

Learnings from EU funded projects

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The case for telemedicine is unquestionable

- The ageing of the EU population is not going to stop and even less to go backwards
- Ageing of the EU population means:
 - an increase in chronic diseases and in the frailty among the general population
 - a deterioration of the dependency ratio
 - a shortage of financial resources and personnel in the care sector to cope with the increase in demand
- Small adjustments to traditional care organisation and processes are unlikely to provide a solution
- Telemedicine is one of the best candidates to trigger a radical change

The quest for an adequate evaluation framework

- I have spent over 20 years in the world of telemedicine
- In this period a number of colleagues and I have grown increasingly frustrated with the lack of solid evidence about the outcome of telemedicine
 - great investment by the EU and the national agencies in telemedicine pilots
 - poor culture of evaluation frameworks among the project participants
 - inconclusive results  poor value for money for the Commission

MAST and its genesis

The genesis of MAST

- The Commission got also concerned about the lack of solid evidence for the outcome of telemedicine interventions and acted on it
 - April 2008: publication of the ITT SMART 2008/0064 - Methodology to assess telemedicine applications
 - MethoTeleme contract awarded to a Consortium led by MedCom (DK) and comprising the University of Stirling (UK) and the Norwegian Centre for Telemedicine (NO)
 - First version of the framework released in July 2010 and immediately adopted in the RENEWING HEALTH Pilot Type A project

Offer and demand meet

Demand of a robust
evaluation framework by a
core group of telemedicine
pioneers

MethoTelemed

MAST



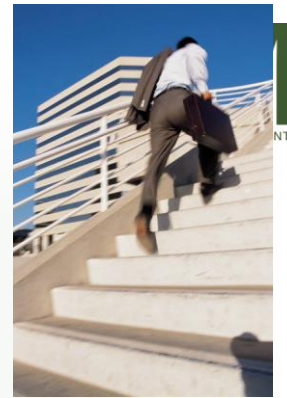
Adoption by the core group of MAST as the
methodology framework of choice for the evaluation
of all the deployment projects they have launched



MUST is:

- a structure for collection of the right data in the right way
- a multidisciplinary assessment framework
- built upon the HTA Core Model
- being extended beyond the original scope of MethoTelemed

Elements in MAST



STEP 1:

Preceding assessment:

- Is the technology and the organization matured?

STEP 2:

Multidisciplinary assessment (domains):

1. Health problem and characteristics of the application
2. Safety
3. Clinical effectiveness
4. Patient perspectives
5. Economic aspects
6. Organisational aspects
7. Socio-cultural, ethical and legal aspects

STEP 3:

Transferability assessment:

- Cross-border
- Scalability
- Generalizability

The advantages of MAST

- Based on the healthcare decision makers need for information
- Guiding research teams in structuring their data collection
- Examples of relevant outcomes and outcomes measures:
 - Access
 - Technical reliability
 - Patient acceptability
 - Business case
 - ...
- Improving the scientific level of data collection and reporting:

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A MODEL FOR ASSESSMENT OF TELEMEDICINE APPLICATIONS: MAST

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Objectives: Telemedicine applications could potentially solve many of the challenges faced by the healthcare sector in Europe. However, a framework for assessment of these technologies is needed by decision makers to assist them in choosing the most efficient and cost-effective technologies. Therefore in 2009 the European Commission initiated the development of a framework for assessing telemedicine applications, based on the users' need for information for decision making. This article presents the Model for Assessment of Telemedicine applications (MAST) developed in this study.

Methods: MAST was developed through workshops with users and stakeholders of telemedicine.

Results: Based on the workshops and using the EHealthIA Core HTA Model as a starting point a three-element model was developed, including: (i) preceding considerations, (ii) multidisciplinary assessment, and (iii) transferability assessment. In the multidisciplinary assessment, the outcomes of telemedicine applications comprise seven domains, based on the domains in the EHealthIA model.

Conclusions: MAST provides a structure for future assessment of telemedicine applications. MAST will be tested during 2010–13 in twenty studies of telemedicine applications in nine European countries in the EC project Renewing Health.

