[Data C] Activities and substantiative experiment of the conference for local safety and peace of mind

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Background of the project for creating an ICT utilization model for local safety and peace of mind [I]

- Background of the proposal
  - Progress of IT strategy
    - Ubiquitous policy: Dec. 2004
  - Designing safety and peace of mind towns became a theme of Japan's priority policy.
    - Joint meeting by Cabinet Council for Measures against Crimes and Urban Renaissance Headquarters: June 28, 2005
- Current situation of crime prevention in Osaka
  - Number of crimes committed on the streets of Osaka Prefecture: 9,400/mo.

    Rate of arrest: 6.2% (Data by Osaka Prefectural Police Headquarters, Feb. 2005)
  - Major crimes in the past in the Kansai Area
    - Murder of children at Ikeda Primary School attached to Osaka Kyoiku University (June 8, 2001)
    - Murder of teachers at Chuo Primary School of Neyagawa City (Feb. 14, 2005)
    - Phantom flasher of Toyonaka City (May 29, 2005) and kidnap and murder of a girl in Nara (Nov. 17, 2004)

Background of the project for creating an ICT utilization model for local safety and peace of mind [II]

- Approach by Osaka
  - Ordinance for designing safe towns in Osaka (Apr. 1, 2003): first of its kind by a prefecture in Japan
  - Establishment of a system to promote resident movements throughout Osaka Prefecture: Safe town designing promotion conference of Osaka
  - Start of “Safe town designing promotion conference of Osaka” throughout the prefecture: 66 organizations
  - Achievements by the approach taken throughout the prefecture
    - No longer Japan’s worst in the number of criminal law cases, 15% reduction in purse snatching robberies every year.
- Creation of an advanced platform in Osaka
  - Establishment of Osaka ICT utilization conference that supports designing safety and peace of mind towns (Daiankyo)
    - The first such organization formed in Japan through a collaboration among government, industry, and academia. Planning of five social substantiative experiments underway.

Outline of former “Daiankyo” [I]

- Daiankyo = Abbreviation of Osaka ICT utilization conference to support designing safety and peace of mind towns
- ■**Purposes**
  - To actualize, promote, and support the creation of safety and peace of mind towns using ICT
    - To actualize and promote “Safety Town, Osaka” creating new models of business and security
    - Various kinds of exchange mainly among private companies in an attempt to match plans to technologies mutually
- ■**Purposes (Cont’d)**
  - To actualize, promote, and support (cont’d)
    - To promote the substantiative experiment for a new security model generated in the development of activities
    - To actualize “the creation of safety and peace of mind towns” and contribute to local revitalization by spreading the created models over Osaka Pref. and further nationwide.

Outline of former “Daiankyo” [II]

- **■Establishment and Project period**
  - Three years from Dec. 15, 2004 (Actually, dissolved to advance to the next step after two and half years)

- **■Major projects implemented**
  - Planned, promoted, and supported the substantiative experiment using ICT.
  - Sought appropriate companies through those experiment-related operations, cooperated and coordinated with related organizations, and transmitted information
  - Transmitted information, and boosted exchanges (for example holding a symposium, issuing mail magazines, and opening a website)

- **■Members**
  - General members: 30 Organizations (Security equipment/Electric appliances/Energy/Security /Communications/System vender, etc.)
  - Special members:15 Organizations/individuals (Academic experts/Autonomous bodies/NPOs, etc.)

Outline of new “Daiankyo” [I]

Mother body：KANSAI@CAN Forum (Kansai Can Forum) **（Established：May, 2001）**

■**Member**： **Approx. 30 (considering a corporation and an individual as one)**

■**Organizational Characteristics**：Membership non-profit organization based on volunteer activities

■**Purposes of activities:** To promote citizen-centered town creation using IT and contribute to the revitalization of the Kansai area, in cooperation with citizens, companies, administration, scholars, and researchers

■**Campaign policies:**

・Developing activities for CAN (Community Area Network) in various regions in the Kansai area.

・Promoting additional services, such as consulting, recommendation, and others for growth in IT/CAN services

・Appealing for synergy with CAN Forum that has spread nationwide to quickly respond to local needs

■**Features／Descriptions of activities**：

・They are highly active as an organization based on volunteers, and actively transmitting information for promotion of local informatization.

・Activities of Forum (centering on colloquium)

＊Forums are held with themes in various fields, such as safety and security, ubiquitous, community health, local informatization, intellectual properties, disaster prevention, contents, and others.

Outline of new “Daiankyo” [II]

KANSAI@CAN Forum　(Kansai Can Forum)
Safety and Peace of Mind Conference　(Nickname：Daiankyo)

- Osaka ICT utilization conference to support designing safety and peace of mind towns (nickname: Daiankyo) became **one of the conferences** in **KANSAI@CAN Forum** from FY2007.
- **This is the organization in cooperation with industries, universities, and government for activities to ensure local safety in terms of crime prevention, enhancing the ability of local residents with information communications technology**. We recommend that companies, groups, and individuals that are interested in it take part.

