

Case Report

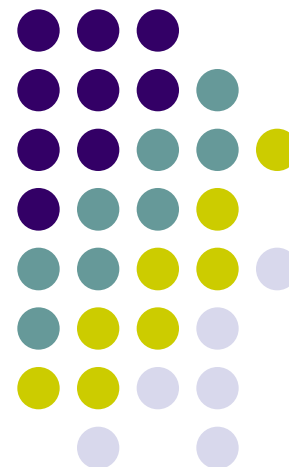
Senior PC Volunteers introducing MICT

Noriko Kondo
(MIC member of Super-aging society design council)

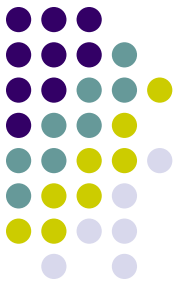
March 6, 2013

Meiji University, Tokyo, Japan

ISMICT 2013
7th International Symposium on
Medical Information and Communication Technology (ISMICT)



Senior PC Volunteer since 1995

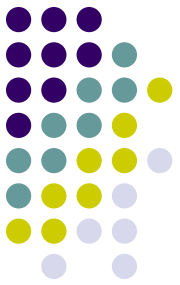


Routeku Project has been fostered Senior PC Volunteers to support the older adults , elderly people with disabilities and caregivers at home

Routeku means Technology to help Elderly.(Ms.Oshima,president of Routeku Project , named 1992)
The Photo shows Ms.Oshima and her sick mother Kiyo watching Internet Hinamaturi on TV Phone by RakurakuPhone(docomo)
She enjoys beautiful dolls from Kyoto
And conversation with friends there.



Senior Citizen and ICT



Senior(age over 65) receive many benefit from ICT.

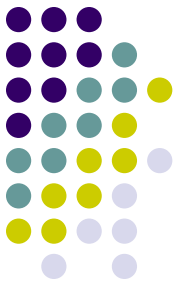
But They do not know ICT?

Not easy to get ICT?

Not easy to learn ICT?

It is rapidly changing now.

Japan - Super Aged Society



Report on Super-Aging Society and ICT
& Perspectives in the E-health Policies

Mr. Yasuo Sakamoto

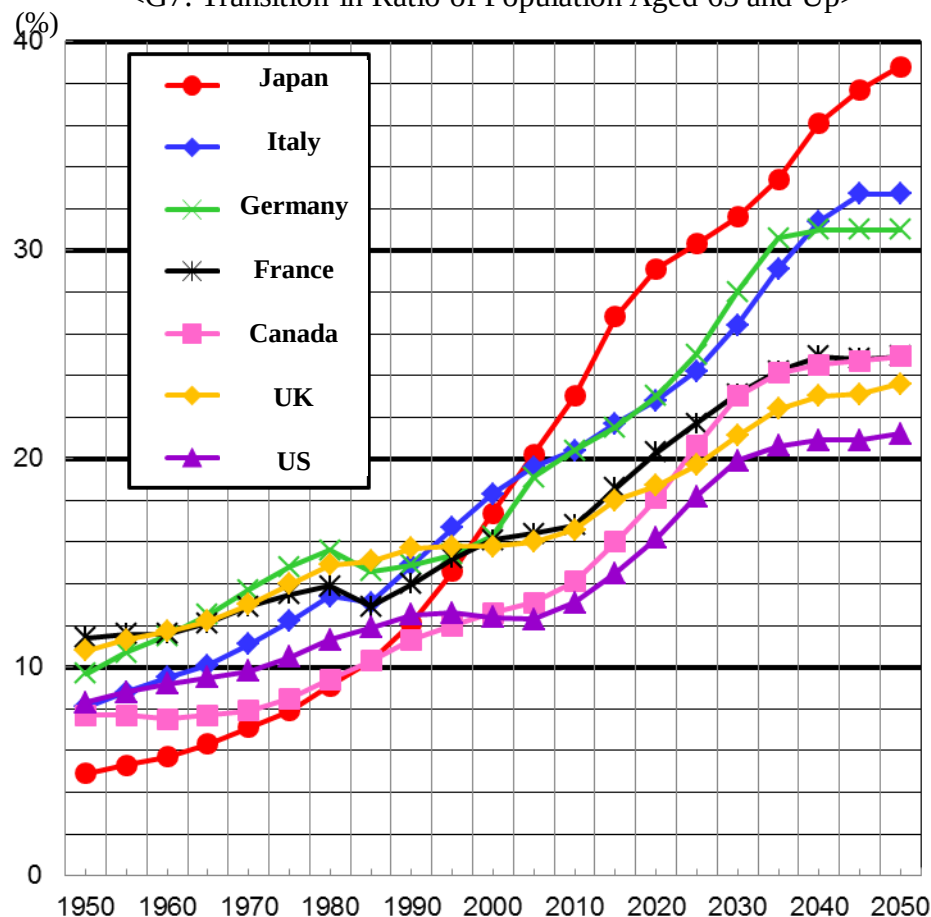
Ministry of Internal Affairs and
Communications(MIC)

Data and Information from

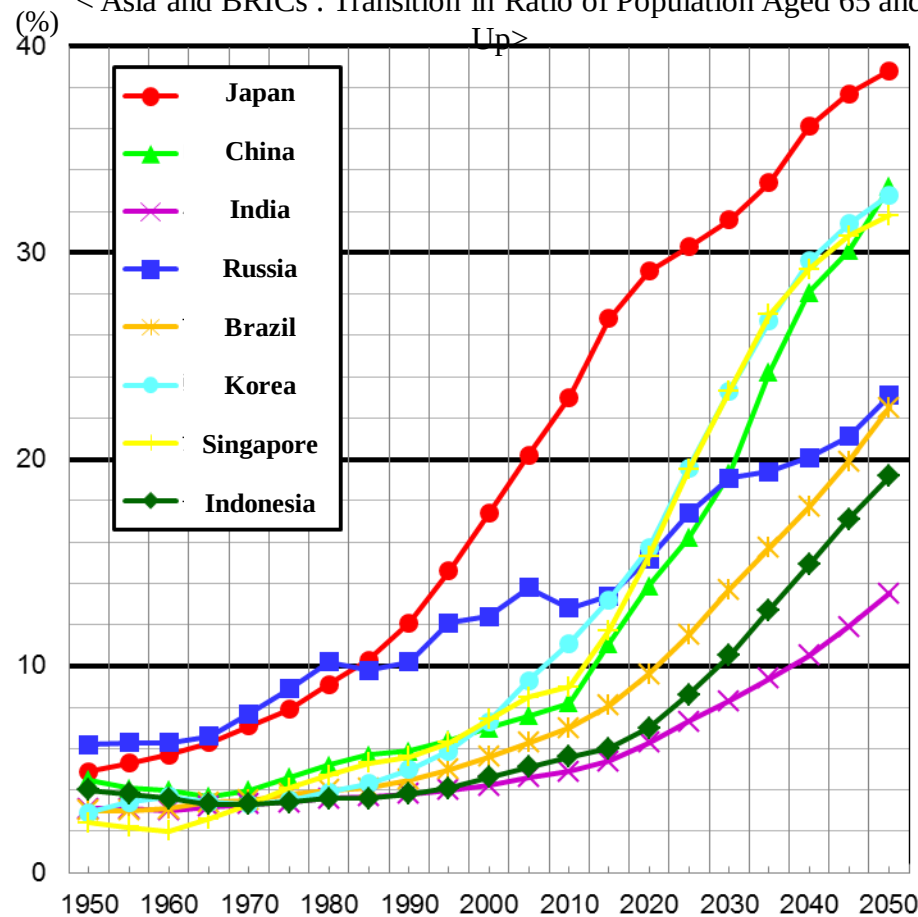
MIC Super-aging society design council

- Japan's population aging rate is at the highest level among advanced countries, and is expected to reach 40% by 2050. This phenomenon is also expected to arise in the BRICs nations, which are currently experiencing advanced economic growth. In the latter, said rate is projected to grow rapidly from here onwards to reach approximately 30% by 2050.

