

# Open Innovation @ Siemens

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Global network of innovation



# 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?**

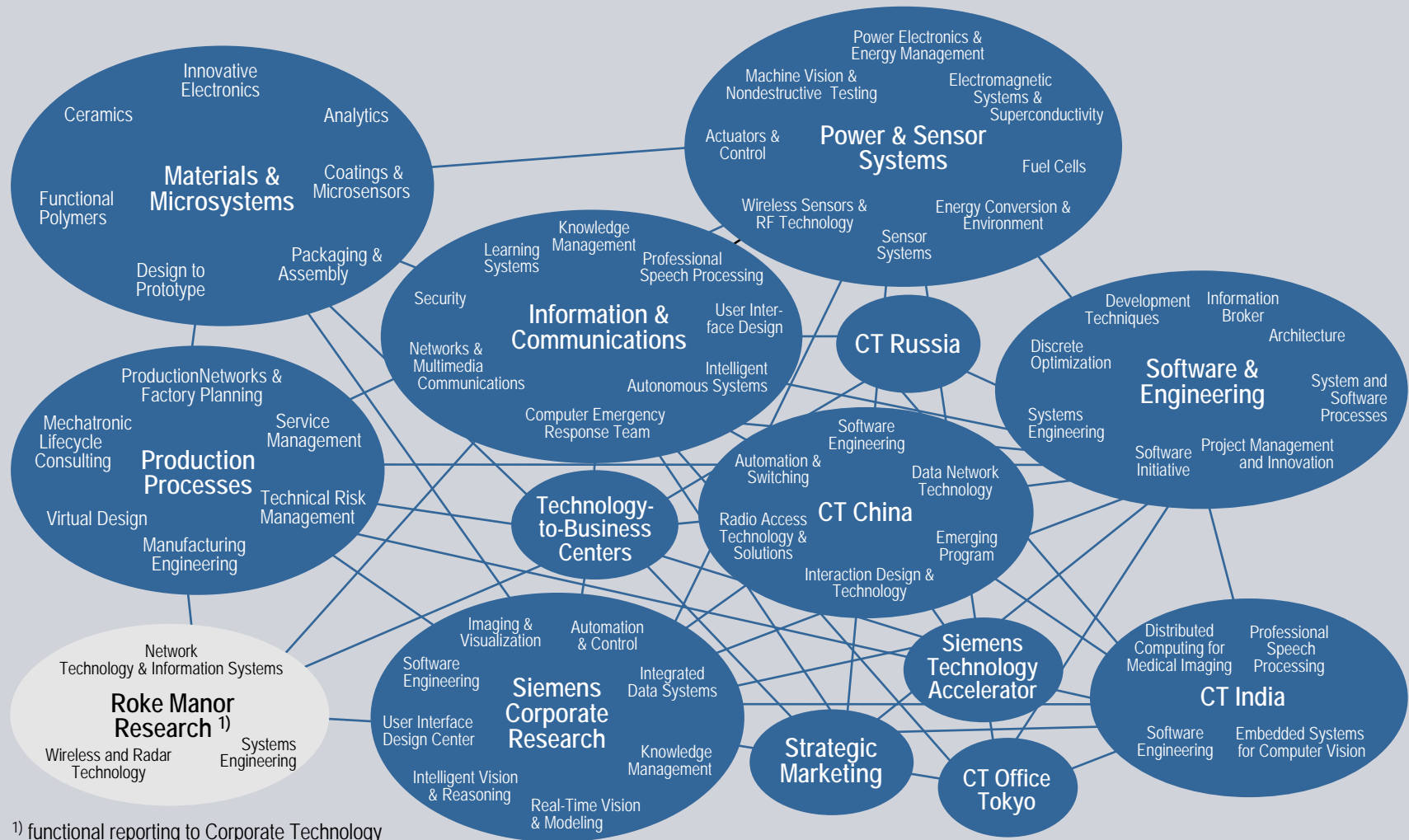
