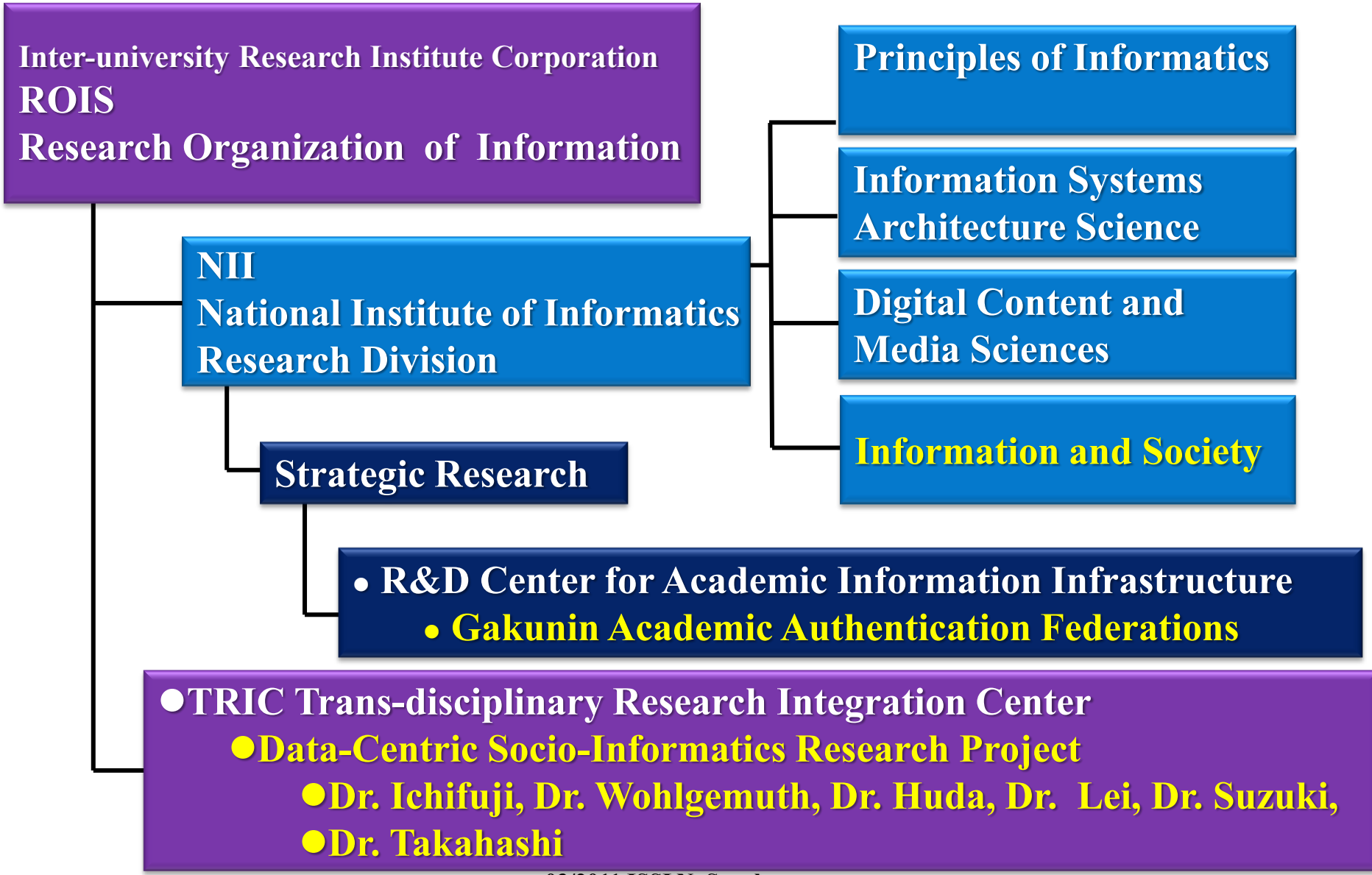


Data-Centric Socio-Informatics For Evidence-Based Public Policymaking

**Professor Dr. Sonehara Noboru
National Institute of Informatics**



(Holding screen of Edo, National Museum of Japanese History)



Three collaborations

- **Horizontal Collaboration within ICT Field**
 - **Mobile Life-log Commerce, Green ICT, ICT Governance, e-Government,**
- **Vertical Collaboration with another R&D Fields**
 - **ITS(Intelligent Transportation System), Smart Grid, e- Healthcare,**
- **Global Collaborations**
 - **Universities, Research Institutes, ICT industries, Academic Infrastructure,**





http://www.internet2.edu/pubs/national_federations.pdf

NATIONAL IDENTITY MANAGEMENT FEDERATIONS



In Formation

- Egypt
- Malaysia
- New Zealand
- Poland
- Portugal
- Taiwan

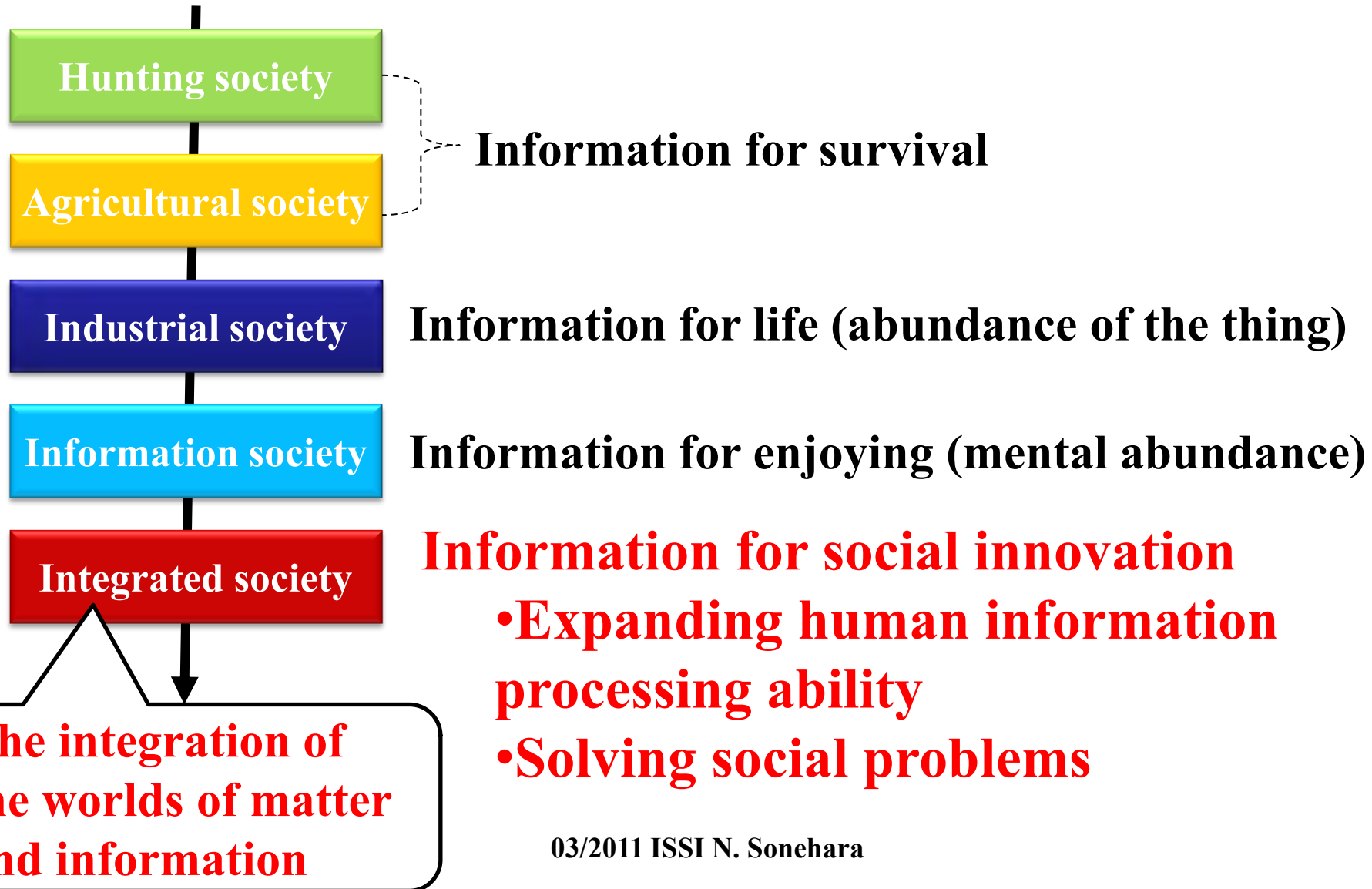
Current National Federations

Australia (AAF)	Finland (HAKA)	Norway (FEIDE)
Austria (ACONet-AAI)	France (ENB)	Oman (Oman KID)
Brazil (Cafe)	Germany (DFN-AAI)	Spain (CBIC, SAUWoK, SIR)
Canada (CAF)	Russia (CBNET)	Sweden (FederationSwamid)
China (CARSI)	Hungary (NIIF)	Switzerland (SWITCHaai)
Croatia (AAI@EduHr)	Iceland (WAYF)	The Netherlands (SURF Federatie)
Czech Republic (eduID.cz)	Italy (IDEM)	United Kingdom (UK Access Fed.)
Japan (学認 / Gakunin)	United States (InCommon)	

Japan
学認
Gakunin

22Sep2010

The Integrated Society ?



**The next Google, What will happen in the next 10 years?
Nature 455, 8-9 (2008)**

● The integration of the worlds of matter and information, whether it be by the blurring of boundaries between online and real environments,.....



Information Circulation

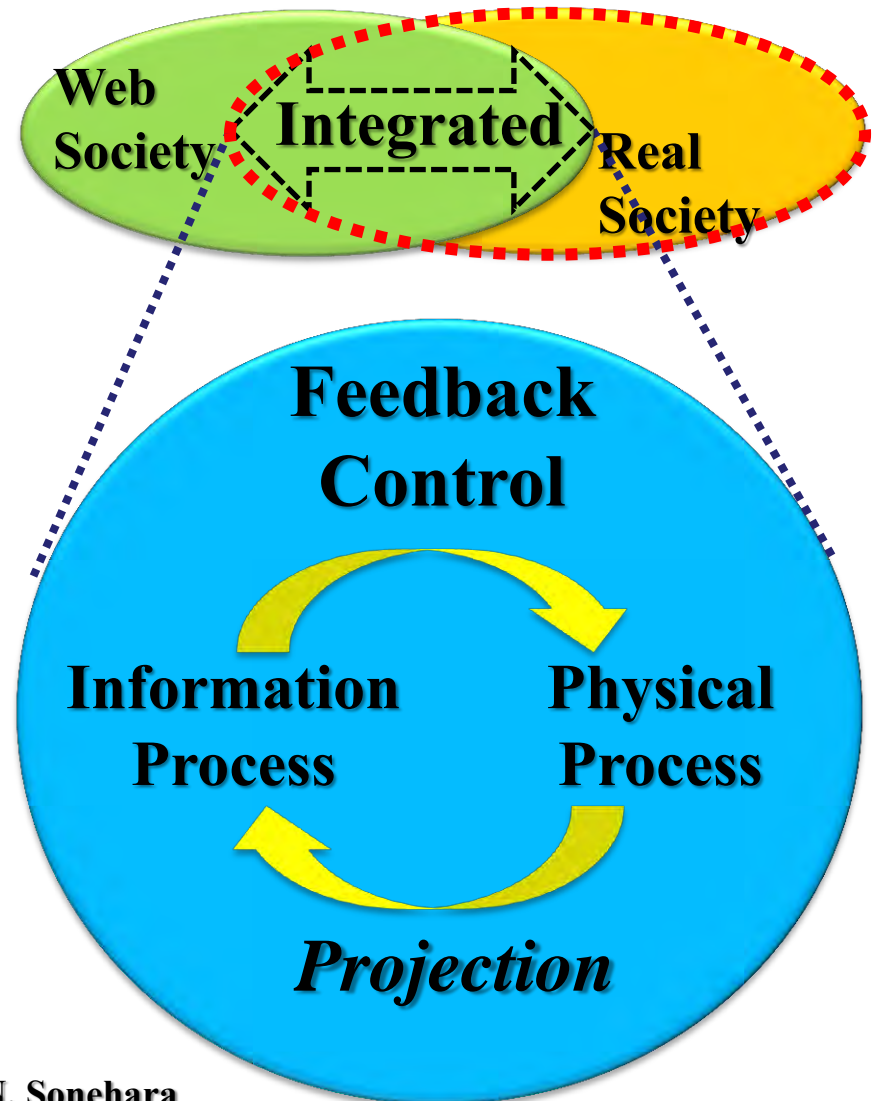
Between Cyber and Physical Worlds

● Sensor Network

- All information devices and sensors are connected to the network.

