Project Presentation

November 2013

FP7-ICT-2013-10
ICT-WP-2013.5.1

CARRE

cardiorenal comorbidity management

via empowerment and

shared informed decision:

- understanding nature of comorbidity
- informed estimation of disease progression
- personalized alerting, planning, education

FP7-ICT-2013-611140

consortium: 6 partners – 4 EU countries

duration: Nov 2013 – Oct 2016

budget: 3,210,470€

EC contribution: 2.573,755€

motivation

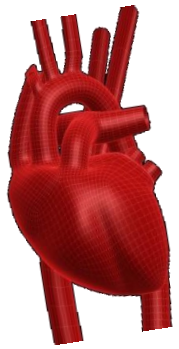
facts:

- ½ of all chronic patients present comorbidities
- only a few overall management guidelines exist
- patients receive fragmented, disease specific care

current research on comorbidities management suggests that improved management of comorbid patients may result via:

- educational and empowering interventions
- shared decision support

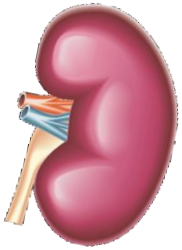
medical domain



chronic cardiorenal disease and comorbidities

- simultaneous (causal) dysfunction of kidney and heart
- diabetes and/or hypertension common underlying causes
- a number of other serious comorbidities often present

  nephrogenic anemia, renal osteodystrophy, malnutrition, blindness, neuropathy, severe atherosclerosis, cardiovascular episodes, and eventually end-stage renal disease and/or heart failure, and death



- deterioration to end stage renal/heart disease is life threatening, irreversible and expensive to manage

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cardiorenal disease & comorbidities

some numbers…

- hypertension ⇨ 1/3 of adults (US 2008)
- diabetes ⇨ 8% of overall population
- chronic kidney disease ⇨ 9-16% of overall population
- 44% of chronic kidney disease is due to diabetes
- 86% of chronic kidney disease has at least 1 comorbidity
- most patients with chronic kidney disease develop cardiovascular disease

- chronic heart failure ⇨ 1-2% of total healthcare costs
- end-stage renal disease (dialysis) ⇨ >2% of total healthcare costs

Dr. D. O‘ Donoghue,
UK's National Clinical Director for Kidney Care (2008):

“We can count the cost of kidney disease in financial terms, but the impact on the lives of patients as a result of late identification and diagnosis is incalculable.

In the UK, dialysis alone accounts for 2% of the total NHS budget (=150 billion €) and this is projected to double over the next five years.

In comparison, the cost of implementing CKD prevention strategies can be modest”.