**Healthcare**



# Corporate Research and Technologies



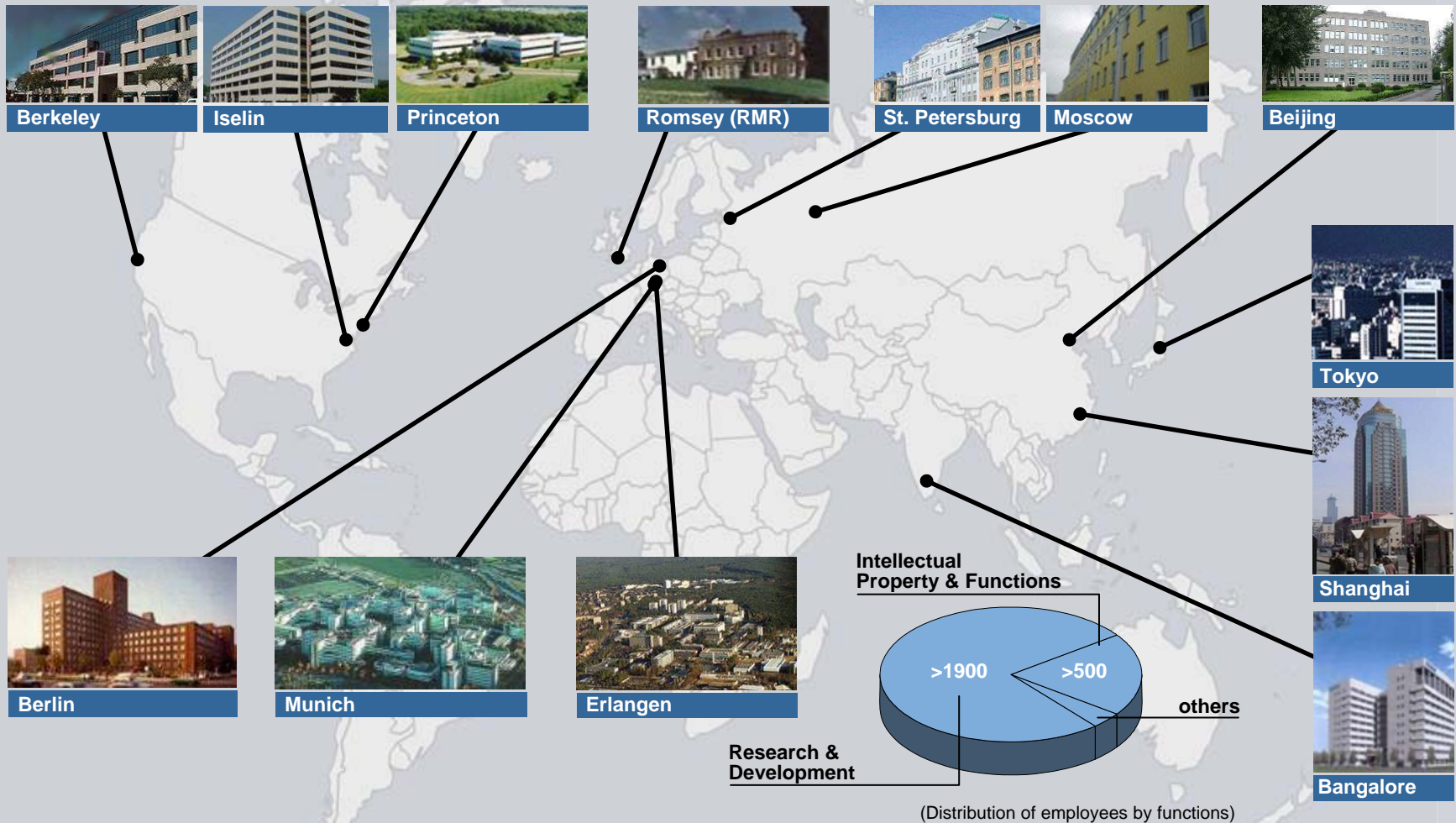
International Network of Competencies – Worldwide Partner for Innovations