● Ubiquitous

- Information becomes digitalized and circulated, which enables everyone to access it anytime, anywhere.



Social System Design

Evidence-Based Public Policy and Decision Making

Minimizing *risk*
(danger, anxiety)

ICT

Human
Society

Maximizing
merit
(Convenience,
Safety,
Resilience)

Minimizing *risk*
(inconvenient, dissatisfaction)

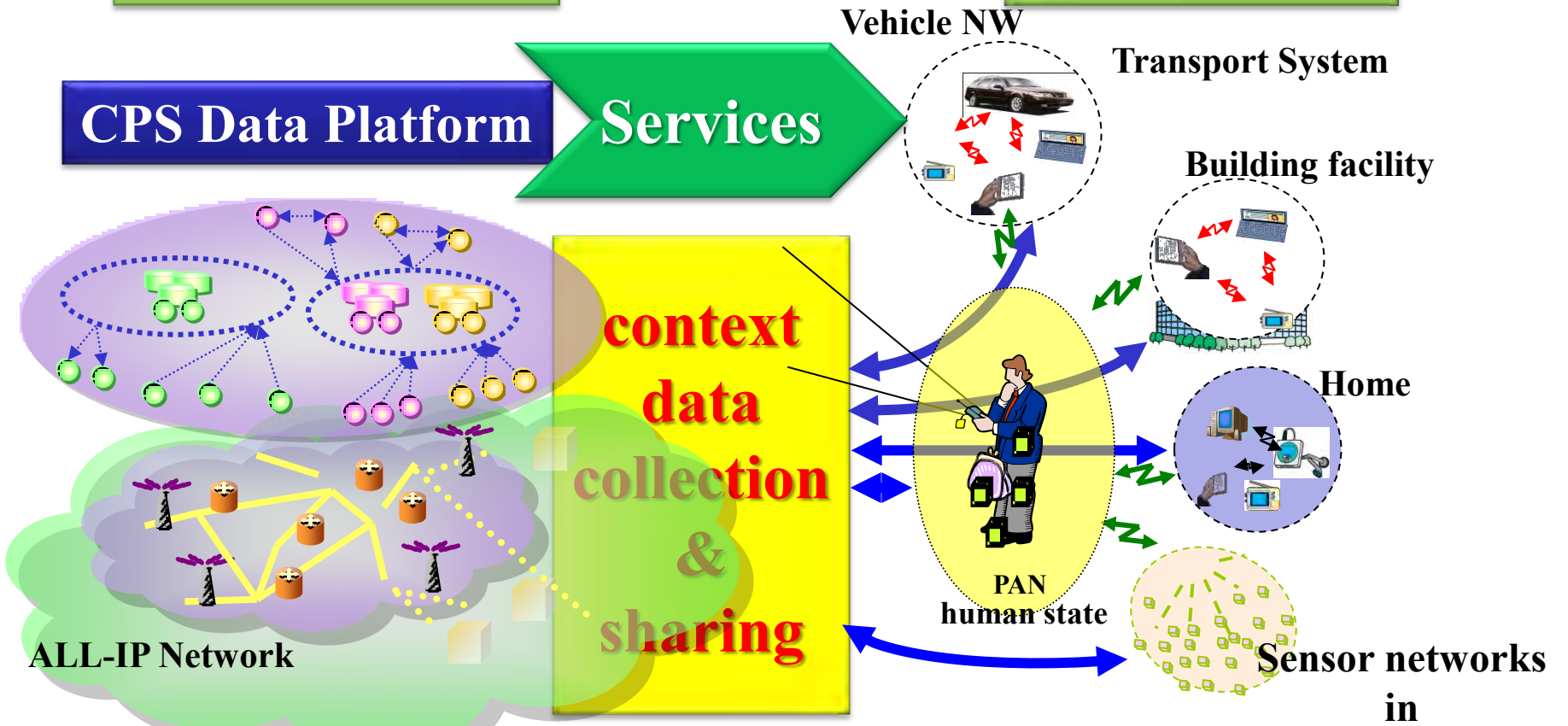
Cyber World

Real World

CPS Data Platform

Services

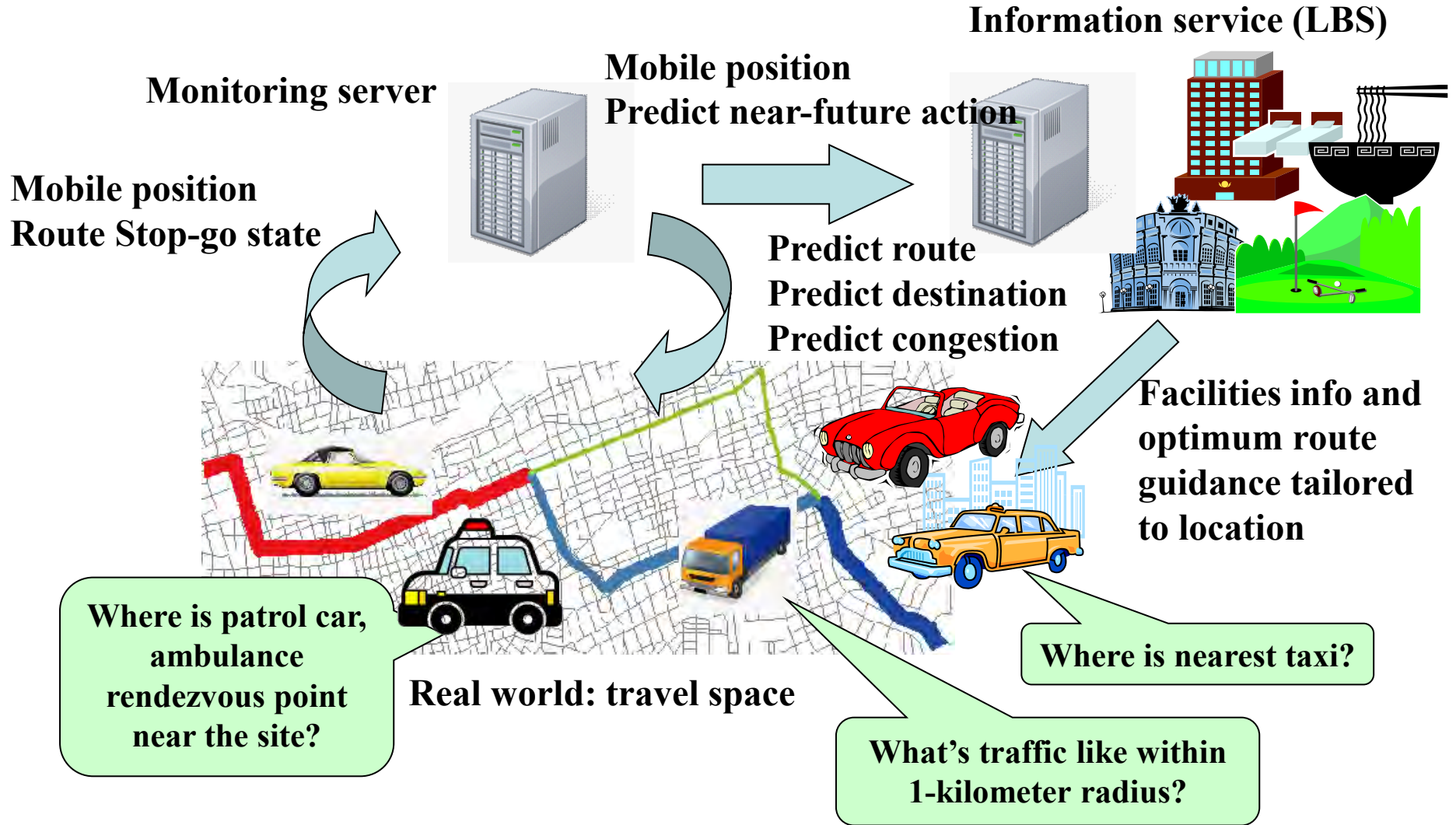
context
data
collection
&
sharing



Sensing & Actuation (control)

Power Grid system,
Environment monitor,
Agriculture, etc.