- System：
  - **Director：Kiyoshi Nakano, Professor, Graduate School for Creative City, Osaka City University**
  - **Chief of secretariat：Jun Shibuya, Managing Director, Smart Value Inc.**
  - **Participating companies:　Approx. 12 companies at the beginning**

- Website：http://www.osaka-anzen.jp/

Outline of new “Daiankyo” [III]

Descriptions of activities

■Conference：Held semiannually

○Determining the contents of activities

・Planning specific contents of seminars and symposiums

・Exchanging information on corporate activities in the safety and security field

・Determining the annual schedule, budget for activities, and others

■Diffusion／Educational Campaign

○Holding annual seminar or symposium

・Public Relations

・Coordination of place and schedule

・Planning（including selection of lecturers）

・Preparation for holding seminar and symposium

／Setup of convention hall, preparation of materials for meeting

■Information transmission and exchange activities

○Operation of website

・Updating as needed（for example, at issuing mail magazines)

・Updating “Anrokuzan no ran”

・Registering latest news of participating companies

○Operation of mail magazine

・Bimonthly

■Safety and Peace of Mind Salon

○For registered company participating with five contributions and more

・Special lecture on the latest trends, etc. in the safety and security field by Professor Nakano

・Annual

	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
Conference		○								○		
Seminar/ Symposium				○								
Operation of Website/ Issue of Mail Magazine	Website: Updated as needed Mail Magazine: Bimonthly											
Salon							○					

Outline and challenges of the social substantiative experiment project [I]

Name of project	Body	Major crime prevention action assumed	Major technology used
E01 Information sharing system for local safety and peace of mind	Toyonaka City (expand and fulfill LASDEC Project)	Information provision and alarm	Mail distribution via mobile phone and link to GIS
E02 Street-watching robot -- Chuo Primary School, Chuo-ku	Ritsumeikan University, BKC Liaison Office, Fujitsu Electric Systems, Kansai Electric Power, etc.	Watching, surveillance, alarm, and rescue	Link among IC tag, crime prevention camera, and mobile phone
E03 Use of crime prevention camera network	Local safe environment study group, TV Kishiwada, and Keihanshin Cable Vision	Surveillance	Technology for linking IP camera and CATV and for distribution
E04 Watching children on their way to and from school -- Tezukayama Gakuin Primary School	NAJ, Forking, and Tezukayama Gakuin	Watching, surveillance, and alarm	Technology for linking IC tag, crime prevention camera, and mobile phone
E05 Information sharing system for local safety and peace of mind	Hirakata City (expand and carry out LASDEC Project)	Information provision and alarm	Mail distribution via mobile phone and link to GIS
B01 Secure safety and peace of mind of students in use of an active-type IC tag -- Furuedai Secondary School	Takachiho Koheki, S-CUBE, Matsushita Electric Industrial, and NTT Com	Watching, surveillance, alarm, and rescue	Active-type IC tag technology
B02 Designing of a safety and peace of mind town in use of N-code -- Sakai City	NC Project and NEC Software Chubu	Watching, surveillance, and alarm	Mobile phone with GPS and link to GIS

B Project for substantiative experiments with regard to the safety of a society and crime prevention

Outline and challenges of the social substantiative experiment project [II]

Name of project	Major function
E01 Information sharing system for local safety and peace of mind	• Emergency information mail distribution to registered users • Safety and peace of mind bulletin board/map (information sharing by each group) • Link with the police and fire station
E02 Street-watching robot	• A street-watching robot (a vending machine with a crime prevention function) receives an alarm from a crime prevention buzzer with an IC tag, and carries out video image recording, transmission to the center, and turns on an alarm through collaboration with a nearby vending machine.
E03 Use of crime prevention camera network	• Image of IP crime prevention cameras installed at primary schools, shopping streets, and collective housings will be distributed to administrative bodies and others via CATV.
E04 Watching children on their way to and from school	• Distribution of mail through link between an IC tag and vending machine when children travel to and from school • Video image recording • Acquisition of location data
E05 Information sharing system for local safety and peace of mind (revised E01)	• Mail distribution of emergency information to registered users • Safety and peace of mind bulletin board/map (information sharing by each group) • Link with the police and fire station (revised E01)
B01 Secure safety and peace of mind of students in use of an active-type IC tag	• Clarify location of teachers and students at school with an active IC tag • Track suspicious intruder(s) into schools with a camera • Send alarm with an emergency alarm button
B02 Designing of a safety and peace of mind town in the use of N-code	• Acquisition of location data with paper maps and web maps as well as a mobile phone with GPS to which N-code is applied • Activation of local information exchange with N-code

B Project for substantiative experiments with regard to the safety of society and crime prevention

Information sharing system for local safety and peace of mind [I]

- Outline
  - Implementation area: Toyonaka City
  - The “information sharing system for local safety and peace of mind” helps local residents share local information about safety and peace of mind making good use of the Internet and a mobile phone for complete crime/disaster prevention measures that utilize the power of the residents. This is based on the circumstances where the urgent challenges faced by the Ministry of Internal Affairs and Communications (see note) and the Local Authorities Systems Development Center is to establish the safety and peace of mind in a living space nearby.
- History
  - Based on “Local Safety and Peace of Mind Action” announced in the National Government’s economic and financial advisory meeting on May 11, 2004 by Taro Aso, Minister of Internal Affairs and Communications. Substantiative experiments will be carried out in 20 municipalities nationwide. (Limit of subsidy is 5 million yen.)

