Active Ageing Roadmap
A collaborative networks contribution to demographic sustainability
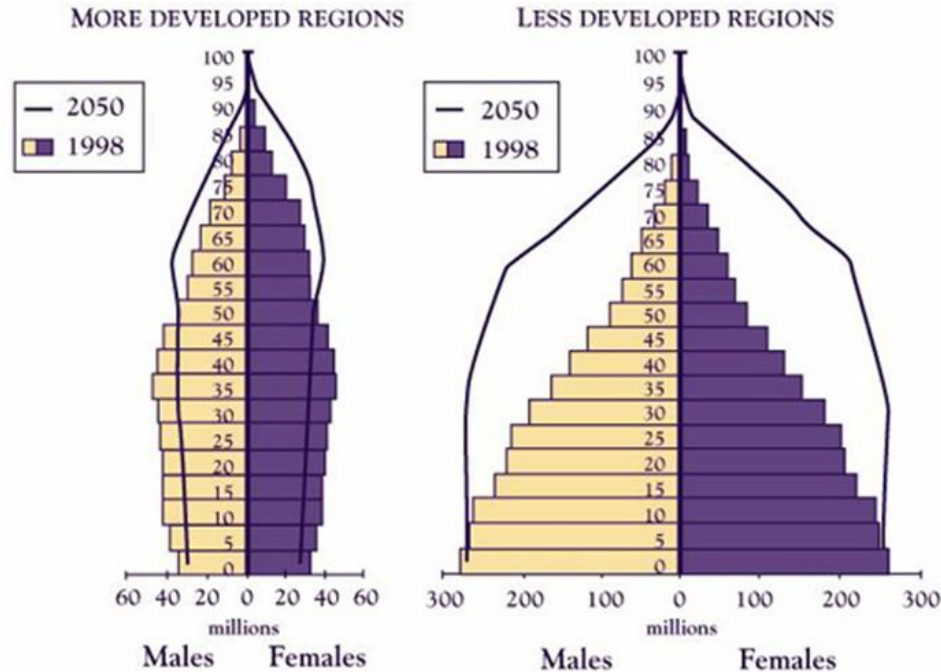
Luis M. Camarinha-Matos
cam@uninova.pt

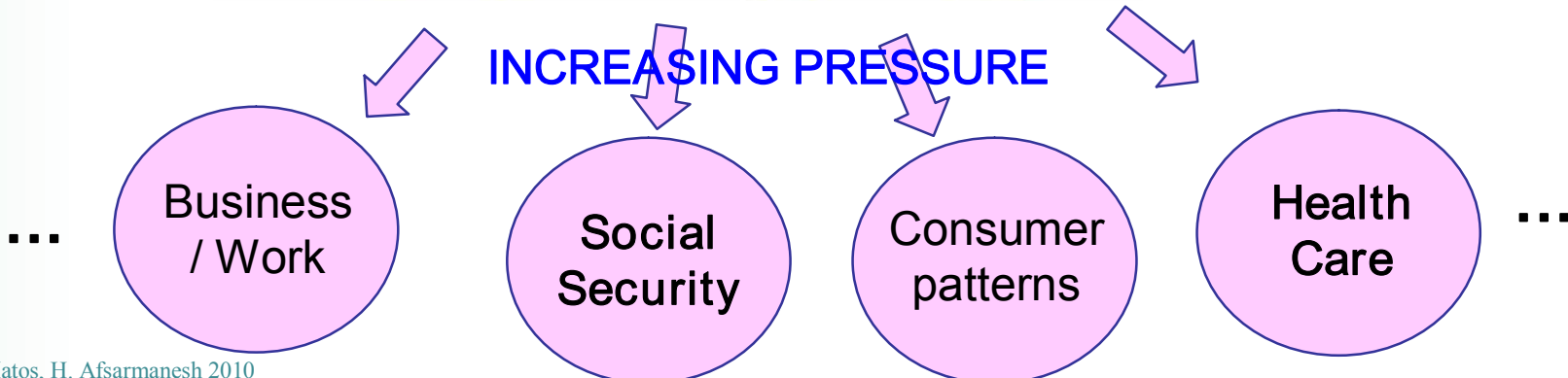**Hamideh Afsarmanesh**
h.afsarmanesh@uva.nl

PRO-VE'10
St.-Etienne, 11-13 October 2010
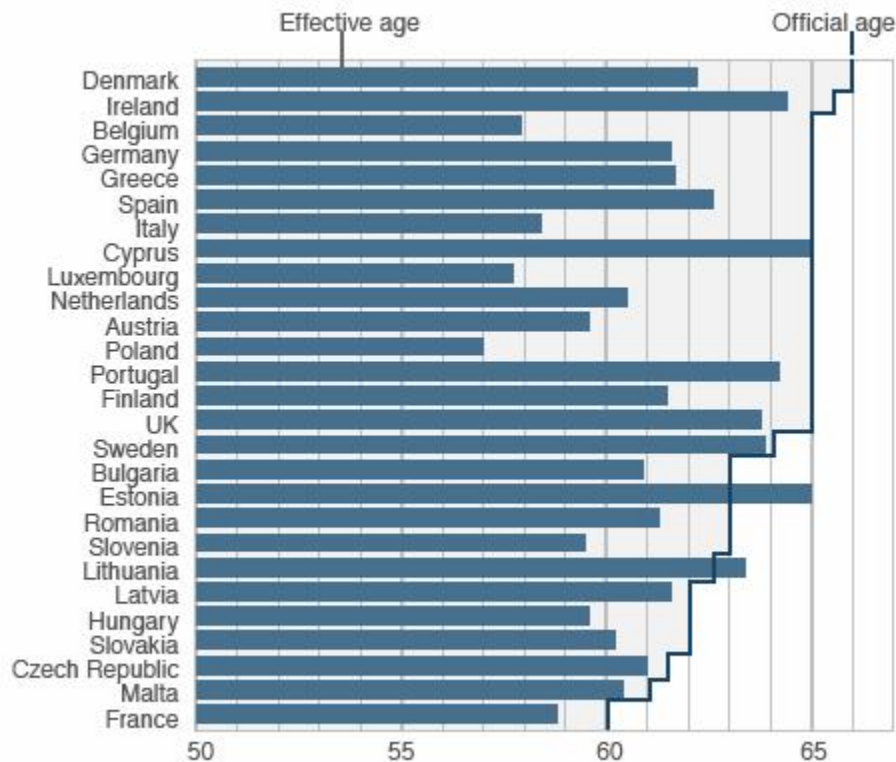
DEMOGRAPHIC SUSTAINABILITY ?

A growing unbalance

INCREASING PRESSURE

... Business / Work   Social Security   Consumer patterns   Health Care ...

Expectation of a longer and healthy life !

Unbearable pressure on social security systems

Average actual retirement ages across Europe, Men 2005

Source: Eurostat

"In many countries, early withdrawal from employment has been financed either directly or indirectly by the state:
- right to early old-age pensions,
- relaxing eligibility requirements for invalidity pensions,
- extending the period for which older unemployed people can claim unemployment compensation, or, less directly,
- according tax privileges to employers' and private pension schemes."

ePAL
extending Professional Active Life

Dream

Reality →

Many elderly citizens, following retirement, quickly become **marginalized** and considered as a **cost burden** rather than a **resource, capable of "value creation"** in the society

➡ Many retired professionals would like to remain active

➡ Associations of seniors try to keep an involvement in the society

... but face many obstacles

... risk being *ghettos*

How to get senior professionals better integrated in the socio-economic system?