<G7: Transition in Ratio of Population Aged 65 and Up>



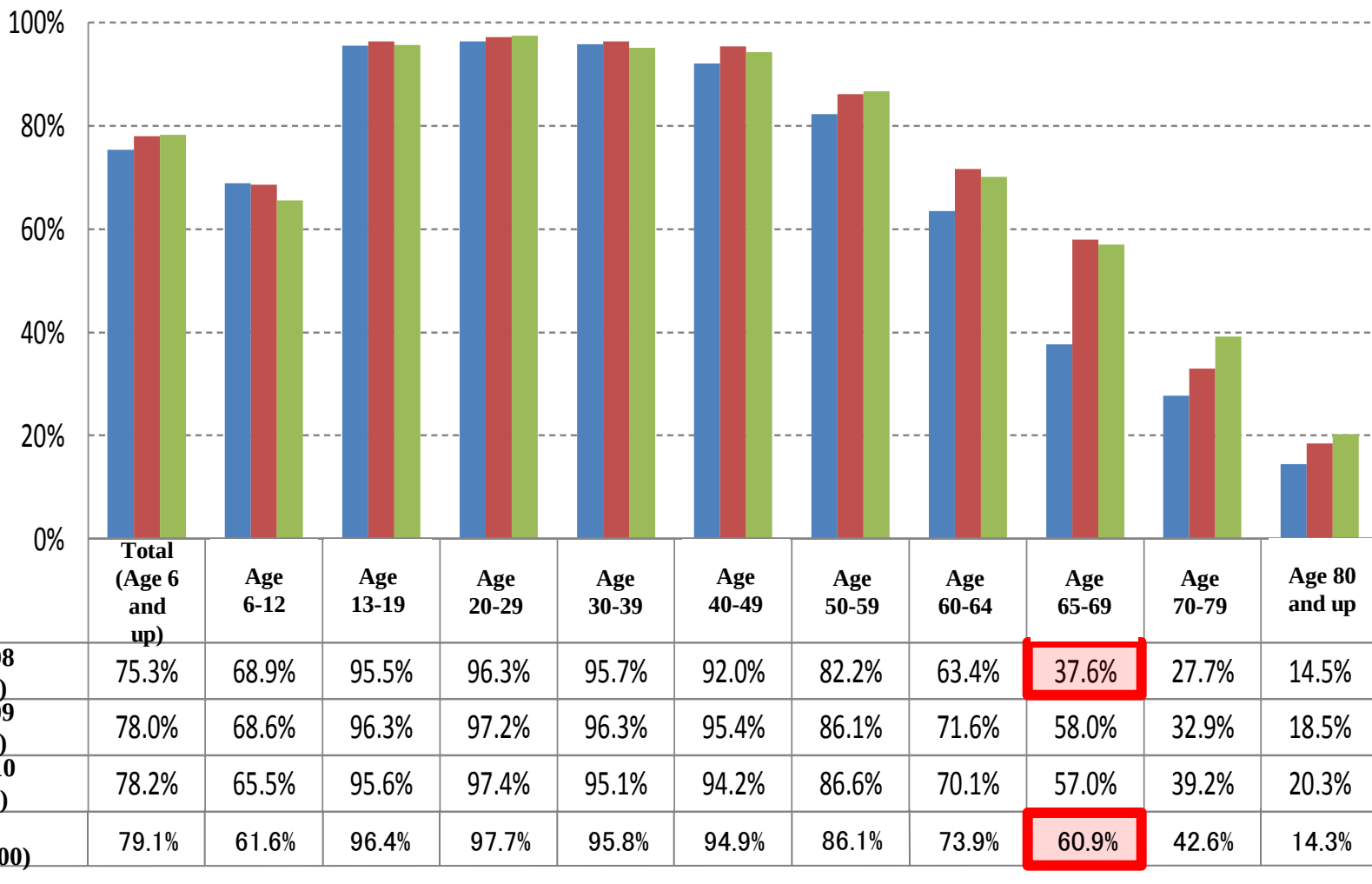
< Asia and BRICs : Transition in Ratio of Population Aged 65 and Up>



Status of Internet Usage According to Age Group

6

- The rate of Internet usage is 79.1% (96.1 million people). Looking at the rate of Internet usage by age group, the rate of usage for individuals aged 65 and up has a tendency to be up.



	Representative Style Up Until Now	Style Foreseen for the Future
Perception according to surrounding people	Uninformed individuals	Social mainstreamers
Experience in ICT use	Practically none	Common ICT use
Purpose behind ICT use	Desire to use PCs or the Internet	Everyday use of ICT as a tool
Core element of utilization	“Senior Net” websites, IT workshops, digital photography, BBS	SNS, blogs, NPOs, SOHO
Relations serving as basis	Fellow senior citizens teaching each other	Cross-generational exchange in which knowledge and experience are leveraged
Key words pertaining to utilization	Purpose in life	Determining one’s own “way of life”
	PCs as a hobby	Taking advantage of ICT with a purpose in mind
	Forming friends/acquaintances and engaging in social exchange	Region-building and role formation
	Spreading of interests	Enrichment of wide range of activities



Coping with a Super-Aged Society

8

Working and Income

- Telework
- Job matching (new employment system)
- Support of diverse working styles
- Work-life balance etc.

Health Care and Welfare

- Regional health care partnerships
- Telemedicine
- Monitoring services
- Health assistance
- Nursing care robots etc.

Living Environment

- Ubiquitous residences; home information appliances
- Smart cities
- ITS
- Demand Responsive Transport (DRT)
- Online shopping
- Barrier-free; universal design
- Electronic national and local government
- Safety and security in times of disaster etc.

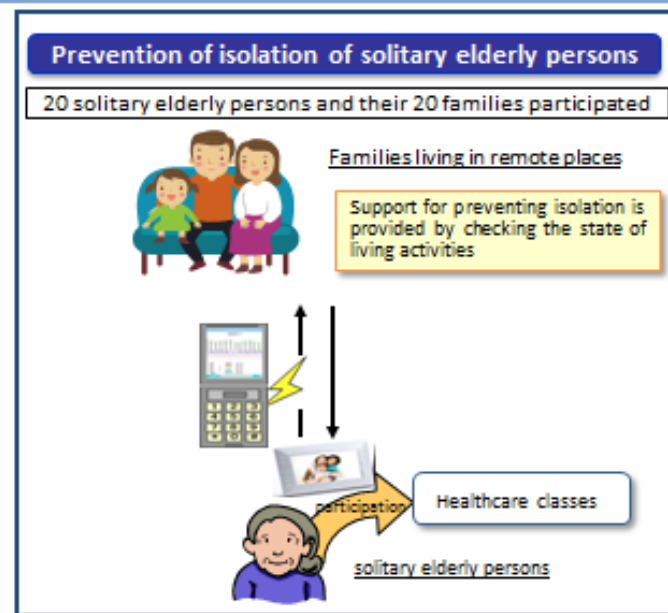
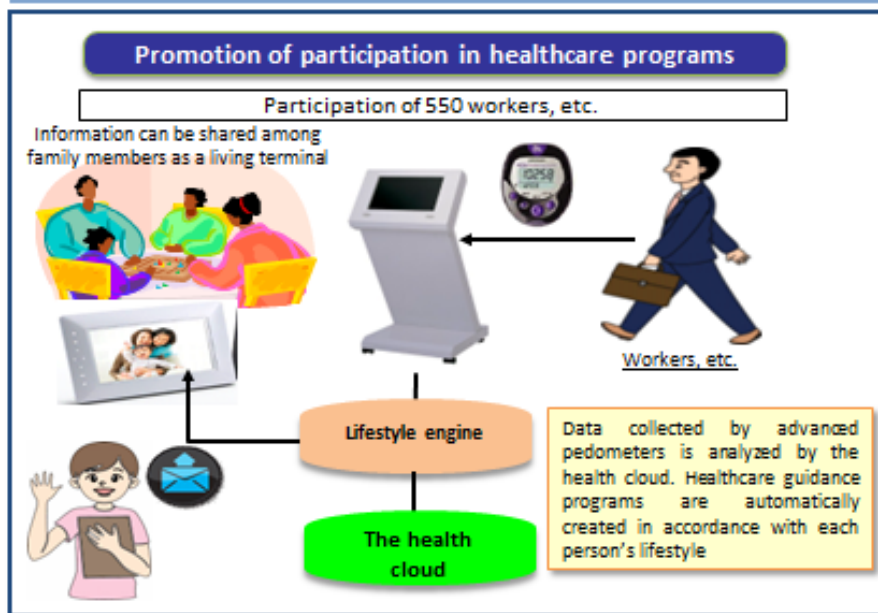
Communication, Learning and Social Involvement

- Ubiquitous Network Robots
- Lifelong learning
- Taking advantage of SNS, etc.
- Community and volunteer support etc.