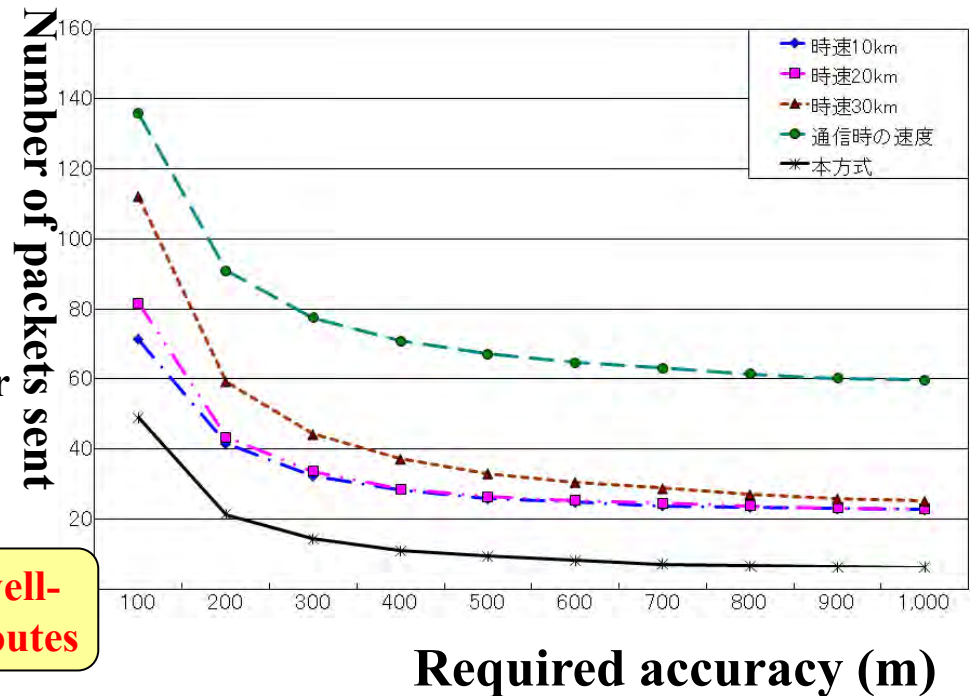
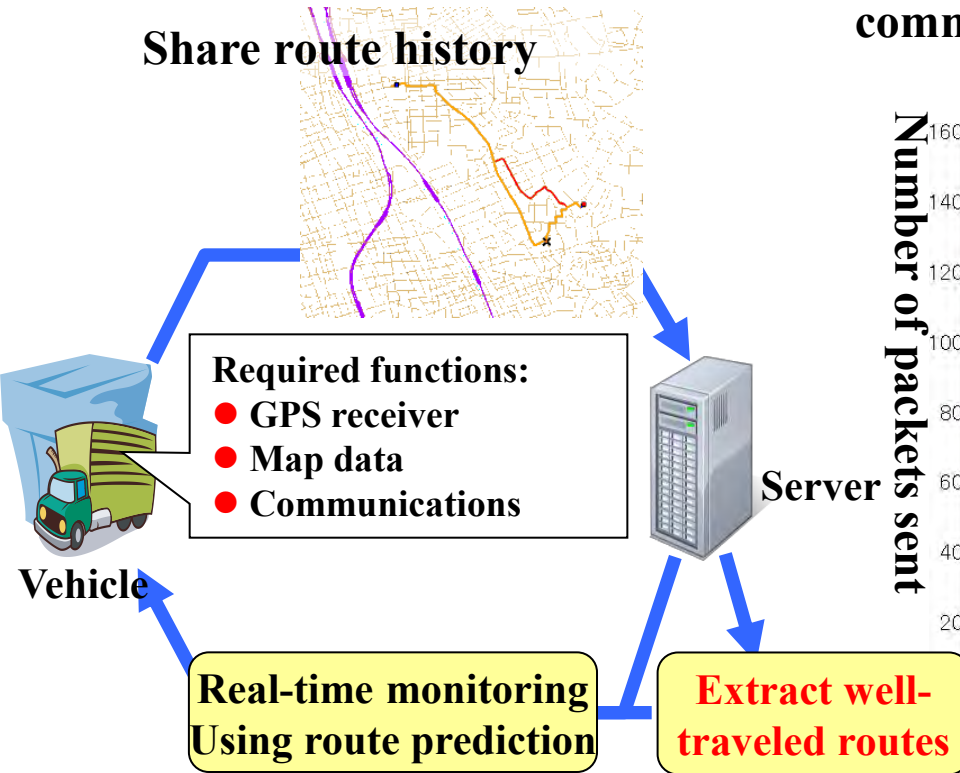
Ex.) Space-time data mining (Prof. Ohsawa)



Experimental Results

Real-time monitoring based on shared vehicle route history

- Proposed scheme involves $\frac{1}{4}$ to $\frac{1}{2}$ the communication costs
- Route prediction is highly accurate
- As accuracy requirements are reduced, prediction updates are less frequent which reduces communications



The number of billing fraud occurred in Japan in 2008 was 20,481, and approximate total financial damage was about 27.6 billion yen.

Number of incidents and total financial damage of billing fraud

(December, 2008)	Number of incidents	Approximate total financial damage B¥
Billing fraud	20,481	27.6
(Sub items)		
"Ore-Ore fraud" ("It's me" fraud)	7,615	15.5
Fictitious claims	3,253	3.6
Loan-guarantee fraud	5,074	3.7
Repayment money fraud	4,539	4.7

The phishing sites lives only for four days on an average in fiscal year 2007.

Time of Investigation	Average length of existence (day)	The number of newly generated sites(per month)
2004.Oct.	6.4	1,142
2005.Oct.	5.3	7,197
2006.May	5	11,976
2007.July	4	28,151

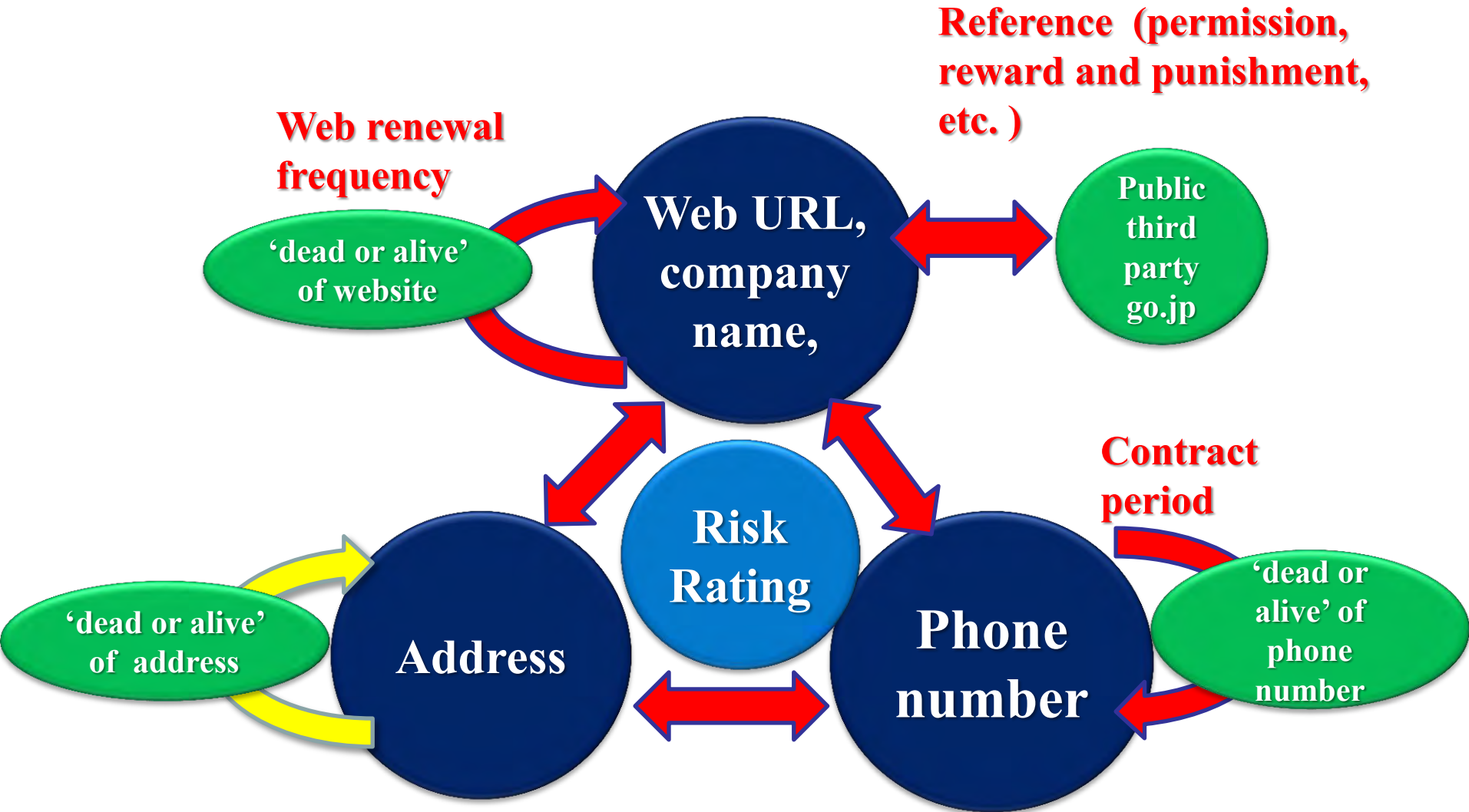
Source: The investigation of Anti-Phishing Working Group (2007)

Existence period of the ID

- The **continuous existence period of the telephone numbers** of the fictitious companies used in 188 cases.
- 91% of the black listed telephone numbers were acquired within half a year, which means that these **telephone numbers were obtained just before the Internet fraud occurred.**
- The continuous existence period of phone numbers are effective for the risk evaluation of EC Web sites.

Phone number ID related to phishing and net fraud

Recent contract ID	One month available ID in six months	Less than one month available ID	Normal line ID (valid ID more than 12 months)
10	80	81	17

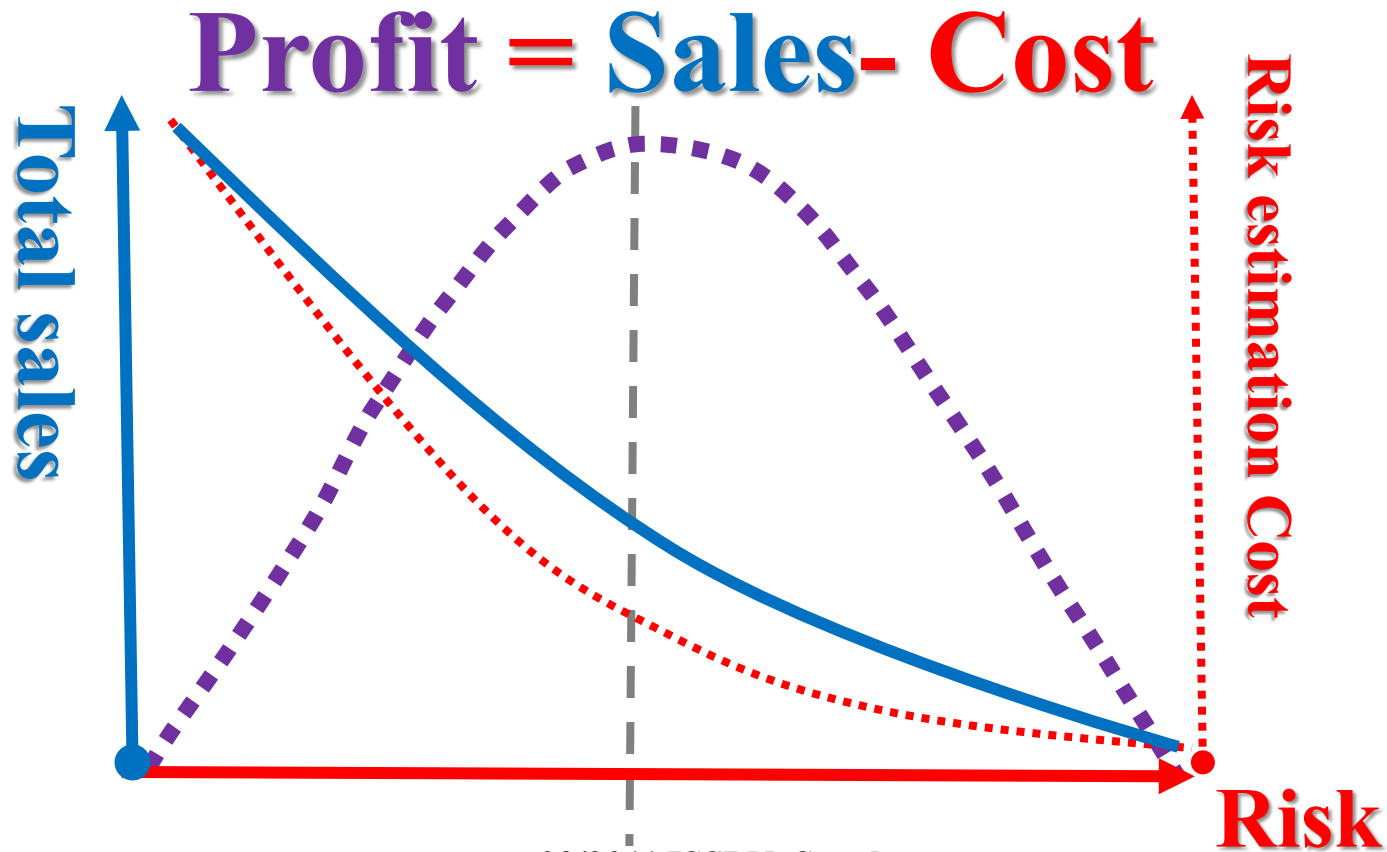


The screenshot shows a Windows Internet Explorer browser window displaying the ECナビ website. The search bar is highlighted with a red box and a blue arrow. The main content area features a table with columns for 'Items', 'Shop name', 'Company', 'Address', 'Phone number', 'Home page', and 'IdTM Evaluation'. The table contains several rows of data, including shop names like '*****' and '*****', and risk ratings such as '★ ★ ★' and '○'. A blue arrow points to the search bar, and another blue arrow points to the '検索' button.

