

The 8th Regional Cluster Seminar

University - Industry - Government
Collaboration Activity
at Shizuoka University

Innovative Joint Research Center (IJRC)

Shizuoka University

Director Naomichi Okamoto

March 8, 2004

Organization of Shizuoka University for University-Industry-Government Collaboration

Oct. 1991 Center for Joint Research (CJR) established

Oct. 1993 CJR building completed in Hamamatsu Technopolis Area
(off campus)

Apr. 1997 Satellite Venture Business Laboratory (SVBL) completed
(on campus)

Dec. 2002 Intellectual Property Head Office (IPHO) established in
CJR

Jan. 2003 Campus Incubation Facility (CIF) completed (on campus)

Oct. 2003 **Innovative Joint Research Center (IJRC)**
completed (integration of CJR, SVBL, CIF and IPHO)
(2 Prof, 2 Associate Prof. full-time and part-time staffs, 55)

Integration & Expansion of University-Industry Cooperation Organ

Before

Center for Joint Research (CJR)

Campus Incubation Facility (CIF)

Satellite Venture Business Laboratory (SVBL)



After

Innovative Joint Research Center (IJRC)

Cooperative Research Division

Incubation Division

Unexplored Technology Development Division

Intellectual Property Head Office

Liaison Section

Practical Research Section

Cooperative Research Project Section

Support for flotation of Ventures

Creation of the seeds of New Technology

Creation, Management, and Utilization of Intellectual Property

Innovative Joint Research Center

Director: Prof. Naomichi Okamoto

Vice-Director: Prof. Toshifumi Sugiura

Expected Effects:

Practical cooperative research is quickly operated corresponding to needs of regional corporations and market trend

Increase in university-industry cooperative research project

Further increase in cooperative research and entrusted research

Continuous foundation of venture corporations from University

Generation of useful intellectual property and technology transfer to regional corporations

Increase in development of unexplored technology useful for new industry

1. Cooperative Research Division

Liaison Section (Prof. S.Okamoto)

- ✧ Examination of university's seeds and corporation's needs
- ✧ Promotion of cooperative research and development

University-industry cooperation coordinators

Practical Research Section

(Prof. M.Fujimoto & Associate Prof. M.Kimura)

