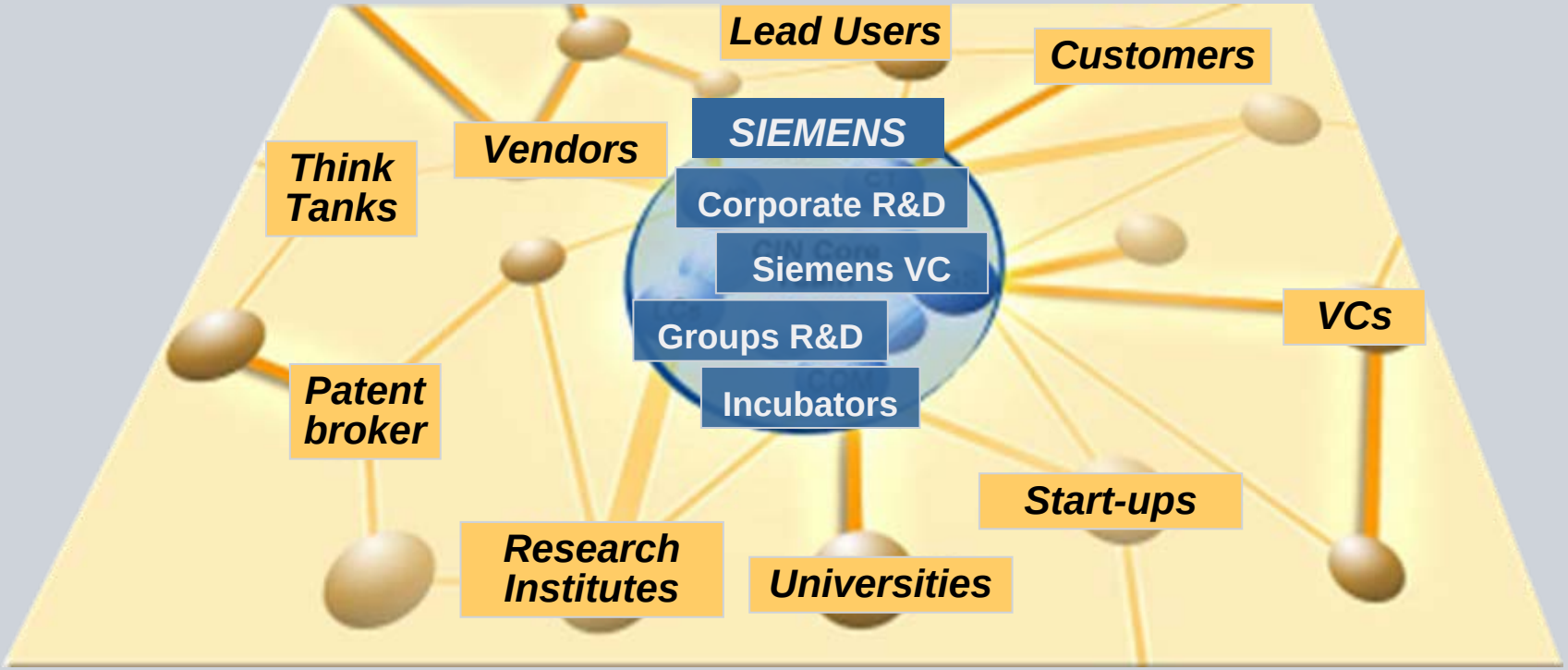
Open Innovation - Definition

"**Open innovation** is the use of purposive **inflows and outflows of knowledge** to accelerate internal innovation, and expand the markets for external use of innovation, respectively.

[This paradigm] assumes that **firms can and should use external ideas as well as internal ideas**, and internal and external paths to market, as they look to advance their technology."

