

福祉用具・介護ロボットの実用化支援 (厚生労働省)

1. 相談窓口の設置

- ・ 開発者側と使用者側双方からの相談受付



2. モニター環境の整備

- ・ モニター調査協力可能な施設等のDB化



3. モニター調査の支援協力

- ・ 現場との意見交換やモニター計画書の作成支援



4. 普及・啓発

- ・ 展示、研修、貸出などの実施



5. 高齢者ニーズの把握・実態調査



認知症ケア関連機器に関するモニター調査事例

コミュニケーション支援



特別養護老人ホーム
導入前後の比較

- ・ コミュニケーションの変化
- ・ 運動機会の変化
- ・ 自発性の変化
- ・ 不穏行動の変化
- ・ 生活リズムの変化

(2013-1014)



病院退院時の「もの忘れ外来」で
認知症と診断された方
スクリーニング

- ・ セラピー効果
- ・ 介護負担の変化

(2013)



有料老人ホーム

入居している利用者とその家族を結び、当該機器を使用したコミュニケーションによって、どのような効果が期待できるか調査

(2014)

見守り支援



特別養護老人ホーム・有料老人ホーム (2013-2014)

複数の入所者と同時に検知する機器
危険に繋がる可能性のある状態とパターンマッチングし異常検知・通知する
プライバシーを配慮しながら状態の確認、危険状態の防止、見守り回数の減少

その他のモニター調査事例



追従型酸素機器搬送移動車両



移乗支援機器



トイレでの姿勢保持



歩行訓練用のツール

その他のモニター調査事例



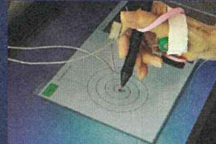
上肢支持機能付き免荷型のリフト



補聴耳カバーシステム



離床アシストヘッド

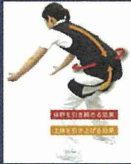


個人の体型に合った上肢運動機能補助装置



多機能車いす施設での股髪や口ケア

腰部の負担軽減スーツ



ロボット介護推進プロジェクト (経済産業省)

事業概要

ロボット介護機器の量産化への道筋をつけることを目的として、ロボット介護機器を実際に介護現場で活用しながら、大規模な効果検証等を行う。

さらに、検証結果に基づく効果のPR、普及啓発、教育活動を通じて、ロボット介護機器導入の土壌を醸成する。



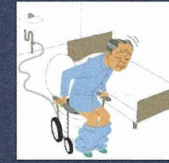
移乗介助
装着



移乗介助
非装着



移動支援

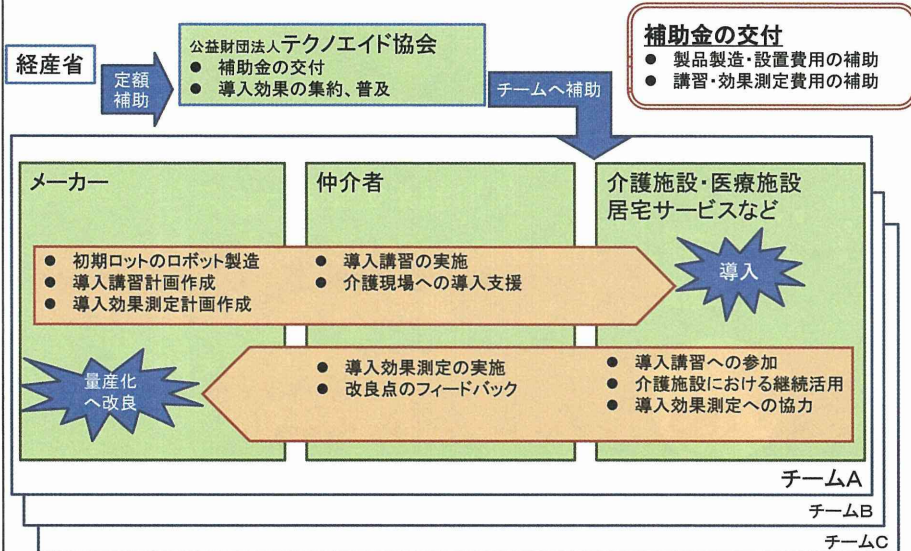


排泄支援



見守り

ロボット介護推進プロジェクト 事業スキーム



補助対象となるロボット介護機器一例

重点分野	件数
移乗介助 (装着)	1
移乗介助 (非装着)	6
移動支援	2
排泄支援	4
見守り支援	13
合計	26



移乗介助 (装着)