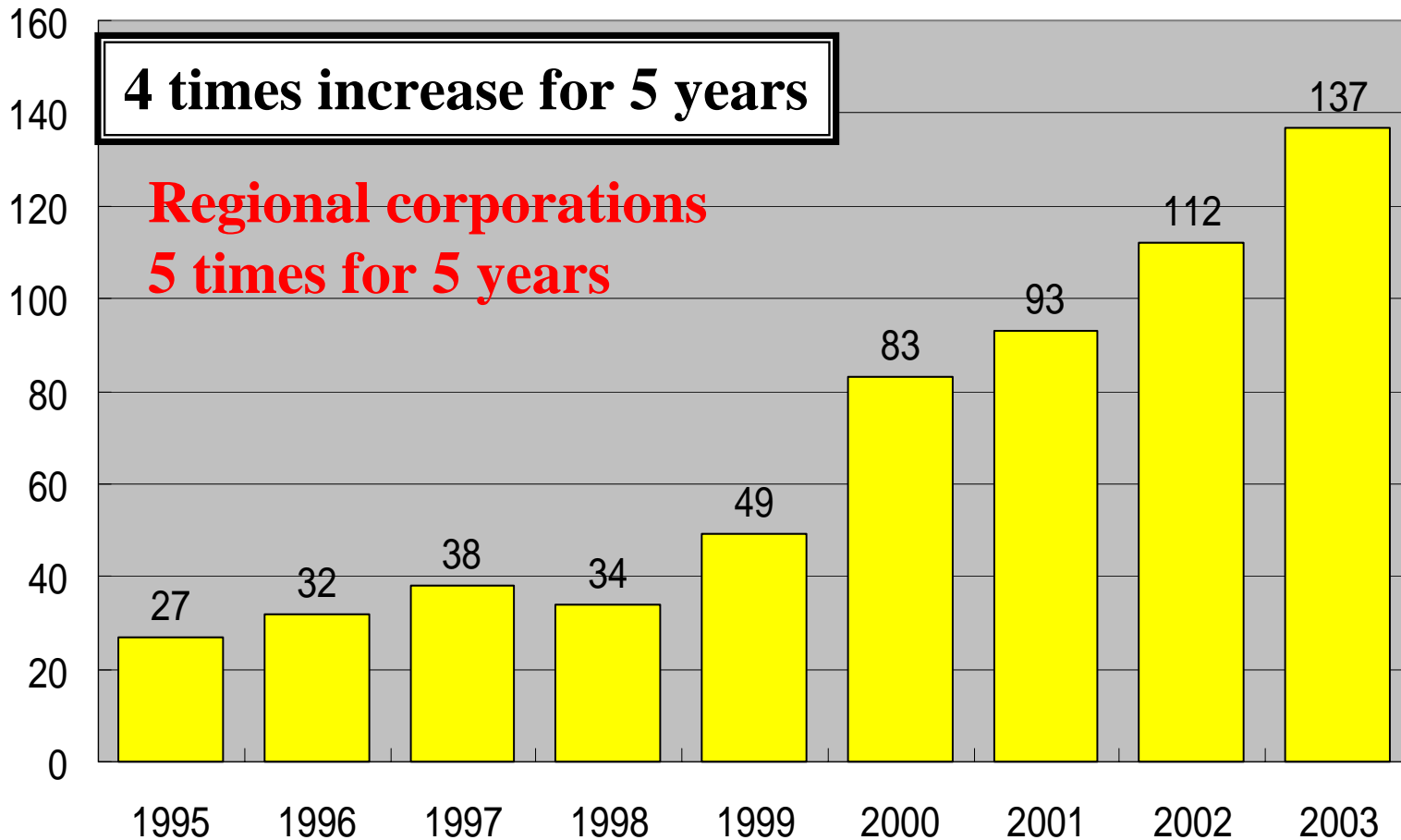
- ✧ Practical development corresponding to corporation's needs and technical consultation
- ✧ Bridging **death valley** between university's basic research and corporation's development for goods production

Cooperative Research Project Section

- ✧ Increase in university-industry cooperative research project

Transition of Cooperative Research

Number



**60% : for corporations in Shizuoka
prefecture**

**1/3 : for regional small and medium
corporations**

Recent Industrialization from Shizuoka Univ's Seeds

Materials Science & Chemical Eng., Prof. S. Kaneko

Functional film formation technology by spray thermal-decomposition method

Inexpensive film formation in air Dye sensitivity-intensified solar battery New venture

Electrical & Electronic Eng., Prof. S. Okamura

Moisture measurement technology using microwave

Automatic tea production system (60%)

Non-contact and non-destructive real-time measurement

Electrical & Electronic Eng., Prof. S. Shinohara

Vibration measurement technology by laser-diode self mixing

Measurement system

Materials Science & Chemical Eng., Prof. T. Sako

Chemicals-free precise cleaning technology New venture 2003.6

Materials Science & Chemical Eng., Prof. S. Uchida

Water purification technology using together supersonic wave and ultra-violet light

Materials Science & Chemical Eng., Associate Prof. N. Takahashi

Quartz film formation technology for high frequency use

IJRC, Prof. M. Fujimoto

DNA analysis and memory system on CD-R

New enterprise in several years

DNA analysis and memory system on CD-R

Shizuoka Univ. Prof. M. Fujimoto
Tokushima Univ. Prof. Y. Baba

- ✧ Formation of micro-capillaries on CD-R
- ✧ Only one CD-R firstly enables to do electrophoresis, analysis and memory of DNA
- ✧ ASTI, Inc. cooperated trial product

Distinctions of this system:

Keeping DNA sample & analysis data on one CD-R
Forbidding to manipulate the record
Memory data are portable

Meat traceability



Source identification



Infectious sickness



Tailor-made medical treatment



- *Expensive
- *Special
- *Large

Conventional DNA analysis system

New DNA analysis
& memory CD-R



- *Inexpensive
- *Precise
- *Small

2. Incubation Division

Head: Prof. Akira Nakayama (Mechanical Eng.)

