



Enhancing clinical trials

The use of Electronic Medical Records and
pre-existing data integration



Collaboration for translational research in dementia

**Alzheimer's
Research UK Oxford
Drug
Development
Institute**

**Wellcome Trust
Strategic awards:**

**Target Enabling
Packages**

Neuroinflammation

**Dementias Platform
UK**

Dementia Discovery
cohorts
(n=2m)

Dementia UK
BioBank cohort
(n=10k)

Deep and Frequent
Phenotyping cohort



IMI-EPAD

**European
Prevention of
Alzheimer's
disease**

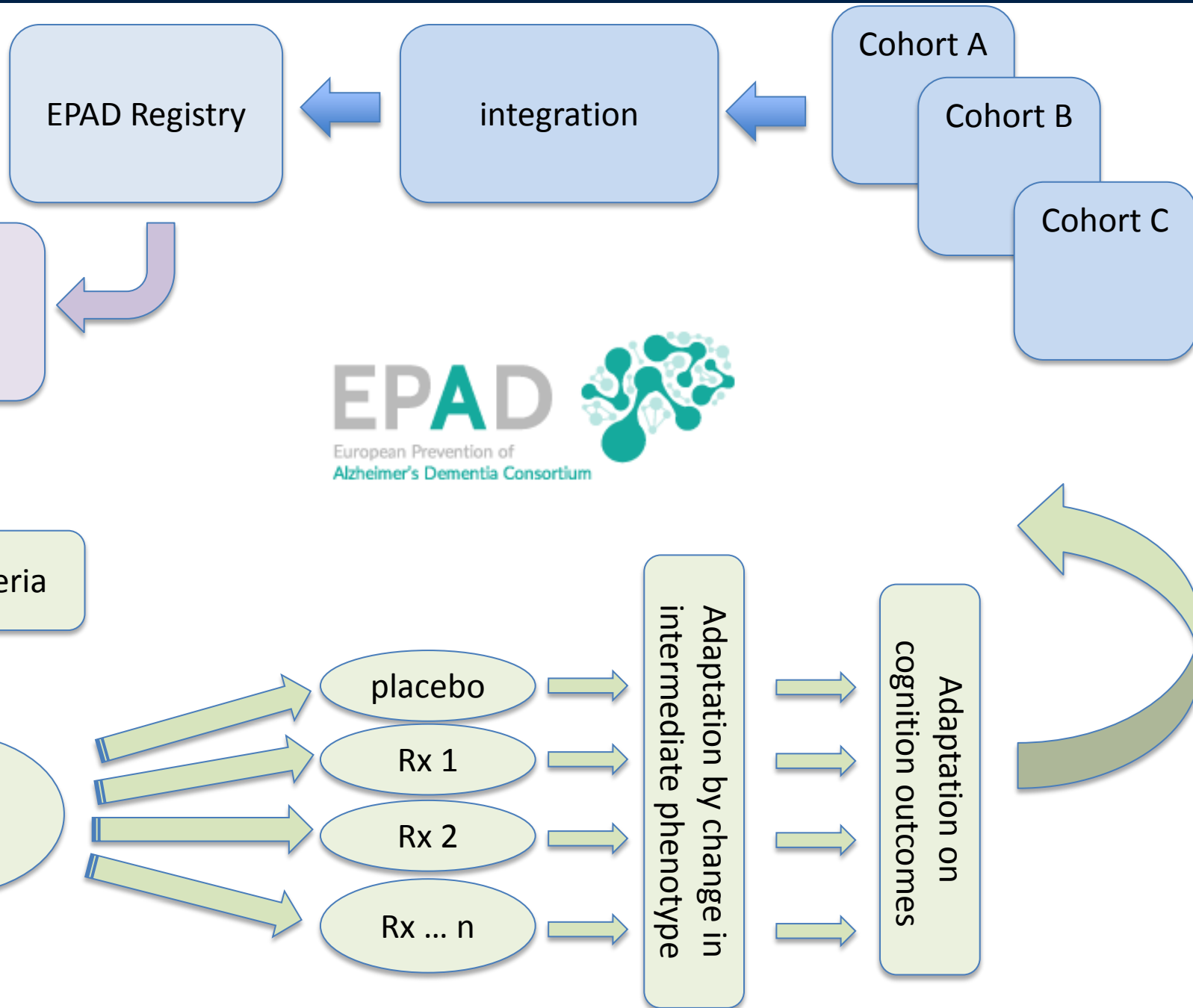
**Readiness
register, cohort
and
Early Phase
Trials**