移乗介助 (非装着)



移動支援



排泄支援



見守り支援



利用効果の検証

○性能評価
工学的試験
安全性

◎ユーザービリティ評価

使い勝手
実践を通じた製品の製品安全の確認

利用者のADLやQOLの維持・向上
介護負担の軽減
サービスの改善・効率性、経済性

自立支援、介護負担の軽減

○介護を受ける側への効果

- ・利用前後におけるADLやQOLの変化（維持・向上）
- ・機器利用の満足度、安心感、快適性、操作など理解のしやすさ
- ・心理的負担感の変化 など

○介護者する側への効果

- ・利用前後における腰痛等の発生頻度、精神的負担の変化、
- ・作業負担の軽減、見守り負担の軽減、新たな業務負担の有無 など

○機器の使い勝手による効果

- ・訓練時間、使用（装着）時間、準備や手間、メンテのしやすさ
- ・臨床場面での操作機能性・安全性、表示、禁忌事項 など

○介護サービスのプロセスに関する効果

- ・移乗介助の時間変化、排泄支援の時間変化、見守りの時間変化
- ・介護手法の変化、経済的変化、人員（配置）の変化 など

ご静聴ありがとうございました

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Communication Robot for Persons with Dementia - Based on Field-based Innovation



Takenobu Inoue

Director of Department of Assistive Technology,
Research Institute of The National Rehabilitation Center for Persons with Disabilities

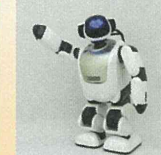
Communication Robots (ICT & Robot Exhibition @ Sky Studio)



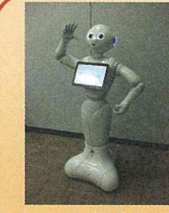
PARO (Daiwa House Industry)



PaPeRo (NEC)



PALRO (FUJISOFT)



Pepper (SoftBank)



NAO
(Aldebaran
Robotics)



Kabochan (Pip)

Communication Robots (ICT & Robot Exhibition : Sky Studio)

There is no answer on the desk
nor in the laboratory.

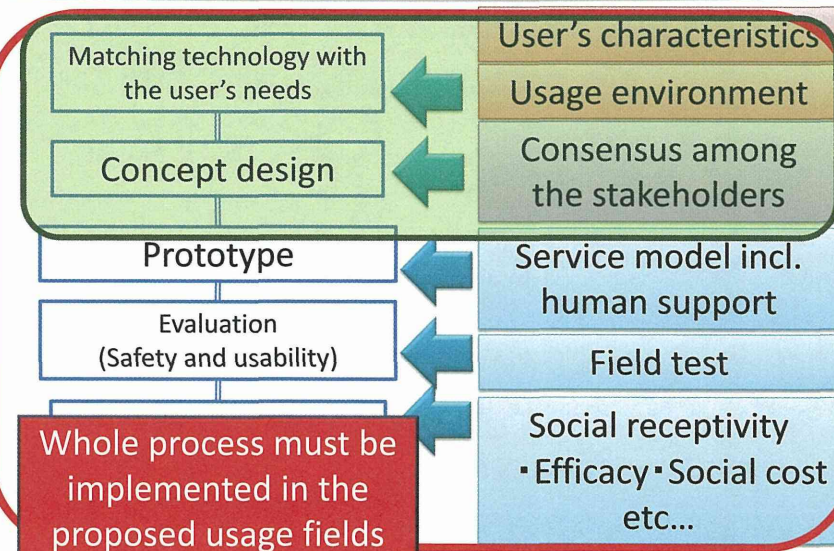
WHY DO WE USE THESE ROBOTS FOR

Answers must be in the use field.

with dementia want ?

Field-based innovation.

