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 asessment framewok

- built upon the HTA Core Model

- being extended beyond the original scope of MethoTelemed

Elements in MAST
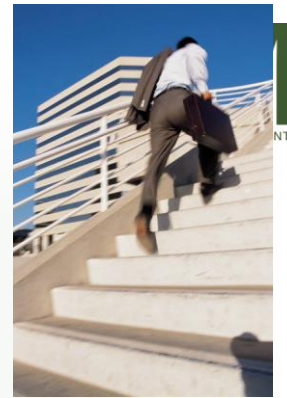
STEP 1:

> **Preceding assessment:**
>
> • Is the technology and the organization matured?

STEP 2:

STEP 3:

> **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

> **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:

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

Complexity

Year

2013

2012   Ambient Assisted Living

2011   Integrated Care

PRE-MAST   RCT   RCT

2010

2009

Integrated Healthcare

2008   MAST

2007   **Users**

Telehealth

MasterMind   BeyondSilos   CAREWELL

smartcare   United4Health

RENEWING HeALTH — REgioNs of Europe WorkINg toGether for HEALTH

Home Sweet Home

DREAMING

200   300   1.000   5.000   8.000   10.000

13
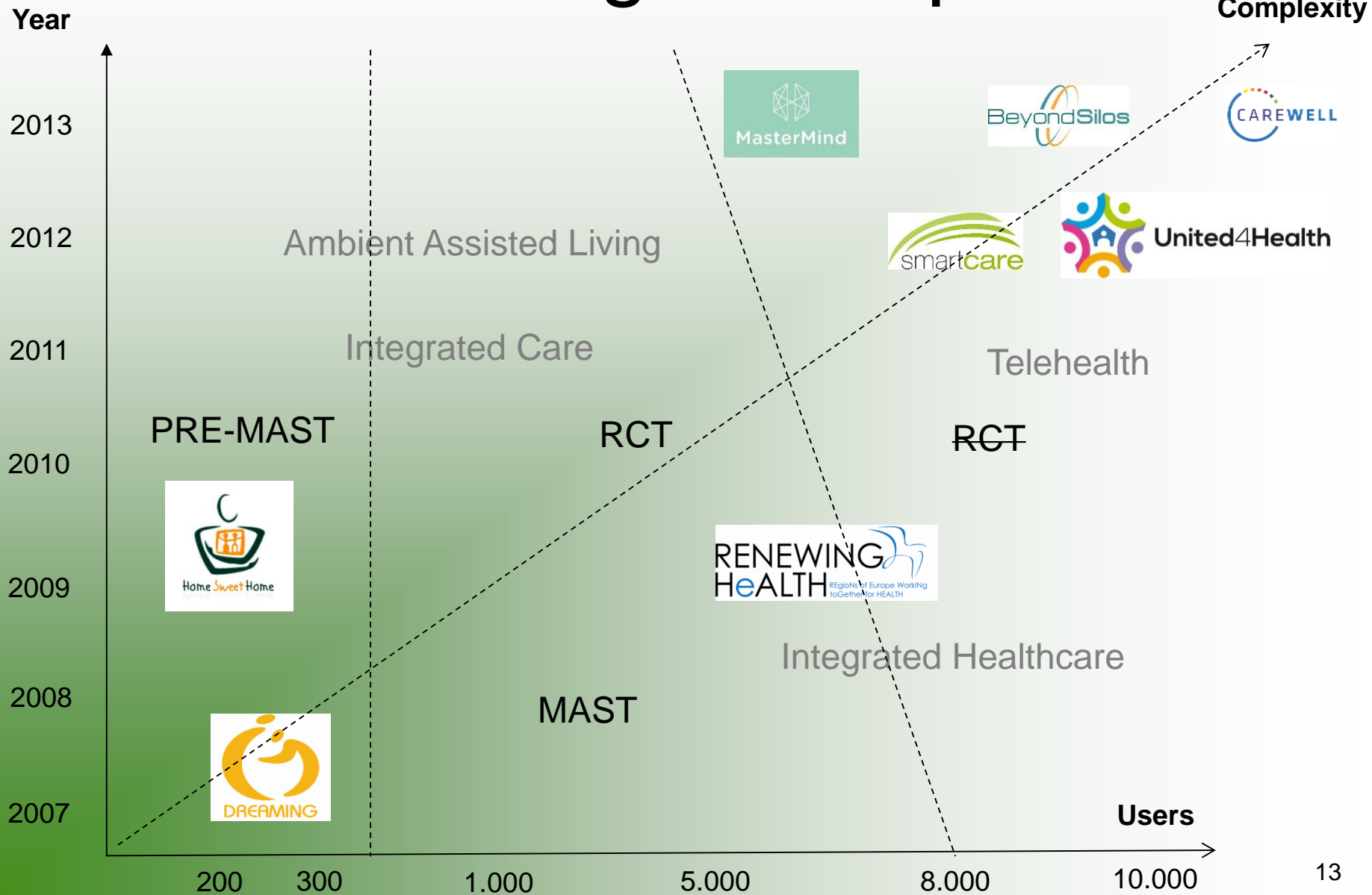
The user population

Chronicity management	Integrated Care
• Renewing Health • United4Health • CareWell ± 30.000 chronic (mostly older) patients	• 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)