Existing retired professionals communities

gap

Economic System (SMEs & Startups)

ePAL
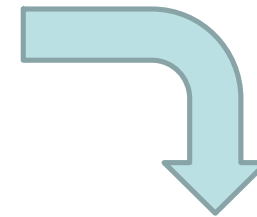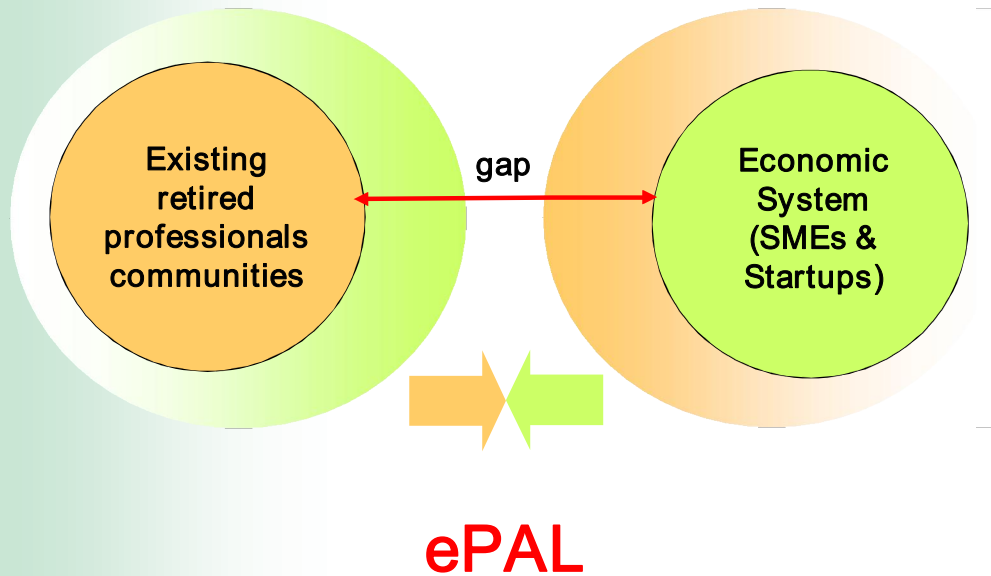
Collaborative Networks paradigm

Supported by

Advanced Community Building

Collaboration ICT platform

to provide

A new approach to Active Ageing

WHY COLLABORATIVE NETWORKS?

Socialization
- Avoiding loneliness

Complementing skills

Access to new opportunities

Balance work & leisure

Access to large pool of skills

Reliability

Sense of belonging

Training
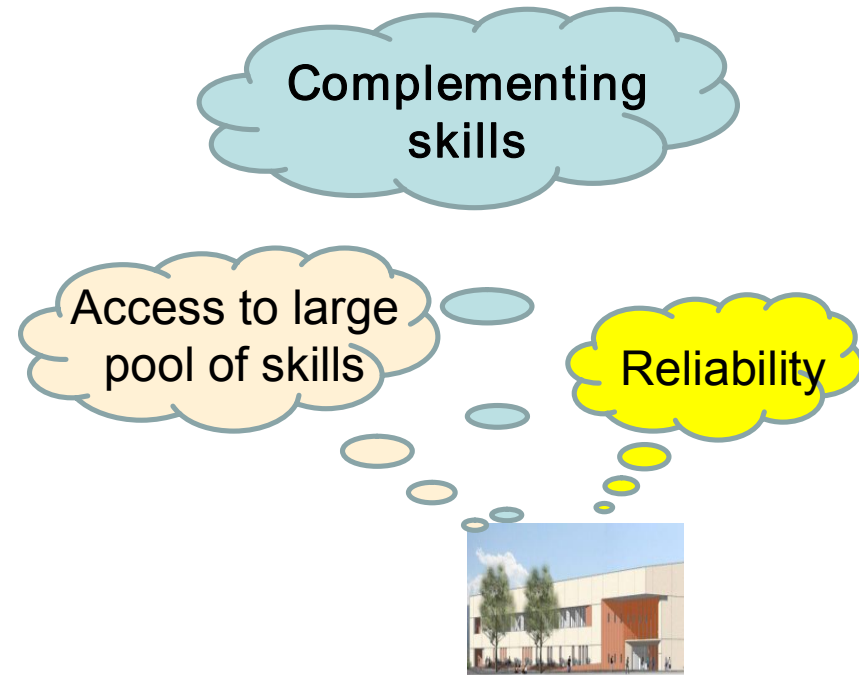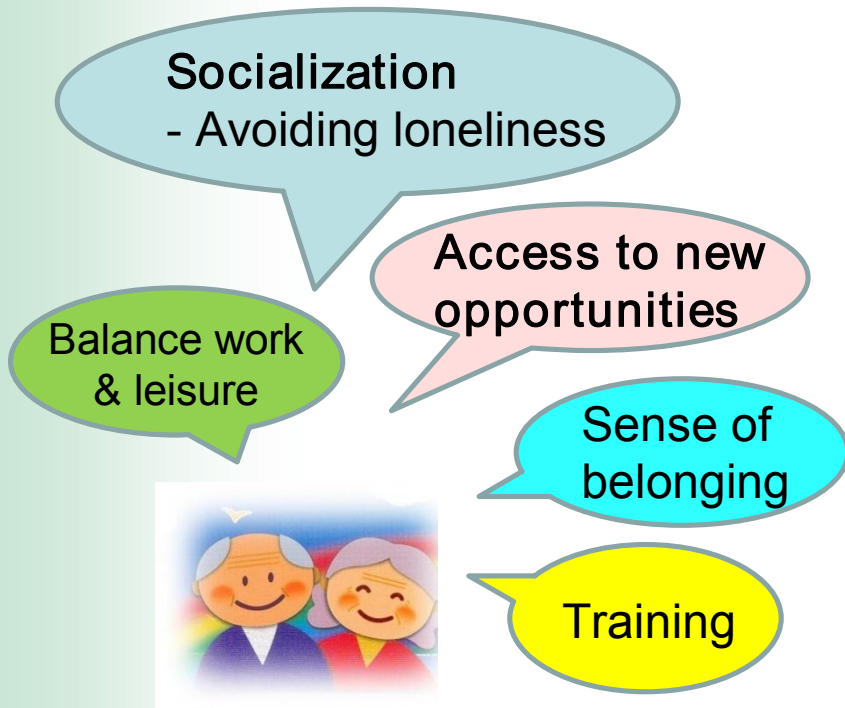
Team work experience ?
Authoritarian ?
Technology update?
Changing behavior & health?

Social stigma against older people?
Understanding of potential?

ePAL
extending Professional Active Life

Senior professionals community

Mediation role

Intermediary entities

Start-ups, micro enterprises, SMEs, etc

ICT-supported platform

Need for a roadmap !

ROADMAP COMPONENTS

THEN

Smooth active and engaged ageing

Inclusion in an organized community
Continued participation in society and economy
Involvement in professional activities
Involvement in social activities
Sense of "belonging"
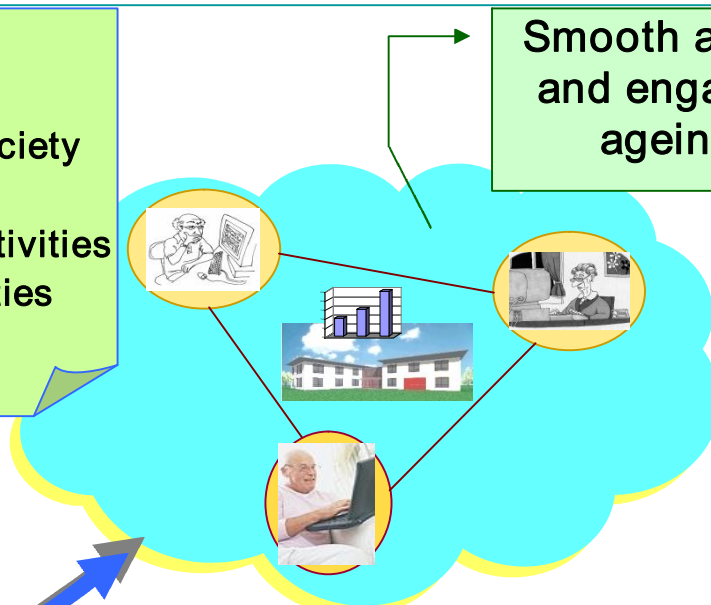
Vision