Field-based Innovation





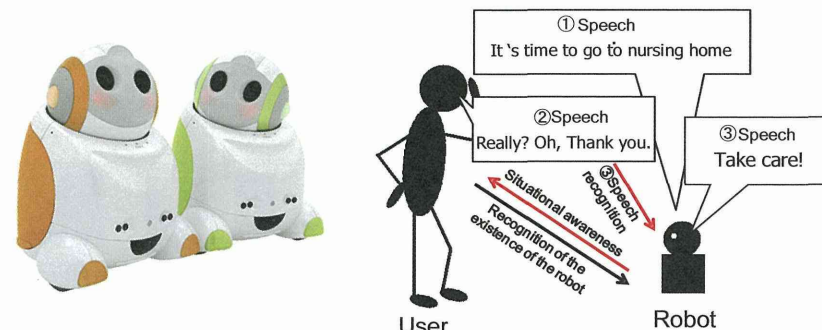
Development of an information support robot for the elderly with cognitive disabilities

Takenobu Inoue¹, Shinichi Ohnaka², Yumiko Oosawa³, Kouichi Watabe³, Yousuke Shimizu³, Ayumi Harada³, Hiromi Hamada⁴, Ikuko Mamiya¹, Yuko Nishiura¹, Atsushi Kobayashi¹, Minoru Kamata⁵, Misato Nihei⁵, Hiroaki Kojima⁶, Ken Sadohara⁶,

1:The National Rehabilitation Center for Persons with Disabilities, 2:NEC Corporation, 3:Seikatsu Kagaku Un-Ei Co., Ltd., 4:France Bed Co., Ltd., 5:The University of Tokyo, 6:National Institute of Advanced Industrial Science and Technology



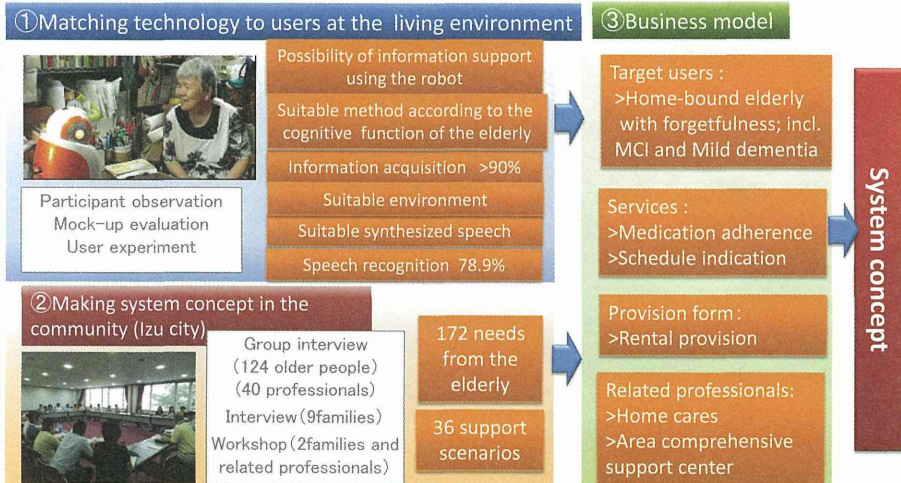
How to develop useful technologies for the elderly ?



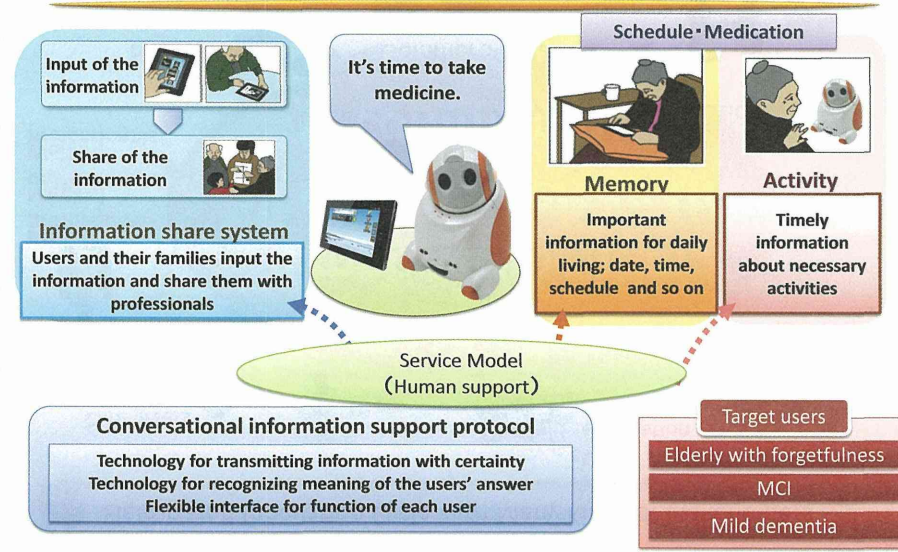
Information support robot for persons with dementia ???