Associate Prof. Masahiro Hayashi

Mission: Support & incubation of venture corporations

from University (pre-incubation**)**

- **Entrepreneur meeting & venture course**
- **Examination of technical trend & market trend**
- **Consultation of venture foundation**
- **Business plan contest (2000'~)**
- **Rental laboratory & rental office for venture corporation**

Campus Incubation Facility (CIF)

Rental Laboratory (9 rooms, No vacancy room now)

Prof. T. Sako	Chemicals-free precise cleaning system	June 2003
Prof. S. Kaneko	Functional film formation system by spray thermal-decomposition	Apr. 2004
Prof. Y. Takebayashi	Ubiquitous wearable device	shortly
Prof. S. Uchida	Drainage-purifying system using together supersonic wave and optical oxidation	
Prof. N. Okamoto	Non-contact high-speed test system of print circuit board	
Prof. K. Mizoguchi	Zeolite film for separating water and alcohol	
Prof. T. Sugiyama	Multimodal information contents under next-generation learning environment	
Prof. T. Nakamura	Development of Quartz film formation technology	
Prof. K. Nakazaki	Powerful soil easy on the environment	

Rental Office (3 rooms)

Prof. H. Tokuyama	Foundation of knowledge generation community for small and medium corporations
Prof. S. Shiokawa	New technology of elastic surface wave
Associate Prof. M. Kimura and Mr. Y. Yamamoto (Doctor's course student)	

3. Unexplored Technology Development Division

Head : Prof. Norihiro Inagaki (Materials Science)

SVBL was reorganized in IJRC as this Division

**Mission: Development of unexplored technology
useful for new industry**

- Research project execution with domestic and overseas research institutes**
- Seeds creation for venture corporations, cooperative researches, and research projects**

Regional Contribution

R&D Project

Material/Device
Measurement/System
Energy/Environment

25 Projects

Venture Workshop

20 times/year

(Workshop with Enterprises)

Exhibition

- Results of cooperative research
- Exhibition of products

(Search for research partners)

Cooperative Research

- Regional Innovation Project (Shizuoka Pref.)
- JST “Sakigake” Projects
- University-Industry Cooperative Projects (Shizuoka Pref.)
- Exchange Program of Science and Technology between Japan and Czech Republic

Venture Flotation

High-Pressure Processing, Co., Ltd.

- Precision cleaning technology with small environmental loading.
- Environment-conscious processing technology for alumite.
- Production and distribution of equipments

Off-Campus Stronghold of IJRC

Actocity Industry Information Office

from Apr. 2003

(close to Hamamatsu station)