Project outline	Effect
1. Data collected by advanced pedometers are accumulated in the health cloud and analyzed to <u>automatically create healthcare guidance programs in accordance with each person's lifestyle (exercise and diet).</u> The state of achievement of program is fed back through a digital photo frame in each home to encourage busy workers to participate in fitness activities	<u>The physical fitness of participants improved more than 2.5 years after efforts made during 3 months and more than 40% of participants showed improvement of body composition</u>
2. <u>In order to prevent solitary elderly persons from staying all the time in their home, a monitoring system is established and used so that their families living in remote places can monitor their activities.</u> This contributes to active communications among family members	-The number of communications via telephone, etc. <u>increased</u> by 35% in the case of participating families -10% of target elderly persons <u>participated in healthcare classes by their own initiative</u>

Effective use and utilization of ICT realizes continuous healthcare guidance and observation in accordance with each person's lifestyle



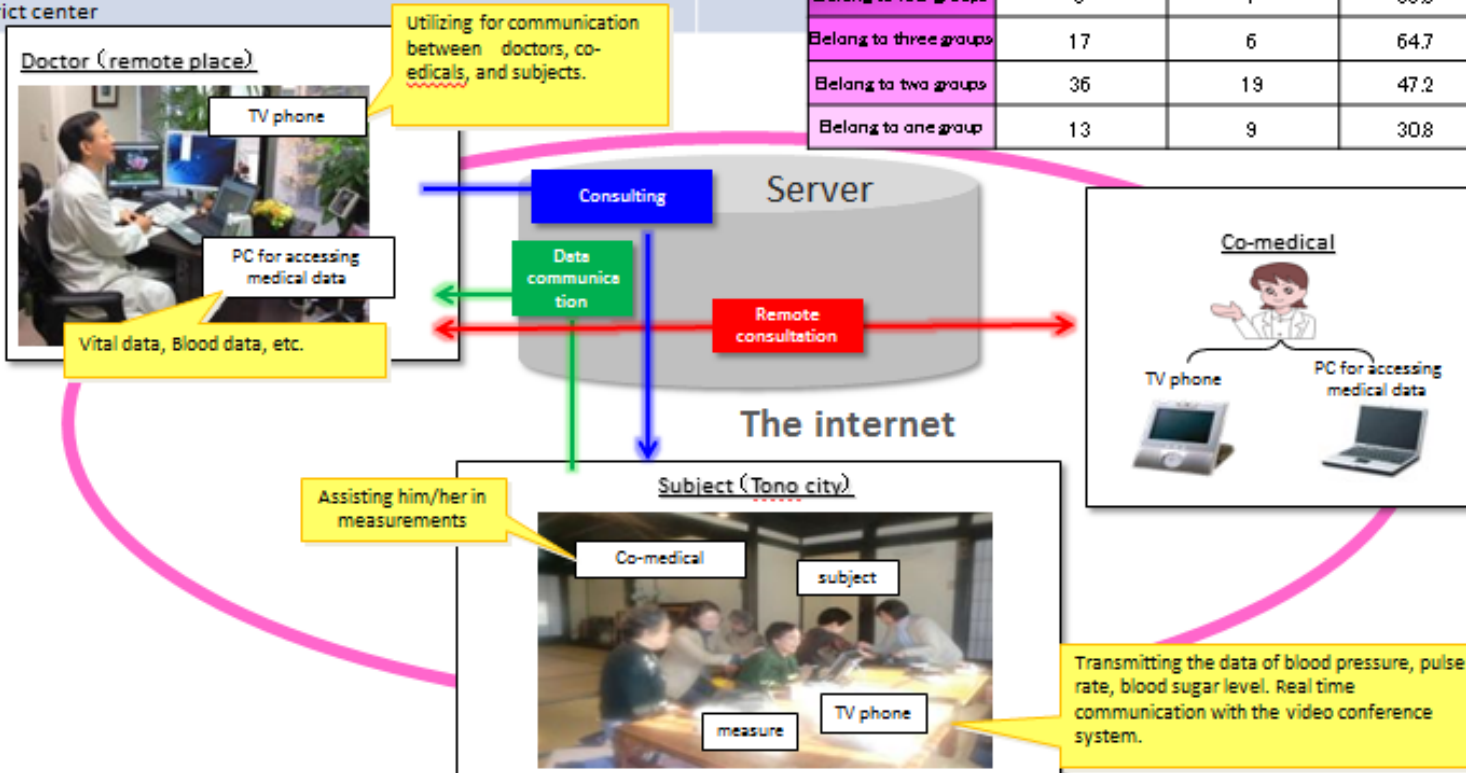
Project outline

- Information is shared by medical specialists (cardiovascular specialists, etc.) in a remote place and co-medicals (nurses, etc.) in a local area by establishing an interlocking system of remote places and local areas
- Based on test results, the doctors in the remote place provided advice and health instruction mainly on circulatory organs and lifestyle by utilizing videoconferences, etc. with the participation of approximately 400 residents in total (mainly the elderly) in 17 city areas including the district center

Effect

In all groups (hypertension group, diabetes group, hyperlipidemia group and hepatic dysfunction group), values of test items improved (significant rate of patients who showed improvement of the highest blood pressure: 62.7%, significant rate of patients who showed improvement of DLD cholesterol: 47.1)

	1st measurement	2nd measurement	improvement(%)
Belong to four groups	6	1	83.3
Belong to three groups	17	6	64.7
Belong to two groups	36	19	47.2
Belong to one group	13	9	30.8

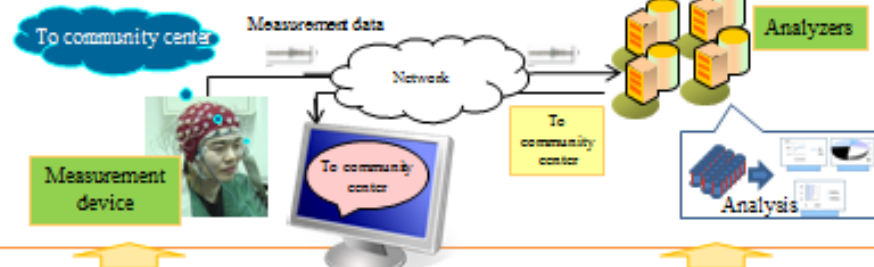


Research and Development that Benefits an Aging Society

Novel and innovative R&D making use of brain structures

BMI: Scanning the brain using ICT

Portable device that allows thoughts to be understood externally



Universal technology

Electroencephalography

Near-Infrared Spectroscopy



Magneto-encephalography(MEG)



Functional Magnetic Resonance Imaging(fMRI)
Magnetic shield
Tesla fMRI device



MEG device

R&D Subsidies for Enhancing Communications and Broadcasting Services Geared Towards Aged and Disabled Individuals

For individuals who engage in the development of communications and/or broadcasting services or technology that contribute to enhanced convenience for aged and disabled individuals, the Ministry of Internal Affairs and Communications subsidizes up to 1/2 associated expenses.

Example of subsidy: Mega-sized/waterproof/dustproof keyboard

A large-sized yet thin waterproof keyboard was developed to enable aged individuals as well as partially-sighted and other visually-impaired individuals to operate PCs with greater ease.