NOW

Fast decaying Post-retirement
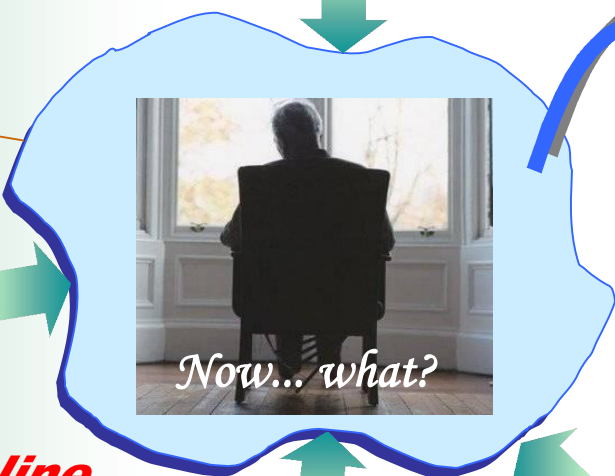
Roadmap plan of actions

Now... what?

Baseline

Broken professional relationships
Reduced involvement in society
Risk of isolation and depression

Although focused on ICT support for ageing, the development of successful technologies in this sector requires consideration of the socio-organizational context.

Legal

ICT

Economic

Social

Organizational

ICT & Ageing
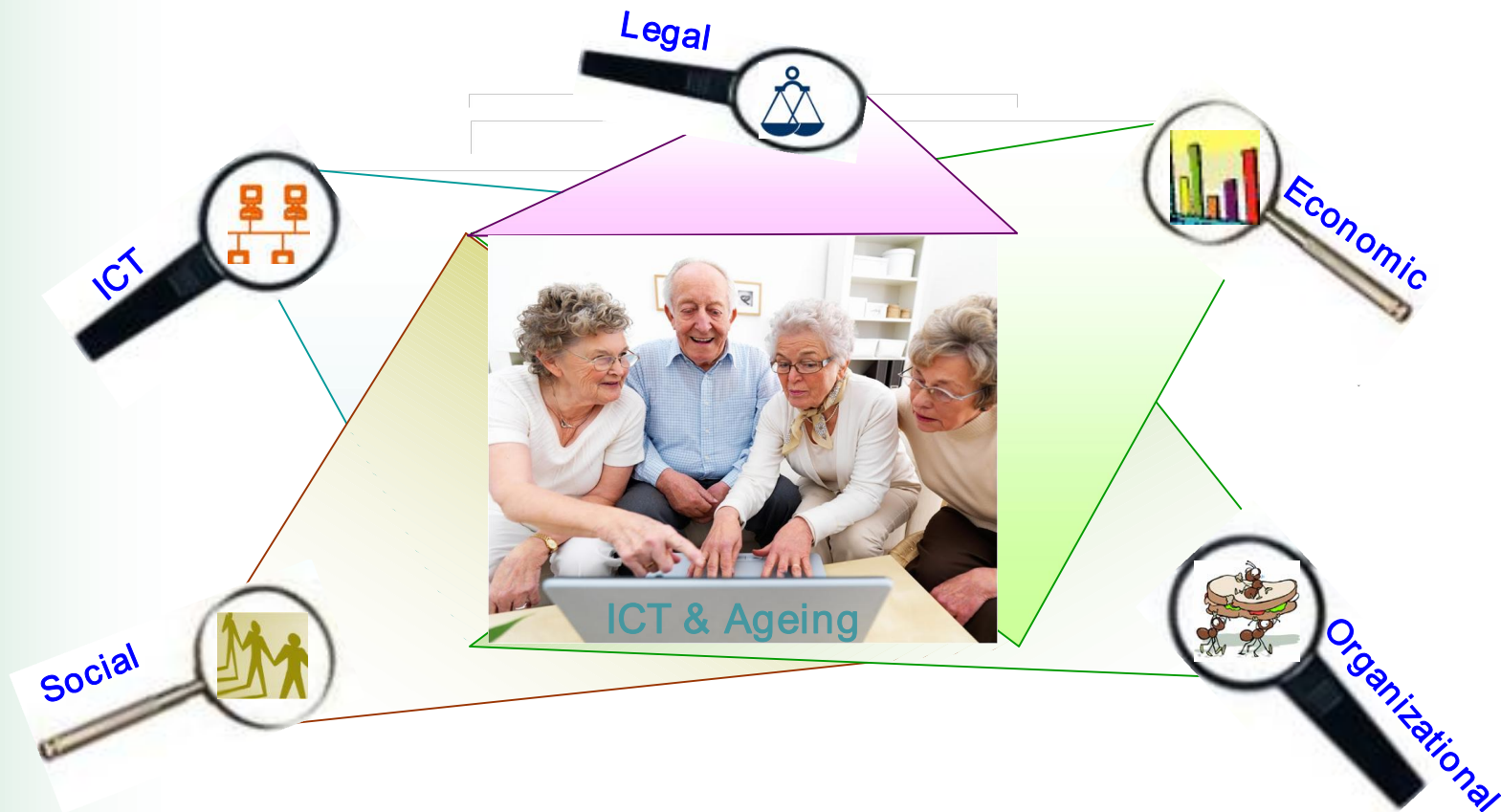
ePAL considered 3 main perspectives:
Technological, Societal, and Organizational

Identification and characterization of the current situation regarding the involvement of senior professionals in socio-economic activities after retirement.
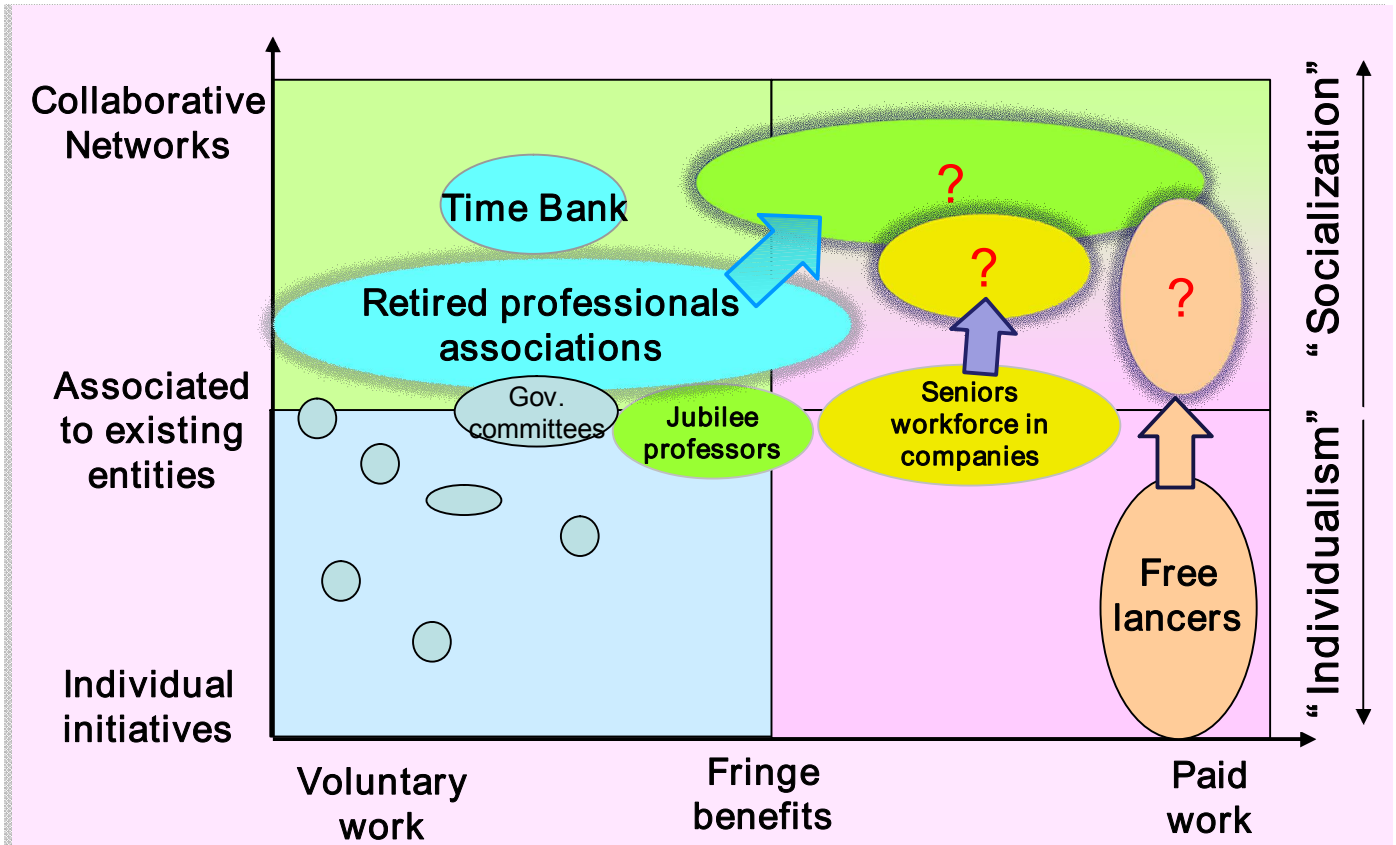
BASELINE – TECHNOLOGICAL PERSPECTIVE