HIM
HEALTH INFORMATION MANAGEMENT
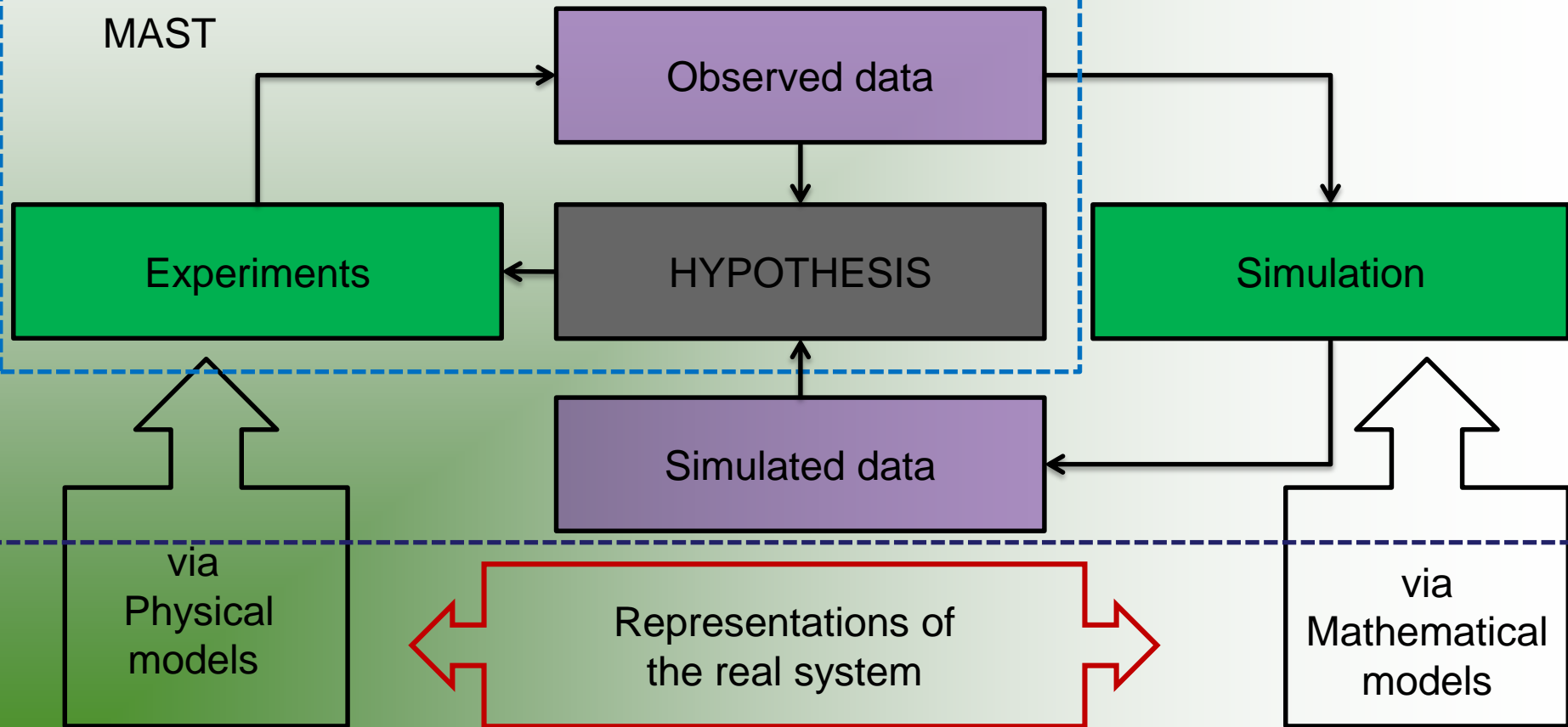
- Creation of the MAST EEIG – Main vehicle for the further development and promotion of SMART (November 2014)
  - Open club
  - Members: Odense University Hospital & NHS 24 (Scotland)

- Extension of MAST's scope to cover
  - Integrated care (underway)
  - Mental Health (underway)

Next steps (longer-term)
Predictive modelling

Examples and adoption

An example

- Safety
- Clinical effectiveness

- Patient perspectives

- Economic aspects

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

DESIGN: RCT,

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)

- 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	Design and patients
Renewing Health	19 RCT studies, 7.000 patients
United4Health	3 observational studies, 20.000 patients
SmartCare	1 observational study, 9.000 patients
InCASA	5 studies
Integrated Home care	1 observational study

Single projects	
Hospital@home: Telemedicine for geriatric patients	1 observational study, Denmark
Telemedicine Infant Care	1 observational study, Denmark
Rehabilitation by videoconference	1 observational study, Denmark
Intelligent bed in Homecare	1 observational study, China
Patient@home	20 studies, Denmark
NerveCentre, Nottingham University Hospitals NHS	1 observational study, England
Pulsoximeter for COPD patients in home care	1 observational study, Sjælland municipalities
CommoDITY12 (Telehealth for diabetes pat.)	1 observational study, Portavita, Amsterdam
Remote real-time video-EEG	1 observational study, La Rioja, Spain
Validation of MAST	Sante Service HAD, Paris
Development of Mini-MAST checklist	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