Henry Chesbrough,
Haas School of Business/University of California, Berkeley

The sources for innovation are manifold



Managing innovation = managing complexity

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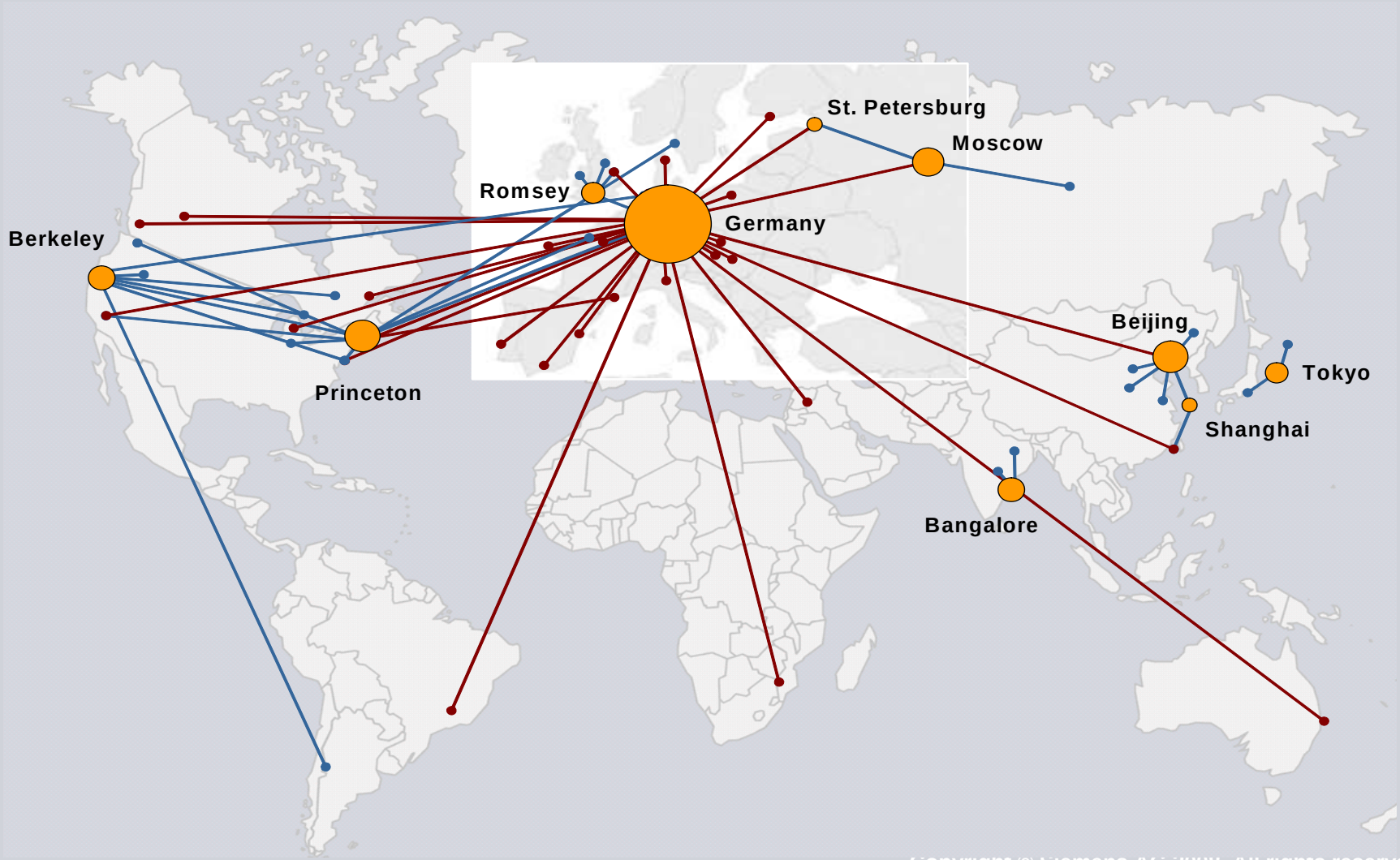
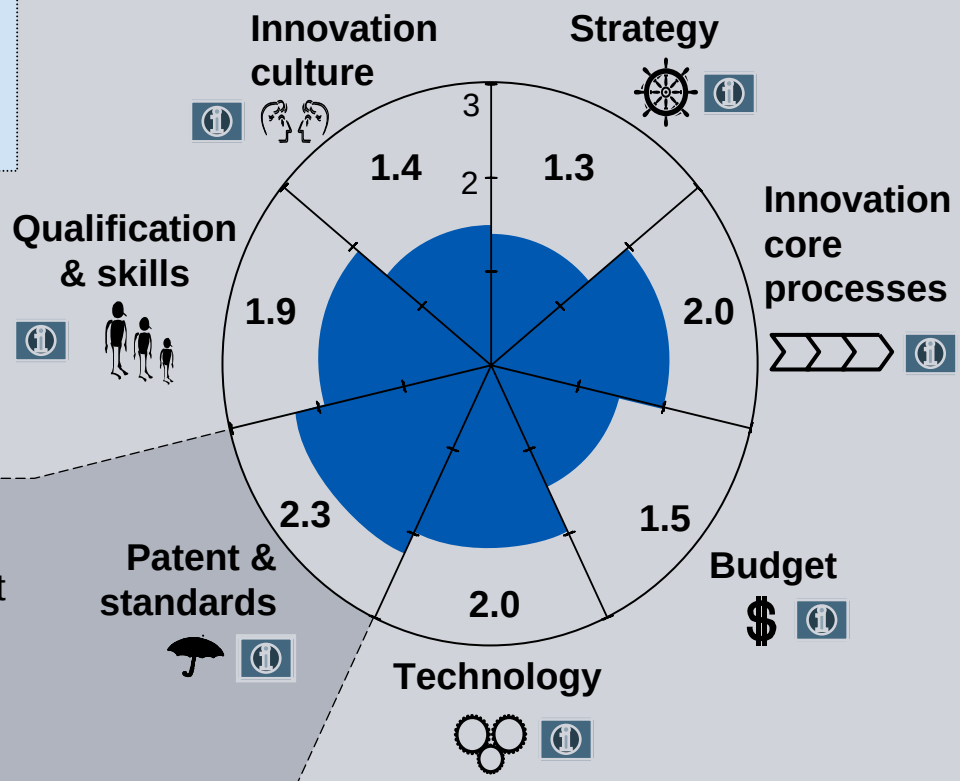
Cooperation with the worlds key universities