Mega-sized keyboard



9 times standard character size

New Town Building Utilizing ICT

- The field projects for the realization of ICT new town (ICT smart town), that is utilized ICT packages such as sensor network, wireless networks and cloud.
- Helps to address the multiple regional and socioeconomic problems faced by Japan that are expected to intensify going forward.
- Contributes to the new growth of job economic vitalization, job creation, etc. through promoting ICT utilization

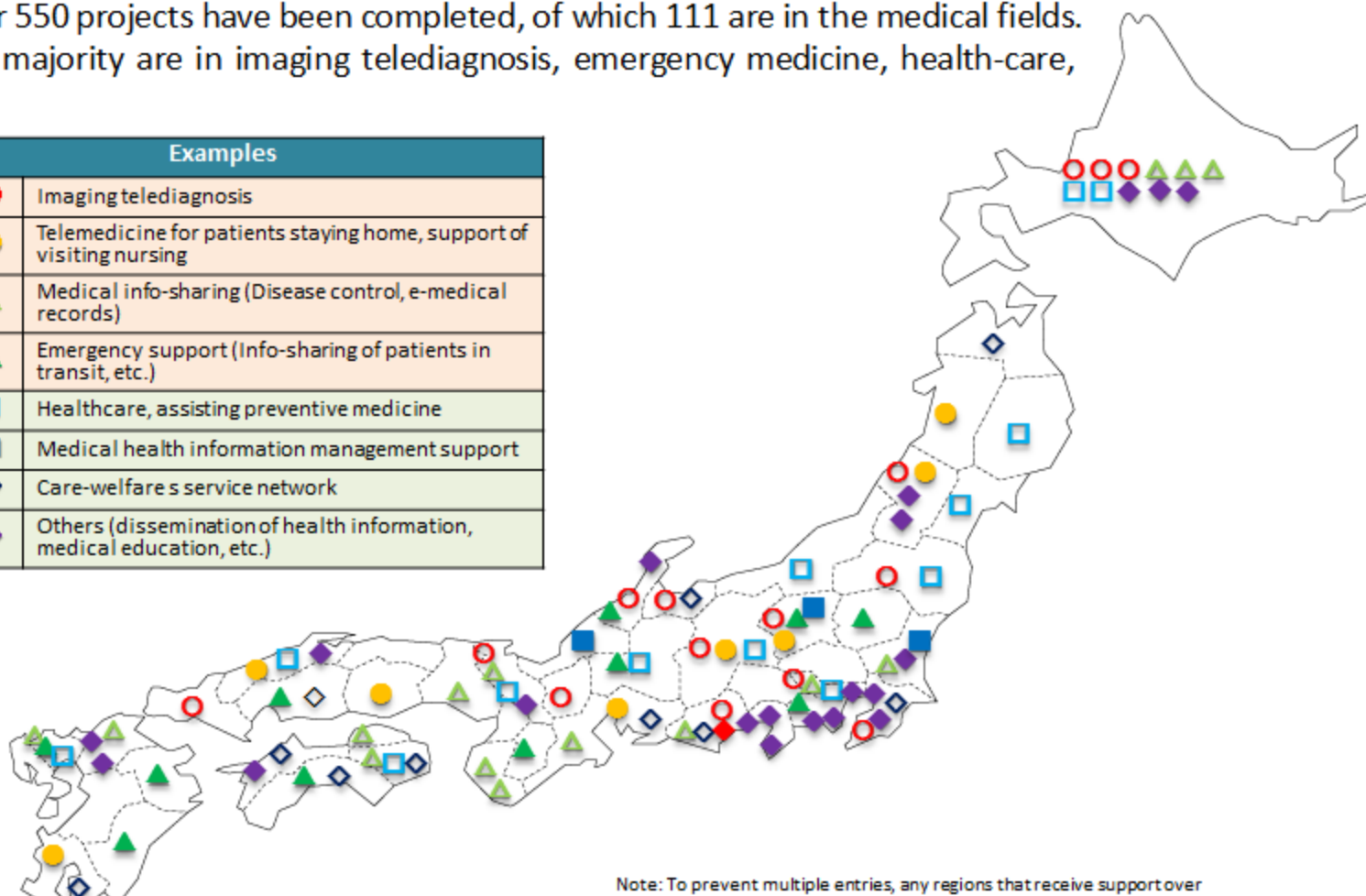




Local ICT Projects Implemented throughout Japan

- Over 550 projects have been completed, of which 111 are in the medical fields.
- The majority are in imaging telediagnosis, emergency medicine, health-care, etc.

Examples		
Medical Activities		Imaging telediagnosis
		Telemedicine for patients staying home, support of visiting nursing
		Medical info-sharing (Disease control, e-medical records)
		Emergency support (Info-sharing of patients in transit, etc.)
Non-medical Processes		Healthcare, assisting preventive medicine
		Medical health information management support
		Care-welfare s service network
		Others (dissemination of health information, medical education, etc.)



Note: To prevent multiple entries, any regions that receive support over



Problems in Computerization of Medical Information on which the Great Earthquake Shed Light

Issues that Accompanied the East Japan Great Earthquake

- Because medical information recorded on paper, basic data of patients, was largely lost in the disaster, provision of appropriate medical treatment was difficult, which caused great communications difficulties among the medical staff and placed a large burden upon them.
- Due to the lack of information on prescription and dispensation of the medicine to the patients, physicians could not decide which drugs to prescribe for fear of double prescription. This placed a large burden on the them.
- For physicians, the prescription details are important as they must repeat determinations of patients' blood glucose level, ECG, blood pressure level, etc. at each examination.
- All of the medical records were carried off by the tsunami. Physicians examined patients twice as many as patients as normal without any records.
- Accordingly, it would be mandatory to strengthen the medical systems against damage from natural disasters, i. e., aim at computerization of medical records so that physicians and other medical workers may access cloud computing systems through the use of note book computers and satellite communications system.
- In short, there should be a system in which medical records may easily be compiled, stored, and shared through a personal computer and appropriate communications environment.
- Storage, handing over and coordination of patient data is necessary. To prevent confusion, such as lack of prescription details and other problems, detailed medical records require a centralized storage system.



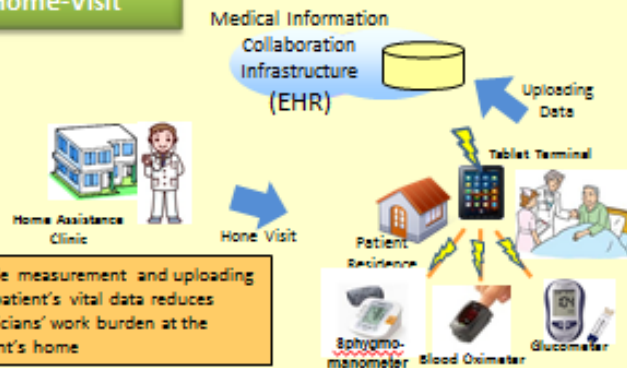
- On the whole, necessitate EHR, which electronically records and stores patients' medical treatment and prescription information recorded in medical facilities, and permits physicians and other medical staff to refer to and share the information as required.



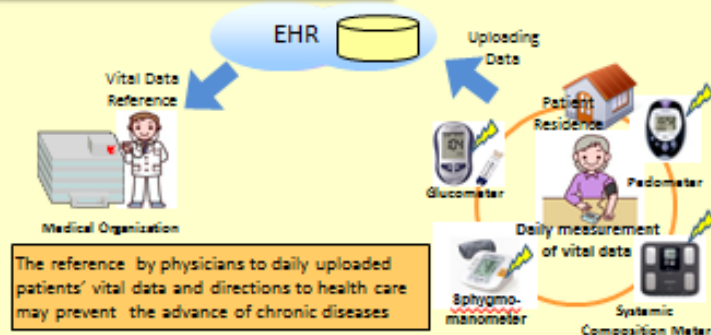
Mobile Health (mHealth) – Examples of Use of Home Medical Treatment/Nursing Care ICT System

- Use of mobile terminals and sensors renders the system user-friendly, thereby allowing anyone to upload and record information
- Sharing uploaded medical information of patients, a variety of professionals such as physicians, nurses and care managers are able to provide timely medical care services