Pre-competitive
data driven
drug development

Pre-competitive
cohort repurposing for
experimental medicine

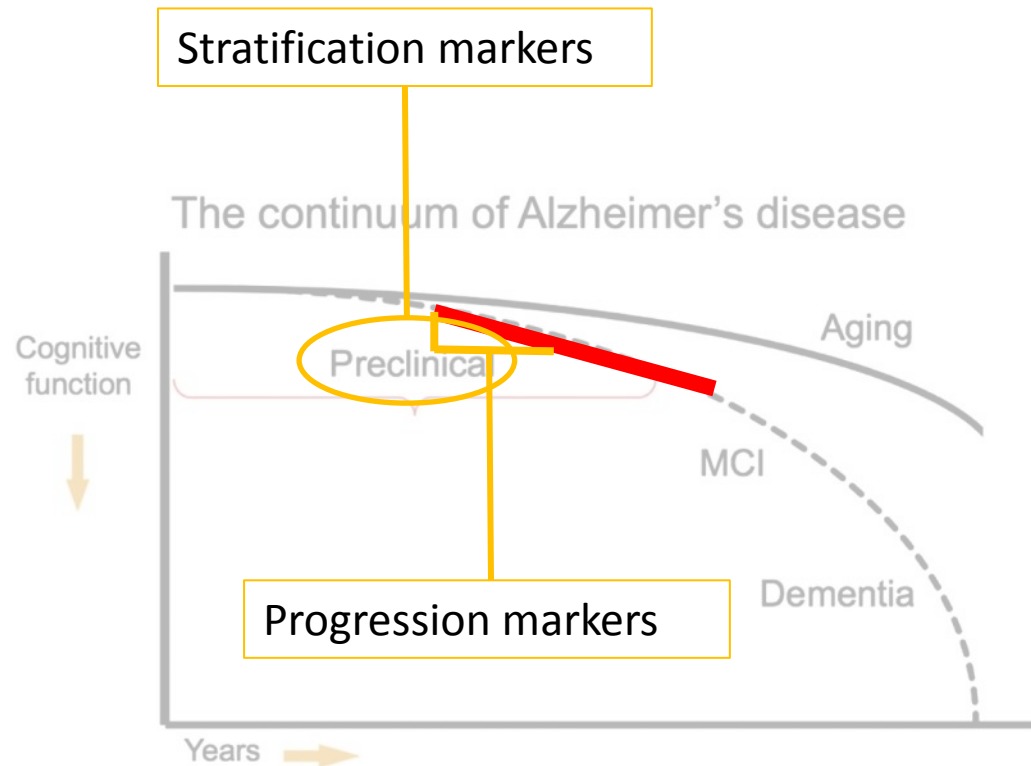
Pre-competitive
reutilisation of research
and real-world data

Pre-competitive
data driven
PoC/PhII





Biomarkers for secondary prevention





Dementias Platform UK



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[DATA PORTAL](#)

BEATING DEMENTIAS TOGETHER

The Dementia Platform is a coordinated and integrated way of doing dementia research. By helping world-leading experts to work together to do better studies more quickly and at a lower cost, we will accelerate progress in dementia research

[READ MORE](#)

TWITTER

10 year old becomes new face of national [#dementia](#) campaign after watching his gran suffer - <http://t.co/IR6YnpvQH4> <http://t.co/17Rp31uBpX>
49 minutes ago

[DATA PORTAL](#)

MRC's Dementias Platform UK supports new European research initiative for the prevention of Alzheimer's dementia

EPAD, the European Prevention of Alzheimer's Dementia Consortium will follow in the footsteps of the MRC's Dementias Platform UK (DPUK)....