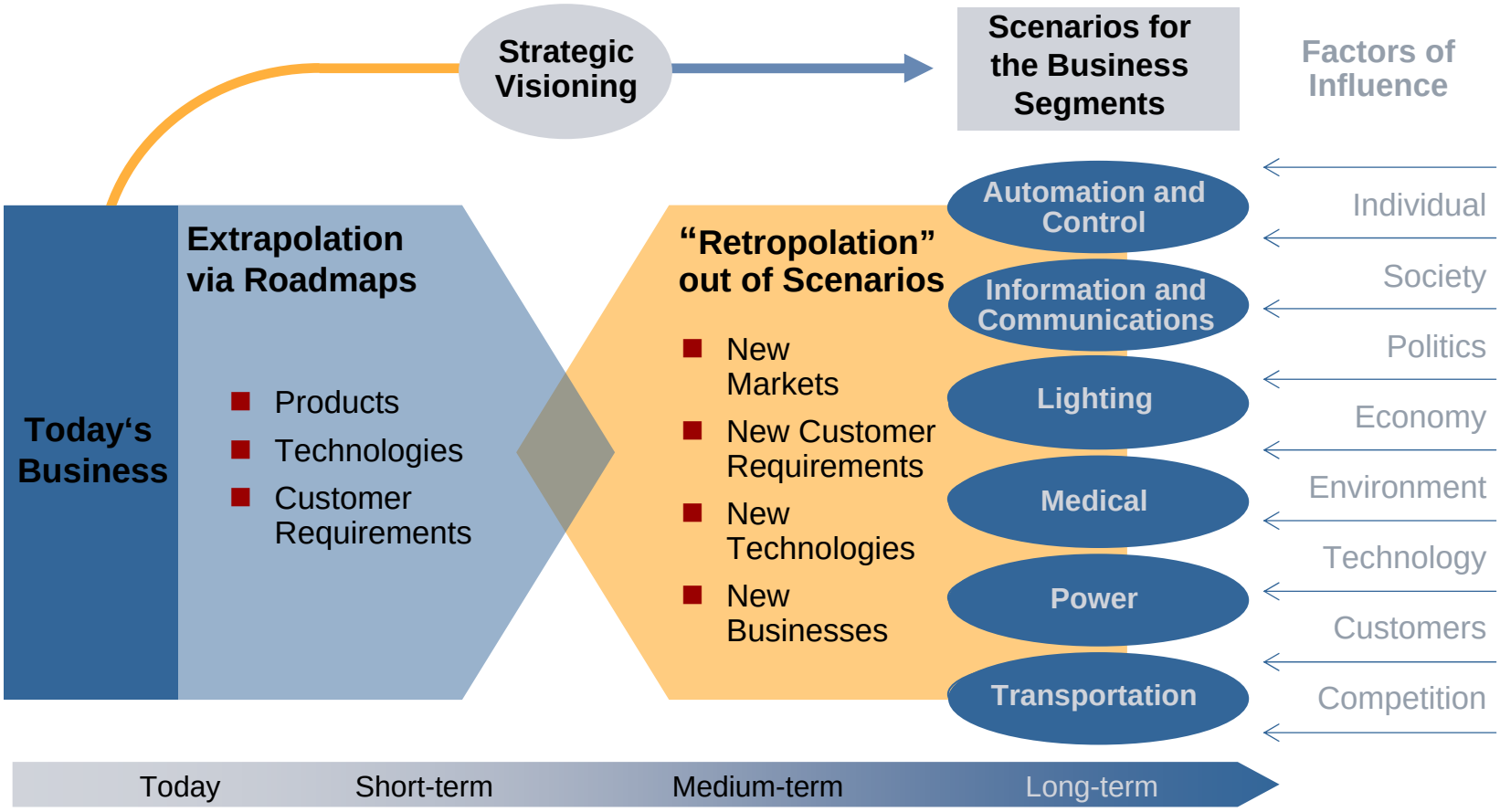
Innovation Benchmarking
Criteria and Result Presentation (Example)

