Smart Clothing Gamification to promote Energy-related Behaviours among Adolescents

ICT4LIFE Final Conference

Andrew Pomazanskyi, Lead Project Manager of Nurogames GmbH

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**Dr. Holger Sprengel – Founder & Chairman**

- Co-founder Nurogames / Nuromedia in 2006.
- Serial entrepreneur. Broad experience in international media, games, media business
- MBA / LLM (PhD)

**Jens Piesk – Founder & CEO**

- Founder Nurogames / Nuromedia GmbH in 2006.
- Co-Founder and MD of Research Institute of Media Academy Cologne.
- Master in Business Engineering (Dipl.-Wirt-Ing.).

**Different organisations:**

- Laboratory for Mixed Realities (‘99 – ’09)
  - Institut der Kunsthochschule für Medien Köln
- plan_b media AG (‘00 – ’05)
  - J2ME / Mobile Games
  - Mobile Content
- Nurogames GmbH (since ’06)
  - Nintendo DS/Wii Games
  - iOS / Android Games

**EU framework programmes FP 5, FP 6, FP 7, H2020**

- More than 18 years of experience
Ongoing research and innovation projects

PATHway
RAGE
MaTHiSiS
SmartLife
GOAL
eConfidence
PTwist
V4Design
5GTango
SocialEnergy
AFarCloud
Connexions
Immerse2Learn
VoiceAdapt

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**eHealth Research**

**SmartLife**

The aim of the SmartLife project is to provide adolescents with a tailored, evidence-based and engaging gamification tool to promote physical activity, fitness and reduce sedentary behaviour by using feedback from smart textiles.

**PATHway**

PATHway proposes a novel approach to Cardiac Rehabilitation that will ensure a shift towards empowering patients to more effectively self-manage their Cardiovascular Disease, set within a collaborative care context with health professionals.

**GOAL**

GOAL is a H2020 EC project that will deliver a platform to foster an ecosystem of games and applications that help people stay motivated to lead socially engaged, physically and cognitively active lifestyles. GOAL facilitates behavioural change through numerous apps that contribute to active living by introducing rewards that can be earned upon reaching goals and redeemed in other apps.

**VoiceAdapt**

The VoiceAdapt project aims to empower elderly people with aphasia (PwA) by means of improving their communication capabilities and their daily communicative activity to attain greater levels of long-term recovery. To this end, the consortium applies innovative speech-sensitive technology to application-based support & training of PwA in order to develop a system that detects and adapts to spoken language deficiencies as typical signs and symptoms of aphasia.

**SmartSenior**

SmartSenior is an interactive training system for the prevention of falls for older people. SmartSenior uses a feedback system for motivation and correction of the trainee and the security model for the transmission of movement data to an assisting physical therapist.

**RehaInteract**

Aim of the RehaInteract project is to develop a 3D movement therapy for the home environment with a modular interaction system suitable for rehabilitation for the clinical and domestic environment.

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eHealth solutions foster widespread deployment is held back:

- Coherent and ubiquitous delivery of healthcare services in EU
- Improve the efficiency and efficacy (cross-national as well)
- Delivery any time at any location
- Reduce the costs of prevention, treatment, rehabilitation
- Foster new cross-domain market opportunities

- Still the lack of broadband communication networks
- High costs
- Relative unavailability of ICT at premises
- Lack of universally accepted practices and protocols (also applies to security)
- Not enough political conviction
- Resistance from healthcare professional bodies and end-users