<sup>1)</sup> functional reporting to Corporate Technology

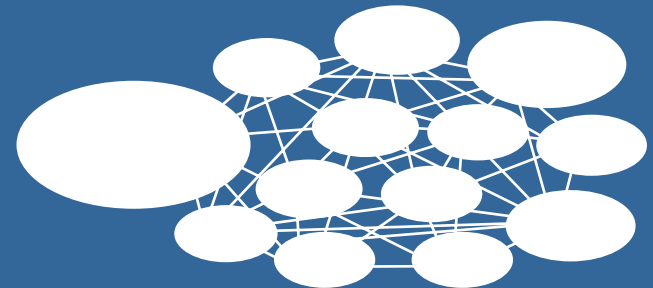
# Corporate Technology

Present in all leading markets and technology hot spots

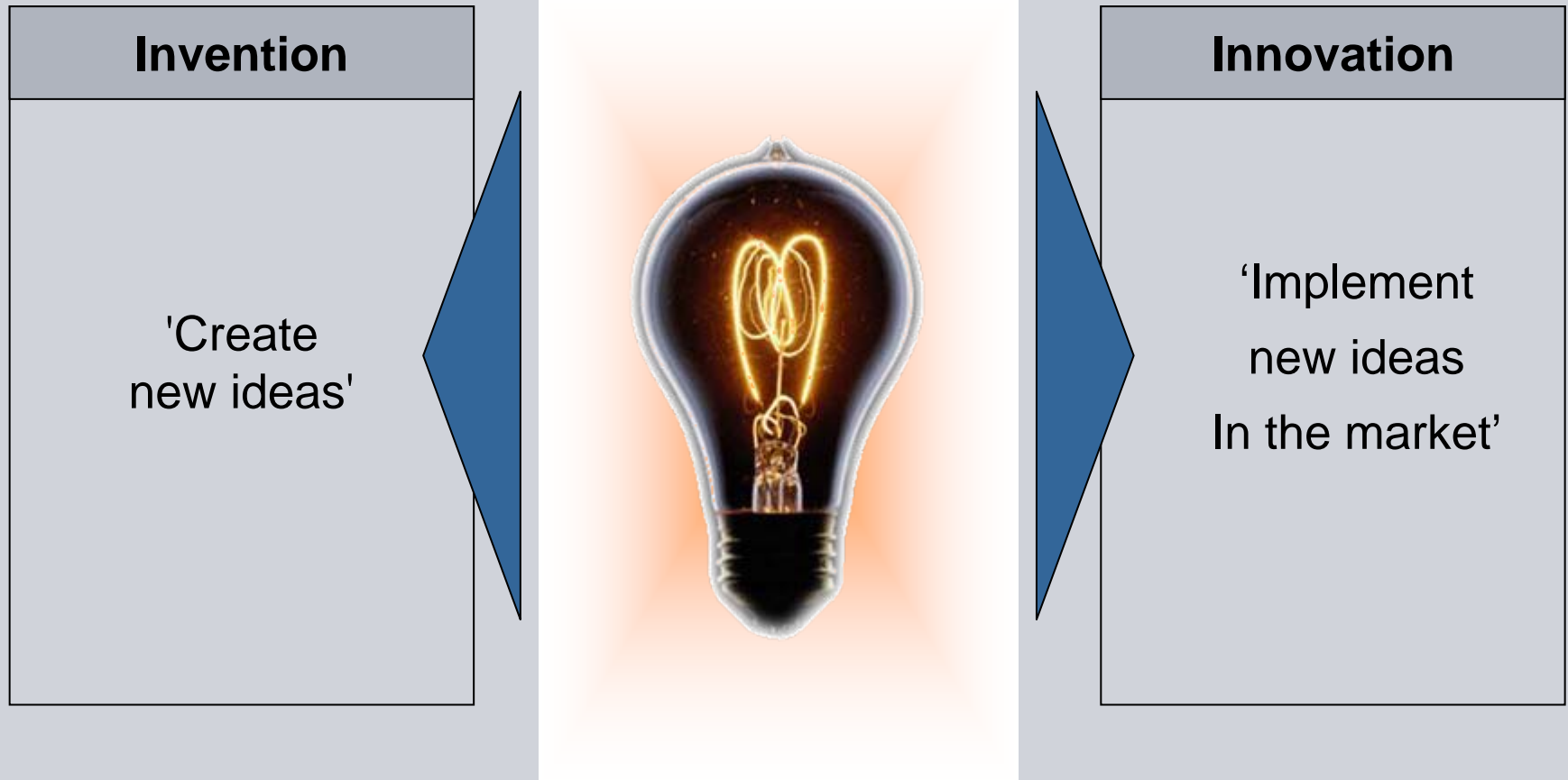


Define and develop the technologies and processes to make Siemens a trendsetter in any industry served.