Information sharing system for local safety and peace of mind [II]

- Major functions
  - (1) Function to distribute information for securing safety and peace of mind = Distribute emergency information mails to registered users
  - (2) Electronic bulletin board function for safety and peace of mind = Accumulated information will be shown on a bulletin board. Access from this information to maps for safety and peace of mind and vice versa are possible as they are linked.
  - (3) Function of map for safety and peace of mind = Users can search or refer to information required on the map that shows various kinds of information, such as information on crime/disaster prevention.
  - (4) Information control function = Each group can add or refer to information on a map for safety and peace of mind.
- Major function (cont'd)
  - (5) Authentication function = Individual authentication is carried out by accessing a PC using the public individual authentication service.
  - (6) Link function with the police and fire station = Registration of information from public organizations such as the police and fire station is possible by file conversion.
- Schedule in the years ahead
  - Substantiative experiment at Harada Primary School Block, Toyonaka City will be followed by system operation.
  - Start of substantiative experiments on Jan. 17, 2005
  - Consolidation of operating status on Feb. 15, 2005
  - Submission of report to the Ministry of Internal Affairs and Communications on Feb. 18, 2005

Use of crime prevention camera network [I]

- Outline
  - Install an IP crime prevention camera at the following locations to distribute information via the local information infrastructure (CATV lines) to local administration and residents:
    1. School
    2. Shopping street
    3. Collective housing

- Outline (cont'd)
  - Substantiate effects of measures for privacy with a security system that can monitor only specific individuals in addition to monitoring at N point(s)

- Idea about team composition
  - Local safe environment study group and cable TV companies (TV Kishiwada and Keihanshin Cable Vision)

Use of crime prevention camera network [II]

- Details of implementation and schedule
  1. Primary schools
  2. Shopping streets
  3. Collective housing
  - The cameras will be connected to the administrative bodies such as the police and city hall via a CATV station.
  - They will be open to specific residents, if required, to restrict crime using the crime prevention cameras.

- Details of implementation and schedule (cont'd)
  - Areas where substantiative experiments are carried out: Osaka City Area, Ikeda City Area, and Kishiwada City Area
  - Timing and duration of substantiative experiment (schedule) -- Substantiative experiment of a crime prevention camera in model areas in 2005 (for about three months)

Substantiative experiment for watching children on their way to and from school [I]

- Outline
  - NAJ Corp. has experience introducing a service to distribute information about students traveling to and from juku (supplementary schools). Information about children traveling to and from school will be distributed to guardians making good use of this system. Whether they are present or absent will be checked at school with a control screen in real-time.
  - This system provides a service to send information about children traveling to and from school. With a distributed card formed IC tag put over a tag reader when students go in and out of juku or school, the information will be sent to the registered mail addresses (up to three) of guardians within seconds.
- Outline (cont'd)
  - There is also a function to simultaneously distribute emergency information about suspicious individual(s) or a typhoon and various notice mails. Thus the system will be used as a communication tool between an educational institution such as juku and the school and guardians.

Substantiative experiment for watching children on their way to and from school [II]

- Vending machines with a surveillance camera installed will also be situated to try to watch children on their way to and from school. The objective is to make the routes between school and a nearby station safe.
- Placement of vending machines with a surveillance camera installed along the route to a school and around the school is expected to prevent street crimes such as purse snatchings and those targeting children.
- Outline of implementation
  - Area where the substantiative experiment is being carried out: Tezukayama Gakuin Primary School
  - Duration of substantiative experiment: June 2005 to May 2006 (schedule)
- Composition of team
  - NAJ Corp., Fujitsu Kansai Systems, and vending machine operators

Street-watching robot [I]

- Outline
  - “Idea about e-city building: Fuji Electric Systems” and “Ubiquitous Koban (police station): Ritsumeikan,” priority projects in Kansai Next Generation Robot Promotion Conference, were combined into “Idea about u-city building (ubiquitous koban).” Surveillance is carried out for crime prevention with street-watching robots (vending machines with a crime prevention function) and an advanced sensing network. Senior citizens away from home and children on their way to and from school will also be watched to make Osaka a safe and peaceful town by reducing the number of purse snatchings.
  - A substantiative experiment will be carried out for a robot in food use of vending machine earlier than any other part of Japan to establish a crime prevention model in Osaka.
- Outline (cont’d)
  - The budget for development was secured making good use of the National Government’s public recruitment project for proposals. The prefecture will be responsible for part of the cost of making and installing devices for the experiment.
  - Policies will be integrated into the “Pilot district for preventing snatching robbery” and “Model district for protecting children from crimes” for greater crime prevention effect.
- Idea about team composition (core members)
  - University: Ritsumeikan University and BKC Liaison Office
  - Enterprise: Fuji Electric Systems Co., Ltd., Kansai Electric Power Co., Ltd., etc.
  - Local government: Planning Office, Osaka Pref.