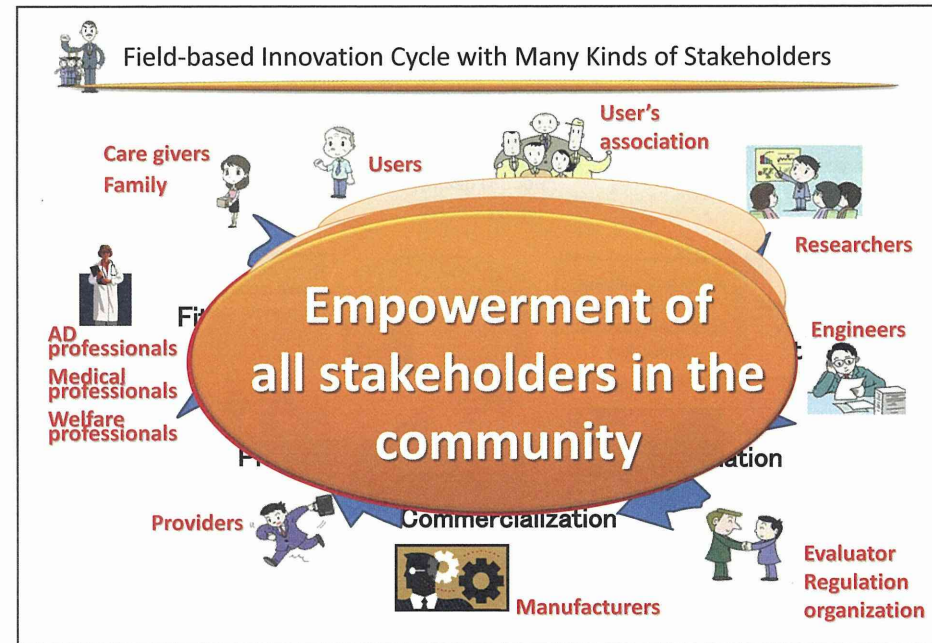


Decision process of the system concept based on field-based innovation



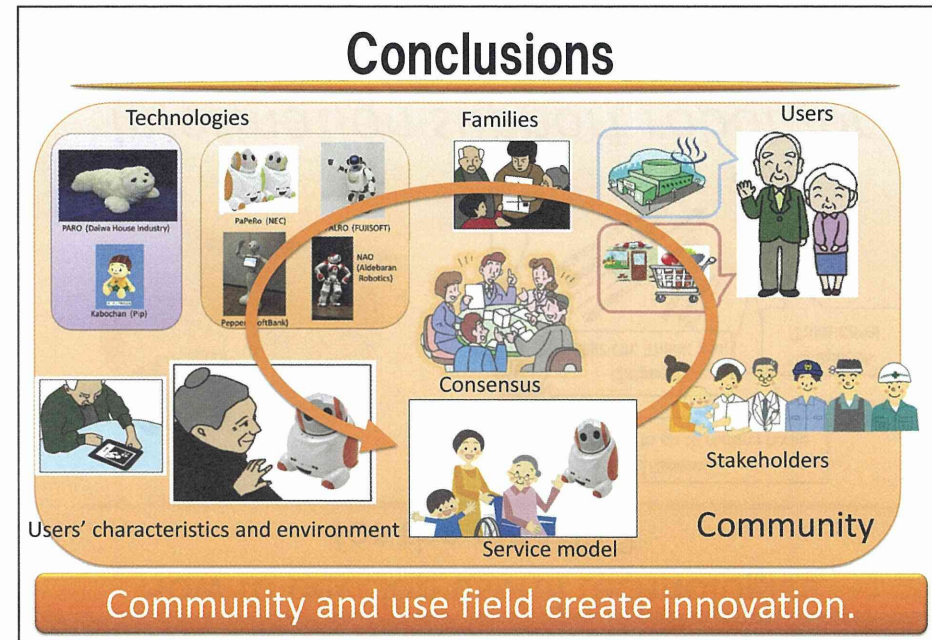
System concept





Acknowledgement

- This research was partially supported by the Japan Foundation for Aging and Health, KAKENHI (21300213) and Japan Science and Technology Agency, JST, under Strategic Promotion of Innovative Research and Development Program.