http://www.medicalnewstoday.com/releases/99428.php

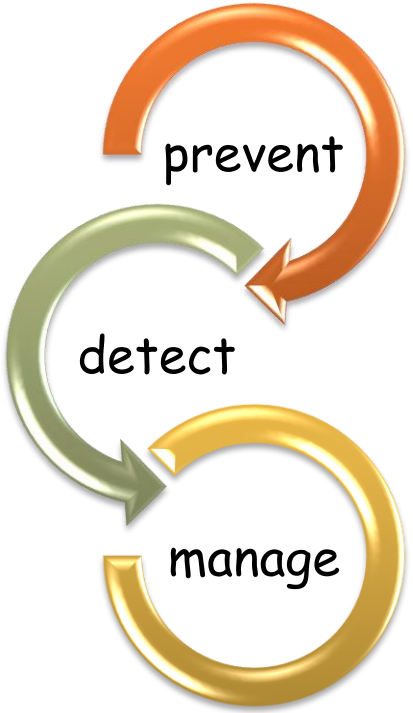
cardiorenal disease & comorbidities

of major importance

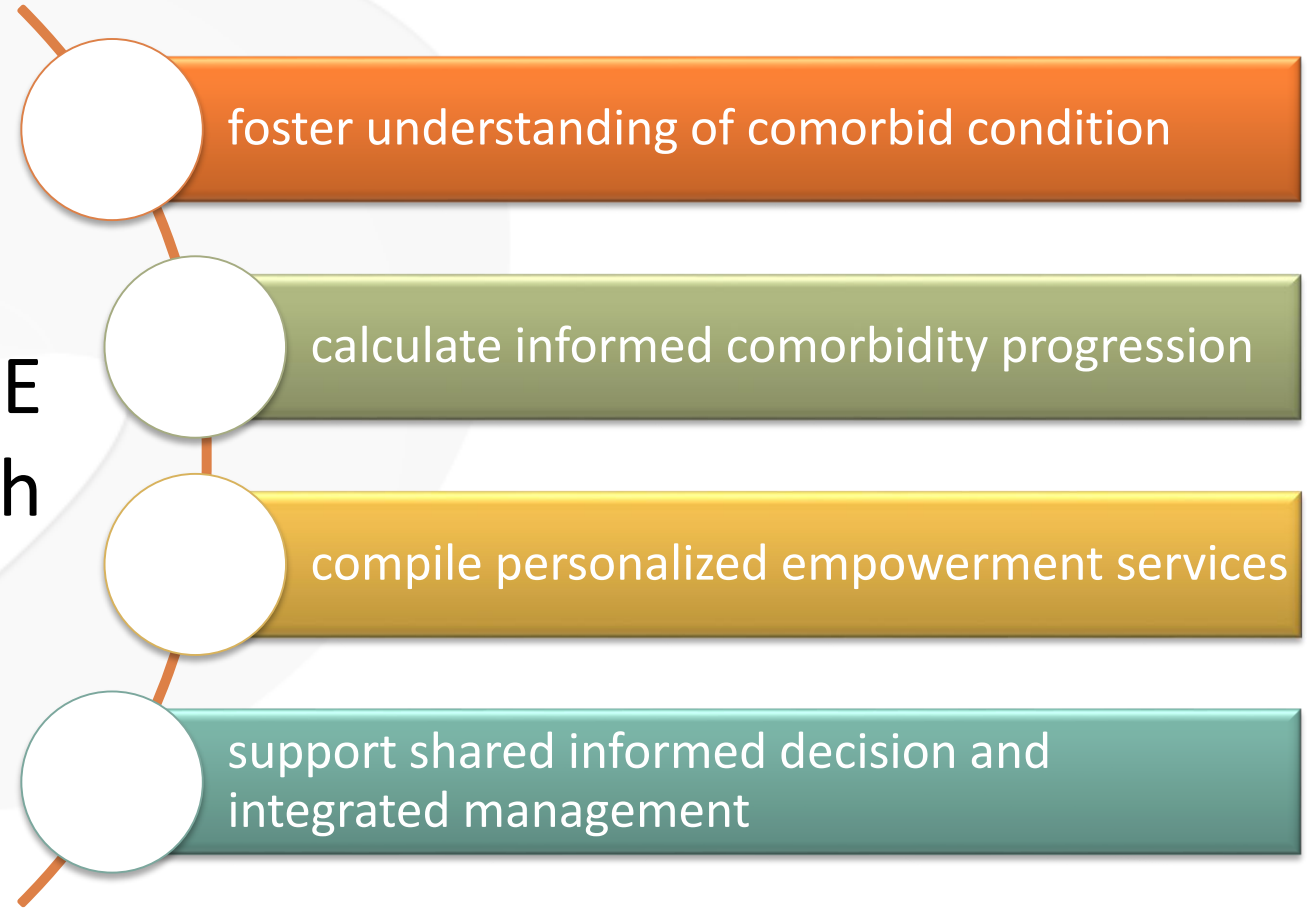
- early detection
- aggressive management
- preventive progression to end-stage cardiorenal disease