✓	Very good - best practice
0	sufficient
!	Improvements required
×	Not evaluated



✓	• Patent Management
!	• Standardization
×	• Patent Position

Strategic planning: the combination of extrapolation and "retropolation" leads to the Pictures of the Future



Future of Automotive:
The “car of the future” is the answer to questions today which will emerge tomorrow

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Global Trends

- Increasing mobility
- Shortening of natural resources
- Growing need for environmental care
- Growing demand for safety and security, information & communication
- Shift of economic gravity among regions

Automotive-Specific Trends & Visions

Sustainable Mobility	Increasing Safety & Comfort	Seamless Connectivity
“Zero Emissions”	“Zero Accidents”	“Always On”

Managed Complexity

“Always Easy”

Picture of the Lighting Future
(in cooperation with OSRAM)

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Disruptive Innovation Versus Continuous Innovation - Technology-to-Business

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- Additional paths to get innovation into Siemens
- Flexible on approach, focused on innovation
- Own it now, or use it now (Spin-In / Start-Up)

Berkeley

Shanghai

TTB Takes an Outside-in Approach To Develop Disruptive Product Innovations into Businesses

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Don't raise your own fish but fish in the ocean

Outside in raw technologies

Virtual Labs
- Universities
- US National Labs
- Early Start-ups
- Entrepreneurs

Customer-driven cooking in Siemens business context

Product innovation with market validation

End Customer Focus
- Benefits
- Price
- Distribution channels

Eat in / take out

Provide flexible usages

Spin-in / Start-up
- Own now
- Use now
- Own later

CT Accelerators in Berkeley, Shanghai and Munich
22 Spin-offs and 13 Spin-ins through January 2007

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Technology-to-Business Centers
in Berkeley (since 1999) and Shanghai (since 2005)

TTB

Selected Spin-ins and Spin-Outs:

- **SCALANCE-W** Real-time guarantees for industrial WLAN
- **TD200C family** Novel touch-sensor allows OEM customizable control panels
- **Sensys Networks** Wireless traffic monitoring sensors

Siemens Technology Accelerator
in Munich (since 2001)

sta»siemens technology accelerator

Selected Spin-offs:

- **EnOcean GmbH** Battery-less sensors
- **PolyIC** Printable low cost polymer electronics (e.g. for RFID)
- **Panoratio GmbH** Data analytics software

Mission and objectives

- Drive innovative ideas and technologies
- Generate new business:
  - embedded in existing Siemens structures
  - as start-up
- Provide support and seed funding
- Combine technology and business orientation
- Impact on innovation and entrepreneurial culture