Items	Shop name	Company	Address	Phone number	Home page	IdTM Evaluation
	*****	*****	*****	*** **	*****	★ ★ ★
				contract	Existence	
	More than	More than	More than	period	period	
	yearmonth	**year**month	**year**month	Renewal	Renewal	
				h**date**	h**date**	

Between Cost and Benefit

- It is generally costly to keep the Web site safe and reliable.
- Important to **balance between the cost and the benefit** for the effective social implementation.



- **Protection of personal information**

 - ⇔ **Individual's benefit and public interest**

- **Protection cost**

 - ⇔ **Risk of damages**

- **Compliance cost**

 - ⇔ **Opportunity loss of innovation**

- **Anonymity of data**

 - ⇔ **Usability of data**

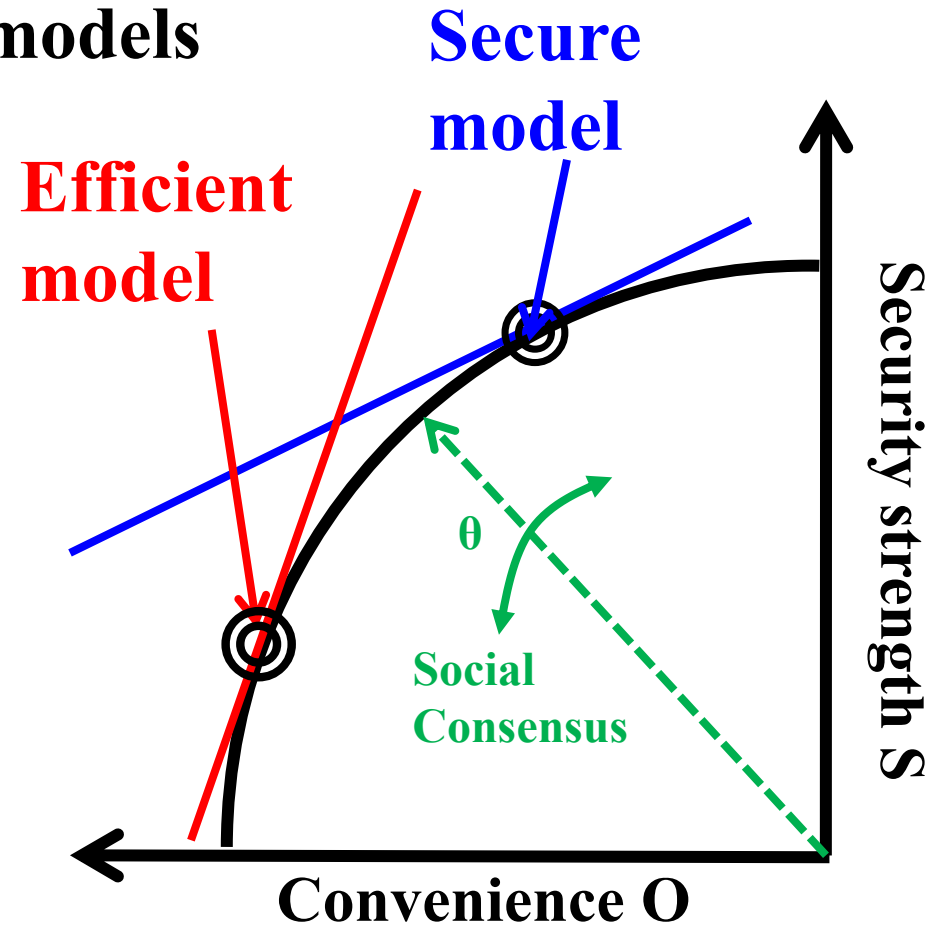
- Security and Convenience are exclusive and rivalry
- Providing various service models

● Risk, Security

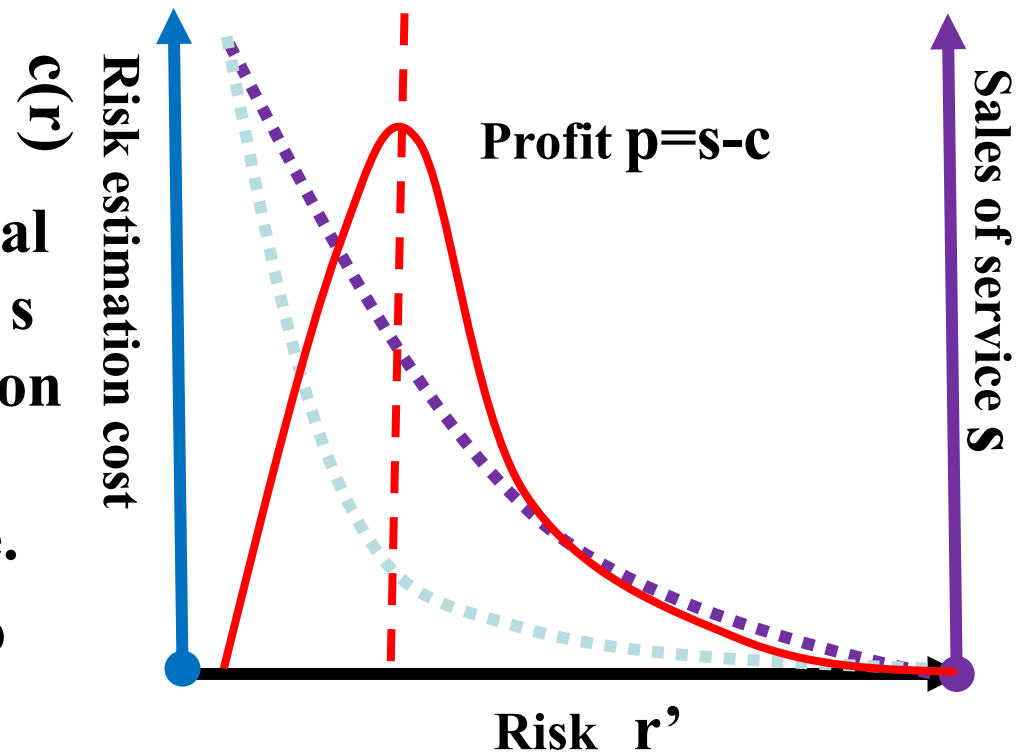
- danger,
- anxiety,
- inconvenient,
- Dissatisfaction.

● Merit, Efficiency

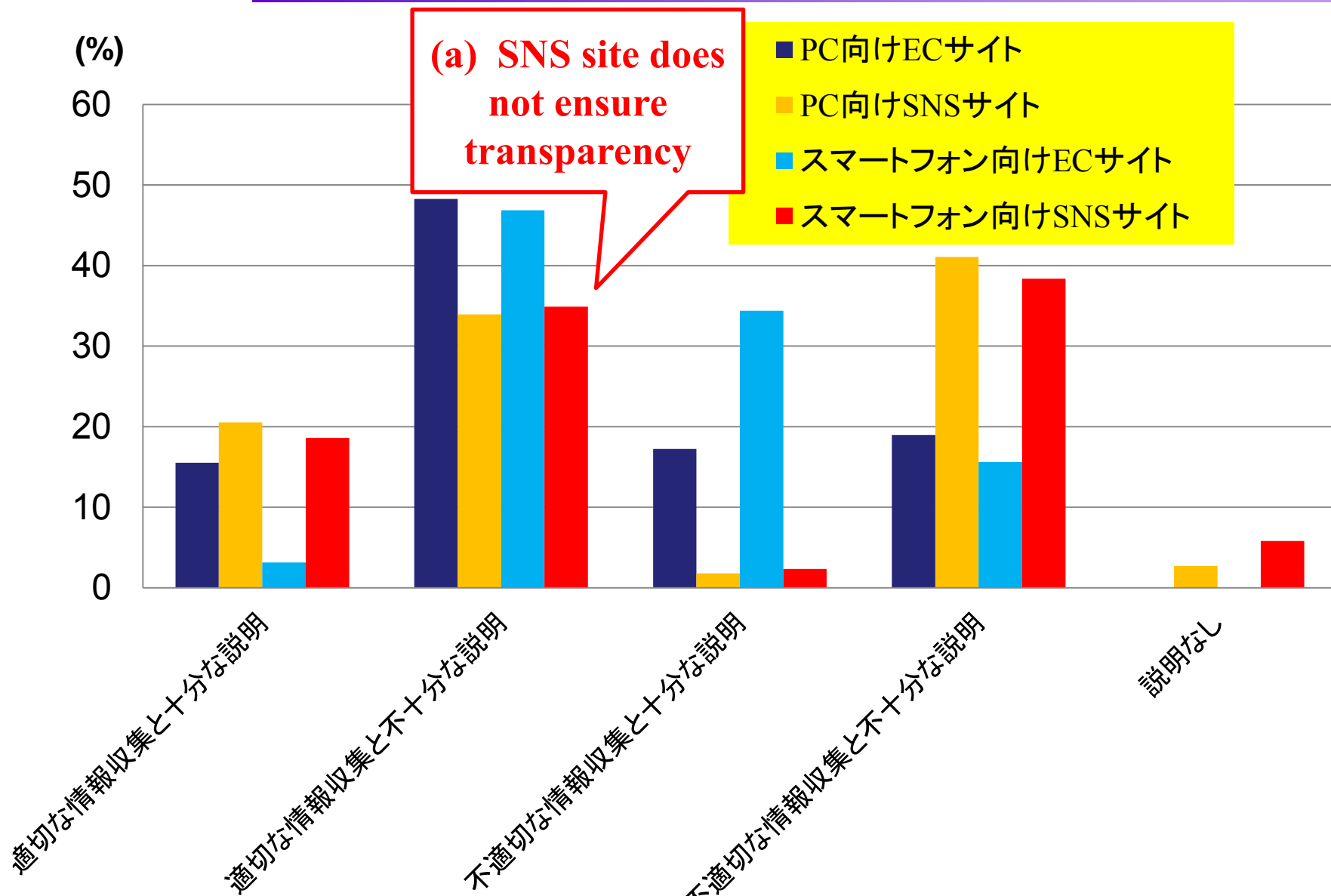
- Convenience,
- efficiency,
- Resilience.