via

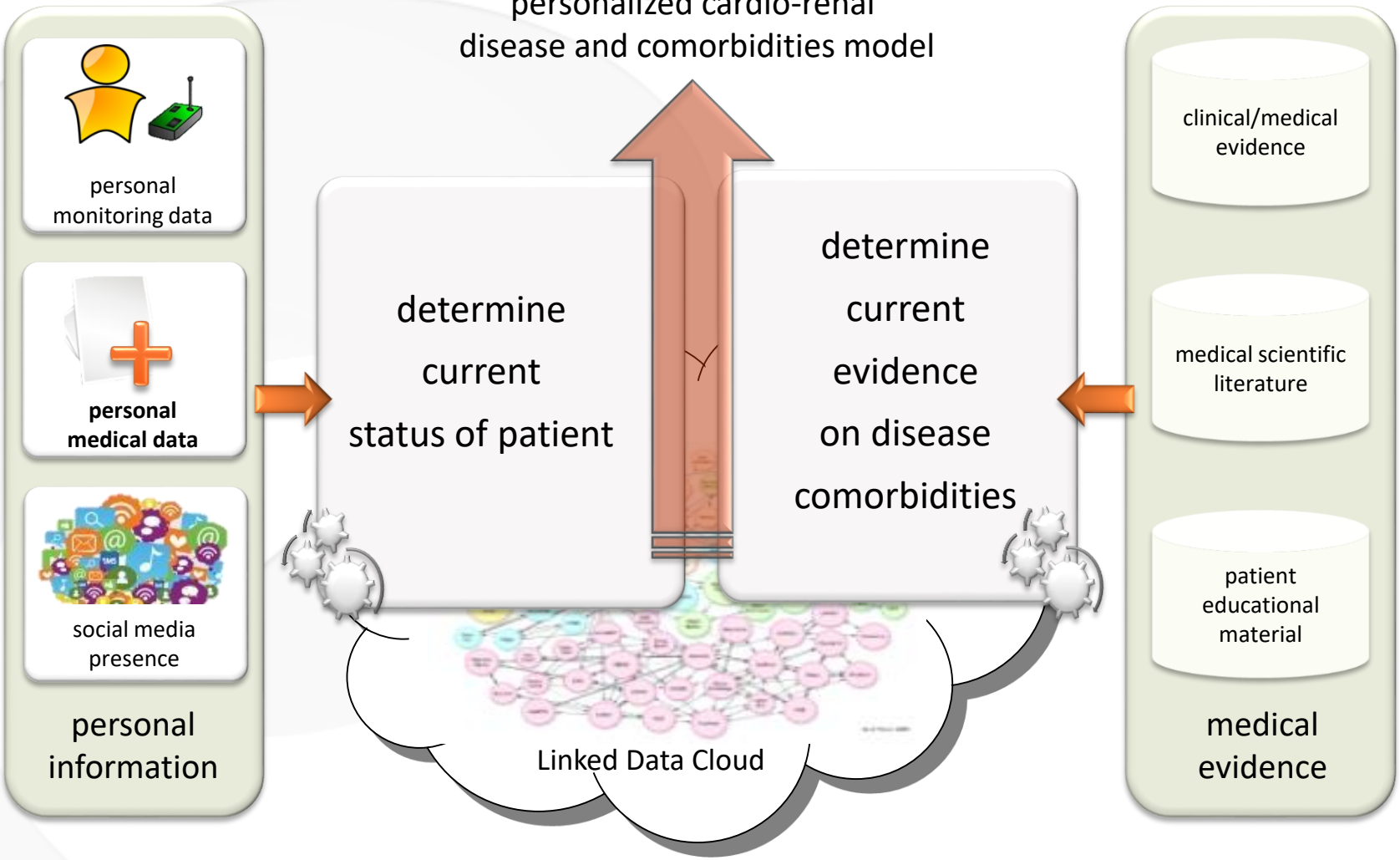
- lifestyle and diet management
- public health education
- monitoring and adherence to therapy
- integrated management of comorbidities