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



## Innovation: An invention turned into business



## Research And Innovation are cComplementary

**Research** is the transformation  
of money to knowledge



**Innovation** is the transformation  
of knowledge to money

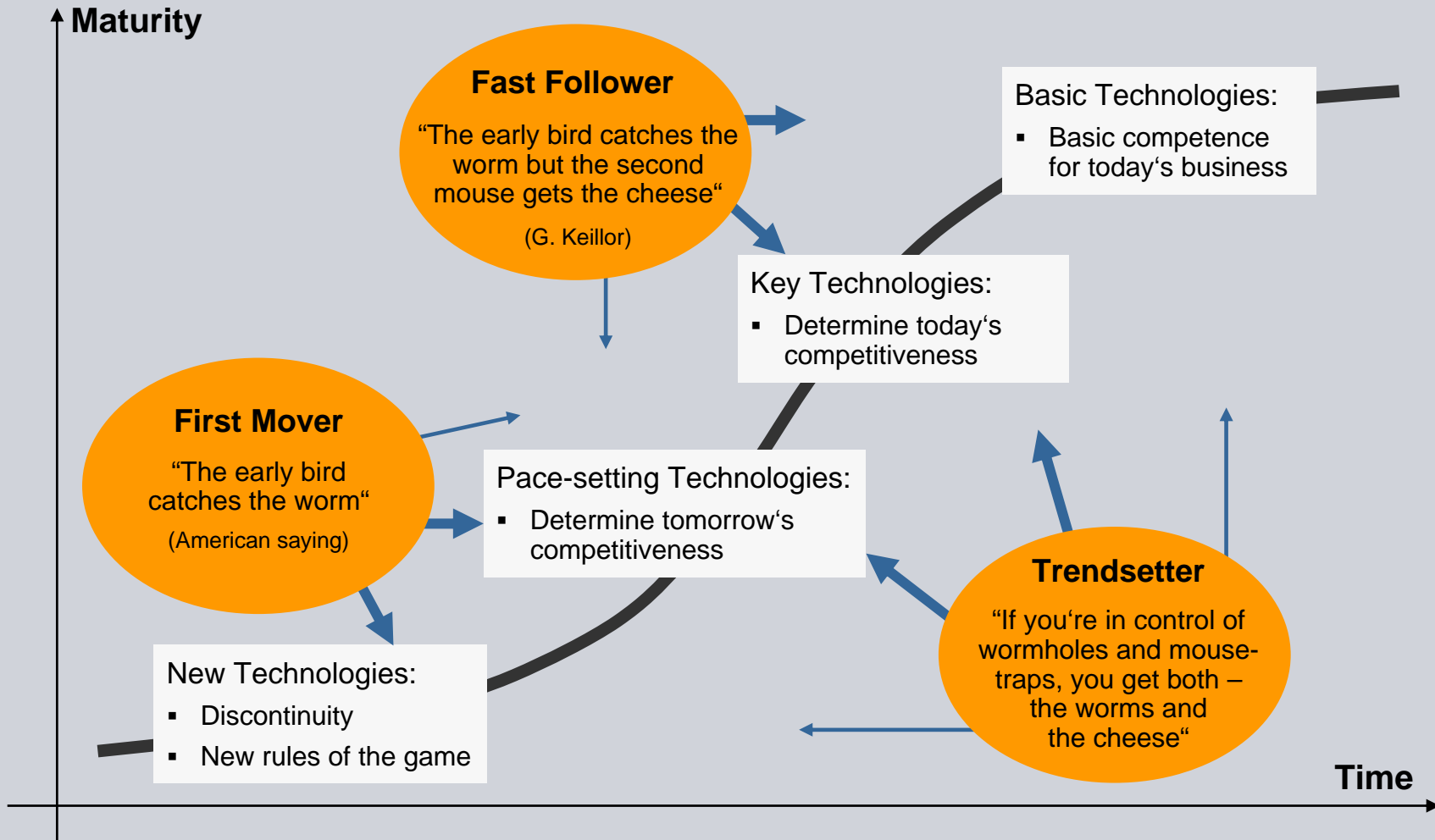
### Consequences:

- 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



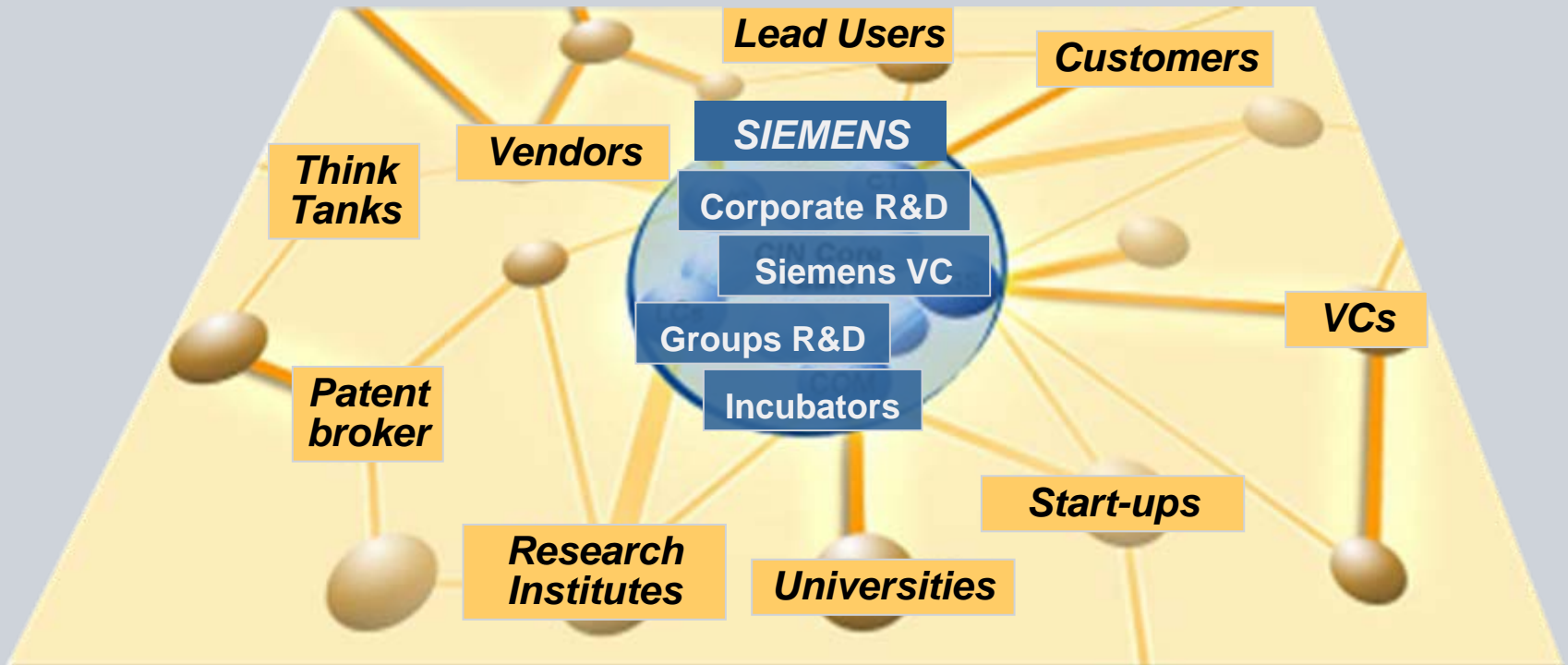
## Open Innovation - Definition

“**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.”

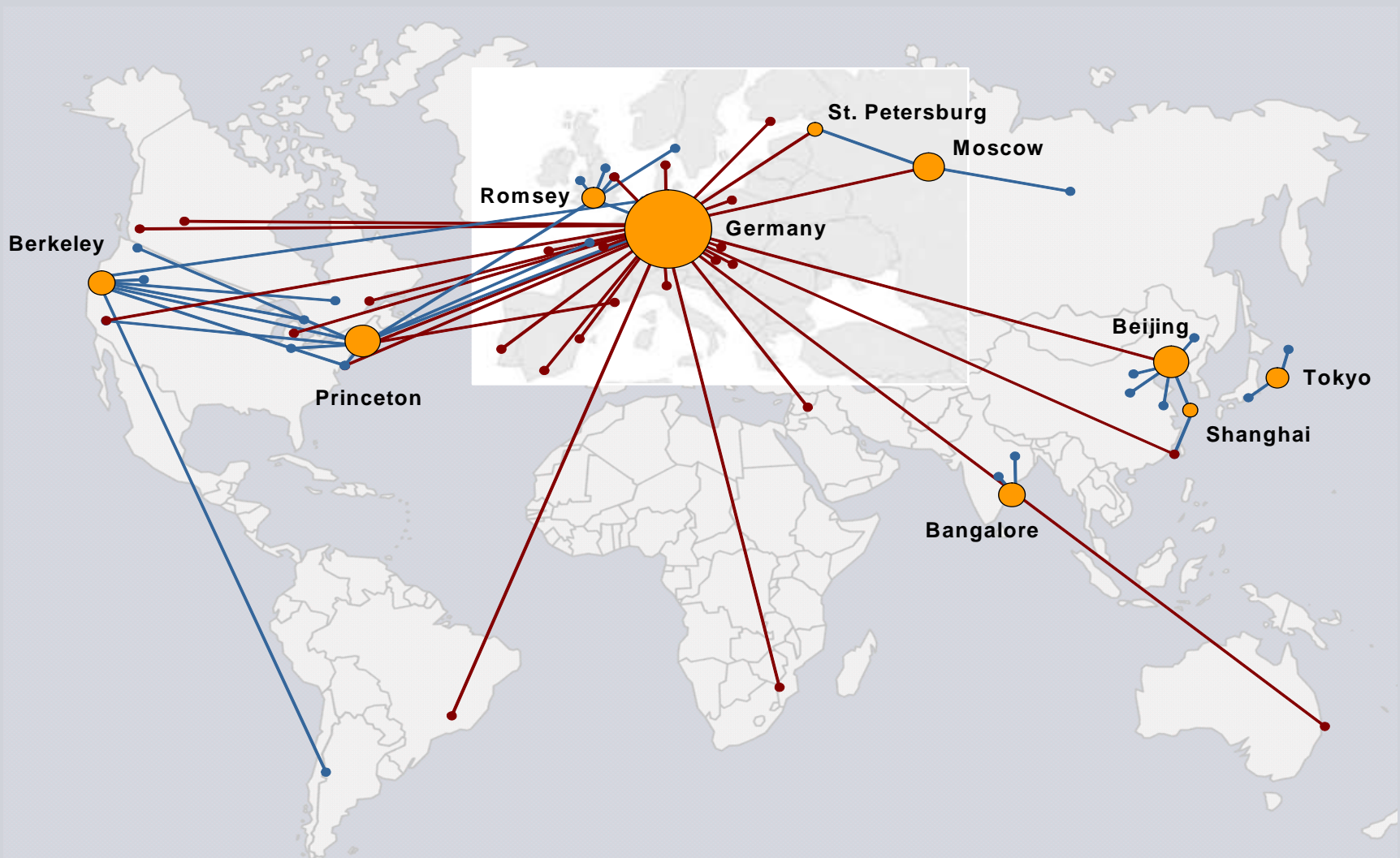
*Henry Chesbrough,  
Haas School of Business/University of California, Berkeley*