[READ MORE](#)



Dementias Platform UK
from Dementias Platform UK [DPUK](#)



06:18

[vimeo](#)

<http://www.dementiasplatform.uk/>



UK Biobank for Dementia Research

- 500,000 participants; baseline assessments 2005-8
- Web-based questionnaires for additional exposures and outcomes (cognition, mental health, occupation..)
- Multimodal imaging in 100,000 - brain, cardiac and body fat MRI; bone & joint DEXA; 3D carotid ultrasound
- Repeat Neuroimaging, cognition and sampling in 20,000
- Genotyping of all participants (820,000 SNPs)
- Connectivity to EMRs for mental health



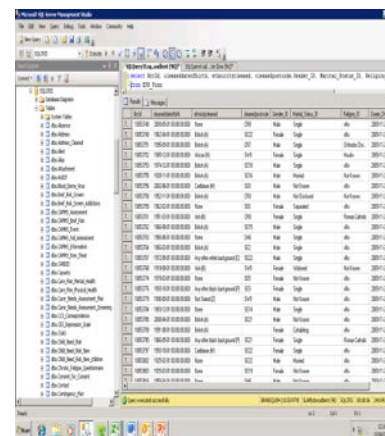
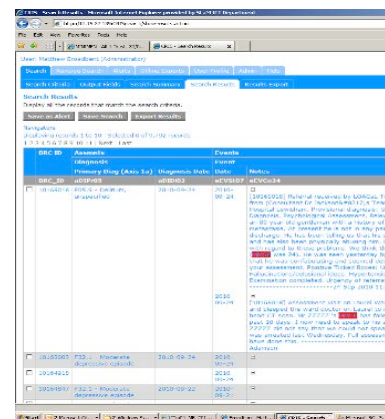
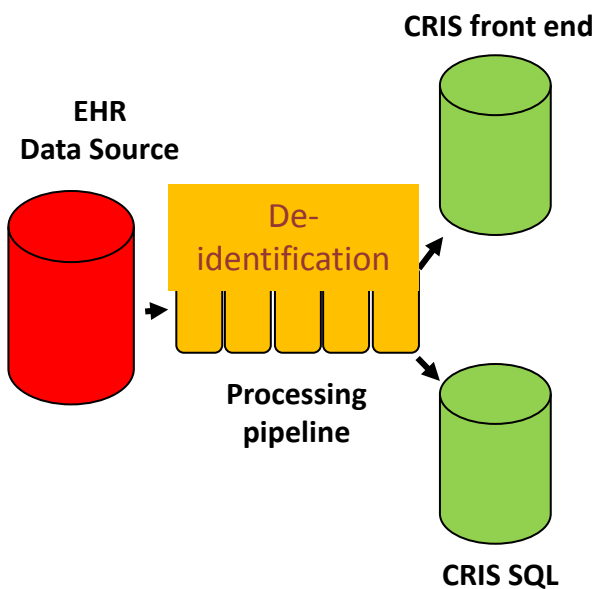
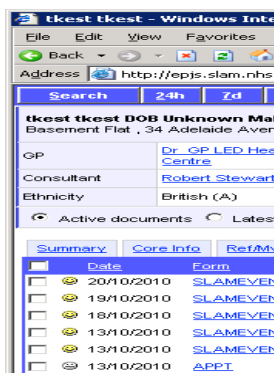
Use of EMRs for research



- SLaM CRIS
 - South London and Maudsley NHS BRC implementation
- D-CRIS
 - Cambridge & Peterborough, Oxford Health, West London, Camden and Islington
 - 1 million plus patients
- UK-CRIS
 - 10 site extension
 - Connectivity to UK BioBank
- Mike Denis and Simon Lovestone