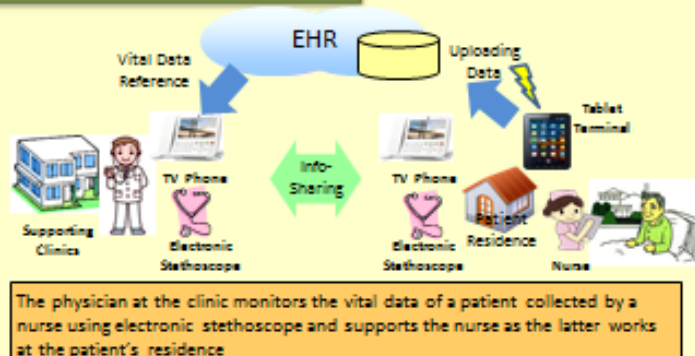
Home-Visit



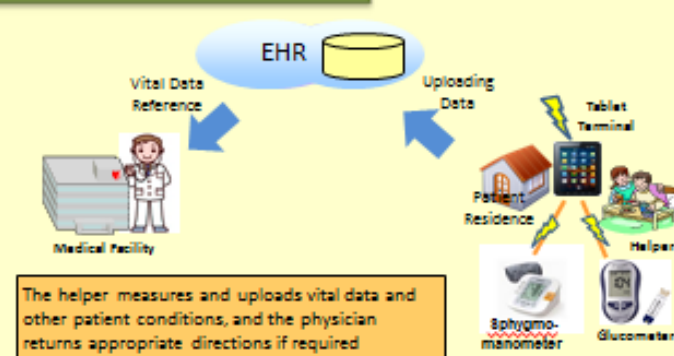
Chronic Disease Management



Home Medical Care Model



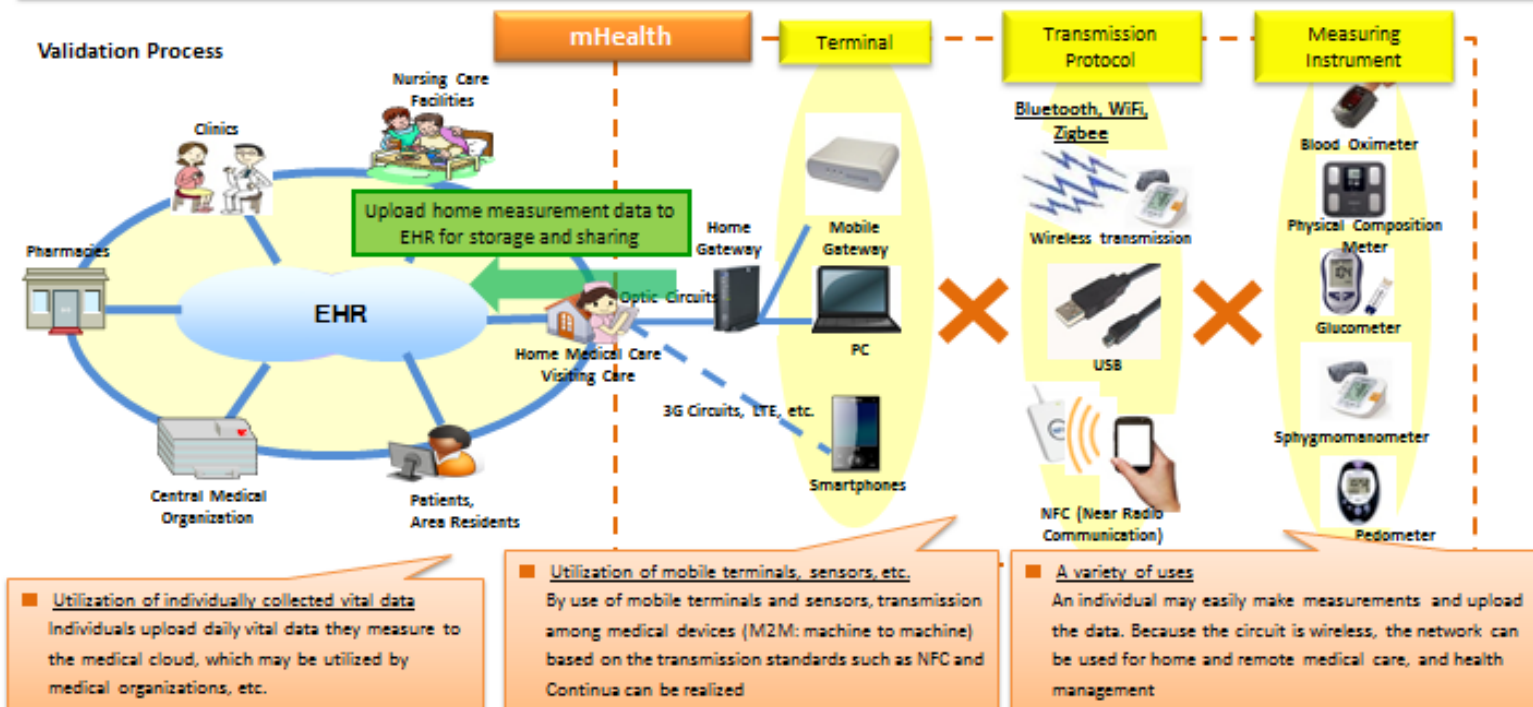
Home Nursing Care Model





Mobile Health (mHealth) – Establishment of Home Medical Treatment/Nursing Care ICT System

- Verify appropriate combinations of “terminal X Transmission Protocol X Measuring Instruments” according to users, communication environment and conditions of patients, and ideal situation of network security, transmission standards and user interface
- Collecting and grasping daily information on home-staying patients accurately utilizing mobile terminals, sensors or the like, and register and accumulate it in EHR, and realize sharing of home medical care and the nursing ICT system

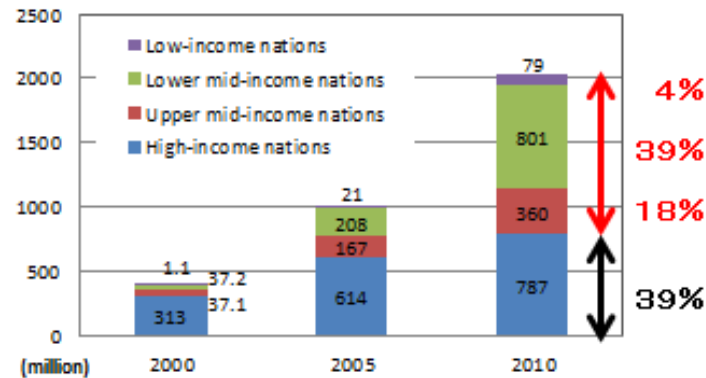


- Carry out proposals, standardizations of communications standards, best-practices, or the like through the venues of ITU (International Telecommunication Union).

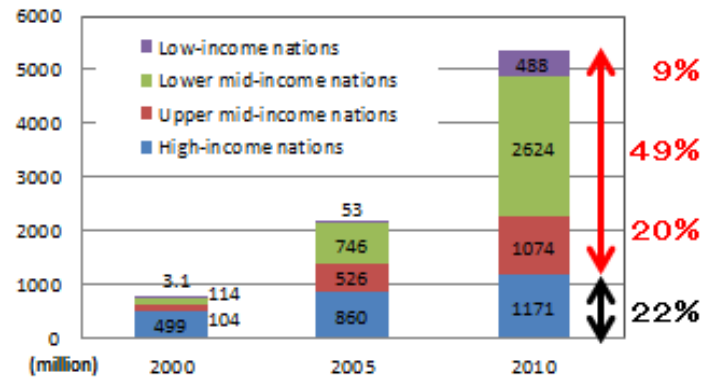


Mobile Health (mHealth) Trend

Change of The World Mobile-phone User Population

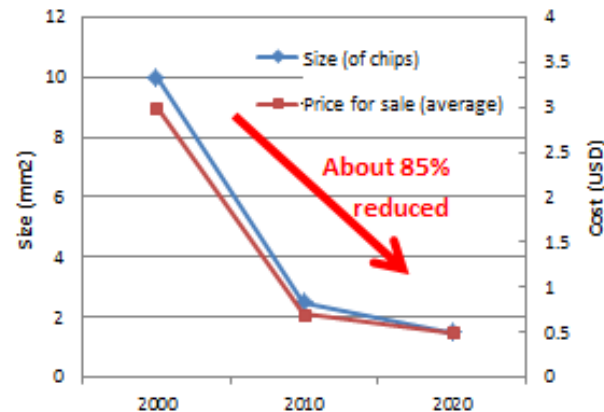


Change of The World Internet-user Population



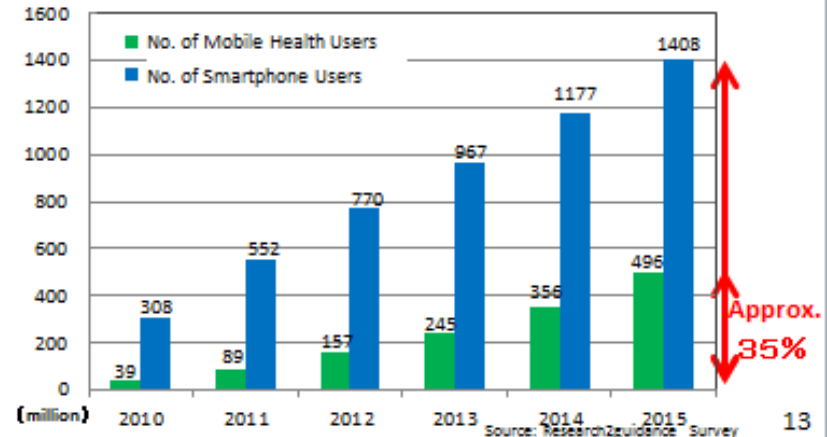
Source: "2012 White Paper Information and Communications in Japan", Ministry of Internal Affairs and Communications