Technical consultation

Tokyo Liaison Office

from Apr. 2004

**University-industry-government collaboration and
intellectual property activities**

Foreign Branch Office

from Mar. 2004

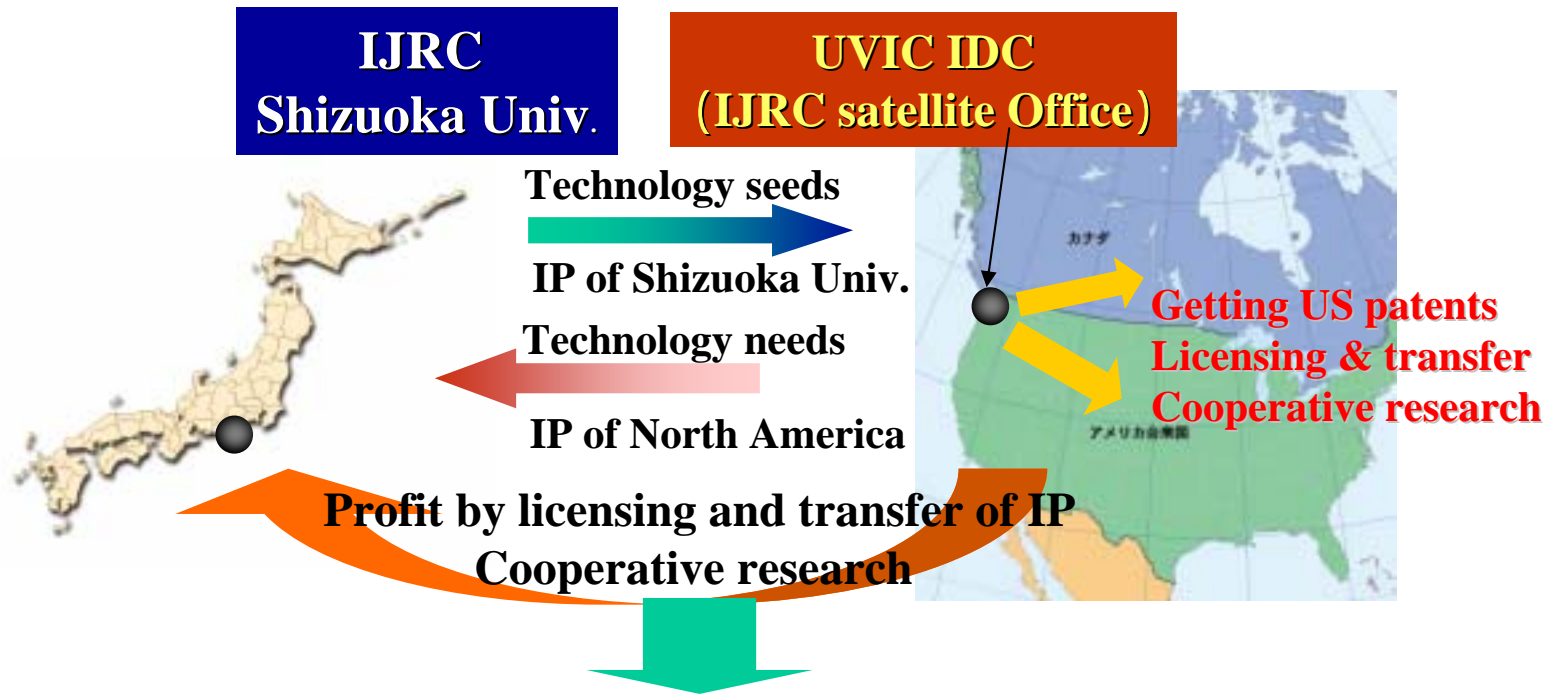
University of Victoria, Canada

University-university collaboration

Intellectual property (IP) collaboration

Cooperation Agreement with UVIC IDC

Purpose : Establishment of cooperation system with **UVIC IDC**
North America satellite office will be founded



Expected fruits

- Promotion of IP utilization & increase in cooperative research between Shizuoka Univ. & UVIC including corporations
- Establishment of international collaboration system
- Globalization of regional (small & medium) corporations

Visiting Professor (part-time) 2004.4

1~6 : University-industry cooperation coordinator

- 1. Jouji Nakamura ASTI Co.,Ltd.**
- 2. Takanori Suzuki Tomoegawa Paper Co.,Ltd.**
- 3. Kikuo Takemoto Sumitomo Electric Industries, Ltd.**
- 4. Michio Horiuchi Solar and Wind Laboratory Co.,Ltd.**
- 5. Motoyasu Nakanishi Suzuki Sogyo Co.,Ltd.**
- 6. Takeo Fujita Yamaha Motor Co.,Ltd.**
- 7. Yoshinori Hatanaka Professor, Aichi Institute of Technology**
- 8. Yutaka Tsuchiya Hamamatsu Photonics Co.,Ltd.**
- 9. Junpei Abe Suzuki Co.,Ltd.**
- 10. Teruo Nakakuki Nihon Shokuhin Kako Co., Ltd.**
- 11. Kunihiro Yamada Mitsubishi Electric Semiconductor Application
 Engineering Co.,Ltd.**
- 12. Hajime Haneda National Institute for Material Science**

4. Intellectual Property Head Office

President: Hirokazu Nakai (Vice President of Shizuoka Univ.)