Street-watching robot [II]

- Details of implementation and schedule
  - (1) An alarm will be sent to a crime prevention center in case of an emergency, images of the surrounding areas will be distributed, and the situation will be notified to the neighborhood by a crime prevention buzzer with an IC tip installed held by senior citizens away from home and children on their way to and from school as well as by street-watching robots (vending machines with a crime prevention function) placed along the streets or in parks.
  - (2) When an emergency alarm is sent or a crime prevention buzzer is pressed, a nearby “street-watching robot” will be turned on to record the spot and respond to changes (abnormalities) in the movements of human beings and the environment.
- Details of implementation and schedule (cont’d)
  - (3) Video image and vocal information acquired by a “street-watching robot” will be transmitted to a control center and then to the police, helping to specify the phenomenon (crime), as well as guiding the individual(s) who need protection to a safe place.
- Area where the substantiative experiment is being carried out: Chuo Primary School, Chuo-ku, Osaka City (A study group was started with Osaka City in Mar. 2005.)
- Schedule
  - Accompanying the National Government’s public recruitment project (proposed in Apr. and announced in July), a substantiative experiment was carried out in 2005.

Project for creating a system to secure the safety and peace of mind of children and students making good use of RFID [I]

- Background
  - Although the number of crimes in Osaka is declining, the situation still must be watched as the number of revealed purse snatchings was the worst in the past 29 consecutive years. In addition, securing children's safety is a challenge as children were murdered at a primary school in Neyagawa City.
  - There are now expectations for the effectiveness of ICT in crime prevention. However, various measures are being tried separately by local communities, local governments, and schools, and they are not as effective as an approach taken by local communities in a unified way would be.
- Background (cont'd)
  - The "Osaka ICT utilization conference that supports the designing of safety and peace of mind towns" (Daiankyo in short) created a new crime prevention model making good use of ICT under the leadership of private enterprises to "design a safety and peace of mind town" in Osaka Prefecture.
  - As one of the major projects of this year, the "Project for creating a system to secure the safety and peace of mind of children and students making good use of IT (IC tags") will be implemented, leading to the creation of a new crime prevention model.
- Area involved
  - Furuedai Secondary School, Suita City, Osaka Pref.
- Period of implementation
  - The 1st phase was from Jan. to Mar., 2006, and the 2nd phase was from July to Nov., 2006

Project for creating a system to secure the safety and peace of mind of children and students making good use of RFID [II]

- Outline of project
  - A system will be created under which a card-type IC tag will be distributed to children and students, and mails about their situation will be sent to teachers, staff, and guardians when they are on their way to and from school. Research will be carried out and models will be made for a collaborative system among teachers, staff, guardians, autonomous associations, the police, etc. in case of an emergency so that the system can display its maximum effects.
- Details of system
  - (1) Development of an active IC tag that will automatically send location
  - (2) A crime prevention buzzer will be installed in an IC tag.
  - (3) Creation of a system under which data will be accessed by a monitor in a teachers' room and data and risk will be managed at an information control center
- Appealing points such as leadership
  - Practical, as battery life is long (over one year) and the detection distance is between 10 and 12 meters
  - With a crime prevention buzzer pressed, an alarm will sound to notify the teachers' room and information control center.
  - Teachers and staff monitor in the conventional way, causing them significant problems. Under this system, an information control center will monitor, and tell and notify the police, school, and guardians in case of an abnormality.
  - A combination of systems will be possible with other devices for taking video images, etc.

Necessity of the social safety system [I]