Miniaturization and Cost Reduction of Sensors



Source: "Active Japan ITC Strategy", Ministry of Internal Affairs and Communications

Interest toward Mobile Health



Source: Research2guidance Survey

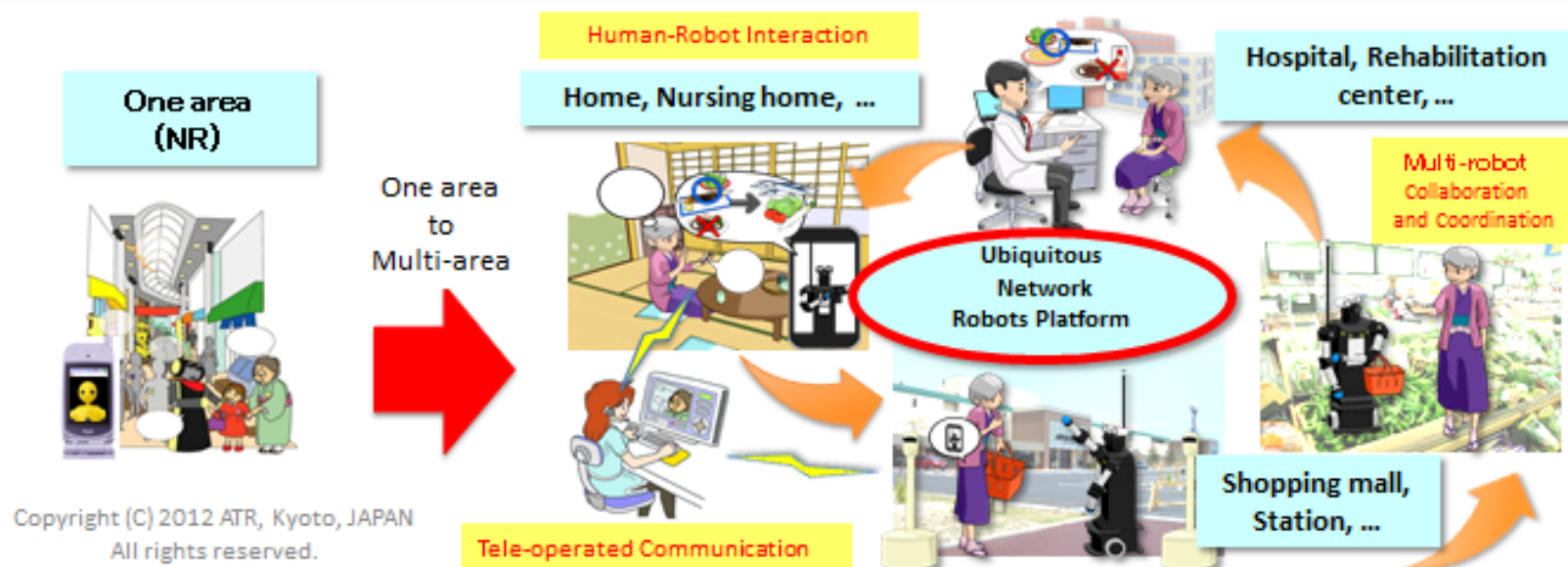
Ubiquitous Network Robots for Life Support

◎ Objective

Nationwide installation of network robots (for nursing care, monitoring, etc.) by 2020

◎ Expected capabilities (life-support activities to promote social participation for the aged and the challenged)

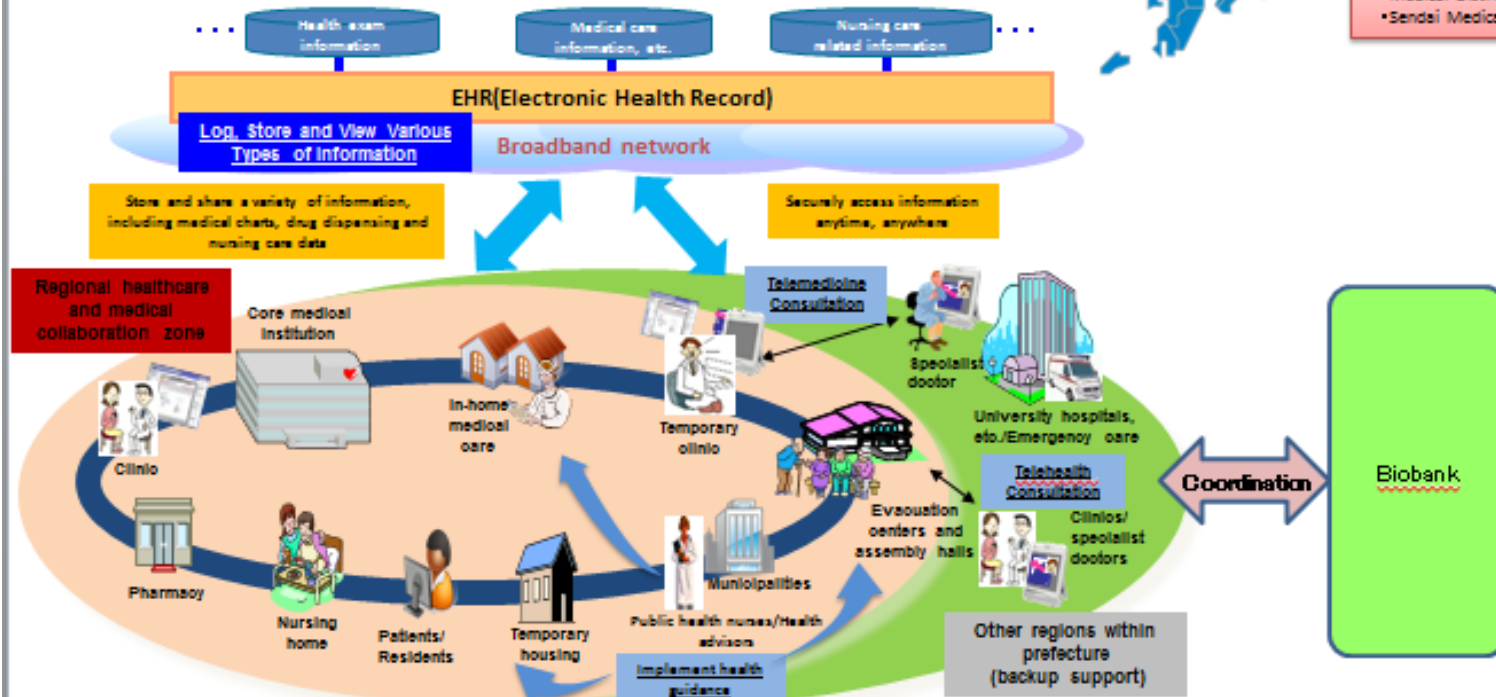
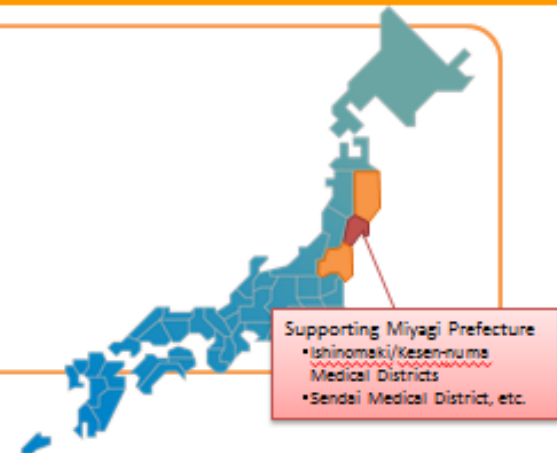
Shopping assistance, reducing burdens on care takers (**remote active listening service**, etc.), **monitoring** (gathering information on family members of the aged, etc.), **healthcare** (gathering and storing biological information, **healthcare advise**), guidance information: services mainly for communication