Director-General: Naomichi Okamoto (Center Director)

Deputy Director-General: Norihiro Inagaki

Chief IP Coordinator : Ryoukichi Igarashi

IP Coordinators: Kazushi Dezaki

Masami Yanagisawa

IP Assistants: 4 Persons

- Contribution of the university to the society is promoted by improving the system that creates and utilizes the intellectual property attributed to the university after independent administrative incorporation.
- Manage and utilize the intellectual property of all members of Shizuoka university.

System after the incorporation from Apr. 2004

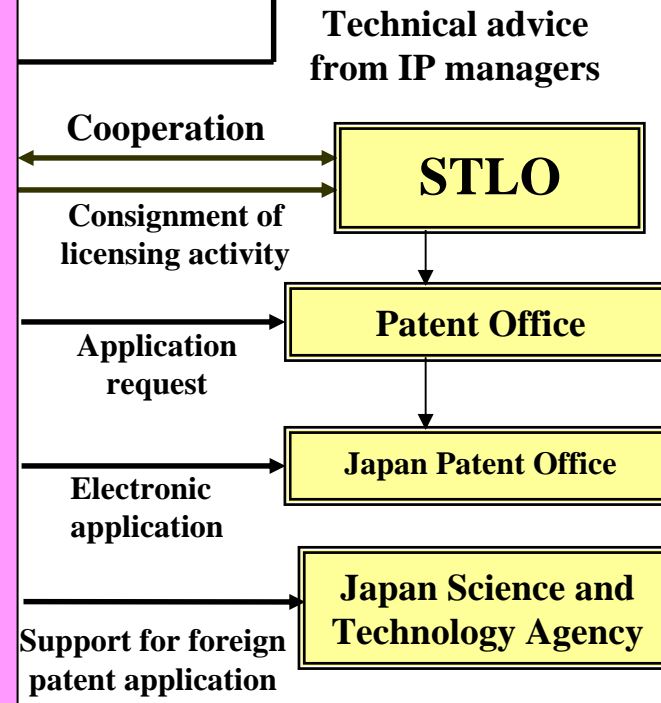
- ### Board of Intellectual Property Strategy
- President (of the corporation)
 - Directors
 - **Director (superior charge of research)**
 - Deans of Faculties of Humanities and Social Sciences, Education, Information, Science, Engineering, Agriculture.
 - Directors of Research Institute of Electronics and Innovative Joint Research Center
 - Director of Secretariat.

- ### Secretariat
- Dept of science
 - **Office of IP management**
(Tentative name)
 - Registration of IP, Application procedures, Property management, and enforcement contract

IP Head Office (inner IJRC)

- | | Number of Persons |
|--|-------------------|
| • Director-General (served concurrently by IJRC Director) | 1 |
| • Deputy Director-General (full-time professor) | 1 |
| • Vice director of IJRC | 1 |
| • Director of IJRC Shizuoka Branch | 1 |
| • Chief IP coordinator | 1 |
| • IP coordinators | 2 |
| • IP assistants | 4 |
| • IP managers | 9 |
| • Professors of IJRC (Additional post) | 4 |
| • University-Industry coordinators (Additional post) | 2 |

Collaboration



Intellectual Property (IP) Managers (from Aug. 2003)

1. Jun Nakajima: Patent attorney
Taiyo patent & trademarks
2. Akio Ohta: Patent attorney
Ohta patent office
3. Toshikazu Nozue: Lawyer
Kato law patent office
4. Tadayoshi Yamanaka: Technical evaluation, patent evaluation
Venture labo Co.,Ltd
5. Kenichirou Mimuro: Financial Institution
Hamamatsu Credit Bank
6. Yoshifumi Shibata: Management consultant
Hamamatsu Optronics Cluster
7. Kenji Kawamura: Patent management
Simtec Co.,Ltd.
8. Kuniaki Aoki: President of Venture Company
Space Creation Co.,Ltd.
9. Akiyasu Shiba: President of Venture Company
Toho Harmony Inc.