<table>
<tr><th></th><th colspan="3">Public Space ⇔ Private Space</th></tr>
<tr><th></th><th>School, workplace, etc.</th><th>Public road, street, station, etc.</th><th>Home, etc.</th></tr>
<tr><td>(1) Watch (the weak) -- find location, confirm location, etc.</td><td rowspan="2">• Entry/exit control by individual authentication
• Access control by individual authentication
• Confirmation of location
• Remote monitoring
• Surveillance</td><td>• Confirmation of location of the vulnerable such as children and senior citizens
• Traceability control of individuals (ubiquitous authentication)</td><td>• Remote system from outside such as confirmation of location and remote monitoring
• Home network system</td></tr>
<tr><td>(2) Surveillance (of suspicious individuals) -- detection of intrusion and recording of the site</td><td>• Surveillance of public space with a camera
• Prevention and safety through analysis of accumulated records (ubiquitous authentication)</td><td rowspan="3">• Crime prevention system by security company
• Self-defending crime prevention measure
• Home network = Various kinds of remote surveillance for safety and peace of mind, and an alarm and countermeasure system in a wider area can be taken into consideration with the help of a ubiquitous sensor as well as information communications and processing technologies.</td></tr>
<tr><td>(3) Alarm (in case of danger) -- notification and call</td><td rowspan="2">• Crime prevention system by security company
• Self-defending crime prevention measure = Various remote surveillance for safety and peace of mind, alarm and countermeasure system in a wider area can be taken into consideration with the help of a ubiquitous sensor, information communications, and processing technologies.</td><td>• In-house announcement and information distribution about danger to mobile phones (insufficient on the street)
• Support to area guiding (IC tag, etc.)</td></tr>
<tr><td>(4) Rescue/support to measures (in case of a crime) -- support to rush to the site and to arrest criminal</td><td>• Emergency alarm system
• Specification of location by ubiquitous authentication (including video image authentication by TV camera)
• Support to emergency rescue with IC tag</td></tr>
</table>

Crime prevention is not the only field to which a social safety system belongs. Various other areas are also to be covered. There are systems provided throughout society, but they are only for individuals. There are also systems for the overall society. Only a local social safety system in a crime prevention field is mentioned here.

Necessity of a social safety system [II]

	Public Space	⇔	Private Space
	School, workplace, etc.	**Public road, street, station, etc.**	**Home, etc.**
(5) Provision of preventive information -- hazard map, knowledge sharing, etc.		• GIS (hazard map system) • Information to support autonomous mobility	

- Promote introduction of entry/exit control by individual authentication and crime prevention system in a public but closed space such as at schools and in the workplace.
- In addition to a crime prevention system, a remote system accessible from the outside for confirmation of location will be required in private spaces such as homes.
- Local safety systems in a space where many and various people gather such as public roads, streets, and stations have not been developed. Even though measures have been taken, they are separate from the others and no all-inclusive system has been built.
- The creation of a ubiquitous system is also desired for seamless connection between the home and schools/workplaces.

Parents' Expectation for Systems to Secure Children's Safety

- While the situation varies depending on whether it watches adults or children, a system to trace humans physically is greatly expected.

Option	No. of answers	Percentage (%)
Want to use	390	77.4
Do not want to use	49	9.7
Others	58	11.5
No reply	7	1.4
Total	504	100.0

Table 1: Parents' inclination to use active tags in Tezukazan Elementary School

Option	No. of answers	Percentage (%)
Want to use	366	72.6
Do not want to use	84	16.7
Others	43	8.5
No reply	11	2.2
Total	504	100.0

Table 2: Parents' inclination to use the R/W installed on a vending machine on the way to and from school in Tezukazan Elementary School

Option	No. of answers	Percentage (%)
Yes	90	60.0
No	6	4.0
No opinion	45	30.0
Blank	9	6.0
Total	150	100.0

Table 3: Parents' inclination to use IC tags continuously in Furuedai Junior High School

Adoption of Elemental Technology

No.	Elemental Technology	No. of adopting systems (Note)
(1)	Web (including access with mobile phones), remote access	14
(2)	E-mail (including e-mail of mobile phones), etc.	23
(3)	Various functions of mobile phones	6
(4)	Crime prevention camera, watching robot	12
(5)	Mobile phones with GPS, or mobile terminals with GPS	4
(6)	Geographic information system	9
(7)	Short-range radio transmission such as wireless LAN	4
(8)	IC tags, IC cards, or radio wave badges	9
(9)	Detection of invasion with sensors and IC cards	2

- 36 systems to secure children's safety were analyzed in Kansai. One system often adopts multiple elemental technologies.
- Basically, only elemental technologies serving as the core of the system are taken into account. For example, although almost all actual cases may include exchanging e-mail, it is not counted.

Adoption of elemental technologies in typical systems to ensure the safety of children in Kansai (1)

No.	Elemental Technology	1	2	3	4	5	6	7	8	9
(9)	Detection of invasion with sensors and IC cards									
(8)	IC tags, IC cards, or radio wave badges									
(7)	Short-range radio transmission such as wireless LAN									
(6)	Geographic information system									
(5)	Mobile phones with GPS, or mobile terminals with GPS									
(4)	Crime prevention camera, watching robot									
(3)	Various functions of mobile phones									
(2)	E-mail (including e-mail of mobile phones), etc.									
(1)	Web (including access with mobile phones), remote access									
Reference symbol	Name of substantiative experiment									
A	Mimamo-mail (Watching children on the way to and from school)		○		○				○	
B	Project to build a system to ensure the safety and security of students using IC tags	○	○		○		○		○	
C	Social substantiative experiment of ubiquitous street-watching robot		○		○			○	○	
D	Substantiative experiment of “Creation of safety and security town using N code”	○	○			○	○			

- Three systems including A, B, and C use crime prevention cameras and IC tags. Meanwhile, D does not use them, but uses mobile phones with GPS.