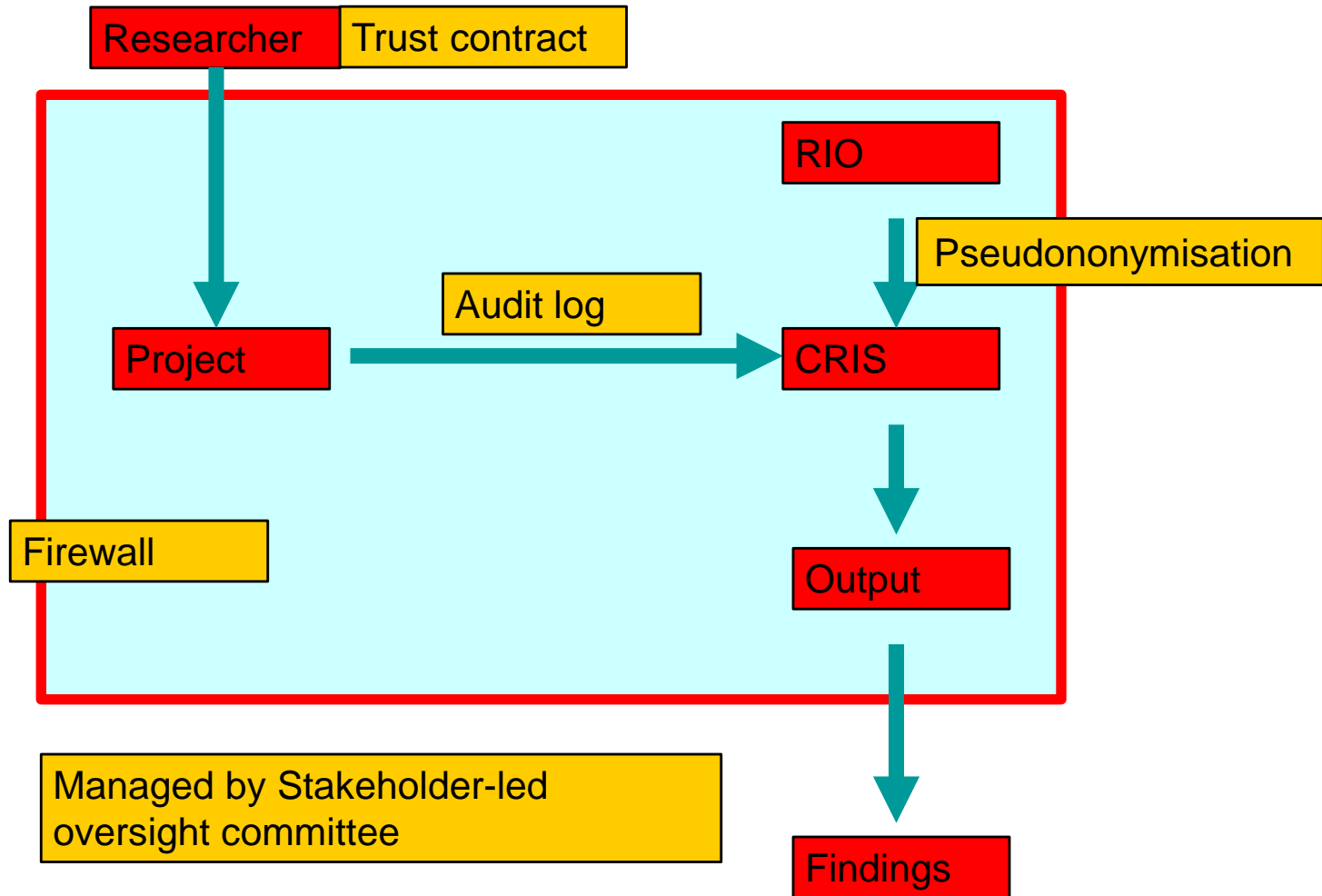


CRIS – core functionality





CRIS Security





GATE – Text Parsing

FAST enables **information retrieval**, i.e. search and retrieval by matching against user defined strings;

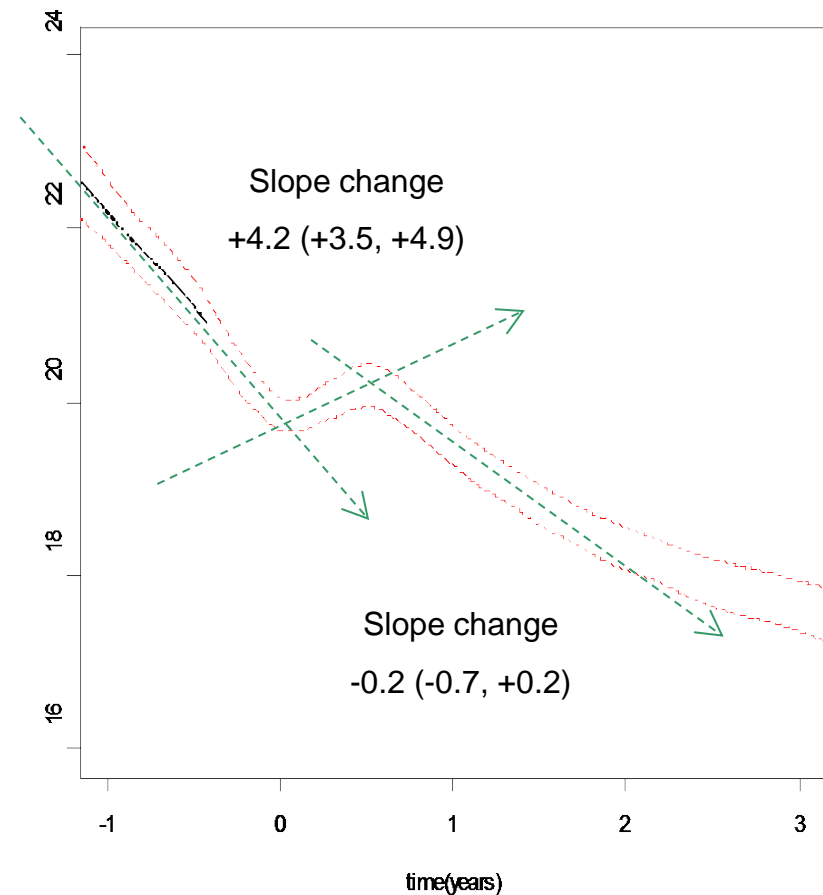
GATE enables **information extraction**, i.e. extracts 'meaning' (structure) from free text context