Intellectual Property Policy of Shizuoka University

- **Contribution to the Society** is treated as “the 3rd Mission” in addition to education and research.
- **Management and utilization of IP are important contribution to the society.**
- **University faculties have responsibility in protection and utilization of IP.**
- **Change in ownership of IP created in university from individual to university.**
- **Invention is evaluated & esteemed by university.**

Achievement evaluation and compensation.

- **Activation of IP creation cycle.**

- **Utilization of much IP**

Profit distribution to Univ., Labs., Inventors, STLO

Increase of Cooperative / Accepted / Project Research

- **Creation of new IP Increase of venture companies from university**

Reversion of invention

- **Job-inventions** by the faculty members **belong to the university** in principle.
- Inventions belong to the inventor in special circumstances.
e.g.; Venture companies from university
- Inventions created in cooperative researches with corporations.
University and corporation **share the right** in proportion to the contribution.

It is also possible to **transfer the right** to the partner corporation at the reasonable **consideration**.

- **Consignment research** **University owns** the IP right
- **Scholarship donation** from company **University owns** the IP right

Authorized the right of invention

- **University bears costs of application / maintenance for intellectual property right.**
- **Application of patents** **Patent attorney's office**
Direct electronic application
- **Increase in importance of foreign application**
Support **JST technology transfer support center, etc.**

Cooperation reinforcement with TLO

- **Consignment of license activity of IP right to TLO.**
- **Participation of TLO in the invention screening committee .**
- **Applications of subset of inventions from TLO.**

Incentive to inventor

[Achievement evaluation in University]

- The case in which the job-invention is patented.
- The case in which profit is obtained by licensing or assignment of the intellectual property.

[Compensation from university to inventors]

- Application compensation in an application of invention.

Registration compensation in the registration

- **Profit by licensing royalty / assignment of the patent**
→ Licensing compensation

(Ex.) Profit of \$ 2,000,000

Inventor, laboratory, university, STLO obtain about \$500,000 each.

- The right to receive compensation continues to exist after change of job / retirement from the university.

Points of Intellectual Property Head Office in Shizuoka University

1. Design to aim at the synergistic effects by germane cooperation between the IP Head Office and divisions for university-industry cooperation.
2. Comprehensive support for ventures from university in collaboration with financial institutions by **'Shizuoka University Fund'**. (Including the second established business)
3. Activation of university-industry cooperation in Shizuoka Prefecture, especially in Hamamatsu area.
4. Anticipated intellectual property by projects from Intellectual Clusters and Collaboration of Regional Entities for the Advancement of Technological Excellence, etc.
5. Rapid increase in cooperative research (4 times for the last 5 years) and regional contribution to smaller / venture corporations.
6. Increase of ventures from the university which received the prosperity of the incubator services. Utilization of intellectual property.

Establishment of Shizuoka university Fund “Venture Partners of Shizuoka University”

Comprehensive
Venture support

Fund-Raise from regional corporations etc.

Hamamatsu
Shinkin Bank

Management Service



Financial Support

Shizuoka University

Technical Guidance



Technical Support

Icaptial, Inc.

Business Alliance

Capital alliance

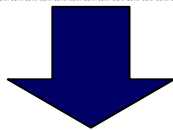


Talent Supplement

Market Extension

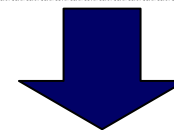
Superior VB

(IP utilization of Shizuoka University,
increasing of cooperative researches)

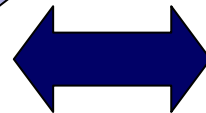


Cycle of Intellectual creation
(Shizuoka university)