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Dispersed and compartmentalized sector (ambulatory care, hospital care, prescriptions, rehabilitation centers)
Lack of outcomes-oriented reimbursement for healthcare provision
Rather complicated financing and reimbursement mechanisms across EU
Ambiguous conditions for health insurance coverage
Lack of competition between insurers and healthcare providers
<table>
<thead>
<tr>
<th>Country</th>
<th>Type of private coverage available</th>
<th>Voluntary or mandatory insurance</th>
<th>% of pop. with private health insurance*</th>
<th>Predominant system of financing the Health Care System</th>
<th>Main supplementary system of financing the Health Care System</th>
<th>Decision making</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>Duplicate and supplementary</td>
<td>Voluntary</td>
<td>36.2%</td>
<td>Public: compulsory social insurance</td>
<td>Private voluntary insurance, direct payments, public taxation</td>
<td>Shared</td>
</tr>
<tr>
<td>Belgium</td>
<td>Complimentary</td>
<td>Voluntary (mandatory in Flanders)</td>
<td>81.6%</td>
<td>Public: compulsory social insurance</td>
<td>Private voluntary insurance, direct payments, public taxation</td>
<td>Federal</td>
</tr>
<tr>
<td>Germany</td>
<td>Primary, complimentary and supplementary</td>
<td>Voluntary and Mandatory</td>
<td>33.9%</td>
<td>Public: compulsory social insurance</td>
<td>Private voluntary insurance, direct payments, public taxation</td>
<td>Federal</td>
</tr>
<tr>
<td>Greece</td>
<td>Duplicate</td>
<td>Voluntary</td>
<td>11.5%</td>
<td>Public: taxation</td>
<td>Private voluntary insurance, direct payments</td>
<td>National</td>
</tr>
<tr>
<td>Ireland</td>
<td>Duplicate</td>
<td>Voluntary</td>
<td>46%</td>
<td>Public: taxation</td>
<td>Private voluntary insurance, direct payments</td>
<td>National</td>
</tr>
<tr>
<td>Italy</td>
<td>Primary, complimentary and supplementary</td>
<td>Voluntary</td>
<td>5.5%</td>
<td>Public: taxation</td>
<td>Private voluntary insurance, direct payments</td>
<td>Regional</td>
</tr>
<tr>
<td>Netherland</td>
<td>Primary, complimentary and supplementary</td>
<td>Mandatory</td>
<td>84%</td>
<td>Mixed compulsory social insurance and private voluntary insurance</td>
<td>Public taxation, direct payments</td>
<td>Regional</td>
</tr>
<tr>
<td>Slovenia</td>
<td>Complementary</td>
<td>Mandatory</td>
<td>87.1%</td>
<td>Public: compulsory social insurance</td>
<td>Private voluntary insurance</td>
<td>National</td>
</tr>
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<td>Spain</td>
<td>Primary, duplicate</td>
<td>Mandatory</td>
<td>19%</td>
<td>Public: taxation</td>
<td>Private voluntary insurance, direct payments</td>
<td>Regional</td>
</tr>
<tr>
<td>Sweden</td>
<td></td>
<td>Mandatory</td>
<td>10%</td>
<td>Public: taxation</td>
<td>Private voluntary insurance, direct payments</td>
<td>Shared</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Duplicate</td>
<td>Voluntary</td>
<td>13%</td>
<td>Public: taxation</td>
<td>Private voluntary insurance, direct payments</td>
<td>Regional</td>
</tr>
<tr>
<td>China</td>
<td>Commercial **</td>
<td>Mandatory and Voluntary</td>
<td>Figure not available, PHI accounted for 9.9% of all premiums collected in 2015</td>
<td>Government</td>
<td>Private voluntary insurance, direct payments,</td>
<td>National</td>
</tr>
<tr>
<td>USA</td>
<td>Primary, complimentary and supplementary</td>
<td>Mandatory</td>
<td>67.2%</td>
<td>Mixed compulsory insurance and private voluntary insurance</td>
<td>Private voluntary insurance, direct payments, public taxation</td>
<td>Shared</td>
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</table>

(Jakubowski & Busse 1998; Phi et al. 2016; Rice et al. 2013; The Commonwealth Fund 2017; Gleeson 2016; OECD 2017; Blumenthal & Hsiao 2015; Meng et al. 2015)
Stakeholders and routes for exploitation

**Citizens/Individuals**
- Increasing consumerism, reliable information, timely response and care
- Business2Consumers (B2C)

**Businesses/Third parties**
- Goods and services suppliers, supporting supply chain and potentially eCommerce solutions within healthcare delivery
- Business2Business (B2B)

**Healthcare Professionals/Clinical institutions**
- Aware of the need of higher quality for health care, reduced costs, risk of litigation, increased flow of information with higher complexity which are possibly not managed in a satisfactory manner through conventional methods
- Business2Business2Consumer (B2B2C)

**Institutions (incl. Health policy makers, insurers, payers)**
- Aim to use ICT in public sector with the goal to improve convenience, efficiency and shift the costs
- Business2Government (B2G) / Business2Business (B2B) / PPI

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Stakeholders attitude towards eHealth solutions

**Attitudes towards e-Health**

**Healcare Industry**
- **Hospitals**
  - Reluctant since
    - Data protection is still a weak point
    - Investment and training needed

**Public Sector**
- **Government**
  - Embraces opportunities to increase transparency and efficiency
  - Nevertheless harmonization is required

**Payer organizations**
- **Statutory insurances**
  - Show certain interest but require policy support
  - Interested at faster ROI
- **Private insurances**
  - Positive but cautious
  - Limited market power

**Care provider**
- **Office-based physicians**
  - Doubts concerning
    - Patient/doctor relation
    - Data security/protection
    - Medical independence
- **Public providers**
  - Reluctant concerning investment needs
- **Private providers**
  - Promising potential to improve patient pathways and efficiencies

**Reluctant**
- **New entrants**
  - Potential for new emerging business models and partnerships
- **Patients/Consumers**
  - Hybrids with increasing digital habits
  - Information needs

**Neutral**

**Pushing**

**Medtech**
- Some segments shape digitalization more than others

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Trying to adopt to the market

- Converting solutions towards „Wellness“ rather than health, clinical
- Avoid complicated routes until a favourable environment is created
- B2C and B2B is the key

Solutions intended to be used to maintain a general state of health activity or that associates to a healthy lifestyle with as a result a reduction in the risk or impact of chronic diseases or conditions.

Solutions that present a very low risk to the patient and not involve implants, body modifications or medical procedures to use.
Specific problems SMEs are facing

- Lack of financing
- Lack of support
- Marketing
- Time to market
- Credibility
- Lack of power

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What can be changed?

- Set and achieve the objectives and policies (on Gouvermental level) in a harmonized and clear level with the provision of significant amounts of additional resources for conventional processes change
- Involvement of various stakeholders to develop an overall business model that supports R&D results exploitation
- Faster time to market can be achieved through faster decision making process (too many non-business related targets)
- Use of focused funding
Thanks for your Attention

Contact

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