

RIETI Policy Symposium (2008.1.11)

Innovation Process and Performance: Findings and lessons from inventors surveys in Japan, the U.S., and Europe

**HITACHI**  
Inspire the Next

# **Future R&D Strategy and Policy**

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## Challenges

Environmental conservation  
Declining population  
Scarce resources

**Product**

## Productivity Improvement

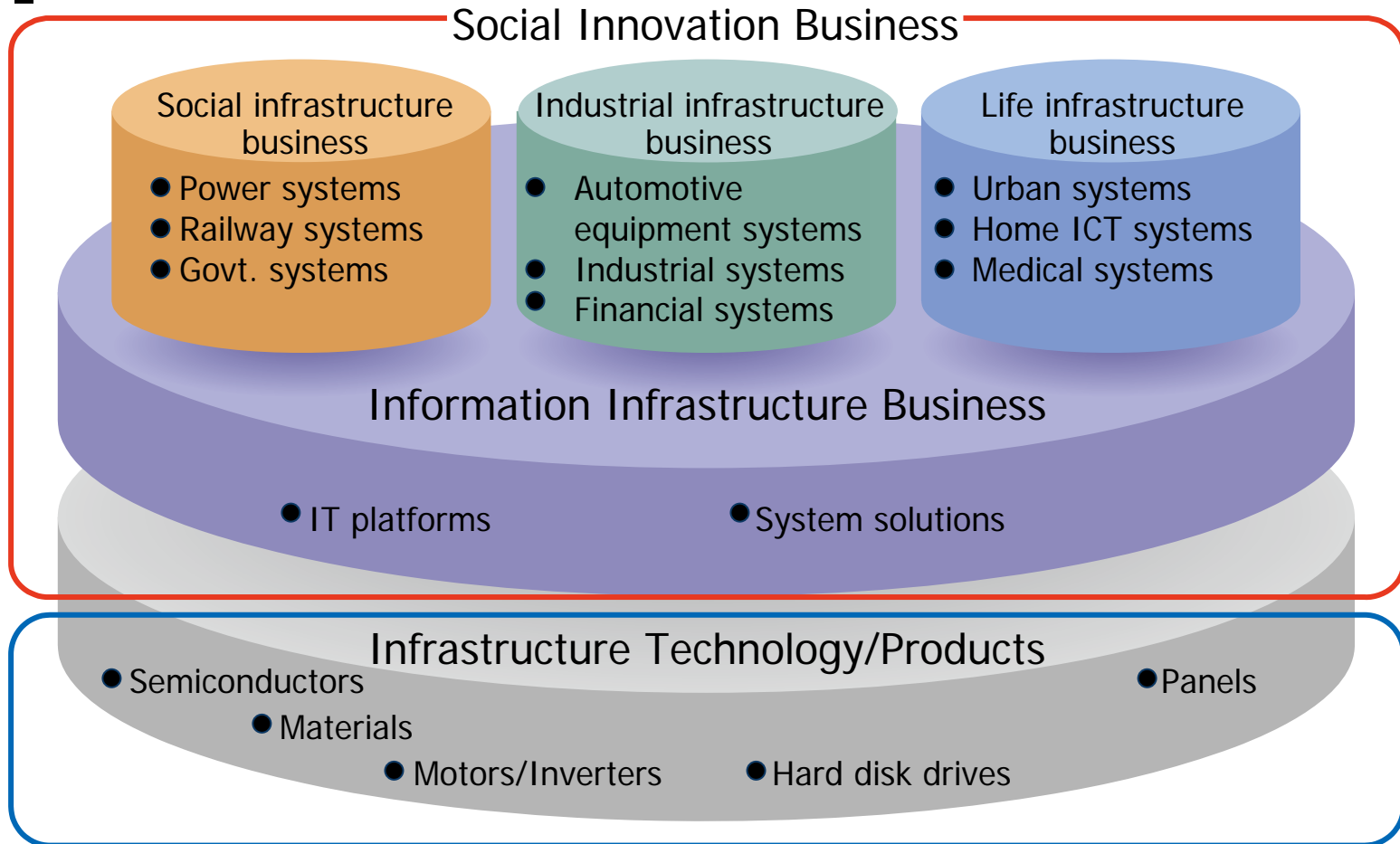
R&D process  
Production process  
Sales process  
Service process