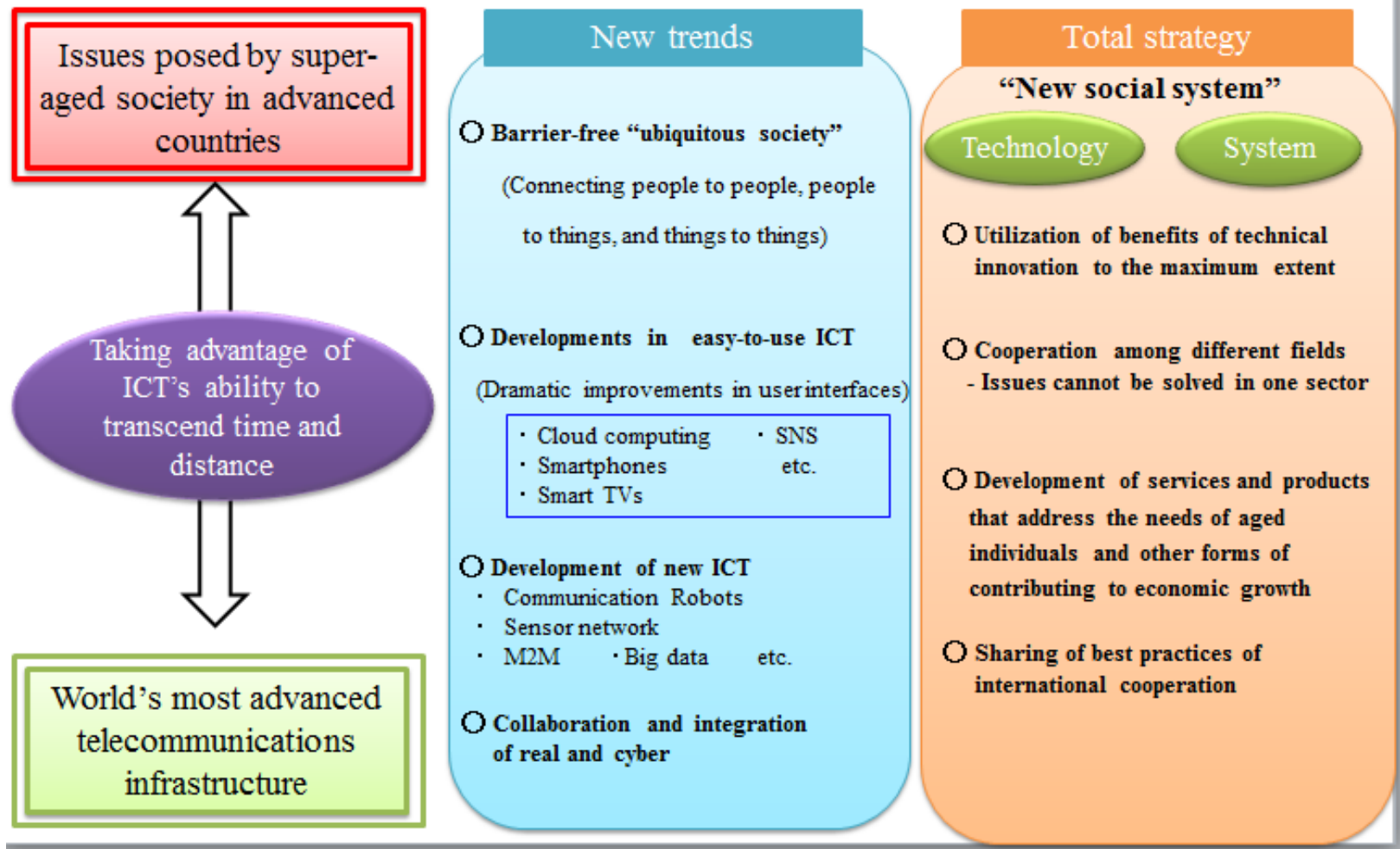


Tohoku Medical Megabank

Outline of project

- For reconstruction in response to the Great East Japan Earthquake, MIC aids financially local governments (Iwate Prefecture, Miyagi Prefecture and Fukushima Prefecture) affected by the tsunami to construct EHR (Electronic Health Records)
- To be more specific, MIC helps them to construct the following systems
 - 1) Store and share a variety of information, including medical charts, drug dispensing and nursing care data
 - 2) Telemedicine with video phone
 - 3) Implement health guidances



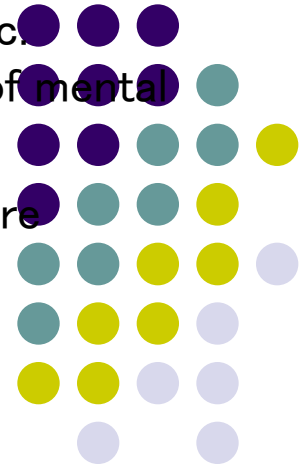


“Super-aging society where people can feel richness and happiness”

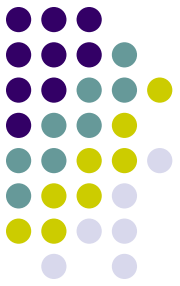
- Vibrant society where each of us can live richly and brightly
- “New social model” in which the elderly support local communities and different generations (recognition that implicit shared awareness and presuppositions are reviewed and the paradigm of the society is changed)
- A truly mature society is realized by developing new social systems, etc. (peaceful and free society where emphasis is put on the improvement of mental richness and quality of life)
- Society where the young generation is able to live with dreams for future

Principal areas

- 1) Purpose in life / employment
- 2) Health / social welfare
- 3) Living environment / migration
- 4) Communications (contact with people) / social participation



Changing?

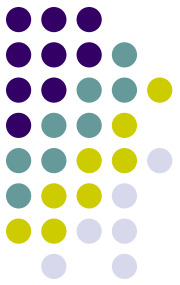


○ Good News

Recently, many PC School in big cities has changed the style to class for senior students!!

They start to teach mobile phone and smartphone.
and iPad(all Tablet) is popular

Still There are “ Big 2 Walls”



1 Wall in Mind

ICT is too difficult to use for seniors?

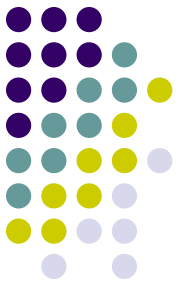
Not only Seniors, but also their family think
“ Old people are impossible or dangerous
to use PC and online service.

2 Wall in Society

Very few school, text, Teacher for older adults.

we support
Senior PC Volunteer's Activity

Senior Teach ICT for Seniors Case of Marchan 6 min video



http://www.youtube.com/watch?v=mtUyJLJ_hIA



Marhcan(78) is teaching PC at home
Making original Textbook for her student.
Enjoy World travel and making video
program





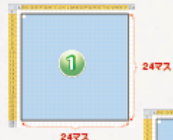
BEGINNER はじめての方へ

エクセル・アートの基本操作
仕事を効率的にすすめるための方法

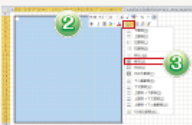
① 基本の操作です



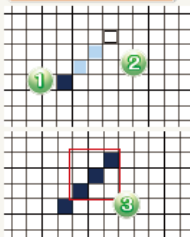
マス目（セル）を色で塗りつぶし
ます。
●塗りつぶしたいセルをクリック
●「塗りつぶし」ボタンをクリック
●「塗りつぶし」ボタンをクリック
して色を選択します。



マス目に罫線を引く操作です
（24 x 24 マスに罫線を付けます）
●罫線とも 24 個分のマス目を選択
●をクリックして出てきた「罫線」を選択
●「罫線」の罫線をクリック



② 仕事を効率的に進めるために



- コピー元を選択して、「コピー」しておきます。
- [Ctrl] キーを押しながら同じ色にするセルをクリックします。
- 「貼り付け」をクリックします。一色に色を塗ることができます。

③ 罫線、または横に並んでいるセルに同じ色をつけるには

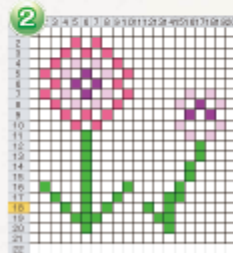
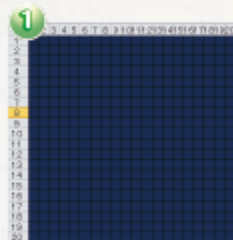