CARRE approach



data interlinking and clustering for personalized cardio-renal disease and comorbidities model



shifting the focus towards personalized comorbidity management

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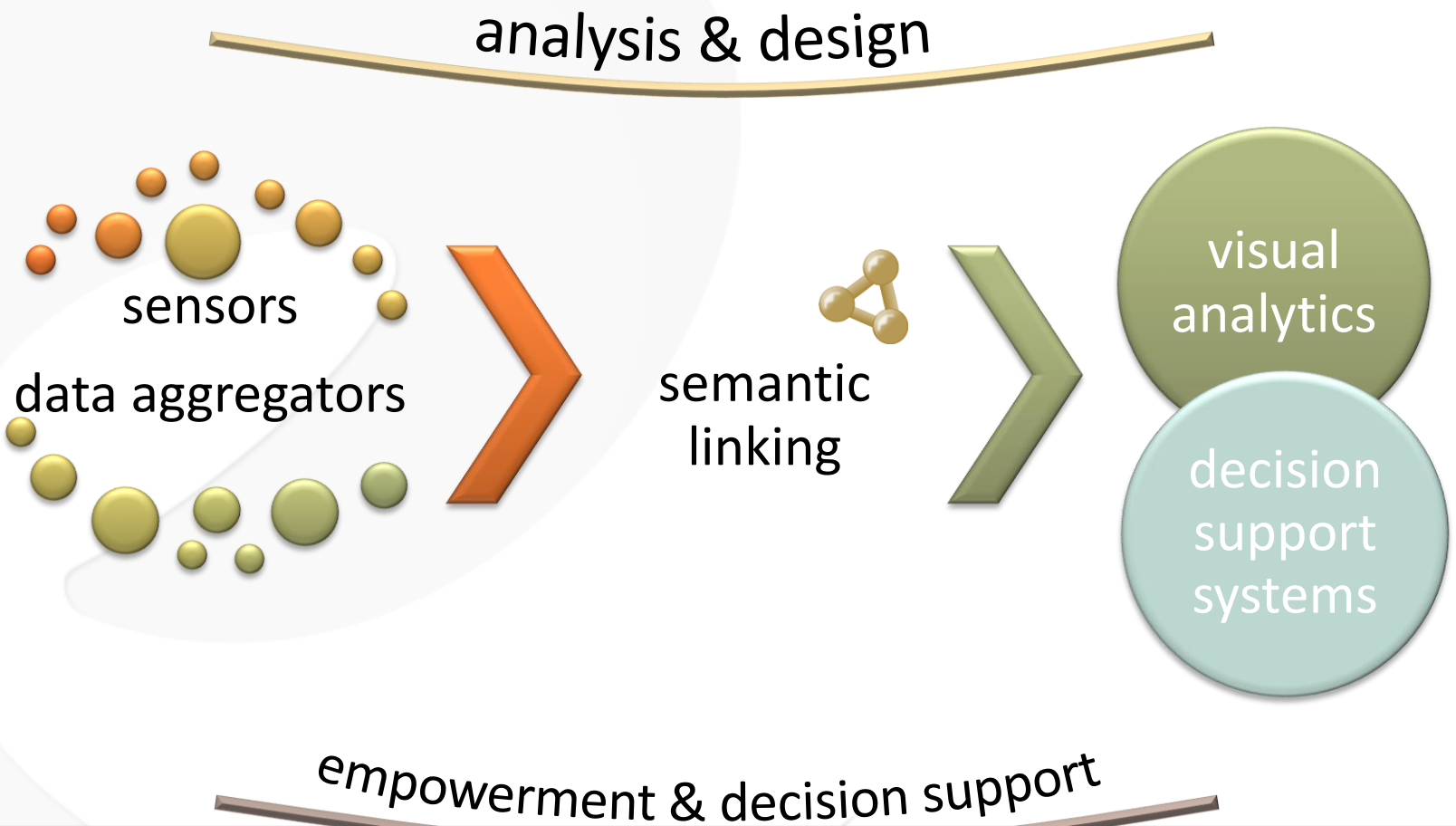
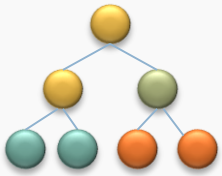
S&T methodology



