



**eHealth**  
week

11 - 13 MAY 2015  
RIGA, LATVIA

ORGANISED BY

Ministry of Health  
of the Republic of Latvia



# FP7 WELCOME

An integrated care approach for empowering COPD patients with comorbidities

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# WELCOME

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empowering COPD  
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# Who are we

- **Andreas Raptopoulos**
  - Coordinating FP7 WELCOME, H2020 AEGLE
- **EXUS Innovation** ([www.exus.co.uk](http://www.exus.co.uk))
  - The Innovation unit of the software house EXUS
  - Focused on data technologies and applications
  - 4 pillars of excellence
    - Information Management, Health, Security, Creativity**

**EXUS**.INNOVATION

# WELCOME

- Wearable Sensing and Smart Cloud Computing for Integrated Care to COPD Patients with Co-morbidities
- Duration: 48 months
- Start Date: 1st November 2013
- End Date: 31st October 2017
- Total Funding: 6,170,975.00 €



# Consortium Partners



# The Problem

- By 2030 COPD will be the 4th largest cause of global mortality.
- Problem becomes more complex when thinking of co-morbidities
  - Multiple therapies involved
- Even more complexity is introduced when thinking integration in different healthcare systems
  - Structures
  - Cultures
  - Perceptions



# WELCOME focus

- Addressing the needs of patients suffering from Chronic Obstructive Pulmonary Disease (COPD) with co-morbidities including Chronic Heart Failure, Diabetes, Anxiety and Depression.
- Developing a technology solution enabling a step-change in the integrated care of and self-management by patients.
- Combining a smart vest with sensors to measure and monitor specific COPD patient indicators. Leveraging further patient and environmental information, real-time data can be automatically uploaded to highly secure cloud-based patient medical records.
- Enabling patients, clinicians and health professionals to better monitor and manage integrated personalized healthcare plans.



## External Internet Sources

- Data concerning environmental trends like pollution levels and temperatures in patients' areas that can affect COPD and comorbidities
- Exploit them as a source of informal data



## Patient's Hub



## Country Specific Healthcare Hub





# Envisioned impact

- Reduce the time spent in clinics
- Support and enhance the role of all stakeholders
- Increase independence, empowerment and self-management
- Introduce an integrated care paradigm towards the big-data era



# Results so far - 1

- User-centered design
  - Definition patient and clinical needs across UK, Greece, Germany, The Netherlands & Eire to identify ideal remote monitoring conditions and use scenarios
  - Analysis of different national COPD care pathways and typical patient experiences
  - Feed these findings into a whole-system design

# Results so far - 2

- Full system design
  - Development of use case scenarios, design technical architecture & hardware-software components, design of signal processing software for vest sensor data, design of software applications for patients & clinical users



# Results so far - 3

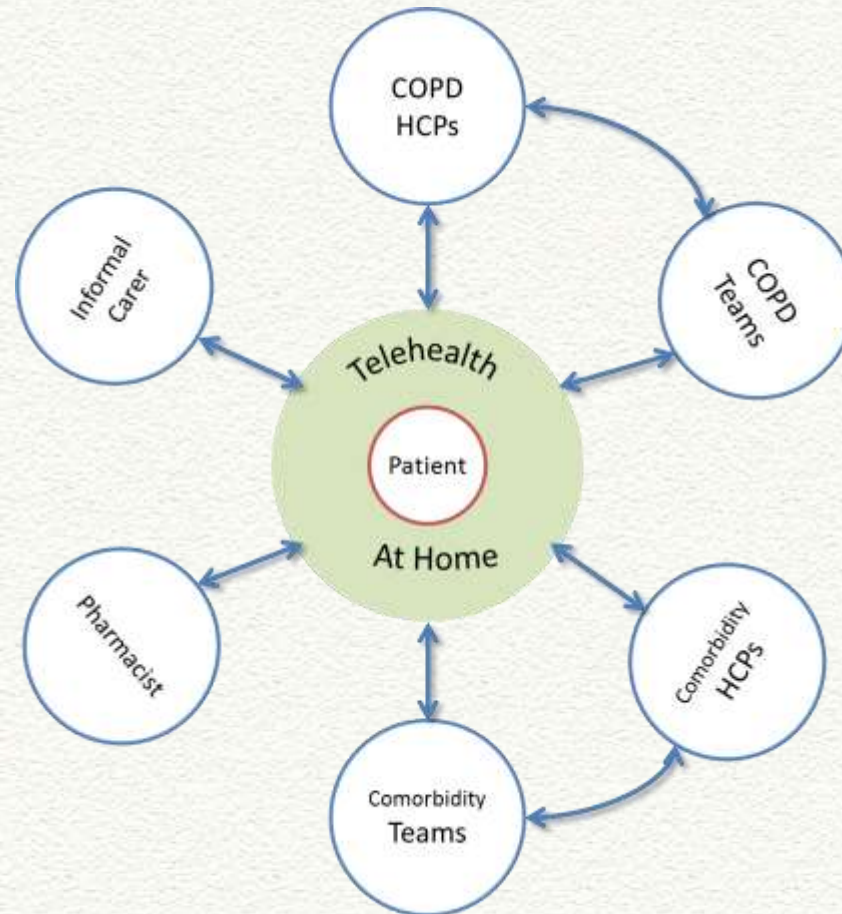
- Vest, sensors and application prototypes
  - Development of sensors & circuit boards for monitoring electrical impedance tomography (EIT), lung function, ECG, oxygen saturation, and body movement
  - Vest textile prototype with integrated sensors
  - Application mock-ups and cloud components prototypes

# Is this enough?

- Fragmented care
- Minimal use of tele-health solutions
- Need for integration
  - Patient focused care



# Integration of tele-health into care pathway



# Conclusions

- Positive acceptance for solutions combining existing and innovative technologies
- Not focusing only to one disease but including also co-morbidities
- Include our users throughout the development process
- Mindset and organizational changes are required for broader adoption



# Follow WELCOME

- [www.welcome-project.eu](http://www.welcome-project.eu)
- **Twitter:** @ProjectWELCOME
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# THANK YOU!

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