Keywords: Telemedicine application, HTA, EHealthIA, Assessment model

Evaluering af
**telemedicin og
 velfærdsteknologi**
 i patient@home

En vejledning til MAST
 Redigeret af Kristian Kidholm

RENEWING HEALTH REGIONS of Europe Working together for HEALTH

Guideline on analysis and reporting of results from the pilots in Renewing Health

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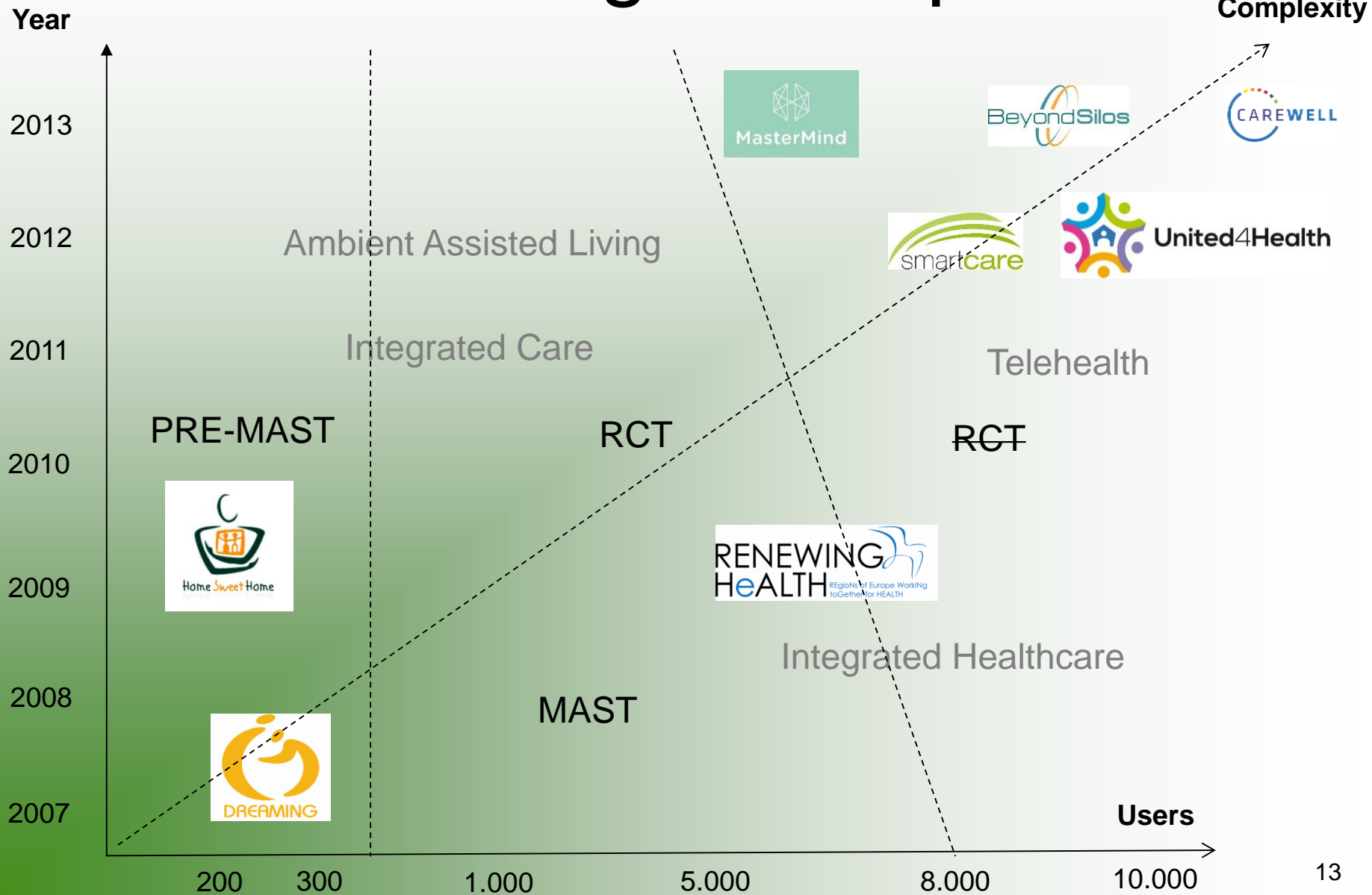
MAST and the EU projects