Global Dementia Legacy Event Japan

New care and prevention models

Topic 3 Day 2

Dementia-friendly community and ICT

Yoshiki Niimi, MD

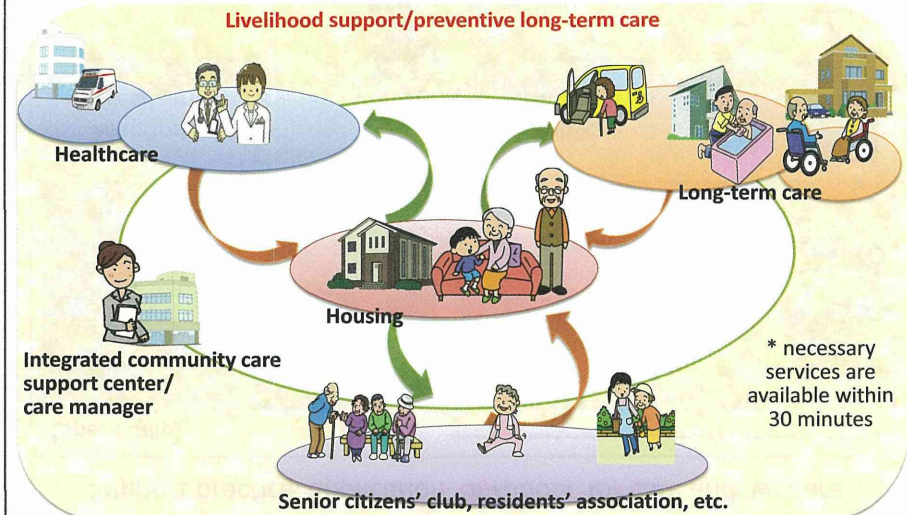
Senior Specialist for Dementia

Office for Dementia and Elder Abuse Prevention Health and Welfare Bureau for the Elderly
Ministry of Health, Labour and Welfare, Government of Japan

November 6th 2014

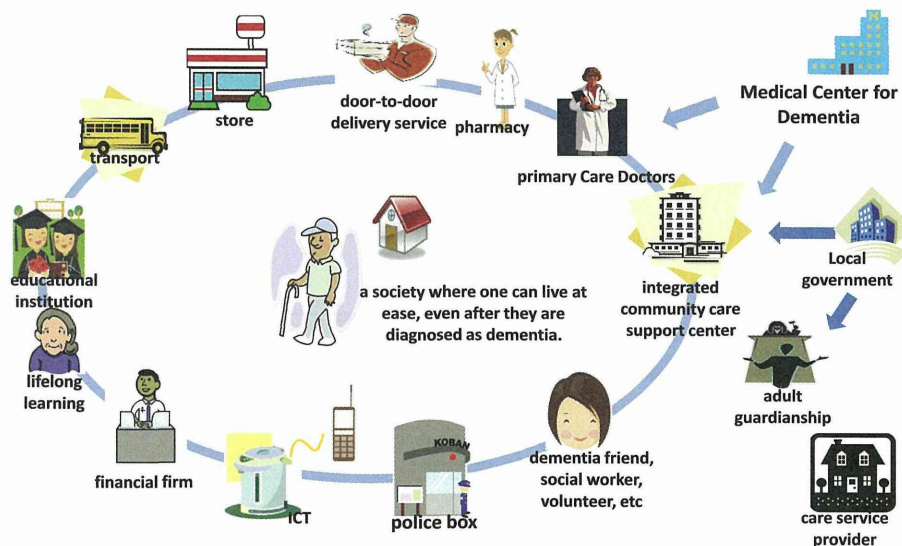
Integrated Community Care System

To live in community in a pleasant and familiar environment



self and mutual aid network

cross-ministerial collaboration to support measures of each area

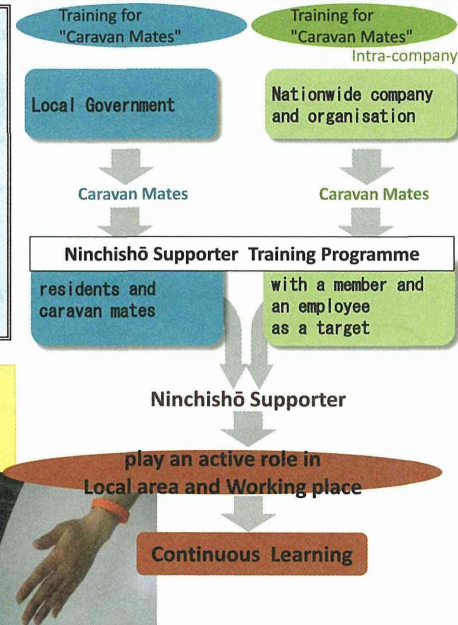


"Ninchishō Supporters (Dementia Friends)" (2005~)