outcomes



dynamic cardiorenal comorbidities model

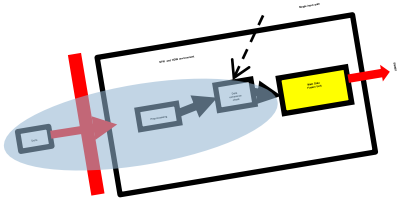
data aggregators for integration of heterogeneous sources

interactive visualization of the model

patient empowerment &

shared decision support services

data/model driven decision support system



work plan

1st year: **analysis and modeling**

analysis, design, model & ontology,
initialization of RTD tools design and development

2nd year: **main technological research and development**

data harvesting, model/RDF population,
system visual interface, DSS infrastructure
testing

3rd year: **enhancements, deployment & validation**

advanced analytics, integrated services, pilots,
evaluation, implications

⇨ strong user involvement in all phases of RTD

⇨ a clear task-deliverable correspondance

milestones

1st year

M03 ⇨ MS1: project successfully initiated

M12 ⇨ MS2: a comprehensive CARRE information model has been developed – 1st draft of RDF ready

2nd year

M14 ⇨ MS3: a working CARRE RDF scheme and ontology have been produced

M18 ⇨ MS4: data aggregators are efficiently working

M24 ⇨ MS5: visual interface to the RDF store is completed

3rd year

M30 ⇨ MS6: service environment integration has produced a first working prototype

M36 ⇨ MS7: project successfully completed

disseminate & exploit

main focus during

the entire lifetime

of the project and beyond

(not just in the end!!)