Adoption of elemental technologies in typical systems to ensure the safety of children in Kansai (2)

Differences in substantiative experiments of three types of systems using IC tags and crime prevention cameras

Reference symbol	Name of substantiative experiment (Name of school)	With or without battery (Without: passive, With: active)	Action at school gate and entrance	On the premise of a school	Cameras on the way to and from school	Buzzer function of IC tag
A	Mimamo-mail= Watching children on the way to and from school (Tezukazan Elementary School)	Passive (Active from spring in '07)	Holding IC tags over R/W	None	Watching with cameras (regardless of IC tags)	None
B	Project to build the system to ensure safety and security of students using IC tags (Furuedai Jr. high school in Suita city))	Active	Detecting when going through, also with camera	Detecting existence or nonexistence with tens of antennas on a premise	Watching with cameras (regardless of IC tags)	If you push the buzzer, signals are detected with equipment on a premise and on the way to and from school.
C	Social substantiative experiment of ubiquitous street-watching robot (Chuo Elementary School in Osaka City)	Active	Detecting when going through	Detecting radio wave coming to vending machines on the way from and to school	Shooting a picture of children going through with IC tags.	Sending moving images to related parties via e-mail, if you push the buzzer, signals are detected with vending machines on the way from and to school.

Adoption of elemental technologies in typical systems to ensure the safety of children in Kansai (3)

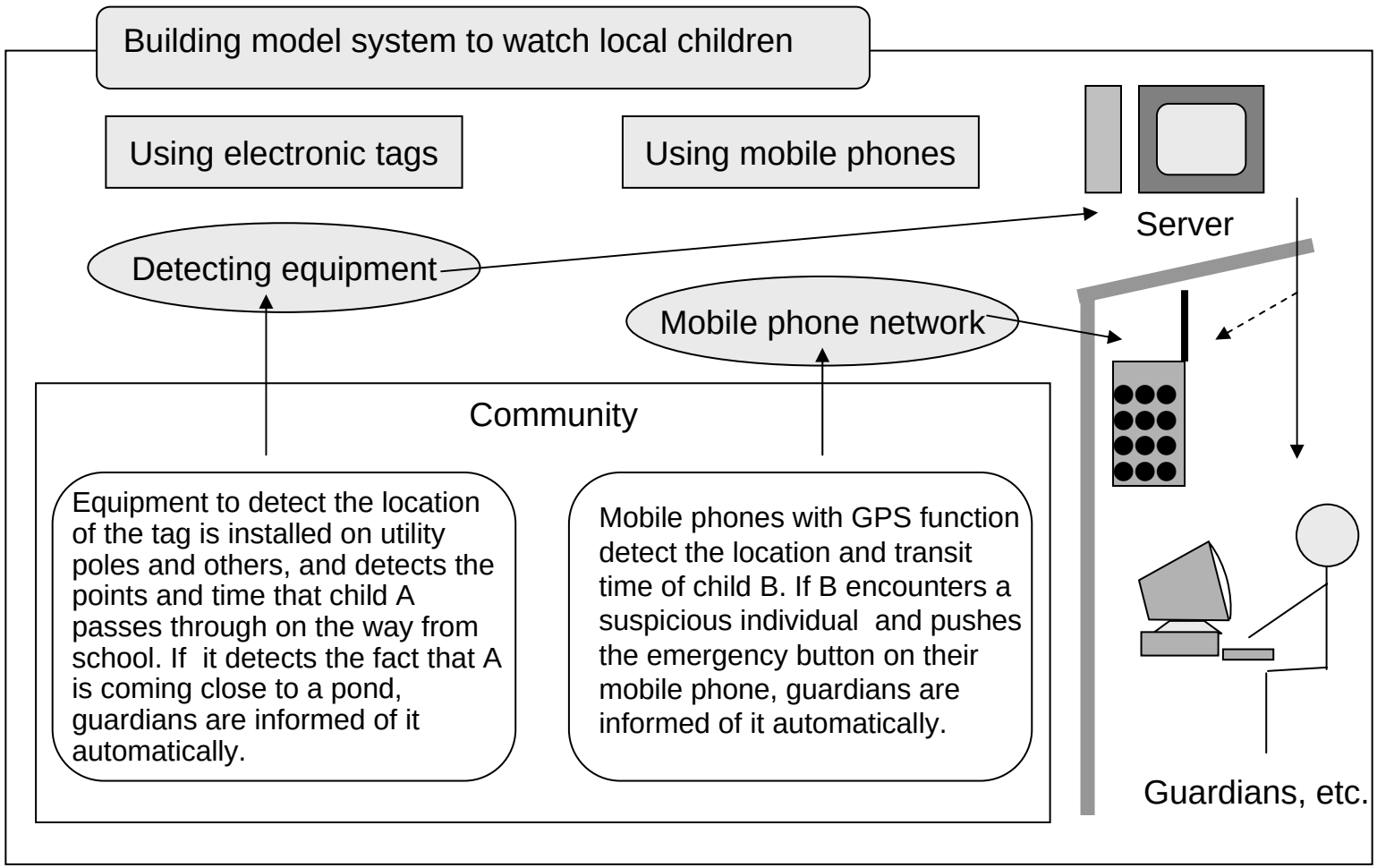
- Systems with IC tag & crime prevention camera VS Type of Mobile phone with GPS
  - System with IC tag & crime prevention camera ＝ Cost varies depending on setup and specifications.
    - With or without battery ＝The distance that a radio wave reaches is different.
    - Frequency band ＝The state of attenuation due to the distance that the radio wave reaches and walls, and the one due to moisture vary.
    - The change in the distance that the radio wave reaches influences which system to select, the system that detects by holding up an IC tag over the reader/writer built in the gate, or the one that detects just by walking through the gate.
- Two types (Cont'd)
  - IC tag & crime prevention camera (Cont'd)
    - Depending on the above-mentioned differences in specifications, prices of the tags and reader/writers vary significantly.
    - Costs are significantly different, depending on the specifications (for example, detecting children on a premise with multiple antennas.)
    - In the system that detects when one walks through the gate, costs vary depending on whether it judges automatically whether children are arriving at or leaving the school.