- コピー元のセルの右下にマウスを移動させて、（マウスポインタが「+」の形になったら）スズンドをクリックします。

FILL 塗りつぶし

図形の「塗りつぶし」だけ使ってもこんなに楽しいアートが

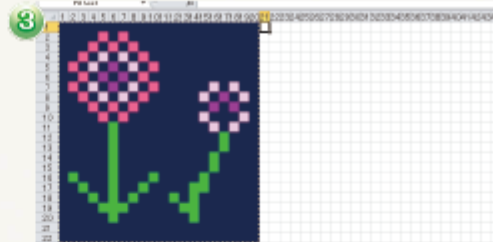
① ちいさな花



モチーフ（単語）を作り出す
●選択範囲を「青色」で塗りつぶし
見やすいように「罫線」を引いて
おきます。

●「塗りつぶし」で図形を塗って
いきます。
（ここでは見やすいように「青色」
を消してあります）

Ctrl キー+クリック
で選択したマス目（セル）
を複製して色を
つけてみましょう。



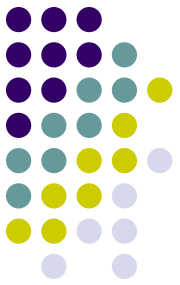
モチーフを全体に広げていきます
●モチーフの全体を選択範囲し、コ
ピーして、右側、下へと貼りの付
けていきます。

マウスでコピー範囲
と重なっているマス目
（セル）を選択して、
「貼り付け」をします。



出来上がり図

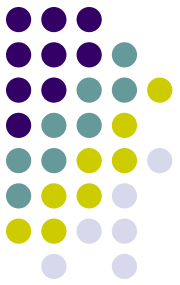




Marchan and I Share Facebook with her Medical Home Doctor Nakamura



Older adults and disabilities



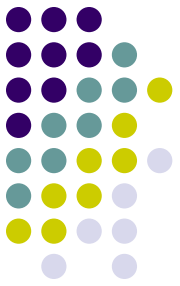
Ms.Oshima faced the trouble

Her parents, sick Patients are difficult to move,
watch , hear and talk.

Communication is the Key to survive.

50% of age over 65, have a hearing trouble.

Telecommunication Handicap



Hearing Loss will cause Dementia?

Hearing trouble is invisible disability.

But Japan do not have phone relay service.

Today, there are many good tools to solve

Problem of commutation. But it is not easy to hand

To the people need them

Assistive Technologies

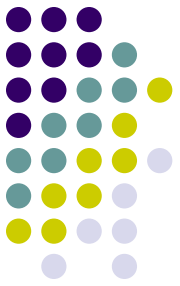
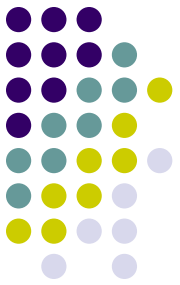


Photo from <http://eduassistivetech.blogspot.jp/>



NPO introduce AT for patients



NPO法人ICT救助隊

こころとパソコンをONにして。

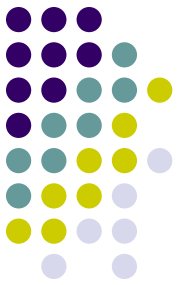
[トップページ](#) [ICT救助隊について](#) [カレンダー](#) [アルバム集](#) [掲示板](#) [ITパラリンピック](#) [意思伝テレサポート\(実験\)](#)



<http://www.rescue-ict.com/wp/>

Sendai-Finland Wellbeing Center

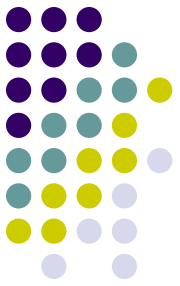
<http://sendai.fwbc.jp/en/index.html>



Sendai Finland Wellbeing Center

The City of Sendai is the largest city in Northeast Region in Japan with the population of 1 million. The city is promoting "Sendai-Finland Wellbeing Center Project" in collaboration with Finland, an advanced IT and welfare country. This project aims to create new business in the field of highly value added welfare equipment and services with joint efforts of companies both in Finland and Sendai.

Inernet Event at Sendai FWBC Introduce MICT with FUN! 2012



Report (Japanese & Video) Online Tanabata Festival
http://www.broadbandschool.jp/tanabata_sendai.pdf



Over 14000 people watched the Ustream event

安倍晋三元総理の応援の言葉 右側は 仙台青い鳥の早坂さん 新井さん



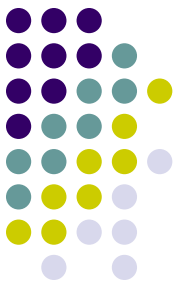
高齢者も情報技術の恩恵を受けられるようにすることは重要と考え、森政権時代にも取り組んできました。東北、仙台的皆様 がんばってください。



Dr.Salo, Oulu City introduced the policy
In Oulu on iPad



<http://www.ustream.tv/channel/bbsch#/recorded/24533310>



UD (ユニバーサルデザイン) ファッションショー

仙台のデザイナー 武田明子さんがつくった体の不自由な人もおしゃれを楽しめる服を
服部真澄さんと メロウ倶楽部の副会長 77歳の若宮さんが紹介しました。
一見 普通の服ですが、軽くて 着脱を簡単にする工夫にあふれています。
生地はフィンランドのマリメッコ。バッグはサムコのハンドルエコバッグ！



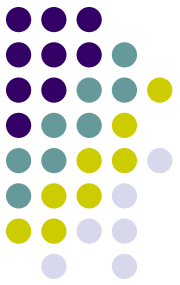
My friend Mako Hattori (Actress) was fashion model.

She wears Universal Design Wear Designed by Ms.Takeda in Sendai
She own a dress maker shop and she started to make a clothe for the people with disabilities from her own experience of being a patient in the hospital

Mako and I supporting the Women at home through
Aubergine project

<http://www.office-mako.com/index.html>



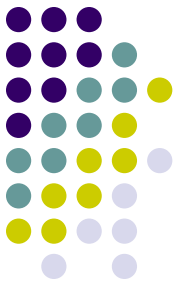


I am reading message from SNS, seniors watching Ustream online Event from their PC Learning Class in the day service center.



Photo from Abiko Senior Life Net. In Chiba Prefecture
<http://asln.jp/>





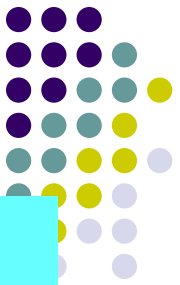
フィンランドから来日してくれた方々

左から セイナヨキ応用大学理事長で市議会議員のアーロさん

同大国際部長 ヘッリさん、 退職者協会事務局長のウラさんは 日本語で
“上を向いてあるこう”を歌っていただきました。



3 people visited Sendai from Finland, Seinayoki

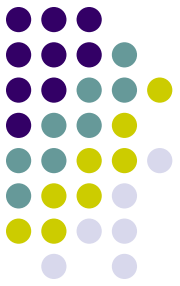


Why they do not know MICT?

- Few Information?
- Need to place a person who in charge?
- Need a reasonable incentive?

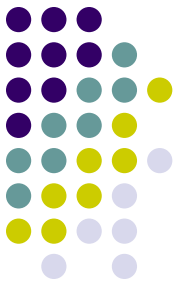
Internet is the best tool to educate
The people with low cost and effective

MICT Education for Older adult



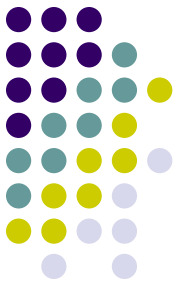
Seniors has a great interest in their Own Health. Internet senior users answer, most benefit from internet service is about the Medical information, such as their disease, effect of drug, new treatment, good hospital. Welfare service in the local community.

Merit to collaborate with Volunteer to have MICT seminar



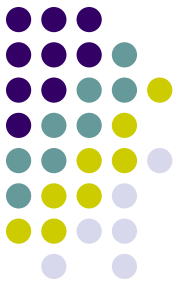
- 1 Many senior PC volunteer have a political power in local community
- 2 They are happy to join the test or trial of treatment, but it is not good to treat them just like animals.
- 3 Good Patient produce Good MICT

Join! PC Volunteer



Young Students in the Medical or Technology major, please join PC Volunteer activities .

You can meet good friend and You will
Find good idea to create the New MICT
With world best longevity country ,Japan



Thank you very much.

Noriko Kondo
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