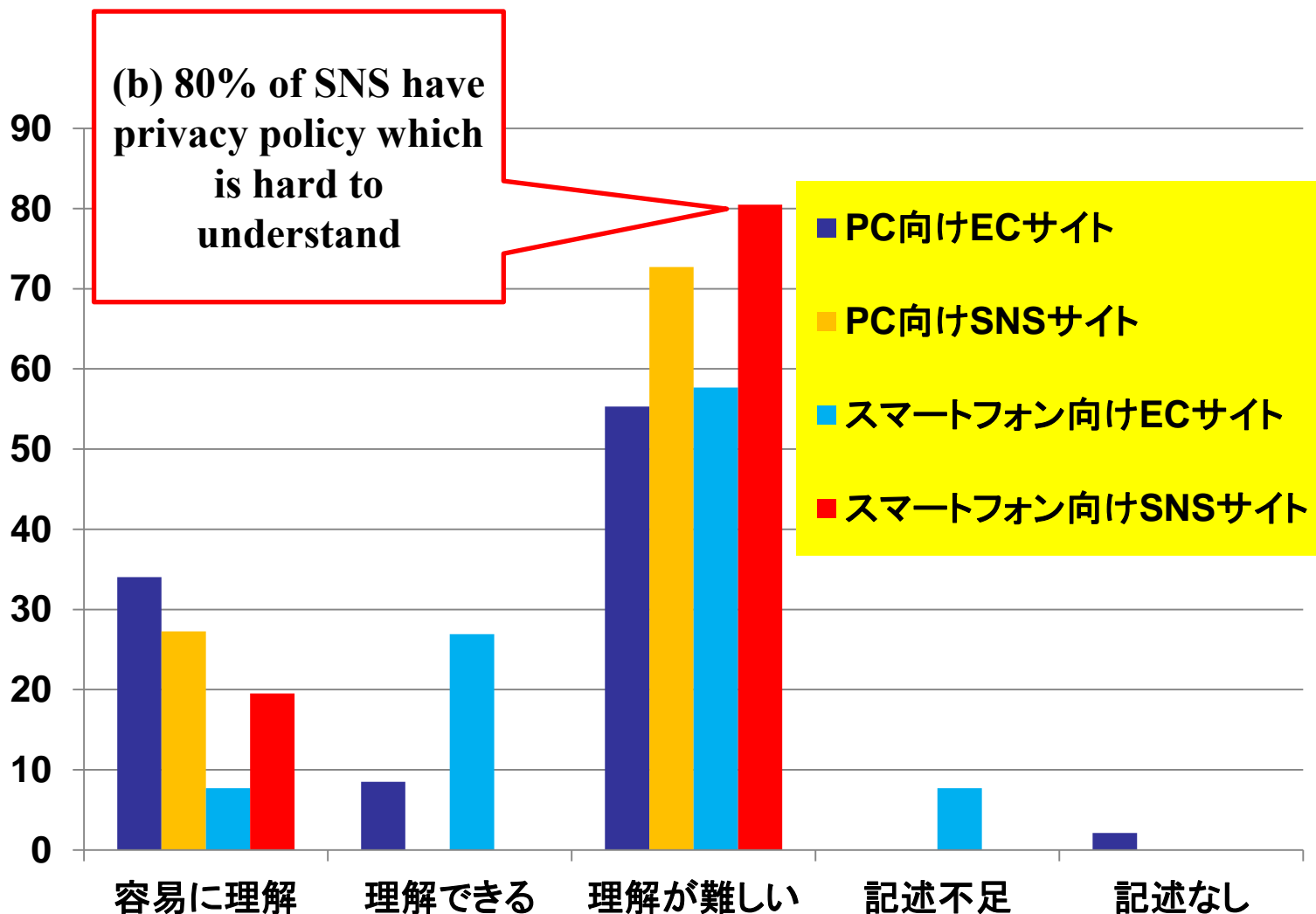
- Huge cost is needed in order to make the risk estimation value (r') accompanying disclosure of personal information into zero.
- If the open risk of personal information is high, sales s of the service circulation on the basis of personal information will decrease.
- It is a technical subject to lower privacy risk estimation cost of service provider SP.



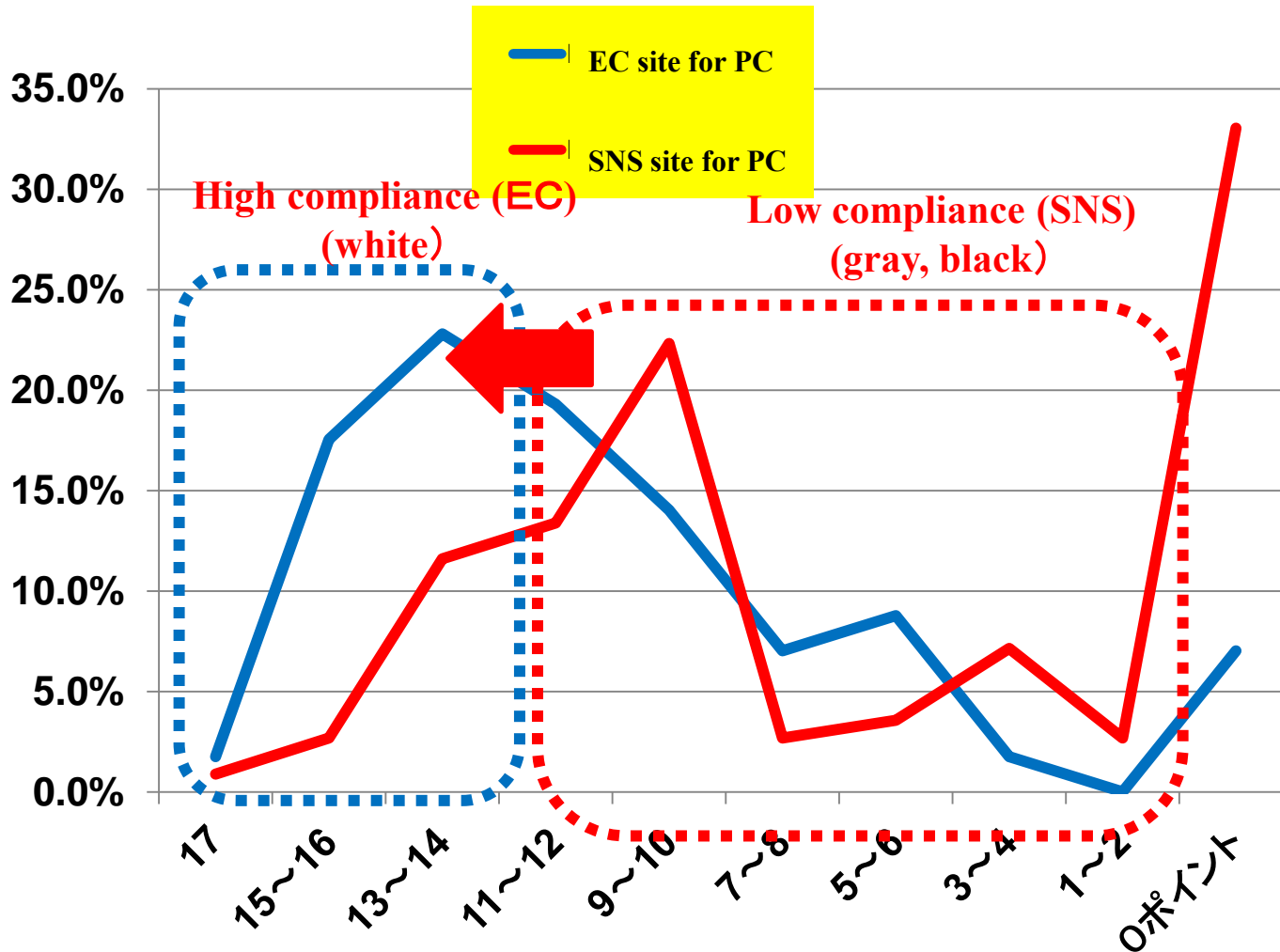
Compliance with privacy policy



Privacy policy explanation



The degree of compliance with privacy consideration principle



Possibility of GPS at disaster

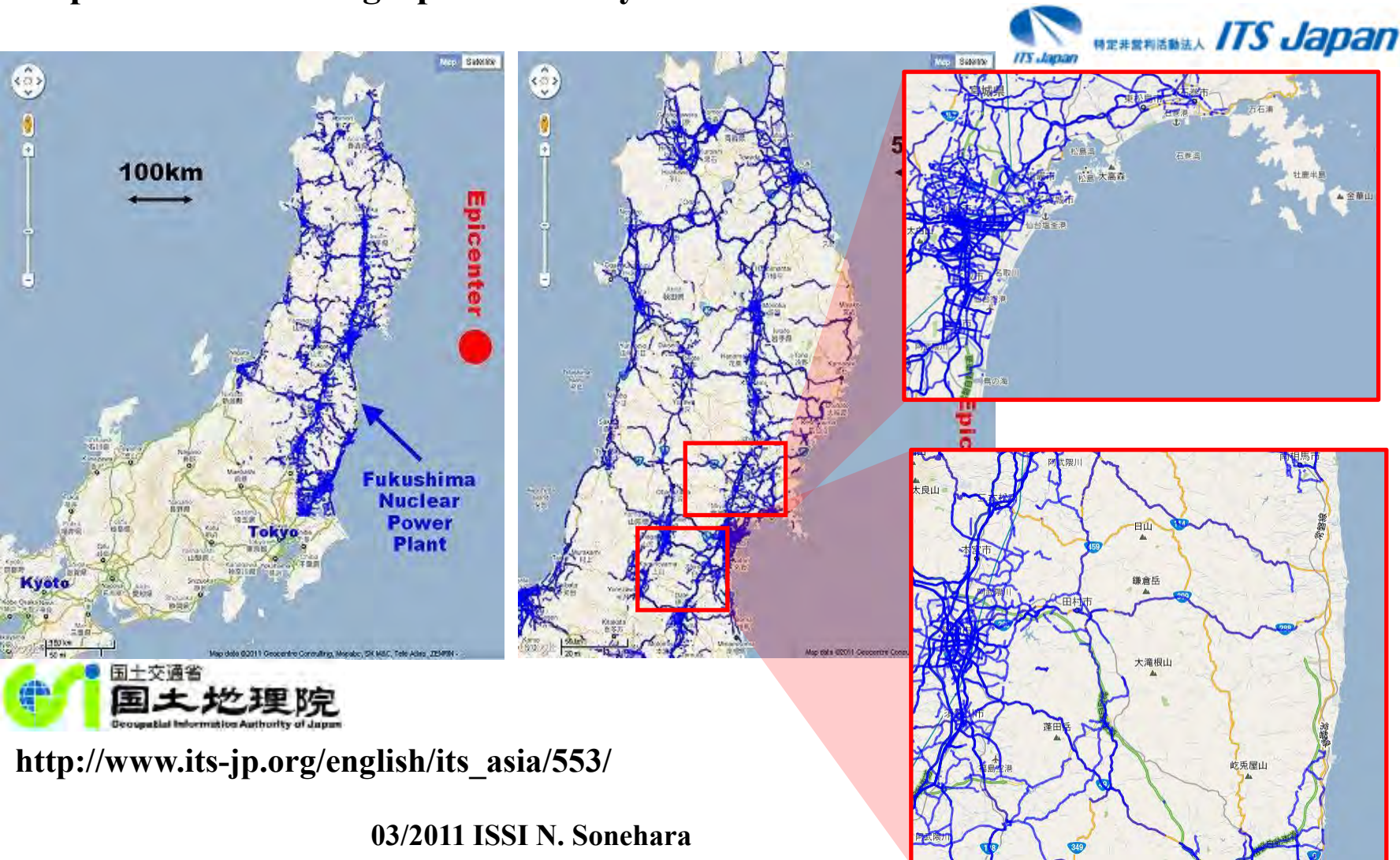


●Great East Japan Earthquake **revealed a difficulty to pass on the victim's information to family and acquaintance**. In the situation in which the cellular phone and mail were not connected, "**Location information**" of GPS was useful. **There were a lot of people who had got over uneasiness while confirming safety** by the application for a smart phone that indicated the present place each other.