## Science

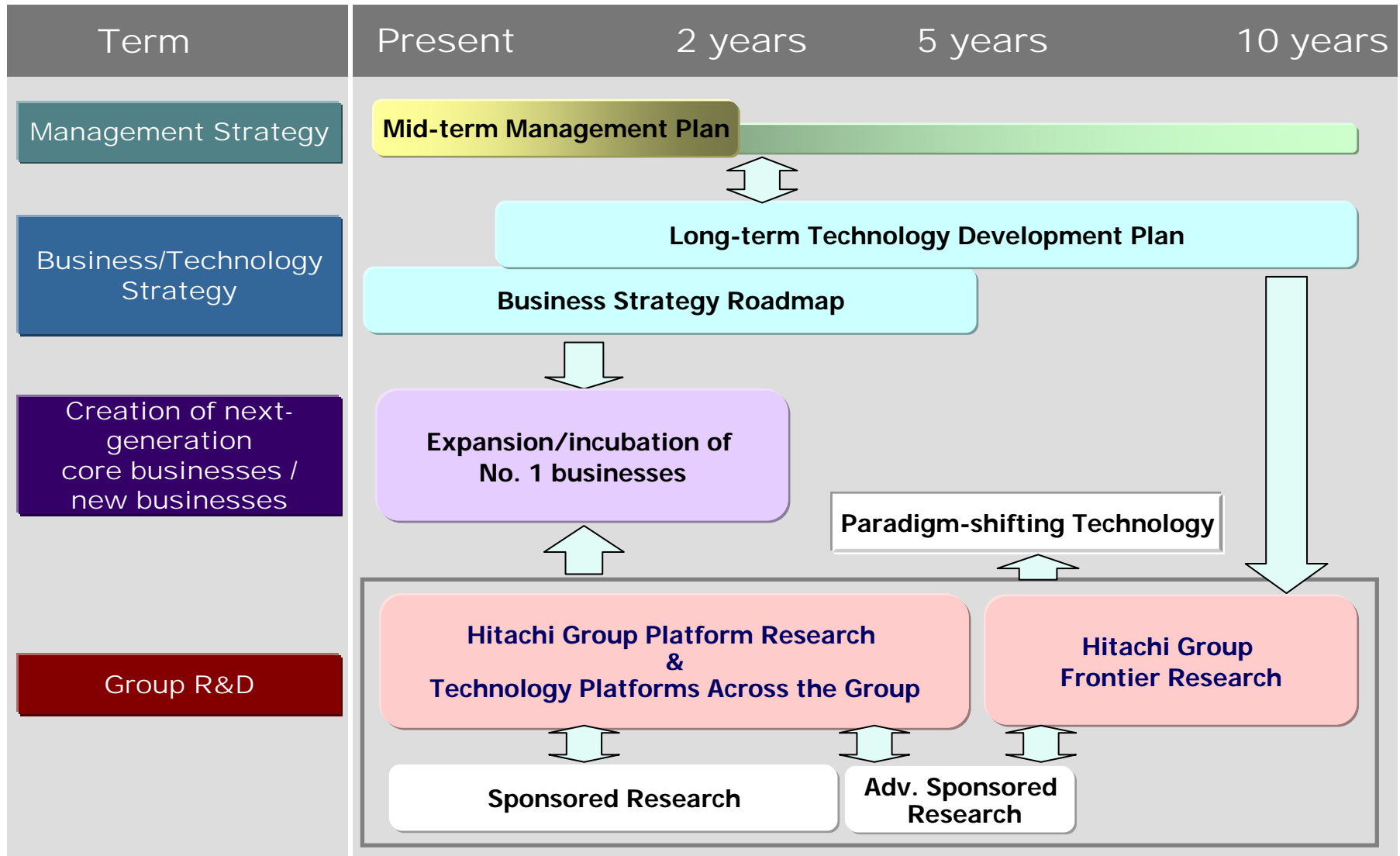
Natural, social, human

- Difficulty of adapting technology to increasingly complex market needs → Human capital development process
- Gateway management
- Open innovation
- Globalization
- Collaboration / Individual capability

- ◆ Fortify social innovation business
- ◆ Maximize synergy with infrastructure technology/products
- ◆ Profit-focused innovation