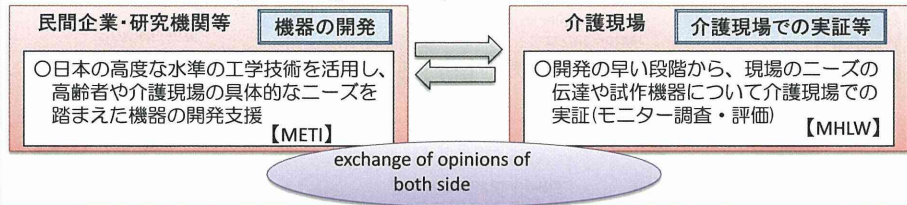
What are "Ninchishō Supporters"?

- With good knowledge and understanding of dementia, they support the elderly with dementia and their families at regional/professional levels, to the extent possible

※ Total Number
5,445,162 (as of September 30th 2014)



Supporting Development of Care Robot



(priority areas)

○Lifting Assistance (1)



○Exertion Assistance



○Lifting Assistance (2)



○Watching for PWD (1)



・介護施設において使用する、センサーや外部通信機能を備えたロボット技術を用いた機器のプラットフォーム

○Transferring Assistance (1)



○Watching for PWD



・在宅介護において使用する、転倒検知センサーや外部通信機能を備えたロボット技術を用いた機器のプラットフォーム

○Transferring Assistance (2)



○Bathing Assistance



・ロボット技術を用いて浴槽に出入りする際の一連の動作を支援する機器

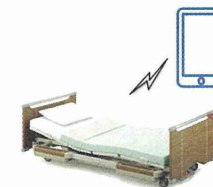
※点線枠は平成26年2月に新たに追加した項目。平成26年度より開発支援の対象。
 ※開発支援するロボットは、要介護者の自立支援促進と介護従事者の負担軽減に資することが前提。

5

What can technology do for person with dementia?



Assistance of medication



Watching around the bed

With potable device
 Gain the data about
 ・sleep
 ・sitting on bed
 ・leaving bed ,etc



Watch comprehensively through robot

6

On-going trial about robotics



HAL (robot suits)



PAPERO (communication robot)



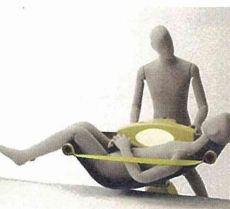
Walk-assist robot



PARO (mental commit robot)



Smart suits (robot suit)



SASUKE (Lift assist robot)

PALRO (communication robot)

Support practical application of robots for care and welfare

【Specifically】

inquiry counter



Equipment for verification



Monitoring investigation



Public Awareness



others

○need survey at practical stage
 ○exchange ideas between development level and practical level

8

7. Project for Psychiatric and Neurological Disorders

- Aiming for the realization of a society where healthy brains can be developed, protected and restored -

Project to overcome brain diseases by cooperation between MEXT, MHLW and METI

Establish innovative methods for the diagnosis, prevention and medical treatment of mental disorders and disabilities by strong promotion of R&D and infrastructure development for research on brain neural circuits and functions related to their etiology.

Goals and objectives by FY 2015

- Establish diagnostic technologies and criteria of very early stage brain degeneration by novel molecular imaging methods.
- Discover candidate biomarkers with clinical utility for the early diagnosis and treatment of brain diseases.