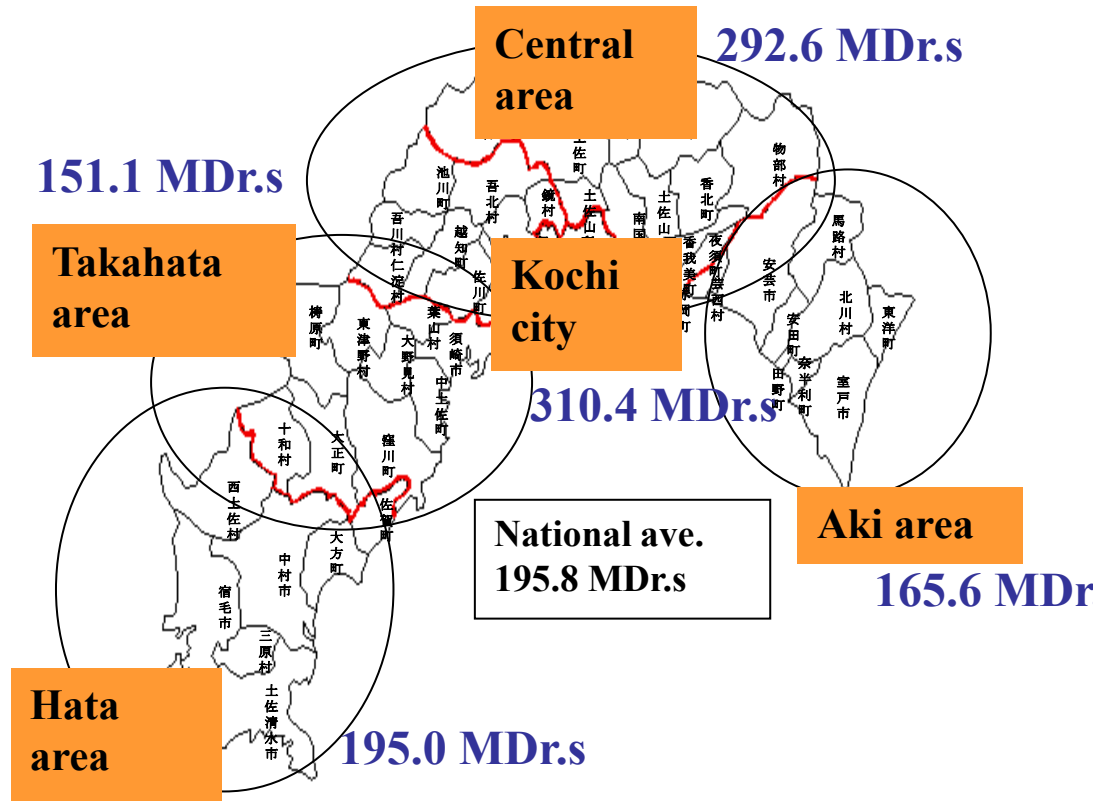
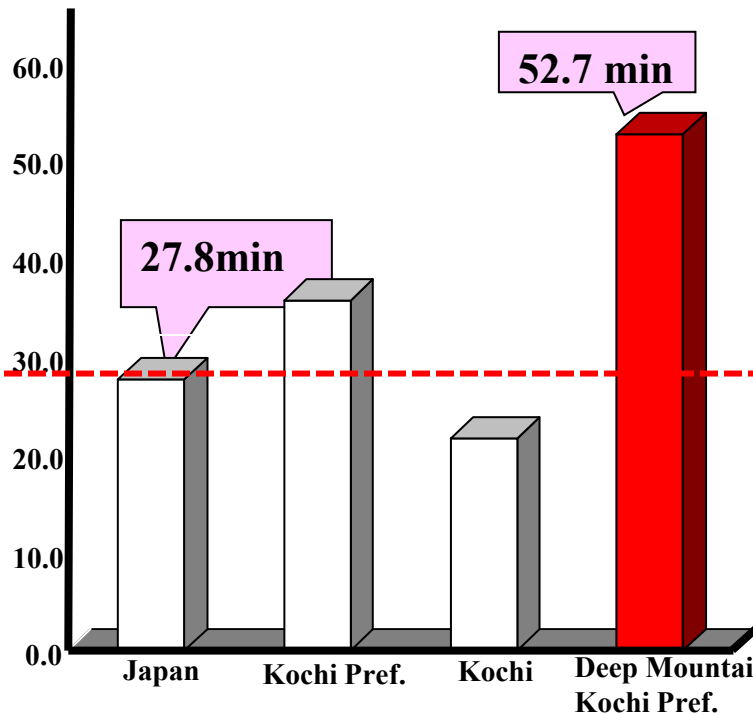


●GPS information was useful for the transportation of the support goods. **Honda, that had continued the research of car location information quickly opened available route to the public based on the car navigation system data of the user who ran in disaster area**. It also made the road map that integrated information on manufacturers, which was a big support for drivers. GPS begins to function as "**Lifeline**", and now the citizens also participate in **making various maps** in disaster area.

ITS Japan effectively used probe information on each private company by ITS technology. It also **made and offered traffic result and blocked road information in disaster area** in cooperation with Geographical Survey Institute.

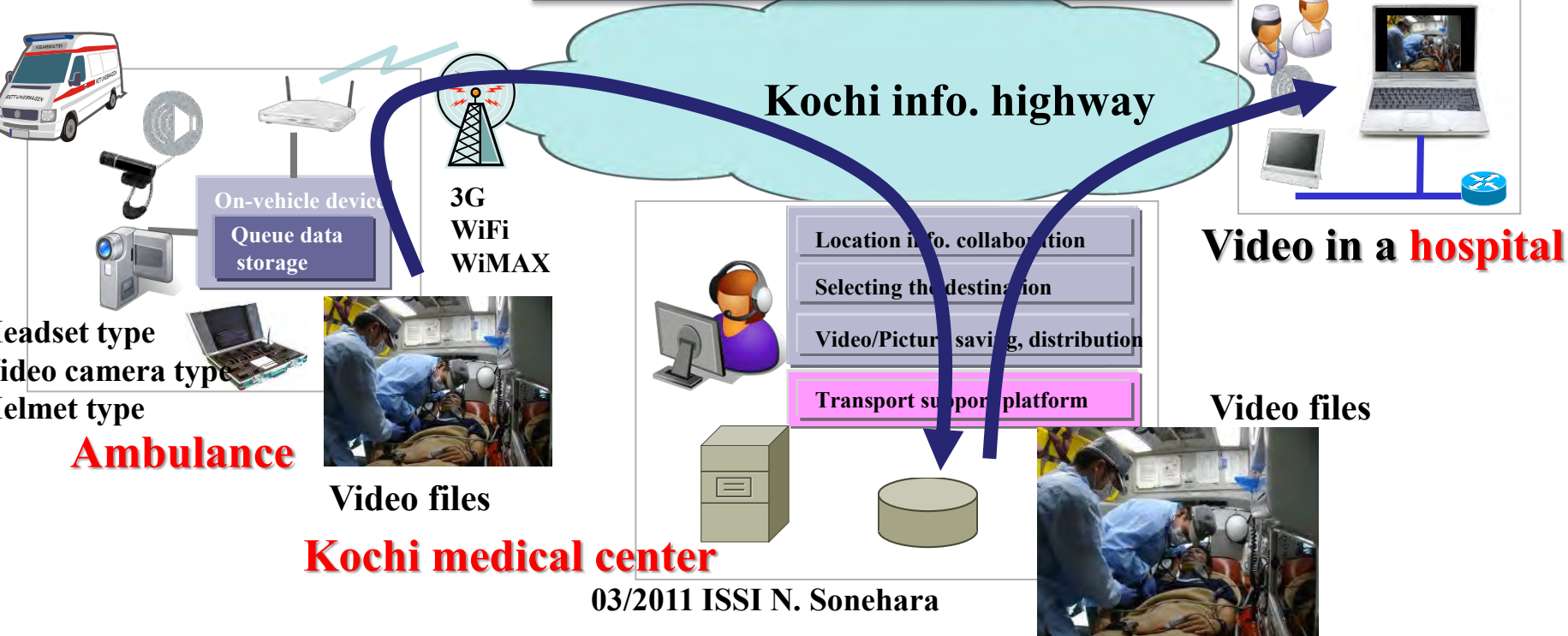


- Ambulance average transpiration time is 27.8min(national), especially mountain area's average is long (52.7min)
- 3G cell phone is an only communication way, however there are unreachable areas.



- Transferring the pictures taken **by paramedic to the medical center** automatically.
- The communication carrier is automatically selected by the **provisioned unreachable area map**.
- The **unreachable area map** could be updated by equipping the registration system on ambulances.

Auto picture Transfer system development



- Because information is transmitted by not only a usual voice but also images, sick person's situation is transmitted to the doctor more appropriately in the experimental study.
- Therefore, the improvement of the qualities of ambulance services such as high lifesaving rate and shorter transportation time is expected.
- In the experimental study, information necessary for a doctor to understand the situation such as an image of accident site might be transmitted.
- “Attention” is posted in the ambulance. Also, there might be an explanation by ambulance crew.