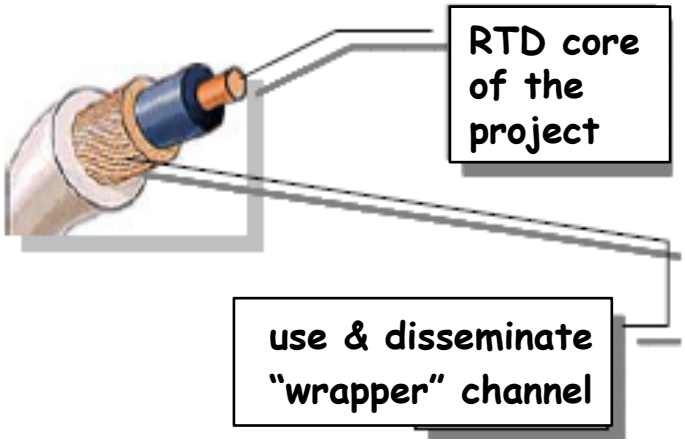
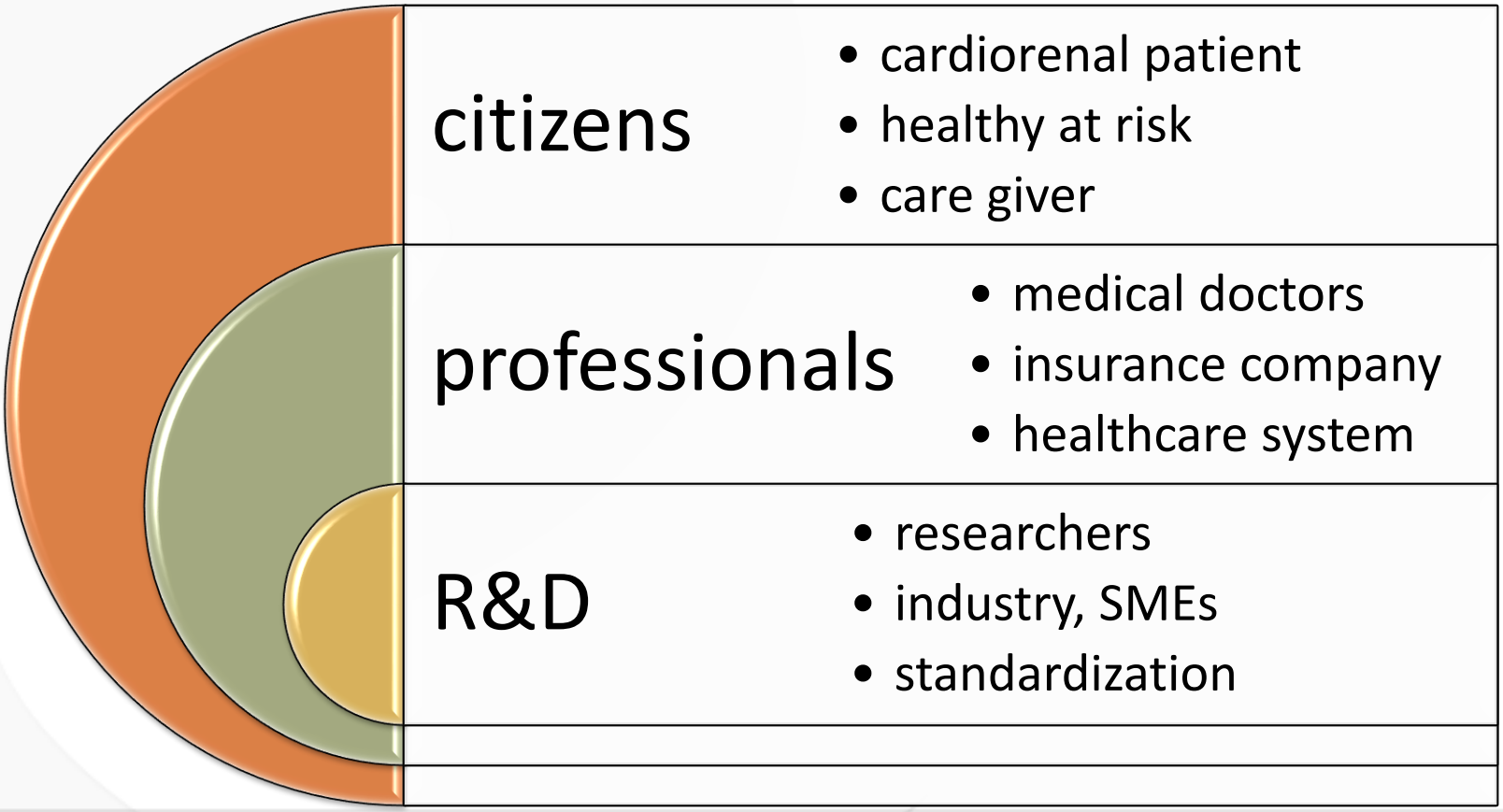