Adoption of elemental technologies in typical systems to ensure the safety of children in Kansai (4)

- Systems with IC tag & crime prevention camera VS Type of Mobile phone with GPS (Cont'd)
  - Type of Mobile phone with GPS
    - Of course, costs may significantly vary, depending on personnel system such as a support center. However, the costs of a mobile phone with GPS do not vary that much.
  - Comparative merits and demerits of the two types of systems in terms of cost
    - Since the change in costs of systems with an IC tag & crime prevention camera is significant, the relative merits cannot be determined.

- Two types (Cont'd)
  - Reasons why substantiative experiments for systems with an IC tag & crime prevention cameras are more frequently conducted
    - Since costs can be reduced with specifications setting, it is desired to try various specification settings in the field.
    - Prices of IC tags can be lower, with mass production, standardization, and expanding use for other purposes. If traffic IC cards further spread, there will be the option to use them.
    - It is desired to confirm the changes in the condition of the radio wave's reach depending on buildings, planting, and the state of the streets.
    - It is controversial whether schools (especially, public schools) should allow children to carry mobile phones.

Classification of model system to watch local children by supplementary budget of the Ministry of Internal Affairs and Communications in FY2006.



Model system to watch local children in materials of Ministry of Internal Affairs and Communications

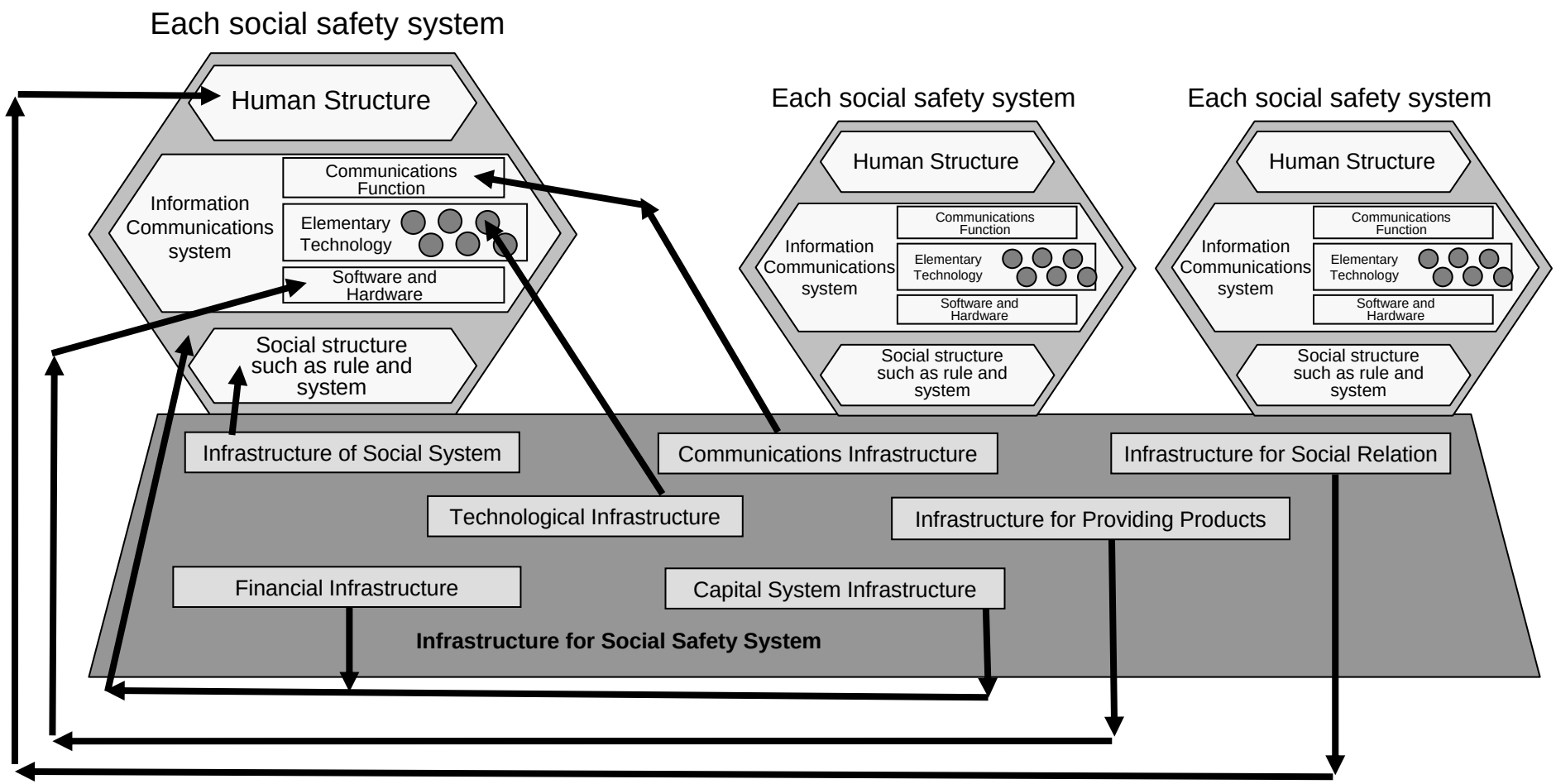
Comparison between IC tag-type and GPS mobile phone-type