<http://www.city.aki.kochi.jp/life/dtl.php?hdnKey=819>

個人情報に関するお願い

本救急車は、傷病者の容態をより正確に把握するため、必要に応じ高知医療センター等に常駐する医師等に救急車内の画像を伝送する場合があります。

安芸市消防本部

● Compliance Costs

- ✓ Personal information protection law
- ✓ Telecommunications Business Act

● Social rules

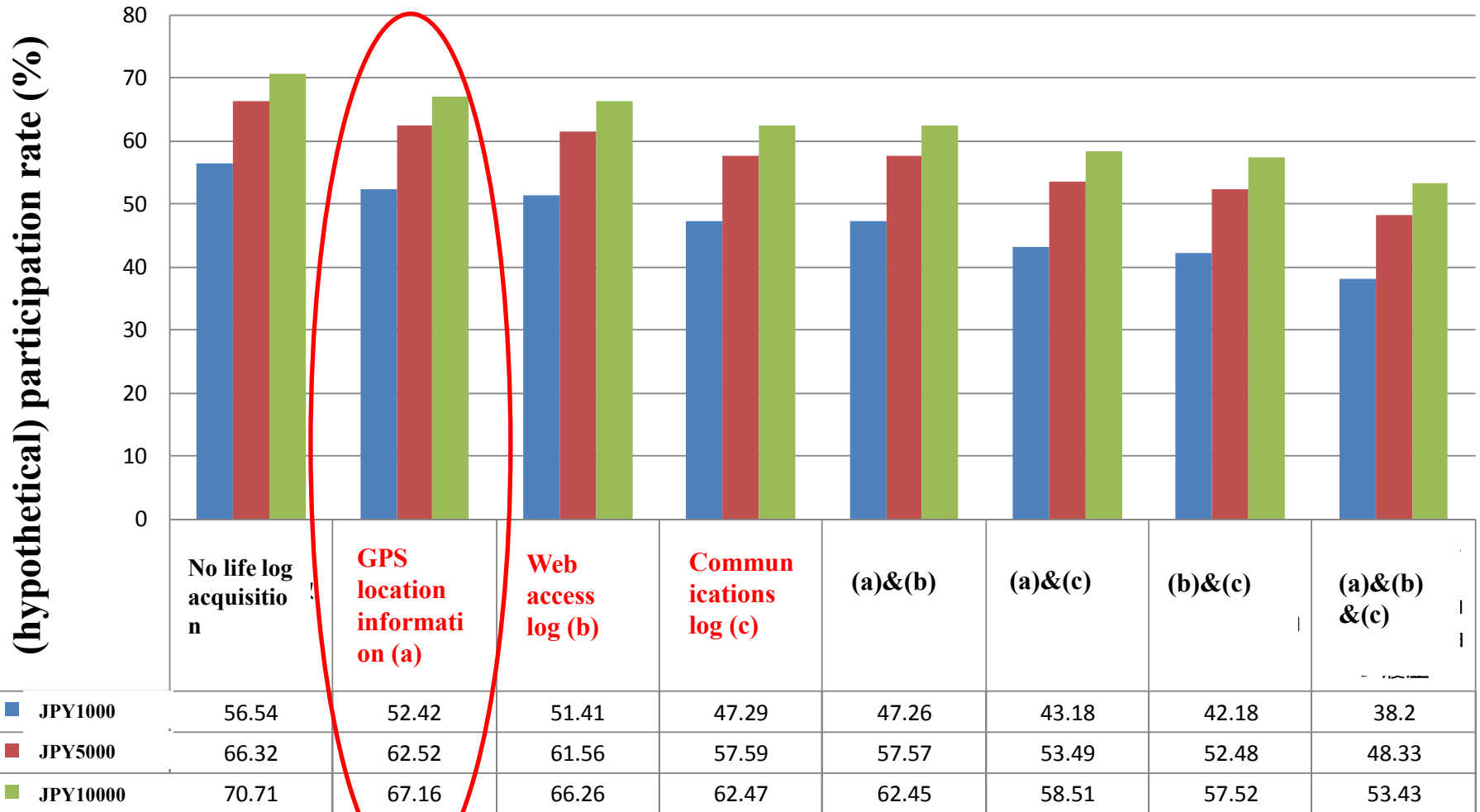
- ✓ A social system to which the individual can autonomously adjust according to the natural law is desirable.

● Operations of Information Systems

- ✓ Resilient information system that is not only an emergency but also always used is preferable.

Psychological barrier

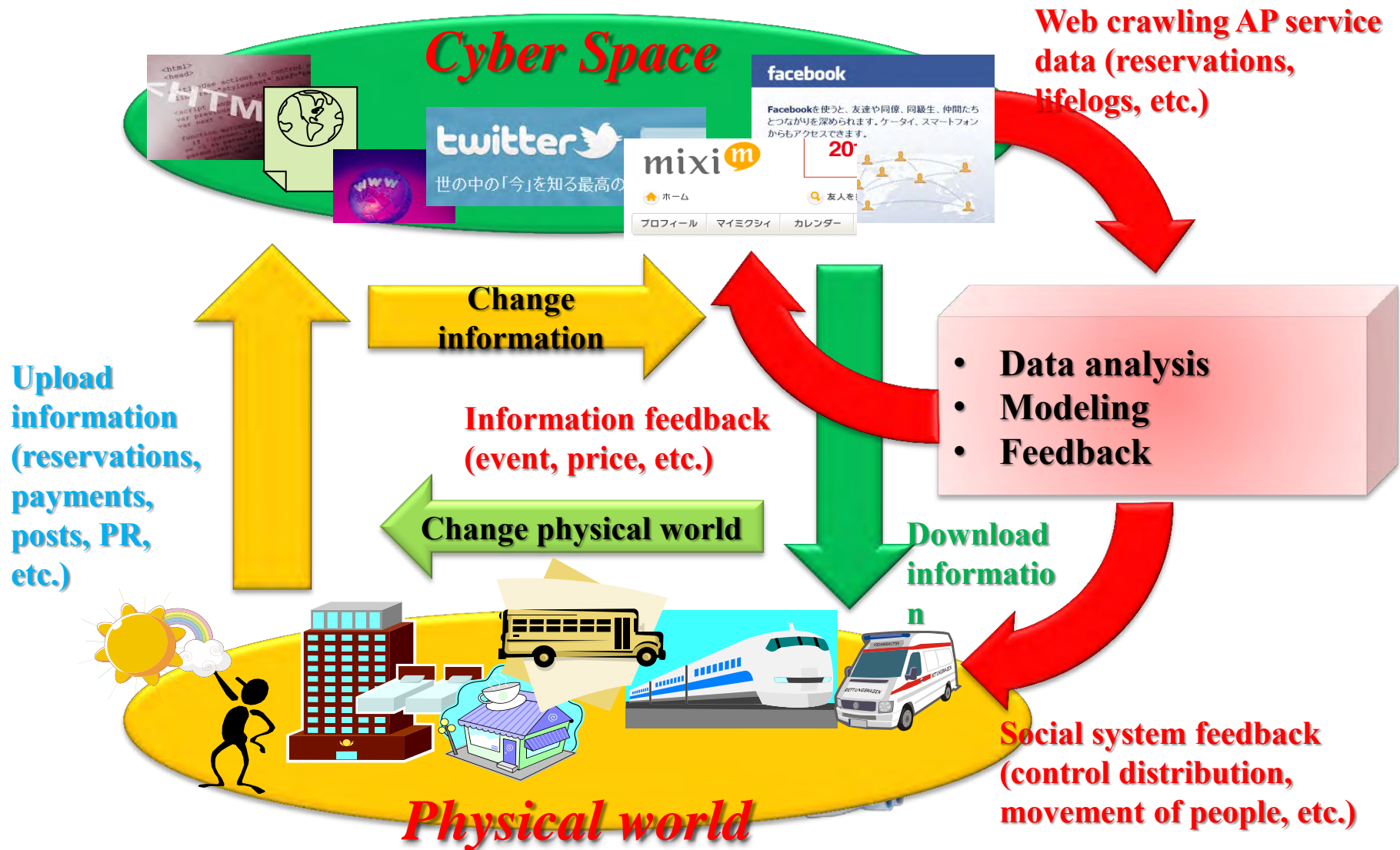
Predictive value of participation rate



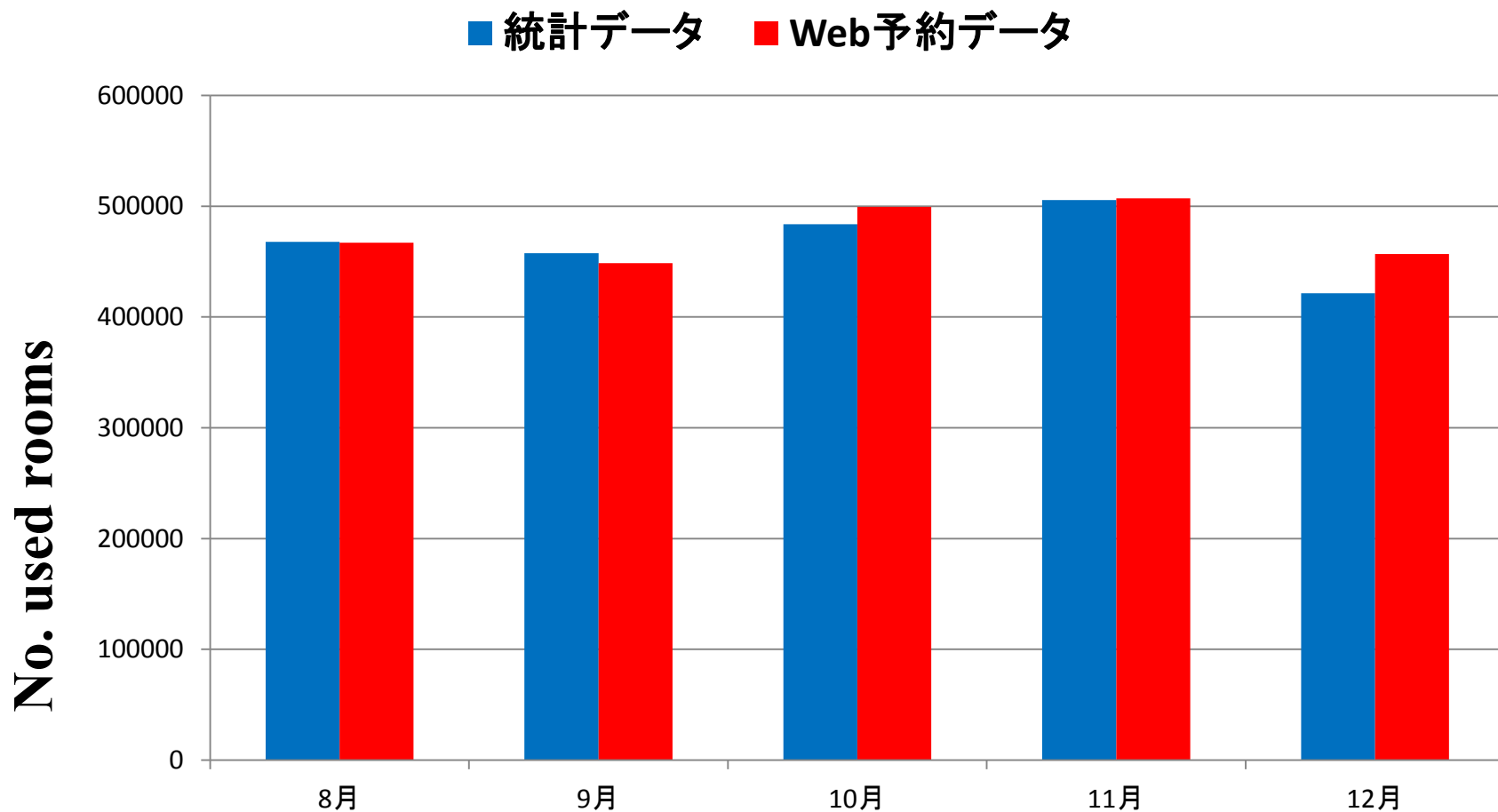
Reward

dependent variable: Participation in the investigation (Yes/No)				
	Model 1		Model 2	
GPS location information	-0.17	*	-0.17	*
Web access log	-0.21	**	-0.20	**
Communications log	-0.37	**	-0.38	**
Reward JPY 5000	0.41	**	0.44	**
Reward JPY 10000	0.62	**	0.64	**
Gender (female)			-0.17	+
Age			-0.02	**
Education			-0.04	
Privacy orientation			-0.07	**
Opinion leadership			0.03	**
General trust			-0.02	
General reciprocity			0.11	**
const.	0.26	**	0.50	
N	3025		2292	
LR chi-squared	86.53		171.04	
Pseudo R-squared	0.02		0.04	
+ p<.10, * p<.05, ** p<.01				