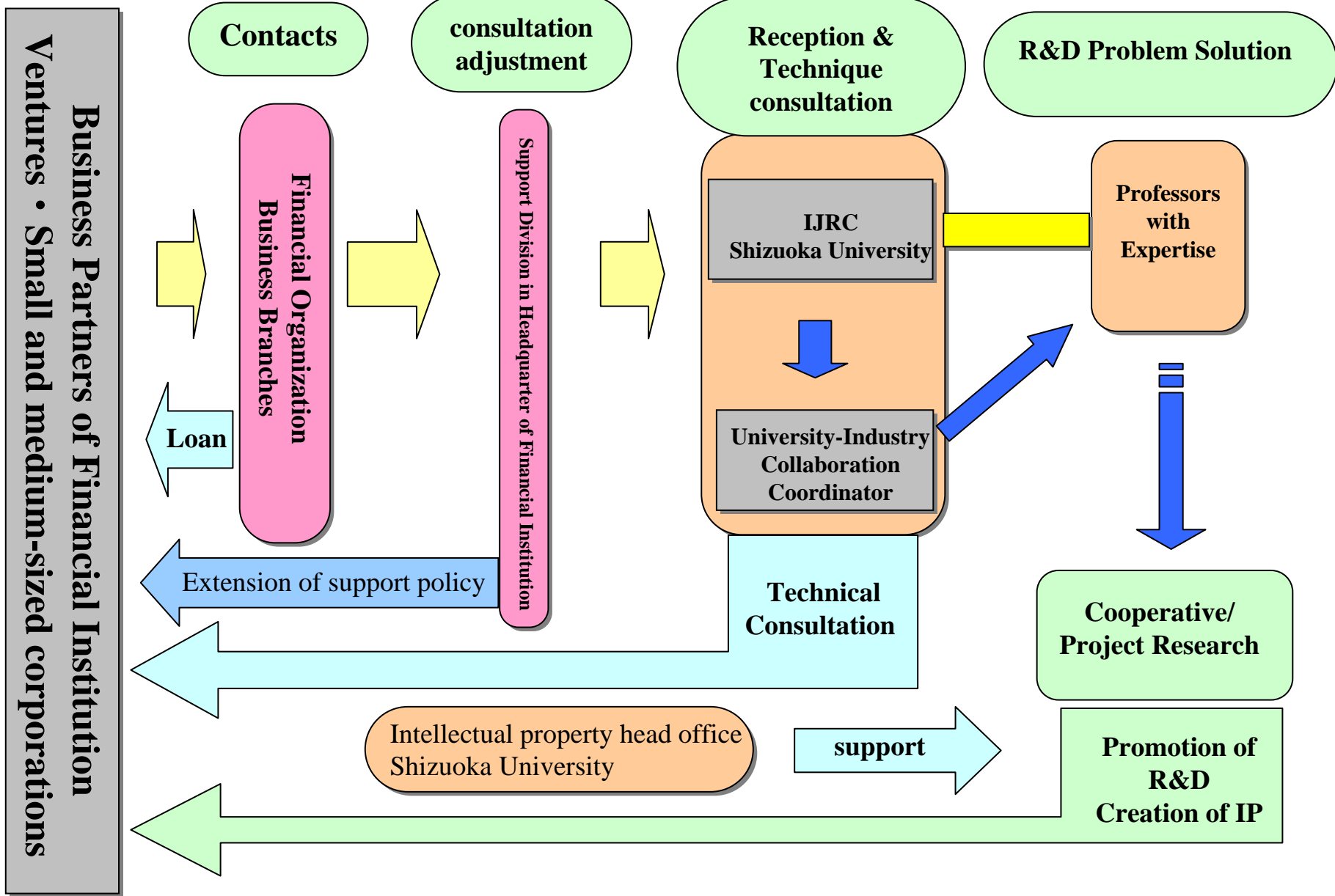
Region develops with Shizuoka University



Activation of regional industry
(Hamamatsu Area)



New Collaboration Scheme of Shizuoka University ↔ Financial Institution • Corporation



Arrangement of University Regulations on IP

Aspect of Shizuoka University (in Red)