EHR-data re-use for research

(Cholinesterase inhibitors and Alzheimer's disease)

- Phase IV of AChEI
 - > 2500 patient years of therapy
 - > 8 fold dataset compared to Cochrane
- Costs and effectiveness
 - precompetitive collaboration with pharma
 - Text mining derivation of service utilisation and costs
- Predictors of response
 - Biomarkers and clinical



Data from Robert Stewart, KCL



European Medical Information Framework

Academic partners



Patient Organisation



SME partners



Efpia partners





Data available through consortium

- Large variety in “types” of data



Primary care
data sets



Hospital data



Administrative
data



Regional
record-linkage
systems



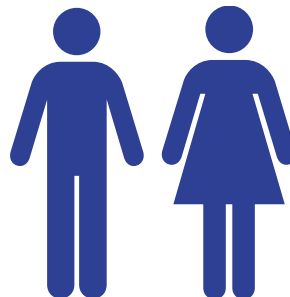
Registries and
cohorts (broad
and disease
specific)



Biobanks

- Data is available from more than 53 million subjects from seven EU countries, including

>40,000
subjects in
AD cohorts



>90,000
subjects in
metabolic cohorts



EMIF Catalogue



EMIF Catalogue

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Research cohorts on AD or aging

- Type of cohorts:
 - Population-based cohorts
 - Clinical cohorts
 - National multicenter studies
 - European multicenter studies
 - Clinical trial cohorts





Data available through cohorts in catalogue

Number of subjects	Controls	SCI	MCI
All	31219	3173	11976
Plasma	3537	1764	3961
DNA	8763	3163	5731
RNA	1637	484	2128
CSF	846	1336	3757
Urine	2307	1116	2349
MRI	3449	1035	5586
FDG-PET	551	308	1942
Amyloid PET	335	143	492
EEG	301	773	1173