## The sources for innovation are manifold



**Managing innovation = managing complexity**

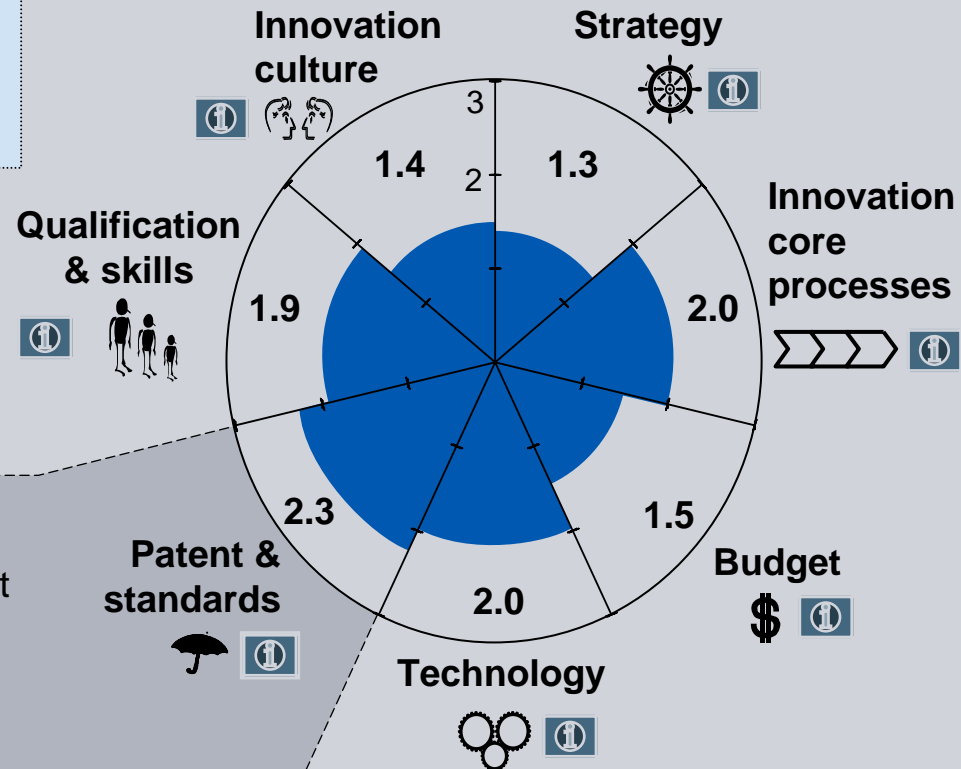
## Cooperation with the worlds key universities