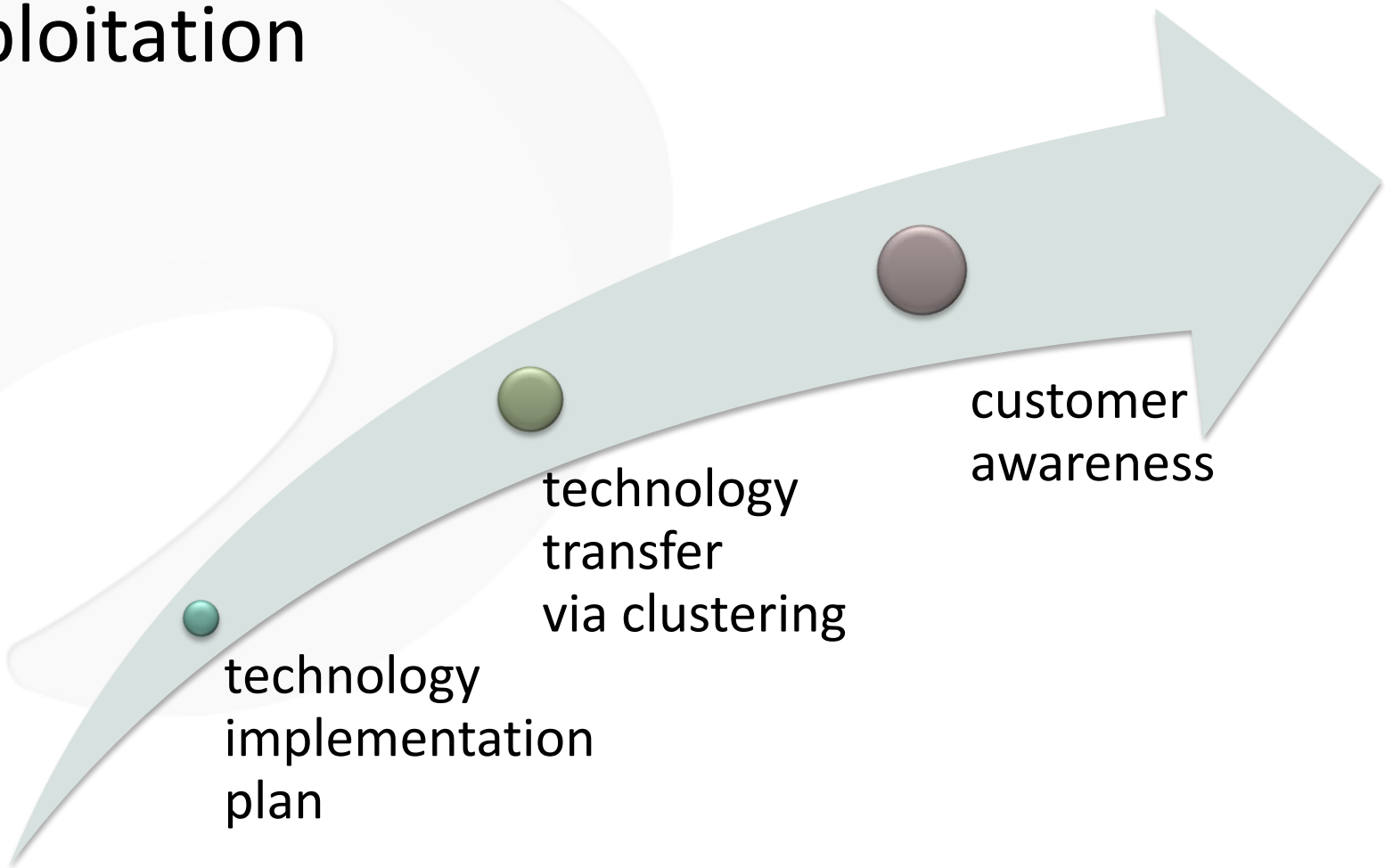


