Introducing digital health innovators to evidence-based scaling-up

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Agenda

• MAFEIP and its functionalities
  • What is MAFEIP?
  • Who uses MAFEIP?
  • How does MAFEIP work?
• Workshop part I: Experimental design
• Workshop part II: Data collection for intervention costs
• MAFEIP outcomes: examples and exploitation
• Q&A
MAFEIP and its functionalities

• "Monitoring and Assessment Framework for the European Innovation Partnership on Active and Healthy Ageing" intends to support evidence-based decision-making.

• Web-based tool (www.mafeip.eu) which rests on the principles of Decision Analytic Modelling: Markov model.

• To estimate the health and economic outcomes of a large variety of ICT enabled social and health innovations.
MAFEIP and its functionalities

308 members <100 cases 31 countries (23 within EU)
MAFEIP and its functionalities

- **WE4AHA (H2020)**: Widening the support for large scale uptake of Digital Innovation for Active and Healthy Ageing
- **DIGITAL HEALTH EUROPE (H2020)**: Support to a Digital Health and Care Innovation initiative in the context of Digital Single Market strategy
- **GATEKEEPER (H2020)**: Smart living homes - whole interventions demonstrator for people at health and social risks
- **GRAVITATE HEALTH (IMI JU2)**: Empowering and Equipping Europeans with health information for Active Personal Health Management and Adherence to Treatment
- **KATY (H2020)**: Knowledge At the Tip of Your fingers: Clinical Knowledge for Humanity
- **PANDEVITA (H2020)**: Pandemic Virus Trace Application for the Effective Knowledge Transfer Between Science and Society Inside the Quadruple Helix Collaboration
MAFEIP and its functionalities

If you are a health or social care provider
Health and social care organizations as well as private insurance companies increasingly participate in the co-design of technology-based solutions and use the evidence resulting from real life pilots to assess their effectiveness and utility and take their decision to invest or to buy.

If you are a researcher
MAFEIP has a relevant potential to improve the quality and relevance of future research and to better serve the information needs of patients, clinicians, payers, and other decision makers by helping to identify gaps in evidence.

If you are a policy maker
MAFEIP represents a valuable instrument in Health Technology Assessment to inform policy decision making.

If you are a company
Big companies, SMEs and start-ups can take advantage of MAFEIP utility in assessing the potential impact of new business propositions for healthcare interventions and thus guiding the decision making process for further technology developments.
MAFEIP and its functionalities

- iPrognosis Case Study
  iPrognosis (Intelligent Parkinson early detection guiding novel supportive interventions) provides technology-based solutions against Parkinson’s and raises awareness on the disease and self-health management.
  Action Group A2

- Smart City Case Study
  The Smart City Case Study describes the potential benefits of using the MAFEIP tool to evaluate Smart City projects and interventions, by using a cost-effectiveness analysis.

- Do CHANGE project conducted in three different locations
  Do CHANGE provides patients with high blood pressure, ischemic heart disease or heart failure chronic conditions with a set of tools and services to optimally monitor and manage in near real-time their health condition and disease. It has been tested in three different locations: Badalona Serveis Assistencials (BSA), the Elisabeth TweeSteden Ziekenhuis (ETZ) and the Buddhist Tzu-Chi Dalin General Hospital (BTC).

- City4Age Case Study
  The main aim of the City4Age-project was to examine an unobtrusive that should be able to discriminate elderly people who are robust from those who are not.
  Action Groups A1 A3 D4

- Renewing Health: Telemetry for Type 2 Diabetes Patients in Thessaly, Greece
  The objective of Renewing Health was to implement telemecine services in nine European regions for the validation and subsequent evaluation of these services using a patient-centred approach.
  Action Group B3

- Integrated care for frail elderly patients in the Basque Country – CareWell project
  CareWell project has focused on the provision of care and support to older people who have complex health and social care needs. This has been achieved through ICT enabled healthcare services coordination and monitoring, patients’ self-management, and informal carers involvement.
  Action Group B3

- Physical exercise program for reducing the risk of falling among older adults
  A physical exercise program composed by balance and strength training was designed with the aim of reducing the prevalence of falls and its related cost.
  Action Group A2

https://www.mafeip.eu/the-mafeip-community
The outcomes for the intervention and the standard care are calculated by simulating the health status of the target population. This is done by simulating the transition of the target population between the states defined in the Markov model.

Each state of the model is defined by an amount of resource use (costs) and quality of life (utility or health outcomes). This represents the average resource use and quality of life of a patient in that health state.

A transition from the baseline to the disease/impairment state represents a patient becoming ill (i.e., the incidence of the health condition). When a patient experiences an improvement in his/her clinical conditions, as in the case of disease remission, it is defined as the transition from the disease to the baseline state (i.e., the rate of recovery).
MAFEIP and its functionalities

In order to easily grasp the evaluation outcome, the overall impact of the intervention is shown using a **cost-effectiveness plane**: the Incremental Cost Effectiveness Ratio (ICER) of the intervention under assessment is displayed in comparison with the Willingness to Pay (WTP) threshold in order to facilitate decision making.
Why using experimental design?