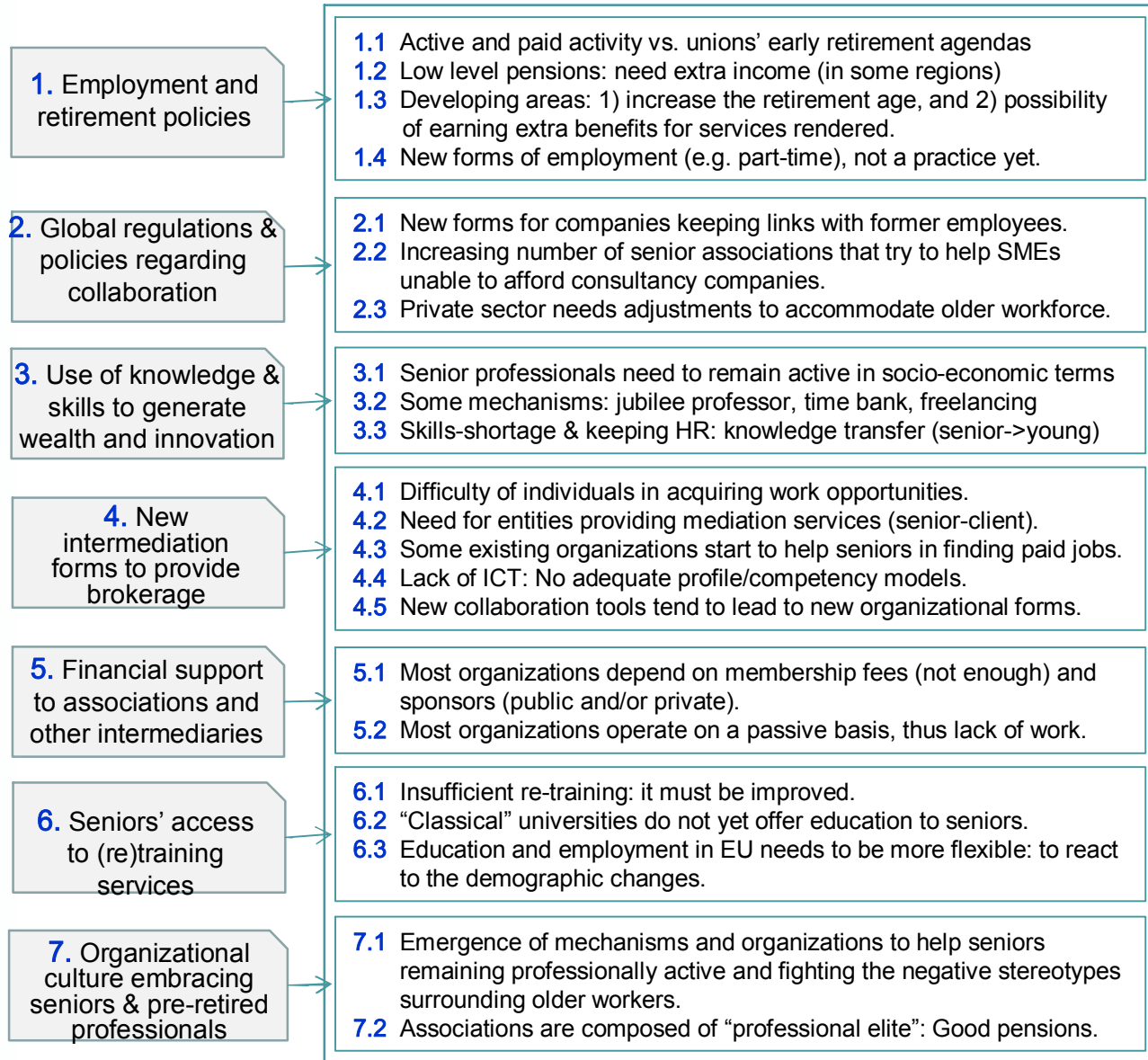| Categories	Observations
1. Theoretical foundation for technological developments	1.1 Good progress on conceptual models for collaborative networks. 1.2 Need to adapt/extend CN results to the senior professionals area. 1.3 Research needed on "soft issues": trust, collaboration readiness, etc.
2. Collaboration support services, including teams' formation	2.1 Management systems for VBEs and PVCs: still limited use in real practices. Wide availability of CSCW tools.
3. Support for user-generated knowledge content	3.1 Configurable document management platforms becoming available. 3.2 Creation of a culture of content sharing (e.g. YouTube). 3.3 Generation of business content: still limited & interoperability problems. 3.4 Unsolved issues: IPR, ethical issues, ownership and protection.
4. "Configure yourself" based philosophy infrastructure	4.1 First cases of user configuration of his/her interface &functionalities. 4.2 Need creation of libraries of components and proper interoperable reference architectures.
5. Easily adaptable and customizable user interfaces	5.1 Importance of adaptive interfaces & user interface customization. 5.2 Automatic adaptation to different output channels.
6. Tools supporting the process of value creation	6.1 Developments on value systems for CNs: no practical tools yet. 6.2 Lack of sound models & tools for IPR and risk management in CN.
7. Affective computing and context aware enriched environments	7.1 New research area: focus on perception/recognition of emotions. 7.2 Human affects & emotional experiences linked to human learning. 7.3 Usage of emotions to regulate virtual environments - promising.
8. Contractual and cooperation agreements & negotiation	8.1 Contract models/e-contracting – still research issue. 8.2 Some negotiation prototypes, but not yet practical. 8.3 Some e-institutions but not integrated in collaboration platforms. 8.4 Recent trend – negotiation wizards.
9. Marketing and brokerage services	9.1 Service oriented approaches – popular but not easy. 9.2 SMEs & seniors context: not very SOA-skilled, lack of proactive services and templates library consultancy services.
10. Networking models for elderly communities	10.1 Some examples of virtual communities exist. Lack of effective intermediation role. 10.2 Current communities: limited team work, brokerage, collaboration.
11. Security and ethical / privacy support	11.1 Mechanisms & tools for safe communications: Building blocks available, but difficult to integrate. Need for reference architectures coping with leisure / social / professional activities.