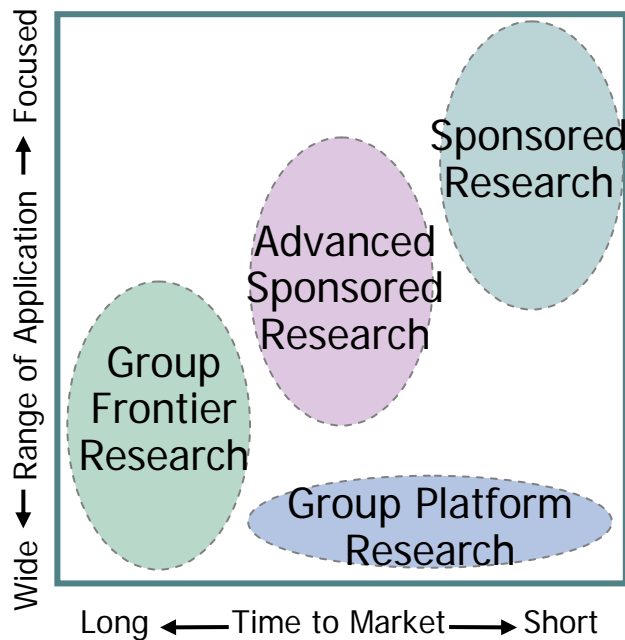


# Hitachi Group Research Schemes



# Research Schemes – Types of Research –

## Sphere of research schemes



Category	Group Frontier Research	Group Platform Research	Adv. Sponsored Research	Sponsored Research
Purpose	Basic / Frontier research <ul style="list-style-type: none"> <li>• Exploration of new core business for the Hitachi Group;</li> <li>• R&amp;D and IP on paradigm-shifting technology &amp; new business models</li> </ul>	Common platform technology research <ul style="list-style-type: none"> <li>• Speed-up Hitachi Group productivity, reliability &amp; devt. speed by advancing MONOZUKURI platform technologies</li> </ul>	New business research <ul style="list-style-type: none"> <li>• R&amp;D on technology in-line with the mid-long term technology strategy of the Business Groups</li> </ul>	New product research <ul style="list-style-type: none"> <li>• Development of technology indispensable for business growth / development of the sponsor</li> </ul>
Target Time to Market	5 years <	1~5 years	3~5 years	1~3years
Funding	Funded by Business Groups & Hitachi Group companies on a business-level scale		Projects funded individually by Business Group and/or Hitachi Group company	
Managed by	Head of Frontier & Fundamental Research Segment		Research Segment Head	Business Gr. / Hitachi Gr. company
%		15%	25%	60%