• Types of questions that experiments can address:
  (I) Questions about underlying mechanisms
  (II) Questions about causality
  (III) Questions about causes and effects

• There is a close relation between the research question and the design:

  A → Site 1 → Site 2

  Within-subjects design: The same participant tests all conditions corresponding to a variable

  A → Site 1 → Site 2

  Between-subjects design: Different participants are assigned to different conditions corresponding to a variable
Let’s think about your projects

Workshop part I: Let’s come up with an example of a study that involves two or more comparative groups relating to your projects

• What is the study about?

• What is the dependent variable? (or multiple?) And the independent variable?

• How many factors do you have? Should it be a between or within-subject design?
### Data to be collected: costs

- Costs associated with both the intervention and the standard care scenario:

<table>
<thead>
<tr>
<th>Type of cost</th>
<th>Definition</th>
<th>Example</th>
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<tbody>
<tr>
<td><strong>1. One-off and annual recurrent costs</strong></td>
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<tr>
<td>1.1 Intervention costs</td>
<td>Cost of the intervention group</td>
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<tr>
<td>1.1.1 One-off intervention costs</td>
<td>Cost of the intervention before treatment</td>
<td>€ of device</td>
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<td>1.1.2 Recurrent annual costs</td>
<td>Cost incurred for delivering the intervention</td>
<td>€ of software license</td>
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<td>1.2 Standard care costs</td>
<td>Cost of the control group</td>
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<tr>
<td>1.2.1 One-off intervention costs</td>
<td>Cost of the intervention before treatment</td>
<td>€ of surgical procedure</td>
</tr>
<tr>
<td>1.2.2 Recurrent annual costs</td>
<td>Cost incurred for delivering the intervention</td>
<td>€ of service mgmt</td>
</tr>
<tr>
<td><strong>2. Health state cost</strong></td>
<td></td>
<td></td>
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<tr>
<td>2.1 Healthcare costs</td>
<td>Cost of resources within the healthcare system</td>
<td>€ of medication</td>
</tr>
<tr>
<td>2.2 Societal costs</td>
<td>Costs outside the healthcare system</td>
<td>€ of caregivers</td>
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Let’s think about your projects

Workshop part II: Let’s come up with an example of (I) one-off and annual recurrent costs and (II) health state costs relating to your projects

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MAFEIP outcomes: example

• Using evidence from the cost-effectiveness analysis with the MAFEIP-tool different technological interventions can be used to support Nikos in improving his health.

• Do CHANGE: Monitor and manage in near real-time his health condition and disease

• United4Health: Telemonitoring

• Renewing Health: Telemedicine treatment of chronic patients

Nikos: a prototype for using MAFEIP-outcomes for personas

Name: Nikos
Country: Greece
Age: 50
Area: urban
Life course: working age adult
Need: chronic conditions & social care
Connectivity: broadband, mobile device

+ effective
- money
MAFEIP outcomes: exploitation

- Test whether your intervention is cost-effective with robust evidence
- Scale-up your idea
- Disseminate your results through a world-wide eHealth network
- Publish your report on the EIPonAHA and scientific journals
Why to Apply MAFEIP?

Success Story 1  Prognosis
An app that measures the use of games by people with Parkinson's.

Applied MAFEIP / Result: COST EFFECTIVENESS
The adoption of the app could save 400-650 euros per patient a year in healthcare costs.

Expected decrease in healthcare costs over a horizon of 20 years:
- 8 million euros in Greece.
- 72 million euros in Germany.
- 98 million euros in the United Kingdom.

Success Story 2  CareWell
A project that measures the care of frail, elderly patients.

Applied MAFEIP / Result: COST EFFECTIVENESS
- The intervention is effective if there is a willingness to pay that is at least €6,667 per quality-adjusted life year for each patient.
- The intervention is more effective than current care.
- The intervention is also more expensive than current care.

Success Story 3  Renewing Health
Telemedicine services in all 9 European regions

Result: COST EFFECTIVENESS
- Telemonitoring remains a cost-effective choice for the Greek national health care system even if it is a more expensive intervention than standard care.
- Over a 45-year time period, costs would increase but quality-adjusted life years (QALYs) would improve.
Welcome to MAFEIP

The "Monitoring and Assessment Framework for the European Innovation Partnership on Active and Healthy Ageing" (MAFEIP) intends to support evidence-based decision-making processes for all institutions and users in the health and care sector.

Within the framework of the new 2017-2019 EIP on AHA cycle, MAFEIP represents one of the three cross-cutting initiatives that are open to any Partner to participate along with the Blueprint on Digital Transformation of Health and Care and the Innovation 2 Market initiative.

Contact: info@mafeip.eu Website: www.mafeip.eu Twitter: @mafeip
Q&A
Thank you!
Join us at www.mafeip.eu
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