BASELINE – SOCIETAL PERSPECTIVE

1. Demographic Shifts	1.1 Larger percentage of seniors & skills shortage 1.2 Inter-generational knowledge transfer needs 1.3 Need for seniors to keep generating value
2. Social welfare mechanisms	2.1 Pension systems – a notable European creation 2.2 Two main schemas: 1) Fully state-paid pensions or 2) base pension state-paid + private complements 2.3 Special pensions for some groups (e.g. civil servants)
3. New adaptable frameworks to facilitate social collaboration	3.1 Some (voluntary) initiatiaves promote knowledge transfer, namely to SMEs 3.2 Mentoring: Seniors help younger workers
4. Mechanisms to enable social cohesion	4.1 Many not-for-profit organizations – philantropic activities & key role in local communities 4.2 Limited involvement in active economy
5. Frameworks to support social knowledge & experience exchange	5.1 Affective computing & social networks likely to facilitate intergenerational communication 5.2 Some pilot experiments
6. New human resource policies	6.1 Some HR departments start to be concerned with planning for ageing 6.2 Older workers require different benefit packages 6.3 Employers start to consider structuring pay around performance rather than seniority
7. New approaches to promote life-long learning	7.1 More flexible training needed to follow market changes 7.2 New models (e.g. flexicurity) being discussed

BASELINE – ORGANIZATIONAL PERSPECTIVE

1. Employment and retirement policies

1.1 Active and paid activity vs. unions' early retirement agendas
1.2 Low level pensions: need extra income (in some regions)
1.3 Developing areas: 1) increase the retirement age, and 2) possibility of earning extra benefits for services rendered.
1.4 New forms of employment (e.g. part-time), not a practice yet.

2. Global regulations & policies regarding collaboration

2.1 New forms for companies keeping links with former employees.
2.2 Increasing number of senior associations that try to help SMEs unable to afford consultancy companies.
2.3 Private sector needs adjustments to accommodate older workforce.

3. Use of knowledge & skills to generate wealth and innovation

3.1 Senior professionals need to remain active in socio-economic terms
3.2 Some mechanisms: jubilee professor, time bank, freelancing
3.3 Skills-shortage & keeping HR: knowledge transfer (senior->young)

4. New intermediation forms to provide brokerage

4.1 Difficulty of individuals in acquiring work opportunities.
4.2 Need for entities providing mediation services (senior-client).
4.3 Some existing organizations start to help seniors in finding paid jobs.
4.4 Lack of ICT: No adequate profile/competency models.
4.5 New collaboration tools tend to lead to new organizational forms.

5. Financial support to associations and other intermediaries

5.1 Most organizations depend on membership fees (not enough) and sponsors (public and/or private).
5.2 Most organizations operate on a passive basis, thus lack of work.

6. Seniors' access to (re)training services

6.1 Insufficient re-training: it must be improved.
6.2 "Classical" universities do not yet offer education to seniors.
6.3 Education and employment in EU needs to be more flexible: to react to the demographic changes.

7. Organizational culture embracing seniors & pre-retired professionals

7.1 Emergence of mechanisms and organizations to help seniors remaining professionally active and fighting the negative stereotypes surrounding older workers.
7.2 Associations are composed of "professional elite": Good pensions.

A **vision** is a deeply held picture of where a person, a group of people, an organization, or a society, wants to reach in the future.

- Vision building is not a mechanism to foresee the future !

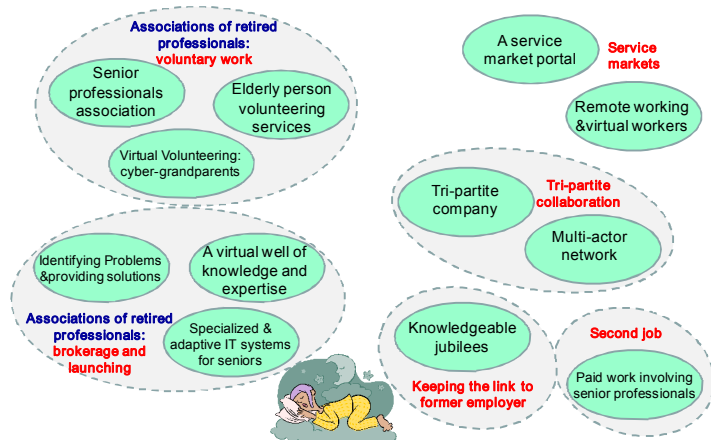- A mechanism to define the plausible future state that we desire to reach.

Drivers & Trends analysis → Scenarios building → Vision statement elaboration → Vision instantiation

Sub-drivers

Trends

Positive and negative aspects (contribute to development of the roadmap)

Associations of retired professionals: voluntary work
- Senior professionals association
- Elderly person volunteering services
- Virtual Volunteering: cyber-grandparents

A service market portal — Service markets

Remote working & virtual workers

Tri-partite company — Tri-partite collaboration

Multi-actor network

Identifying Problems & providing solutions

A virtual well of knowledge and expertise

Associations of retired professionals: brokerage and launching
- Specialized & adaptive IT systems for seniors

Knowledgeable jubilees

Keeping the link to former employer

Second job
- Paid work involving senior professionals

VISION 2020 OF ePAL

- ❏ *Identifies the required areas of research & development, related to technological, social, and organizational perspectives*

- ❏ *Identifies the requirements from other social bodies (i.e. governmental and other regulatory entities)*

- ❏ *Identifies the potentials for creation of new opportunities in the European market and society*

Core ideology:

Building strong and cohesive societies across Europe that embrace active senior professionals to create value for individuals, communities and the economy

Envisioned future:

In the coming decade, a comprehensive paradigm will emerge in response to the challenge of demographic shift in Europe that enables a balanced active life for senior professionals, regardless of gender, capitalizing on their talents and expertise, and facilitating value creation for the benefit of the individual, the economy and European society as whole

Main desired facets:

- ▪ Well founded reference model of the environment, specifying its:
  - ▪ endogenous *(structural, componential, functional, and behavioural)* and exogenous *(market, support, societal, constituency)* elements, and their interlinks
- ▪ Well established technological infrastructure, support tools/services
- ▪ Policies promoting changes in societal perceptions of age and support mechanisms to motivate and empower seniors, taking into account if cultural differences, giving them the choice to continue their professional active life
- ▪ Established organizational infrastructure that support the interaction between senior professionals and other actors in the socio-economic system facilitating value creation.
- ▪ Established policies, legal frameworks and ethical principles – regionally, nationally and across Europe that motivate and support senior professionals and other socio-economical actors and regulate their interactions

ePAL VISION INSTANTIATIONS

Global Vision

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V4. Established organizational infrastructures that support the interaction between senior professionals and other actors in the socio-economic system, facilitating value creation
V5. Established policies, legal frameworks and ethical principles – regionally, nationally and across Europe - that motivate and support senior professionals and other socio-economic actors and regulate their interactions

Technological perspective

In the coming decade, technology will facilitate and enable the continued active involvement of senior professionals in the socio-economic system. Through engagement with end-users, novel ICT collaboration platforms and tools will be developed that catalyse the creation of new organisational forms that connect and empower all stakeholders and facilitate the interaction between them. This technology will be accessible to all, 'senior friendly' and will enable seniors to expand their capabilities, leave a legacy and create value.

Main desired facets:
VT1. Advanced collaboration support services, including (virtual) teams' formation and management
VT2. Development of collaboration ontology supporting variety of stakeholders
VT3. Support for user-generated knowledge assets
VT4. "Configure yourself "based philosophy infrastructure
VT5. Easily adaptable and customizable user interfaces
VT6. Affective computing and context aware enriched environments
VT7. Support for establishment of trust among stakeholders
VT8. Tools supporting the process of value creation
VT9. Novel contractual and cooperation agreements, including negotiation support
VT10. Advanced marketing and brokerage services
VT11. New networking models for elderly communities' involvement with the socio-economic system
VT12. Security and ethical / privacy support.