	IC tag-type		GPS mobile phone-type	
Item of functional specifications (Yes or No)	Item of related specifications (attribution)	Impact on costs	Item of related specifications (attribution)	Impact on costs
Detect just by walking through the school gate, or need to hold a card over R/W?	Active/Passive, Frequency band	Substantial	Always detect location with standard specifications*1	None
Just detect by walking through the school gate, or also detect existence or nonexistence on the premises?	Active/Passive, Frequency band, No. of antennas	Substantial	Always detect location with standard specifications	None
Detect transit of points on the way to and from school?	Active/Passive, Frequency band, No. of gates	Substantial	Always detect location with standard specifications	None
Record image of situation?	With or without camera	Substantial	With or without camera	Substantial
Provided with emergency report button?	With or without button, Active/Passive, Frequency band, No. of antennas	Substantial	With or without button and software	Slight

*1：The method using a mobile phone provided with a FeliCa chip is theoretically feasible.

Infrastructure for social safety system [I]

- A social safety system exists on the infrastructure that makes it work.
- It is built by providing each system from the infrastructure. Integration of functional elements that build each social safety system forms an infrastructure for each field.



Infrastructure for social safety system [II]

Type of Infrastructure	Significance
Human Infrastructure	Are there enough human resources to realize various goals in the society such as the establishment of a safety and peace of mind society?
Infrastructure for Social Relation	Is there consolidation of a community or of multiple communities?
Infrastructure of Media for Public Relations and Public Hearing	Is there a system under which residents plan a new structure and participants are recruited, or a system to transmit complaints once started? Anyway is acceptable, including the municipality's newsletter, local newspaper, a program produced by a CATV station on its own, community FM, or a joint meeting for campaign speeches. Will such an overall "environment" be developed?
Technological Element Infrastructure	Do the required technological components exist to realize the various goals of the society, such as the establishment of a safety and peace of mind society?
Communications Infrastructure	Is there a communications service provided at a reasonable price according to the situation of each area (including that provided under the leadership of the administration or NPO in the mountains where a private business finds it difficult to provide service)?
Infrastructure of Social System	Have laws and ordinances been developed?
Financial Infrastructure	Is the administrative budget or funds collected by an NPO or town organization sufficient?
Capital System Infrastructure	Has a system been developed for transaction, collection, donation, withdrawal, and payment of money, so that citizens or bodies can collect the amount paid by beneficiaries easily and inexpensively? It is not a question of whether a particular system is inevitable. It is a question of whether or not a system for collecting money has been established corresponding to the features of the area.
Infrastructure for Use of Equipments	Has a procedure to use roads or electric poles been developed and is approval quickly acquired?
Infrastructure for Providing Products	Is it is possible to purchase, for a reasonable price and within a reasonable period, various communications devices, such as a mobile phone, wireless LAN device, GPS terminal, RFID and its reader/writer, antenna, crime prevention camera, image recording device, software for simultaneously sending e-mails, GIS software, map data, software for recognizing images, and other software?