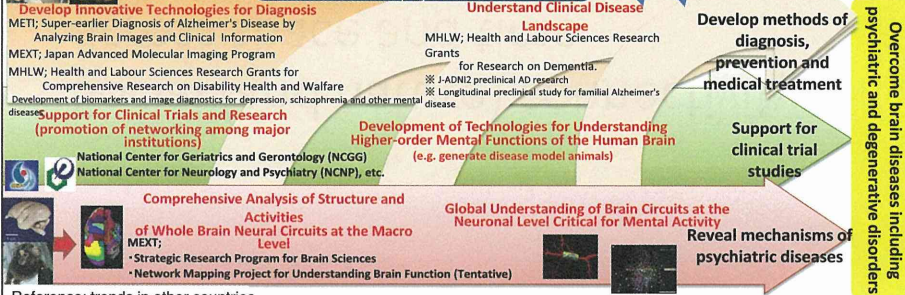
Goals and objectives by FY 2020

- Initiate pre-clinical and clinical trial studies of candidate drugs of Japanese origin for treatment of brain diseases including depression.
- Establish objective diagnosis methods and criteria for brain diseases.
- Complete a whole brain map including neural circuits and functions.

Joint Promotion Committee

For promoting effective cooperation within the project

MEXT; Ministry of Education, Culture, Sports, Science and Technology
 METI; Ministry of Economy, Trade and Industry
 MHLW; Ministry of Health, Labour and Welfare



Reference: trends in other countries

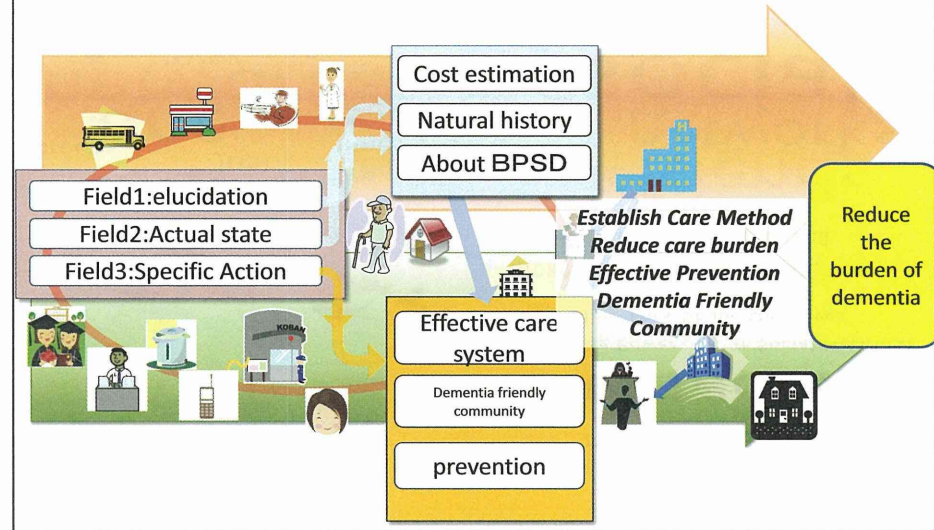
BRAIN Initiative / USA

➢ In April 2013, President Obama announced the "BRAIN Initiative: Brain Research through Advancing Innovative Neurotechnologies", a ten-year project that aims to develop transformative technologies for recording and observing brain cell signals at large scale and high precision, in order to understand and cure mental diseases and disabilities.

Human Brain Project / EU

➢ In January 2013, The Human Brain Project was adopted as a EU Flagship Project, together with the Graphene Project, as a ten-year project to understand brain by means of computer simulation for robotics and ICT consisting of five sub-projects: ICT integrated infrastructural research platform as the core, data acquisition, theory, applied computing, and ethics.

MHLW; Health and Labour Sciences Research Grants for Research on Dementia.



Information technology and dementia: from brain fitness to collective wisdom

Peter J. Whitehouse MD-PhD
 Professor, Case Western Reserve University and University of Toronto
 President, Intergenerational Schools International



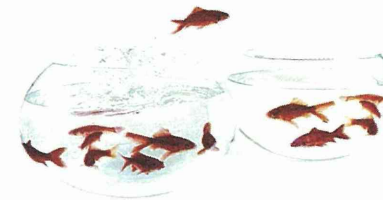
What about the non-G7 world? What will our legacy be?

Income inequity and associated global climate change are the greatest threats to persons with dementia, not to mention human civilization, if not existence

ASK THEM and LISTEN

Social (and nature) connectivity across space and time

World Wide Web eHealth and teleHealth
 Mobile mHealth
 Virtual Reality vrHealth



Connected

The Surprising Power of Our Social Networks
 and How They Shape Our Lives

NICHOLAS A. CHRISTAKIS, MD, PhD
 AND JAMES H. FOWLER, PhD



<http://www.words.net>