Societal perspective

In the coming decade, extending active professional life will be a high priority strategy across Europe. European societies will mature to accommodate demographic shift through supporting and empowering senior professionals to fulfil their potential as active participants in the economy. Attitudes amongst individuals and organisations will evolve to embrace senior professionals as a value-creating pool of talent, thereby supporting and promoting equal opportunities in active aging. Both senior and young professionals will derive greater benefit from the exchange of knowledge and experience. As the social environment evolves, new support mechanisms will arise to sustain an aging but more active and inclusive population.

Main desired facets:
VS1. New mechanisms to enhance positive understanding and perception in society regarding the value of the abilities, skills and experience of individual senior professionals in the economy, taking account of gender
VS2. Mechanisms to build awareness, and to motivate senior professionals to join communities of active senior professionals
VS3. Mechanisms to support cross-cultural interactions among senior professionals as well as to the active labour force addressing barriers to communication
VS4. Mechanisms to support a balanced economic benefits sharing among the entire society including senior professionals
VS5. New mechanisms to help articulate the collective needs of seniors across national boundaries
VS6. Mechanisms to support cross generational interaction between seniors and younger citizens; fomenting inter-generational solidarity and understanding within the EU
VS7. Mechanisms to capitalize on the increased sense of trust and understanding which comes through leveraging seniors' social capital
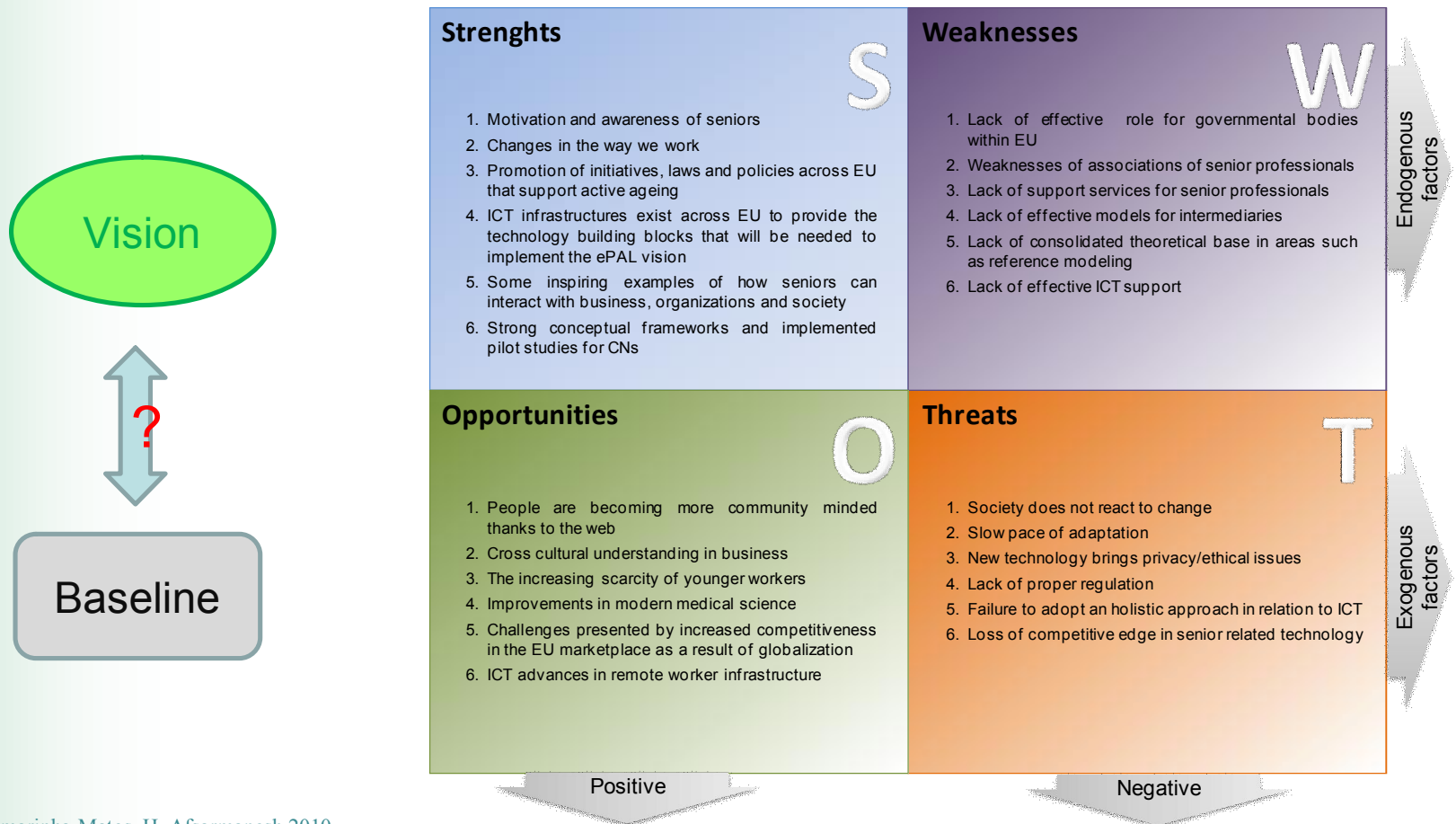
Organizational perspective

In the coming decade, the primary organisational stakeholders – governments, intermediaries, businesses and unions – will adopt positive, proactive and coordinated policies and approaches that enable seniors to choose to continue their professional active life. As a consequence, senior professionals will enjoy new opportunities and a new market space of senior skills will be created, benefiting businesses and strengthening the wider European economy.

Main desired facets:
VO1. Employment and retirement policies will change to provide greater flexibility for seniors to choose to continue as active economic participants
VO2. Regulations and policies will change to encourage businesses to collaborate with senior professionals, taking account of fair competition
VO3. The knowledge and skills of seniors will be harnessed to generate value and stimulate innovation amongst European businesses
VO4. New forms of intermediate organizations will provide highly efficient brokerage that will create opportunities in line with market needs and that help seniors engage with businesses nationally and across Europe.
VO5. There will be sustainable funding models – from both public and private sectors - and the political drive to support new forms of senior associations and other intermediate brokers
VO6. All stakeholders will have access to the relevant training and other support services to facilitate the seniors' transition between working life and active retirement
VO7. New organizational cultures will positively embrace relationships between senior professionals and pre-retired (active) professionals.

16

GAP ANALYSIS

Gap analysis – identifying and characterizing the **differences** between the practices identified in the **Baseline** and those desired improvements defined as part of the **Vision.**

Vision

?