The ICT PSP projects in which the core partners are involved

Project	Year	EU funding	Type of pilot	Description
BeyondSilos	2013	2,736,000 €	Pilot B	Integration of social and health services through ICT - AAL
CareWell	2013	2,926,000 €	Pilot B	Integration of health services through ICT
DREAMING	2007	2,770,000 €	Pilot B	AAL
HOME SWEET HOME	2009	2,439,000 €	Pilot B	AAL
MasterMind	2013	7,000,000 €	Pilot A	Mental Health - Treatment of depression through ICT
RENEWING HEALTH	2009	7,000,000 €	Pilot A	Telemedicine B2C
SmartCare	2012	8,000,000 €	Pilot A	Integration of social and health services through ICT - AAL
SUSTAINS	2011	3,500,000 €	Pilot B	On-line access to EHR by citizens
United4Health	2012	5,000,000 €	Pilot A	Telemedicine B2C
Total		41,371,000 €		

- Average value of project: 4.596.778 €
- Representing > 28% of the global ICT PSP budget for eHealth, eInclusion and AAL

The chronological sequence



The user population

Chronicity management

- Renewing Health
- United4Health
- CareWell

± 30.000 chronic (mostly older) patients

Integrated Care

- DREAMING
- HOME SWEET HOME
- SmartCare
- BeyondSilos

± 20.000 older people

The user population

Mental Health

- MasterMind

± 5.200 patients suffering
from depression

The largest base of evidence for telemedicine
impact currently available in Europe

Planned evolutions

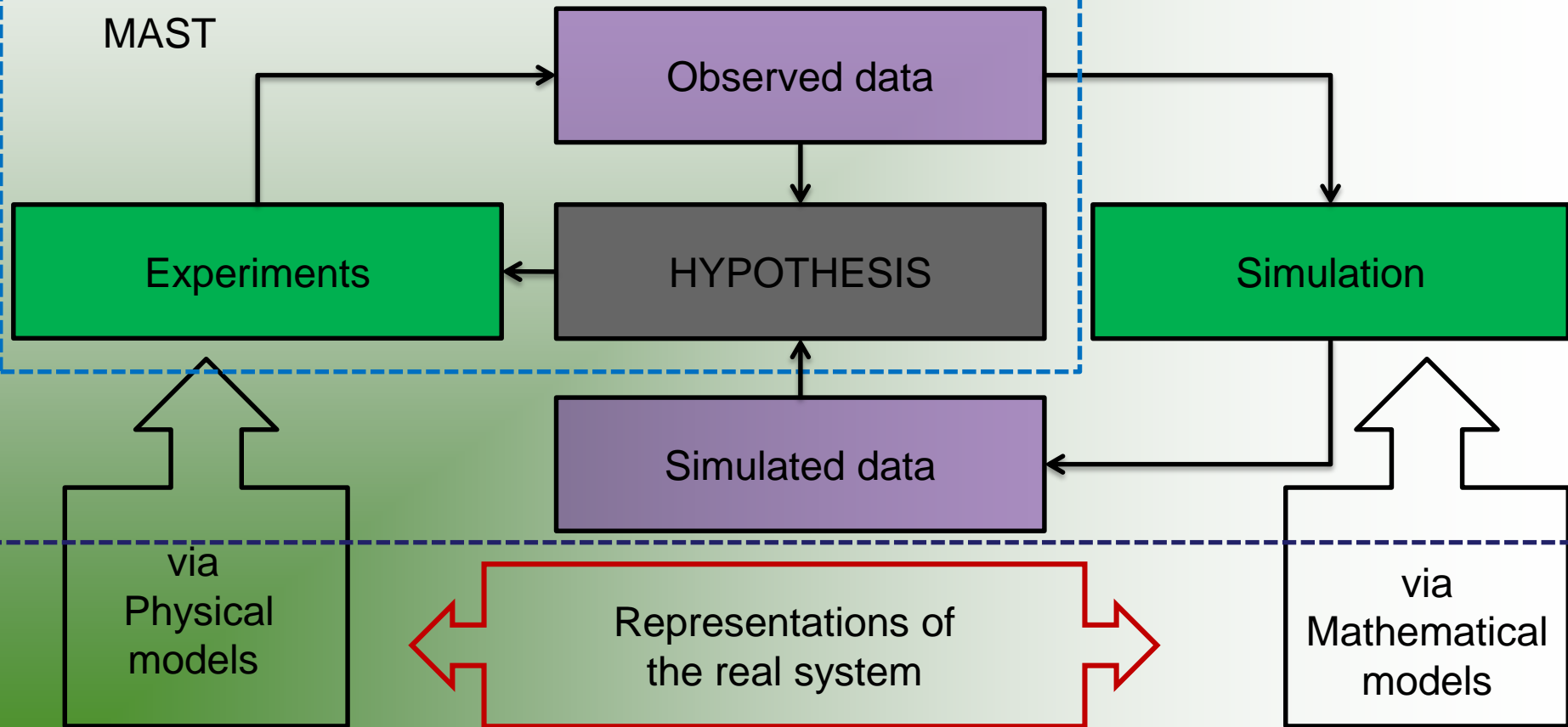
Next steps (short-term)