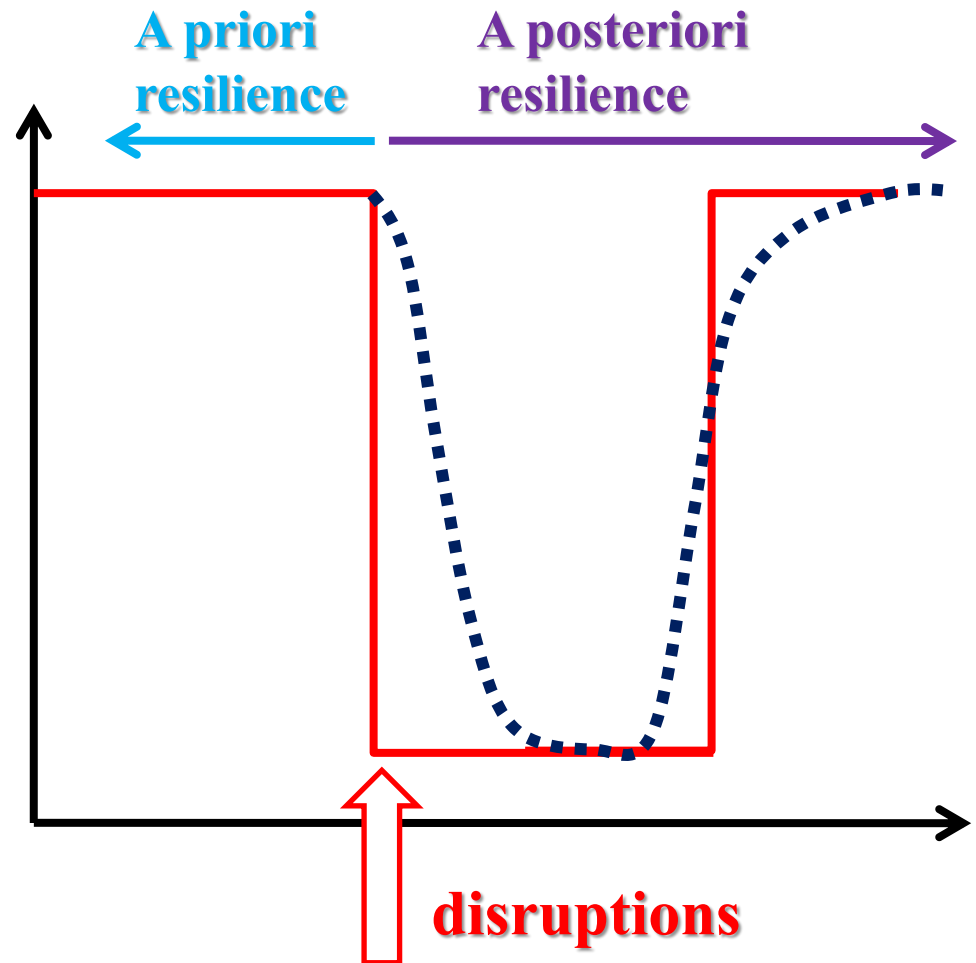
Web data-driven



Comparison of tourism statistics and Web reservation data

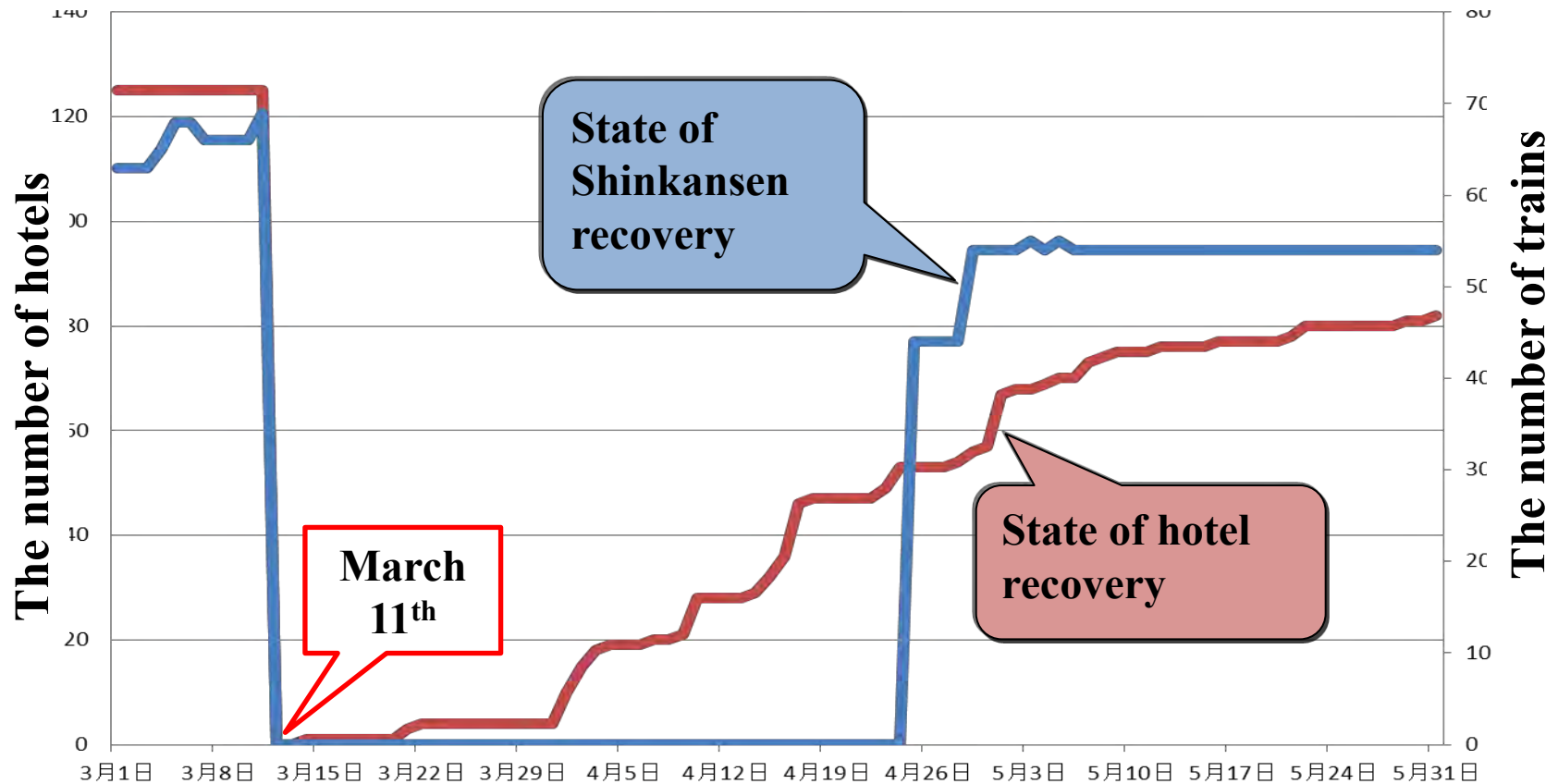


- **Measurement of Resilience**
 - Time, space, value, efficiency
- **System of Systems**
 - Power supply, communication, transportation networks and services
- **Evidence-based Policymaking**
 - Quality, quantity, priority



Resilience Visualization

Real-Time Assessment of Hotel and Shinkansen Recovery in Sendai



Used to assess state of tourism under normal circumstances; used to support real-time data-centric policymaking for efficient distribution of resources and promote recovery in the event of a disaster.

- The special zone for collection of personal information (ID information and life log) and a TPO feedback experiment.(Smart Life Innovation @ Island City)
- A marketing research (Smart Life Innovation)city for TPO Based Information Feedback and creating local consumption chain.
- Sightseeing and disaster reduction Cloud (Fukuoka and Kyoto)
- Usually used as sightseeing Navi which changes to a Cloud Federation for safety check or urgent information distribution at the time of disaster. It provides an exact evacuation directive by grasping a flow of people.

Smart Life Innovation @ Island City
地域情報デザインとスマート・コンテンツ産業

2011年11月22日[火] 13:30-19:30
九州大学大橋キャンパス多次元デザイン実験棟
[福岡市南区南島4-9-1]

わが国の産業の空洞化が叫ばれており、国内産業の育成が喫緊の課題となっている。その解決策の1つとして、地域で生産されるサービス消費型のコンテンツ・サービス産業の育成が重視されてきている。一方、東日本大震災の影響により、日本への観光客数は激減していることから、地域への来訪者・滞在者の増加に向けた魅力的な地域情報デザインが必要となっている。また、最先端のICT活用による消費行動誘発を行う新たな観光インフラの整備が必要となっている。こうしたニーズから、地域で生産され、地域で消費されるコンテンツ・サービスの産業化にむけた地域情報デザイン、及び外国からの旅行者や滞在者にとっても安全で安心な街づくりのモデルについて議論する。

プログラム

- 1 スマートライフを創造するアイランドシティ
福岡市港南局 理事 飯田 光夫
- 2 観光と防災が両立する人間行動マーケティング特区構想
国立情報学研究所 教授 曾根原 登
- 3 地域情報の発信と情報デザイン
福岡情報通信研究会 代表 坂井 滋和
- 4 総務省のスマートクラウド戦略
総務省 情報通信国際戦略 情報政策課政策課長 (NII 客員教授) 渡辺 克也
- 5 観光クラウドと学術スマート・コンテンツ・ラボ設立 (観光クラウド・タイム・ライフログの収集、位置情報付き SNSターゲット可視化)
JOC観光クラウドFWG(ソフトバンクテレコム株式会社) 高橋 正人 吉井 英樹
- 6 論理的思考に基づく感性表現の教育
九州大学大学院芸術工学部 教授 源田 悦夫

主催 九州大学大学院工学研究部
協賛 国立情報学研究所
協賛 株式会社 NTTデータ九州・ソフトバンクテレコム株式会社・SCSK株式会社・株式会社 エヌジェー
お問い合わせ 九州大学 源田研究室 TEL/FAX 092-553-4503 moriy.yasu1453@nkyuue.ac.jp

交通アクセス
九州大学大橋キャンパス多次元デザイン実験棟 (福岡市南区南島4-9-1)
公共交通機関は最寄り駅より、徒歩約15分
① 大橋駅 (JR九州) 徒歩約15分
② 大橋駅 (福岡市営地下鉄) 徒歩約15分
③ 大橋駅 (西鉄) 徒歩約15分
④ 大橋駅 (九州バス) 徒歩約15分
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⑩ 大橋駅 (九州バス) 徒歩約15分



Noboru Sonehara is a Professor of the Information and Society Research Division, at the National Institute of Informatics since 2004. Previously, he was a project manager, Content Commerce Project, at NTT Cyber Solutions Laboratories from 2001 to 2004. He received a BE and ME from Shinshu University, Japan in 1976 and 1978, respectively. He received a PhD in 1994. He has been a Director of the Information and Society Research Division since 2006. His current research topics are ICT Security, Privacy, Trust, Risk, Resilience, and e-Authentication platform.

**Thank you very much for your
kind attention !
sonehara@nii.ac.jp**



National Institute of Informatics, NII