Baseline

Strenghts S

1. Motivation and awareness of seniors
2. Changes in the way we work
3. Promotion of initiatives, laws and policies across EU that support active ageing
4. ICT infrastructures exist across EU to provide the technology building blocks that will be needed to implement the ePAL vision
5. Some inspiring examples of how seniors can interact with business, organizations and society
6. Strong conceptual frameworks and implemented pilot studies for CNs

Weaknesses W

1. Lack of effective role for governmental bodies within EU
2. Weaknesses of associations of senior professionals
3. Lack of support services for senior professionals
4. Lack of effective models for intermediaries
5. Lack of consolidated theoretical base in areas such as reference modeling
6. Lack of effective ICT support

Opportunities O

1. People are becoming more community minded thanks to the web
2. Cross cultural understanding in business
3. The increasing scarcity of younger workers
4. Improvements in modern medical science
5. Challenges presented by increased competitiveness in the EU marketplace as a result of globalization
6. ICT advances in remote worker infrastructure

Threats T

1. Society does not react to change
2. Slow pace of adaptation
3. New technology brings privacy/ethical issues
4. Lack of proper regulation
5. Failure to adopt an holistic approach in relation to ICT
6. Loss of competitive edge in senior related technology

Endogenous factors

Exogenous factors

Positive

Negative

Technological Perspective

Strengths

S1 Good progress in conceptual models for collaborative networks (although mostly focused on industry)

S2 There is already an understanding of the needed management functionalities for VO breeding environments and professional virtual communities

S3 Various partial models and advanced prototypes (e.g. negotiation, trust promotion, value systems) have been developed to support collaborative environments

S4 ICT infrastructures exist across Europe to provide the basic communication building blocks that will be needed to implement the ePAL vision

S5 Generic tools in the areas of CSCW and social networking (including chats, forums, emails, VoIP, etc) are becoming widely available

S6 Configurable document management platforms supporting multiple users, with different roles, over the network are becoming available

S7 A large panoply of mechanisms and tools for safe communications (including cryptography), user identification and authentication (including biometric systems), access / visibility rights definition and control have been developed

Limitations

L1 Lack of consolidated theoretical base in areas such as reference modelling for active ageing support systems

L2 Lack of effective and integrated ICT support for collaboration (till large fragmentation of functionalities)

L3 ICT research in this area too much focused on the "last phases of life", reducing the needed attention to active ageing support

L4 Fast proliferation of new tools and functionalities without a holistic approach, an obstacle for adoption by seniors

L5 There is an increasing trend to focus on a techno-centric approach for ICT R&D, which hinders proper understanding of the critical issues of the socio-technical systems needed to support active ageing

L6 Support for Business related content (processes, architecture design, and other technical data) is limited and there are also many interoperability problems

L7 There is a lack of sound models and tools for IPR and risk management as well as supporting ethical principles in collaborative networks, which are fundamental in promoting value creation

L8 Current regulations in some European regions restrict any sort of financial gains for retired professionals, and therefore for ePAL scenarios, new value systems and related supporting tools need to be developed

L9 Very little use of collaborative technologies is made in online senior communities, which only have access to basic tools

L10 Lack of proper reference architectures which allow a combination of leisure/social with professional activities

S1 Good progress in conceptual models for collaborative networks (although mostly focused on industry)

L5 There is an increasing trend to focus on a techno-centric approach for ICT R&D, which hinders proper understanding of the critical issues of the socio-technical systems needed to support active ageing

Influence Maps

	V1	V2	V3	V4
S1		High	High	Moderate
S2				Moderate
S3				Moderate
S4				Moderate
L1	High	High	High	
L2				High
L3	Moderate			
L4				Moderate

Positive Influence
High
Moderate

Negative Influence
High
Moderate

ORGANIZATIONAL FORMS - EXAMPLES
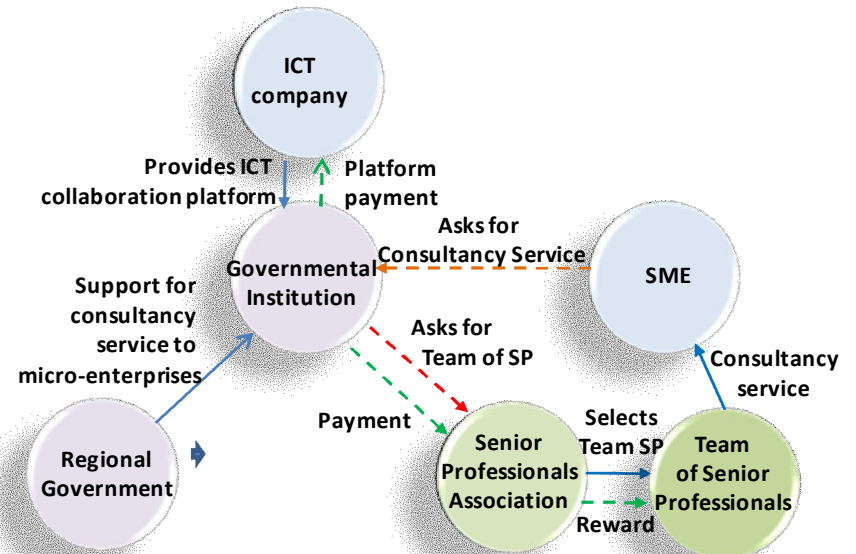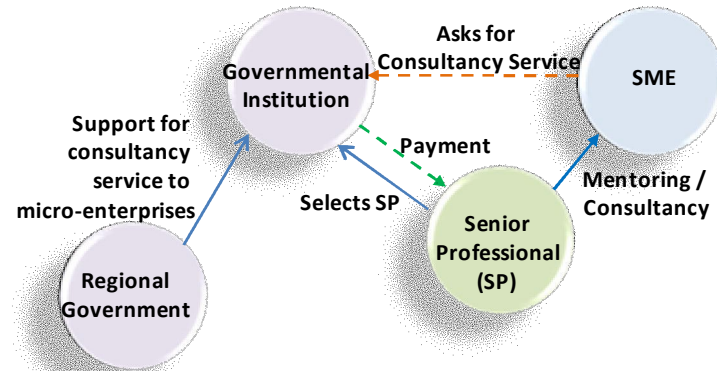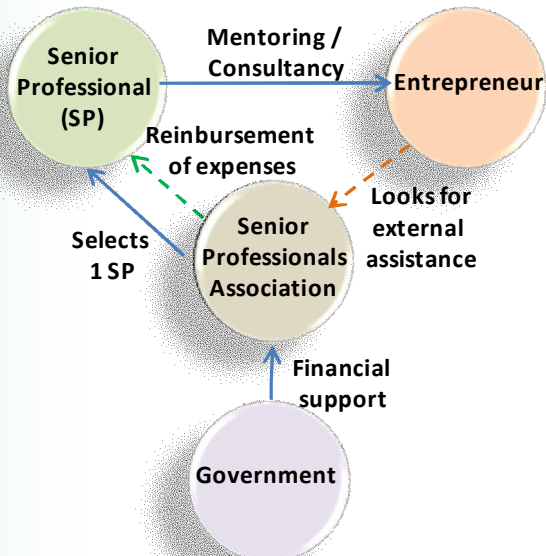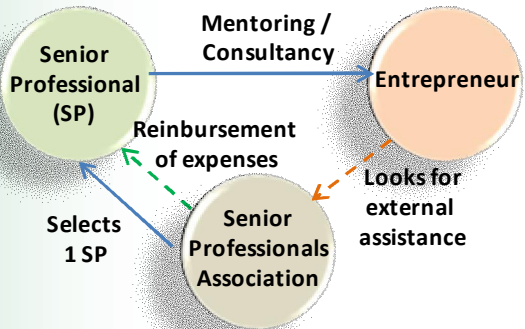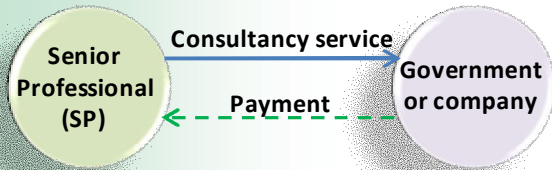
Moving towards a collaborative networks model !

ACTIONS PROPOSITION

VISION

In the coming decade, the ICT collaboration platforms and tools will be developed as an easy to use enabler of new approaches for continuation of the active involvement of elderly people in the socio-economic system. As such, novel infrastructures and intelligent functionalities will act as a catalyst of new organizational forms, supporting geographically disperse communities of retired professionals. Furthermore technology will enable seniors to leave their legacy, expand their human capabilities, and facilitate their active participation in the socio-economic system.

VT1. Advanced collaboration support services, including (virtual) teams' formation and management
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VT10. Advanced marketing and brokerage services
VT11. New networking models for elderly communities' involvement with the socio-economic system
VT12. Security and ethical / privacy support

ACTIONS

T1 — Establish formal conceptual models for people's professional life cycle and the support environment for active ageing.