- Creation of the MAST EEIG – Main vehicle for the further development and promotion of SMART (November 2014)
 - Open club
 - Members: Odense University Hospital & NHS 24 (Scotland)
- Extension of MAST's scope to cover
 - Integrated care (underway)
 - Mental Health (underway)

Next steps (longer-term) Predictive modelling

Scientific method extended

Scientific data



Examples and adoption



An example

- Safety
- Clinical effectiveness

- Patient perspectives

- Economic aspects

Mortality
FEV1, SAT, MRC, BMI
SF-36
Exercise

WSD acceptability questionnaire
Qualitative interviews

Investments
Number of consultations
Number of telephone calls
Number of readmissions
Number of outpatient visits
Number of home nurse visits
Use of emergency ward
Changes in revenue (DRG)

DESIGN: RCT,

- Organisational aspects

Interview with nurses:
Task shifts, satisfaction, etc.



An example

- Safety
- Clinical effectiveness

Mortality
FEV1, SAT, MRC, BMI
SF-36
Exercise

n = 266
No stat. sig. clinical outcome
Readmissions: 1.6 → 1.4
p > 0.05.

- Patient perspectives

Observational study: n = 18
Qualitative interviews: n = 8

Patients find the contacts to nurses very good.
Distance was not a problem.

- Economic aspects

Investments
Number of consultations
Number of telephone calls
Number of readmissions
Number of outpatient visits
Number of home nurse visits
Use of emergency ward
Changes in revenue (DRG)

n = 242
Increase in mean costs per patient = € 740, p > 0.05.
Main reason:
Rental of technical devices

Total costs per year (n=521):
€ 170.000

- Organisational aspects

Interview with nurses: n = 8
Task shifts, satisfaction, etc.

High technical reliability.
Good contact to patients.
Distance was not a problem.

The most widely used framework for assessment of telemedicine in the world

EU Project

Renewing Health
United4Health
SmartCare
InCASA
Integrated Home care

Single projects

Hospital@home: Telemedicine for geriatric patients
Telemedicine Infant Care
Rehabilitation by videoconference
Intelligent bed in Homecare
Patient@home
NerveCentre, Nottingham University Hospitals NHS
Pulsoximeter for COPD patients in home care
CommoDITY12 (Telehealth for diabetes pat.)
Remote real-time video-EEG
Validation of MAST
Development of Mini-MAST checklist

Design and patients

19 RCT studies, 7.000 patients
3 observational studies, 20.000 patients
1 observational study, 9.000 patients
5 studies
1 observational study

1 observational study, Denmark
1 observational study, Denmark
1 observational study, Denmark
1 observational study, China
20 studies, Denmark
1 observational study, England
1 observational study, Sjælland municipalities
1 observational study, Portavita, Amsterdam
1 observational study, La Rioja, Spain
Sante Service HAD, Paris
National Board of Health, Denmark

Conclusions

- The experience acquired so far by the core group of partners and the rapid spread of MAST confirm that it has achieved its primary objective, i.e. adequately evaluating telemonitoring interventions
- The scope of MAST is broadening to meet the demand to encompass new and increasingly complex interventions based on the use of technology and aimed at improving care processes and care delivery networks
- We encourage national HTA Agencies to adopt MAST when asked to evaluate telemedicine interventions

Thank you for your attention