Figure adapted from: SCUBE-ICT, HAGRID, and IST_BONUS project consortia, "Training Guide: Getting Started with EU ICT Research, SCUBE-ICT, EU, September 2009 (p. 48)

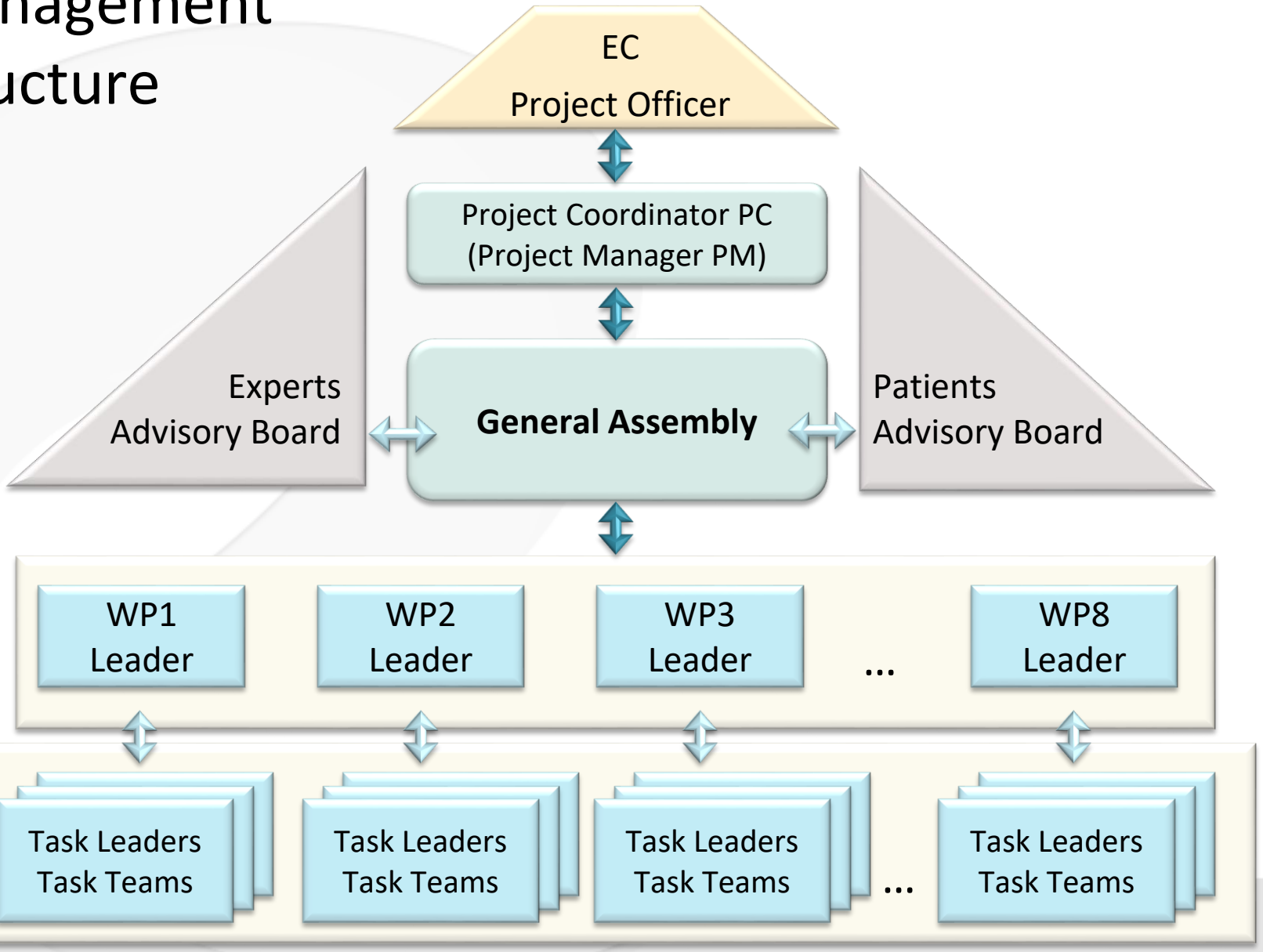
target user groups



exploitation

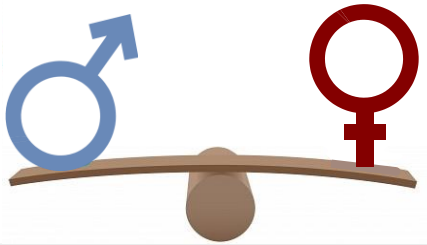


management structure



gender balance in CARRE

- Coordinator and Project Manager are both women
- WP leaders: 50% representation of both genders
- Task leaders: 55% representation of women
- Team Leaders and GA: 1/3 female representation
- Key team members: 1/3 female representation



CARRE partners

Democritus University of Thrace (Greece)

coordination, user-driven analysis, pilot deployment, evaluation

The Open University (United Kingdom)

ontology development, semantic interlinking

University of Bedfordshire (United Kingdom)

visual analytics & data harvesting

Vilnius University Hospital Santariškių Klinikos (Lithuania)

user-driven analysis, pilot deployment, evaluation

Kaunas University of Technology (Lithuania)

sensors, data aggregators

Industrial Research Institute for Automation and Measurements (Poland)

decision support, systems security and data privacy

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CARRE

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