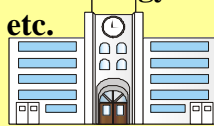
Jan. 2004 Now

		<u>Number of Universities</u>		
		Decided	discussion under	none
University-Industry-Government				
Collaboration Policy	2003.12.17	<u>10</u>	27	6
Intellectual Property Policy	2003.11.11	<u>9</u>	34	0
Regulation for Job-Invention	2004.1.14	<u>7</u>	36	0
Regulation for Invention Compensation	2004.1.14	<u>8</u>	35	
Regulations for				
Joint Research · Trust Research	2004.3	5	<u>38</u>	0
Contract Forms of				
Joint Research · Trust Research	2004.3	7	<u>36</u>	0
Regulation for Handling of				
Research Result Materials	2004.3	0	<u>41</u>	2
Policy for Conflict of Interest	2004.3	2	<u>41</u>	0

Role of “University” “Industry” “Government” for Formation of Hamamatsu Region Cluster

Univ.

- Shizuoka University
- Hamamatsu University School of Medicine
- Shizuoka Institute of Science and Technology
- Universities in the region outside etc.



**Mission: Specialized Basic and Applied Research,
Providing New Technical Seeds, Technical
Consultation, Human Resource Development...**

Industry

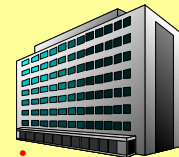
- Core Enterprises
- Research-Based Small and medium-sized Enterprises,
- Venture Enterprises



**Mission: Chain Creation of New Technology
and New Products,
Chain Creation of Venture Corporations...**

Gov.

- Shizuoka Prefecture, • Hamamatsu City , • Administrative Agencies
- Organization for Hamamatsu Technopolis
- The Hamamatsu chamber of commerce & industry
- Research Foundation for Opto-Science and Technology



**Mission: Matching of Technical Seeds and Industrial Needs, Transmission
and Reception of Technical Information, Financial Support,
Promotion of University-Industry-Government Projects...**



Hamamatsu Region Cluster: Participating organizations

Intellectual Cluster Projects

Industry : 6 Regional Companies, 7 Out-Region Companies
plan to organize a research society for industrialization (about 50 companies)
University : Shizuoka University, Hamamatsu University School of Medicine
Government : Shizuoka Prefecture, Hamamatsu City and other 3 cities and 2 Towns
Operating Body : Organization for Hamamatsu Technopolis

Industrial Cluster Projects

Industry : 400 Regional Companies
University : Shizuoka University, Hamamatsu University School of Medicine,
Shizuoka Institute of Science and Technology, etc
Government : Hamamatsu City, Organization for Hamamatsu Technopolis
Operating Body : The Hamamatsu chamber of commerce & industry

Collaboration of Regional Entities for the Advancement of Technology Excellence

Industry : 10 Regional Companies
University : Shizuoka University, Hamamatsu University School of Medicine
University of Shizuoka, Osaka University, etc.
Government : Shizuoka Prefecture,
Shizuoka Prefecture Industrial Research Institute
Operating Body : Research Foundation for Opto-Science and Technology

TLO

Industry : about 150 Company members
University : 177 members from Shizuoka University,
Hamamatsu University School of Medicine, University of Shizuoka, etc.
Government : Shizuoka Prefecture, Hamamatsu City, Shizuoka City, etc.
Operating Body : Research Foundation of Hamamatsu Science and Technology

Total of Participating Organizations

- Industry**
 - 600 Regional Companies
- University**
 - 2 Regional Universities
 - 5 Universities in Pref.
 - 10 Universities outside the Pref.
- Government**
 - Administrative agencies
 - Public Research Institutions
 - Industrial Support Organizations

Task for the Future

Formation of Hamamatsu Region Cluster

- Promotion of University-Industry Collaboration Researches
Launches of University-Industry Cooperative Researches Leading to New Businesses
- Excavation of New Enterprise Contributing Formation of Cluster
Participation of New Enterprises to Cluster Formation Projects
- Chain Creation of New Business
Creation of Spin-off Ventures and University Ventures, etc.



**Business Solution by
Concentrating Regional Collective Strength**