# Technology Platforms across the Hitachi Group

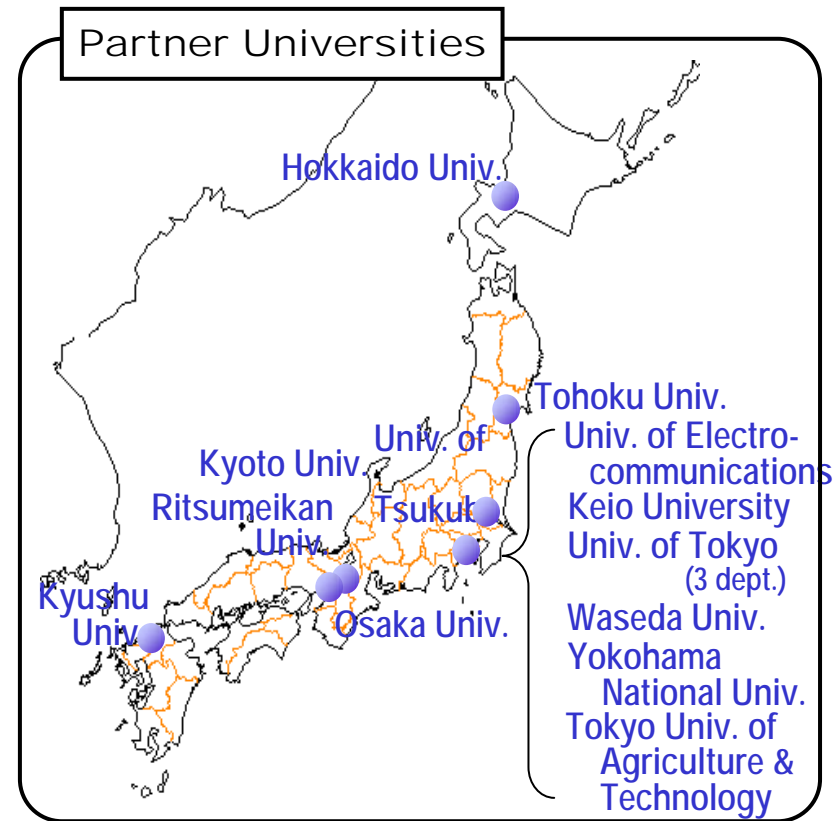
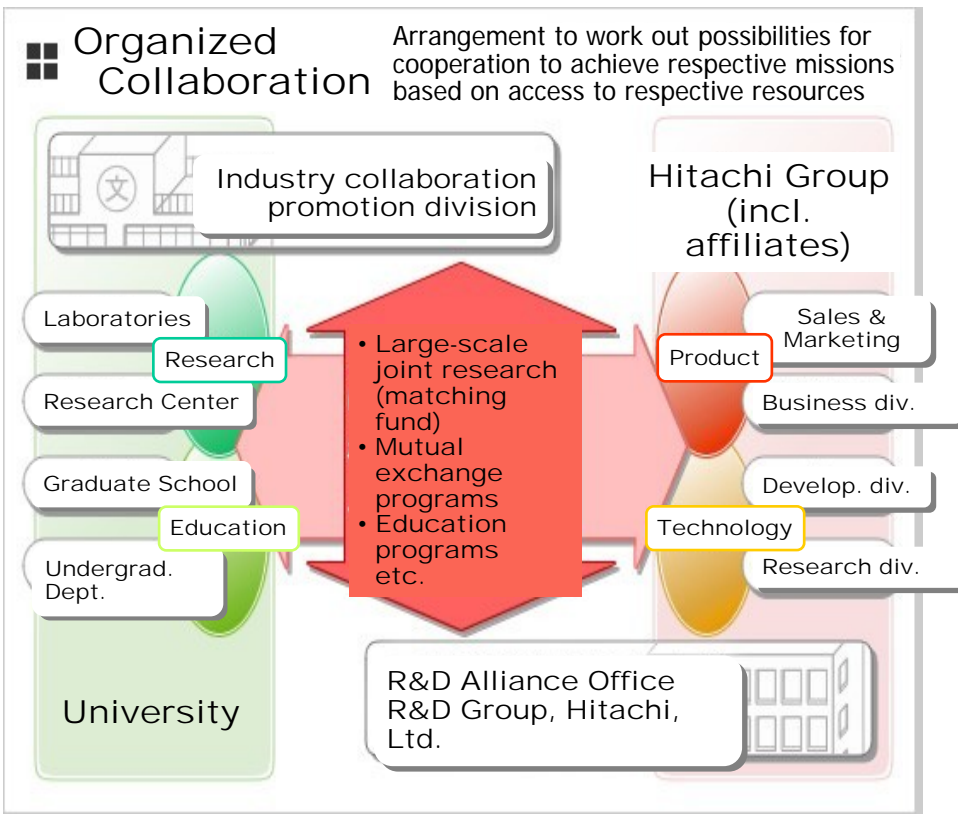
- ◆ Group wide enhancement & fusion of common key technology and personnel development

	Mechanical & Electrical		Electronics			Information			
Purpose	Fostering No.1 technology Improve business competitiveness		Improve product competitiveness Improve productivity			Development of service businesses Reform of solution operations			
Details	Materials	Digital Engineering	Embedded Systems			Service Science			
	Electronics Environment & Energy New materials Medical & Biotechnology Nanotechnology	Electron beam-based measurement Non-destructive measurement Product design support Optimal motor development	Solution LSIs Efficient systems developmt. Platforming Project management Optimal inverter development			Outsourcing EA*/SoA**/Initial stage consulting Application of advantage technology and devices New Service Methodologies  *EA: Enterprise Architecture **SoA: Service Oriented Architecture			
Technology Platform	Materials Research Laboratory '04.04	Mechanical Innovation Center '05.03	Advanced Simulation Center '04.04	Motor Innovation Center '05.10	Adv. Measurement & Analysis Center '04.04	Inverter Innovation Center '06.04	Embedded System Platform Research Laboratory '05.04	uVALUE Innovation Center '05.10	Cooperative Creation with Customers (Lab. Open Days) '02 ~
Industry - academia cooperation									

# Industry-Academia Collaboration

## Purpose: Promotion of "Open Innovation"

- Speed-up of R&D and business development
- Creation of new products and services through the technological fusion of multiple areas
- Creation of disruptive technologies to realize paradigm shifts and establishment of new business





# Global R&D Network

## ● Hitachi Europe Ltd.



<30>

Oct. 2005: Established Automotive R&D Lab.