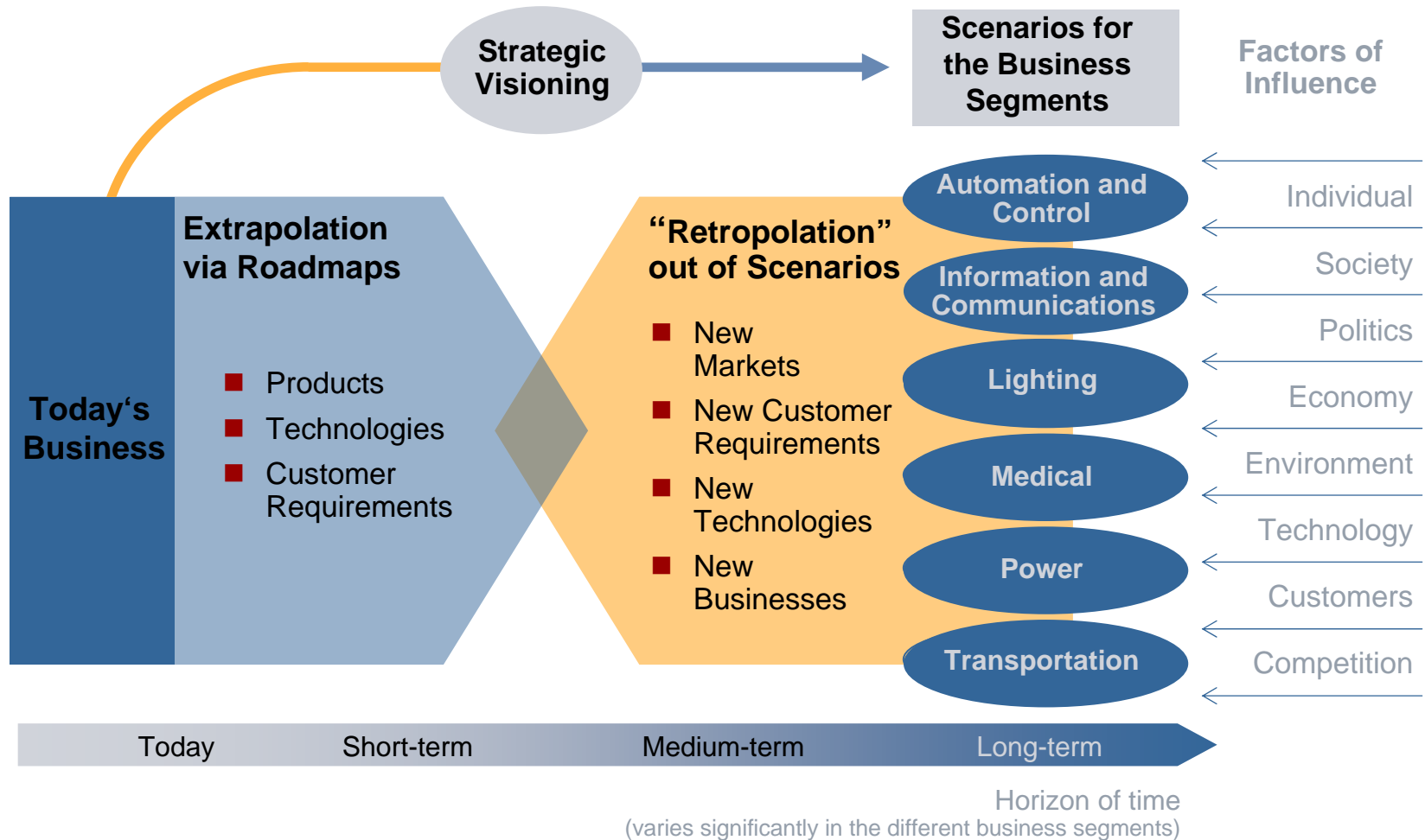
# Innovation Benchmarking *top+* Criteria and Result Presentation (Example)