Innovation Award of the German President 2004
Lab on a Chip

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- Winner: Lab on a Chip (electrical biochip technology) developed by researchers from Siemens Corporate Technology, the Fraunhofer Institute for Silicon Technology and Infineon Technologies
- Miniature laboratory the size of a credit card extracts DNA or proteins from a drop of blood and provides diagnostic data in electronic form
- The innovation has a broad range of possible applications, including the detection of infectious and hereditary diseases and allergies
- Can be used on-site in medical practices, hospitals and emergency situations

Innovation Award of the German President 2005
Piezo Injection Technology

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- Winner: Piezo Injection Technology developed by researchers from Siemens and Robert Bosch GmbH
- Major parts of this technology were developed at Siemens Corporate Technology
- With piezo injection technology, fuel can be more precisely dosed in internal combustion engines. This lowers fuel consumption by up to 20 percent
- 2000: Siemens began series production of piezo direct injection for diesel engines
- 2006: series production of piezo-based direct injection for gasoline engines

Innovation Award of the German President 2007
Light from Crystals

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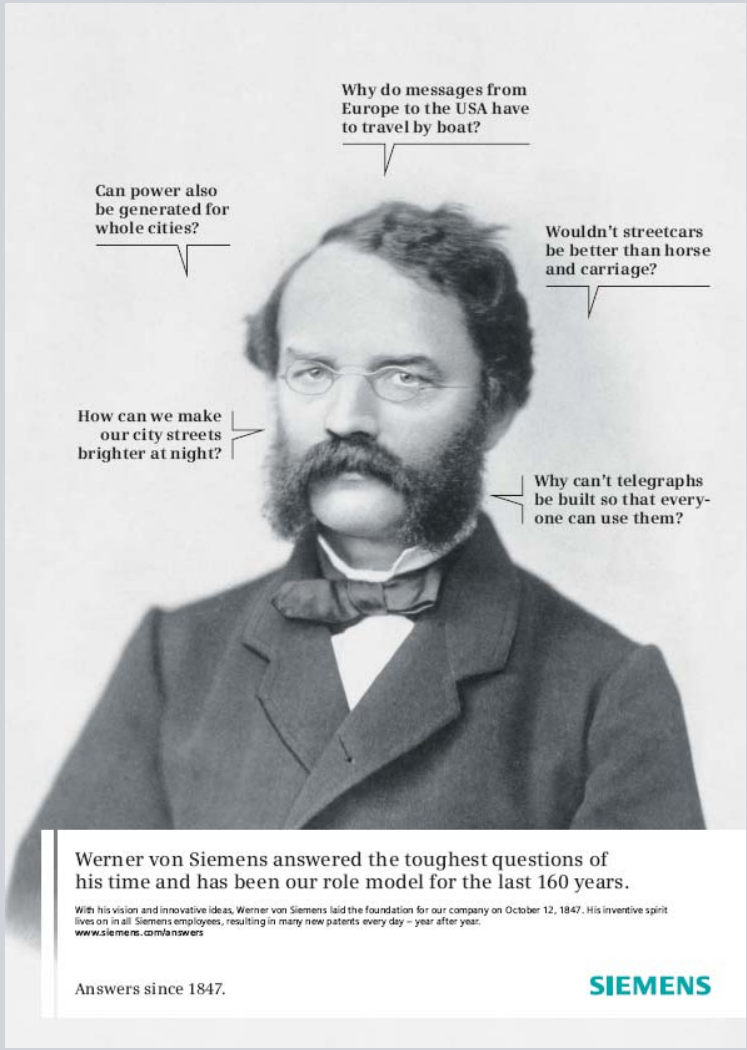
- Winner 2007: Light from Crystals is a new process for manufacturing highly efficient, highly luminous, long-lasting light sources from light-emitting diodes developed by researchers from Osram and the Fraunhofer Institute for Applied Optics and Precision Mechanics in Jena
- Ultra-efficient LEDs can be used in mini-projectors, rear-projection TVs, for general lighting purposes and headlights in vehicles
- Example Ostar Lighting: With a luminosity of over 1,000 lumens, the small LED spotlight is brighter than a 50-watt halogen lamp

SIEMENS Answers since 1847



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Thank you!