Fundamental Device  
Physics  
Organic Electronics  
Numerical Analysis  
Mobile Communications,  
Security  
Automotive Systems

## ● Hitachi Asia Ltd. (Singapore) <5>



April 2005: Established Hitachi Storage  
Mechanics Laboratory

Storage  
Mechanics

## ● Hitachi (China) Research & Development Corporation



<80>

Apr. 2006: Established Digital Appliance  
Development Center

IP Networks  
Digital TVs  
Innovative  
Software  
Materials

## ● Hitachi America, Ltd.



<40>

(Hitachi GST Yerba Buena building)

Automotive Products  
Advanced Wireless  
Systems  
Storage Area Network  
Solutions

R&D Organization

<R&D Personnel>

Main Research Themes

# Culture for Learning & Growth (1)

## Purpose

- Association within the Hitachi Group & Hitachi Zosen Co., of doctoral degree holders
- Foster an in-house ethos of aspiring to higher-learning
- Promote wide technological cooperation through close exchange between members
- Contribute to society and its development through science & technology

## Establishment

- 1952 (initiated by Dr. Kumeo BABA, 1<sup>st</sup> General Manger of CRL)

## Origin of Name

- Taken from the teachings of the Chinese philosopher, Meng-tzi (Mencius)

「愛人不親返其仁」(孟子) - 仁 ("愛" "慈悲")の心に返る -  
ヒトヲアイシテシタシマザレバソノジンニカエレ

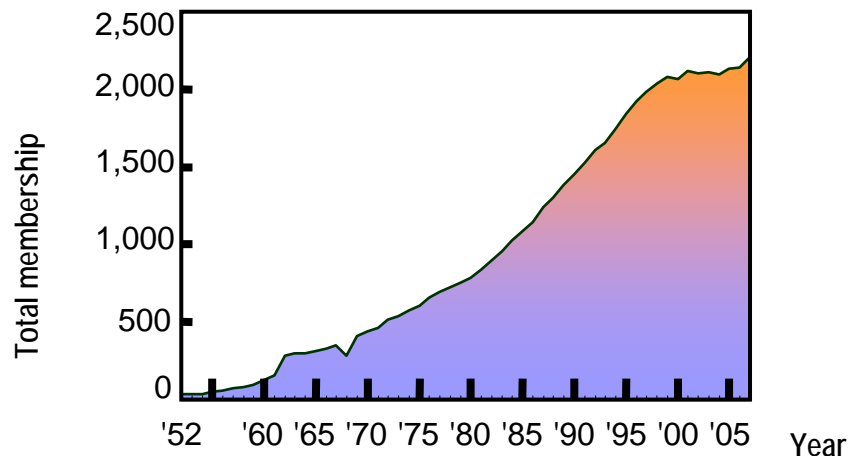
(Initially, "Association of 30 Doctors". In 1953, changed name to Henjin-kai (変人会、eccentric person); and in 1959, adopted current name Henjin-kai (返仁会、return benevolence))

## Membership

- Total membership 2,205  
(as at 2007/3/31)



Silver medal with the image of Dr. Baba, the 1<sup>st</sup> Henjin-kai President on the front, and the name of the recipient on the back



## Fellow

- established to recognize the distinguished service and contributions of an employee to the progress of science and technology on a world-level and to the international acknowledgement of Hitachi's high standard of technology.
- Hitachi Fellow is equivalent to that of a Board Director, and a Fellow is assured freedom of choice in research theme, research funding and support for external professional activities.

## Introduced

- June 1999



**伊藤 清男**  
ITOHI Kiyoo

Appointed June 1999  
(Semiconductory  
Memory)



**外村 彰**  
TONOMURA Akira

Appointed June 1999  
(Holography Electron  
Microscope)



**小高 俊彦**  
ODAKA Toshihiko

Appointed June 2002  
(Large-scale  
general purpose  
computer, supercomputer)



**神原 秀紀**  
KAMBARA Hideki

Appointed June  
2003  
(DNA Sequencer)



**小泉 英明**  
KOIZUMI Hideaki

Appointed April  
2004  
(Optical  
Topography)



**中村 道治**  
NAKAMURA Michiharu

Appointed April  
2007  
(Nanoelectronics)