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

- ✓ • Patent Management
- ! • Standardization
- x • Patent Position

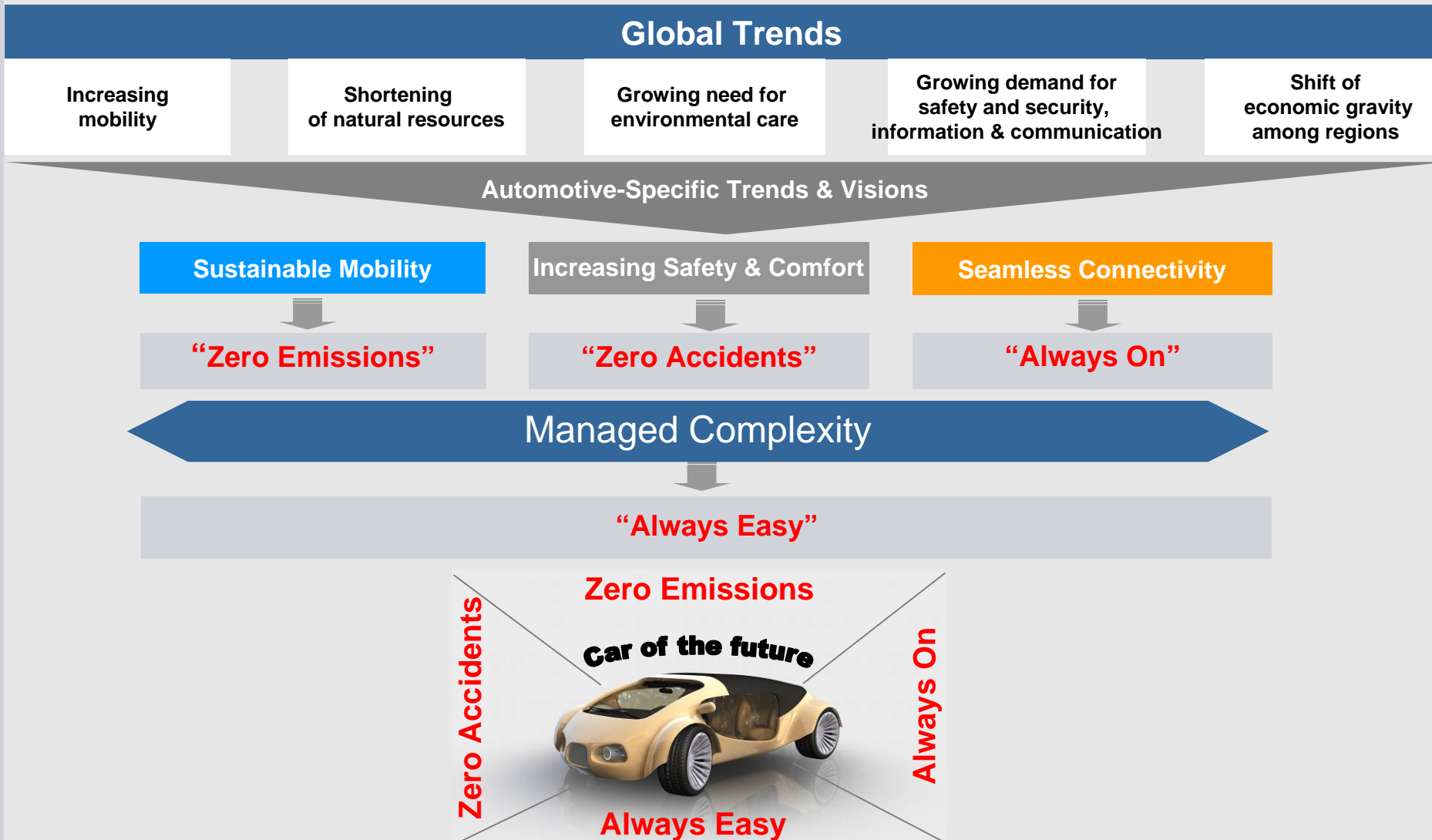


# Strategic planning: the combination of extrapolation and “retropolation” leads to the Pictures of the Future



# Future of Automotive:

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



# Picture of the Lighting Future (in cooperation with OSRAM)

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## Disruptive Innovation Versus Continuous Innovation - Technology-to-Business

- 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

**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)

**TIB**



### 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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Can power also be generated for whole cities?

Why do messages from Europe to the USA have to travel by boat?

Wouldn't streetcars be better than horse and carriage?

How can we make our city streets brighter at night?

Why can't telegraphs be built so that everyone can use them?

Werner von Siemens answered the toughest questions of his time and has been our role model for the last 160 years.

With his vision and innovative ideas, Werner von Siemens laid the foundation for our company on October 12, 1847. His inventive spirit lives on in all Siemens employees, resulting in many new patents every day – year after year. [www.siemens.com/answers](http://www.siemens.com/answers)

Answers since 1847.

SIEMENS

How can you detect disease years before it strikes?

How can you manufacture customized products at affordable prices?

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

We're providing answers to the toughest questions. This is a Siemens tradition – and has been for the last 160 years.

Innovation is our answer to today's questions. Our employees are driven by the challenge to create leading edge solutions – worldwide, in nearly 190 countries. A network of ideas and experience set in motion by Werner von Siemens 160 years ago. [www.siemens.com/answers](http://www.siemens.com/answers)

Answers since 1847.

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Thank you!