Either access to results from analysis or access to samples/scans

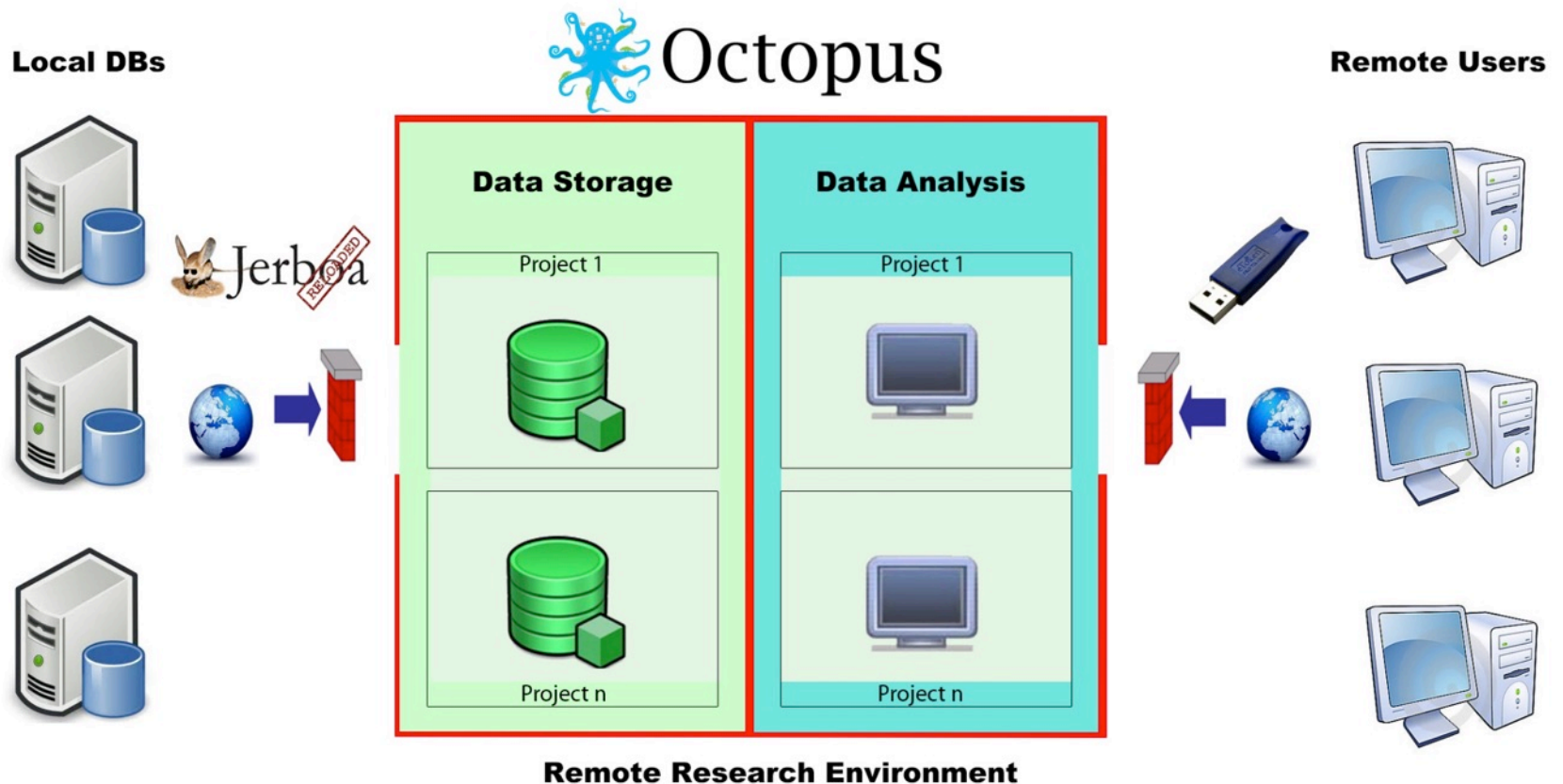


Available EMR data sources – EMIF-Platform

Database name	total (cumulative) # of subjects	# of active patients in January 2012
Aarhus (DK)	2.3 million	1.8 million
Regional DB Tuscany (IT)	4.8 million	3.8 millions
GePaRD (DE)	17 million	12.655.616 (Jan 2007)
THIN (UK)	> 11 million	3.8 million (Sept 2012)
IPCI (NL)	2.9 million	1.6 million
Health Search (IT)	> 2 million	930,000
Pedianet (IT) (<i>0 to 14 years</i>)	400,000	150,000
Pharmo (NL)	> 7 million	5 million
Birth Cohort (UK)	1,184	960
Cardiovasc. Interv. Registry (UK)	460,000	3,000
Salford Diabetes registry (UK) <i>TBC</i>	12,000	12,000
IMASIS (ES)		
EGCUT (ES)	52,000	NA
TOTAL	~ 48 million	~ 17 million



Private Remote Research Environments



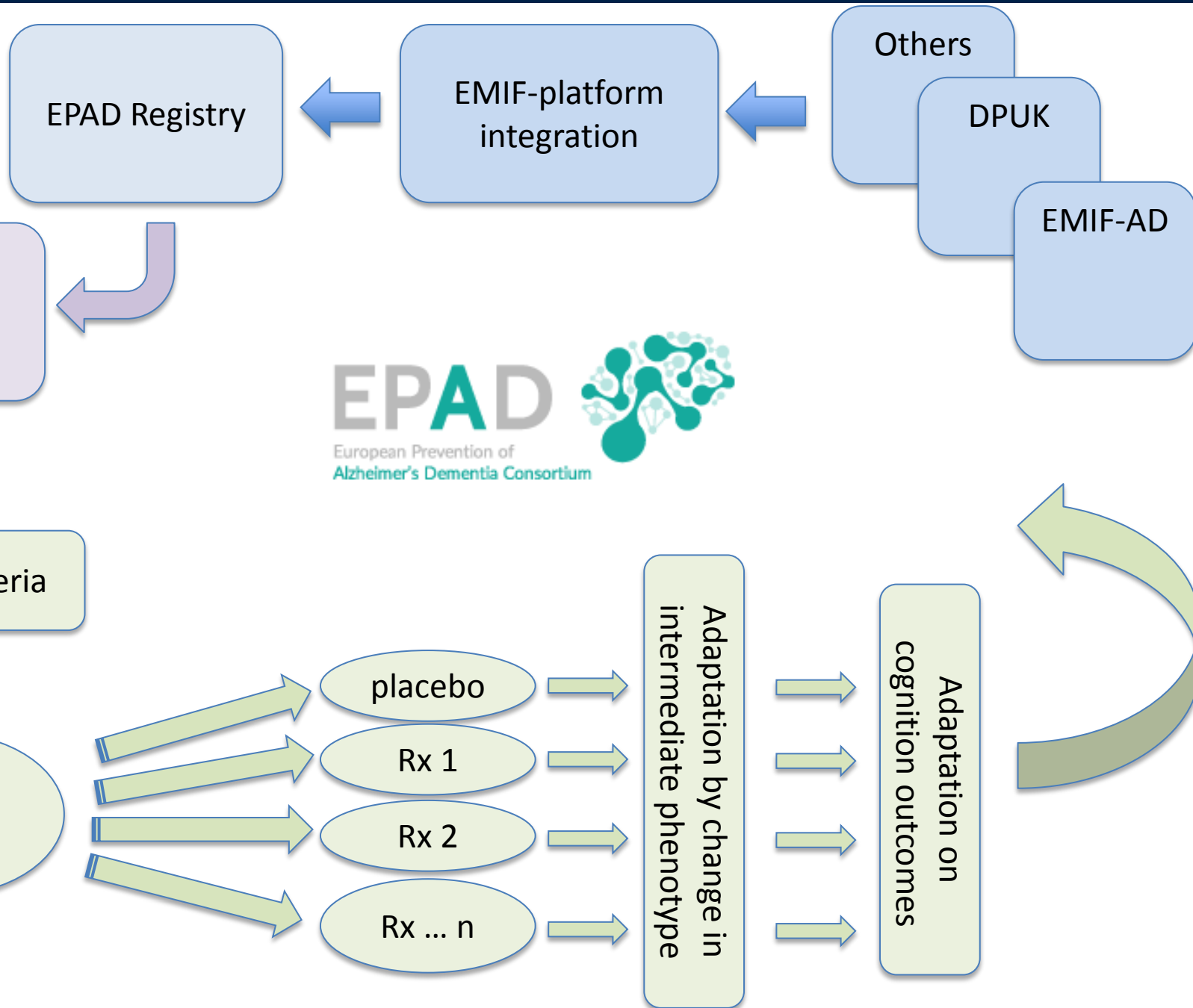


Readiness register

Modeling cohort

Standing PoC adaptive trial







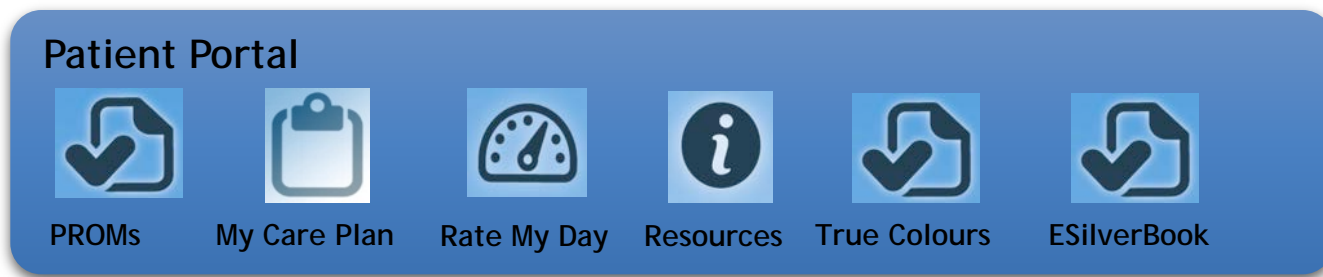
With thanks to....

- > 50 executive members
- > 150 principal investigators
- > 500 scientists
- > 1500 collaborators
- > 50,000 volunteers
- > 50,000,000 individuals contributing data
- > 200,000,000 euros from funders





- OHFT patient data
- GP patient data
- User generated data
- Wider Provider community



Secure Network