T2 — Develop and integrate self-adaptive and configurable technology solutions in ICT environments to enable customized involvement of seniors.

T3 — Develop ICT collaboration platforms for communities of senior professionals that are enhanced by affective computing, context awareness, and trust establishment.

T4 — Design and develop support collaborative tools and systems to facilitate value creation.

T5 — Develop environments that empower seniors to leave a legacy that capitalizes on their personal / professional experience and is usable and transferable to the society.

T6 — Develop approaches that discover patterns and model "the evolution of senior professionals' interests and their involvement in the socio-economic system" and "the behavior and emotional health of senior professional networks".

BASELINE

GAP ANALYSIS

ACTIONS – TECHNOLOGICAL PERSPECTIVE
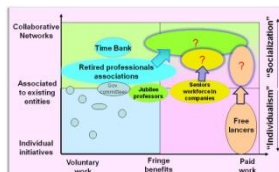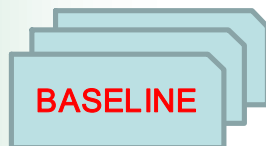
VISION – Desired facets

Advanced collaboration support services, including (virtual) teams' formation and management.

Development of collaboration ontology supporting variety of stakeholders.

Support for user-generated knowledge assets.

"Configure yourself" based philosophy infrastructure.

Easily adaptable and customizable user interfaces.

Affective computing and context aware enriched environments.

Support for establishment of trust among stakeholders.

Tools supporting the process of value creation.

Novel contractual and cooperation agreements, including negotiation support.

Advanced marketing and brokerage services.

New networking models for elderly communities' involvement with the socio-economic system.

Security and ethical / privacy support.

VT1 VT2 VT3 VT4 VT5 VT6 VT7 VT8 VT9 VT10 VT11 VT12

T1 T2 T3 T4 T5 T6
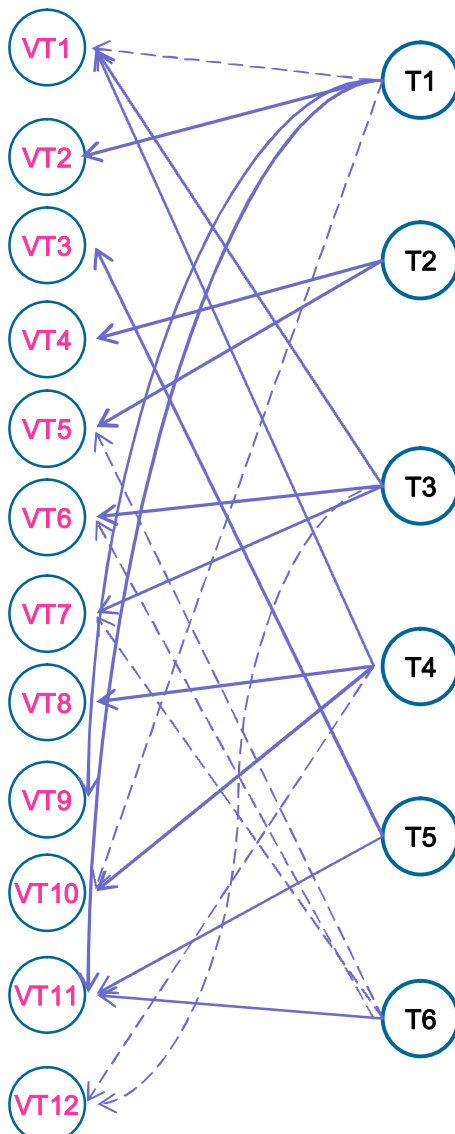
ACTIONS

Developing conceptual models
Establish formal conceptual models for people's professional life cycle and the support environment for active ageing.

Generating adaptive solutions
Develop and integrate self-adaptive and configurable technology solutions in ICT collaboration environments facilitating technology acceptance and enabling customization for/by seniors.

Building collaboration platforms
Develop open ICT collaboration platforms for communities of senior professionals that promote human interaction and socialization and are enhanced by affective computing, context awareness, and trust establishment.

Building collaboration tools
Design and develop collaboration support tools and systems to facilitate value creation, considering the specific needs of senior professionals.

Leveraging legacy
Develop environments that empower seniors to leave a legacy capitalizing on their valuable and transferable personal / professional experience.

Elaborating behavioural models
Develop approaches that discover patterns and model "the evolution of senior professionals' interests and their involvement in the socio-economic system" and "the behaviour and emotional health of senior professional networks".

VISION – Desired facets

New mechanisms to enhance positive understanding and perception of in society regarding the value of the abilities, skills and experience of senior professionals in the economy.

Mechanisms to build awareness, and to motivate senior professionals to join communities of active senior professionals

Mechanisms to support cross-cultural interactions among senior professionals as well as to the active labour force addressing barriers to communication

Mechanisms to support a balanced economic benefits sharing among the entire society including senior professionals

New mechanisms to help articulate the collective needs of seniors across national boundaries

Mechanisms to support cross generational interaction between seniors and younger citizens; fomenting inter-generational solidarity and understanding within the EU

Mechanisms to capitalize on the increased sense of trust and understanding which comes through leveraging seniors' social capital
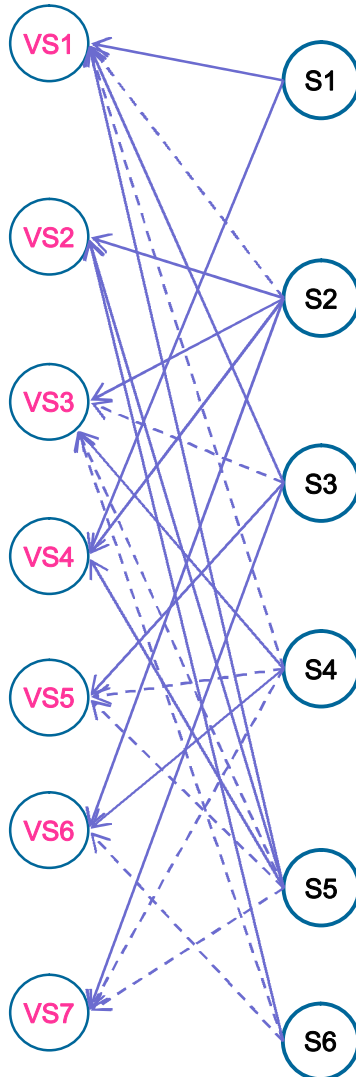
ACTIONS

Value identification and communication
Promote socio-economic studies that identify the unique value senior workers bring to the workplace (experience, compensation flexibility, etc.) as well as their motivation and value systems, investigate new ways of senior workers interacting with the socio-economic system and communicate findings to seniors, employers, unions and to the society as a whole.

Leveraging skills and talents
Design/develop mechanisms for skills/talent identification, categorization and improvement that assess acquired experience, provide career transition advice and support skills-enhancement to maximize the potential of seniors.

European Senior Space facilitation
Promote dialogue and consensus around issues of technology, culture and socio-economic participation, creating links between existing and emerging senior associations and groups to develop a single, powerful voice for senior professionals across Europe.

Facilitating inter-generational interaction
Investigate the barriers and potentials for cross generational interaction and collaboration between senior professionals and younger people, and fund/promote programmes and technology development that support and facilitate this interaction/collaboration.

Improving working practices
Investigate new models of working practices and related reward and taxation models for senior professionals, taking account of issues of work-life balance, aging well and gender, and promote the findings in order to positively influence societal perception of older workers.

Developing training and awareness
Design / develop ICT and collaboration training programs for seniors, and promote awareness and usage of collaboration technologies.

VISION – Desired facets

Employment and retirement policies will change to provide greater flexibility for seniors to continue as economic actors.

Global regulations and policies will change to encourage the participation of businesses in collaboration with senior professionals.

The knowledge and skills of seniors will be harnessed to generate wealth and stimulate innovation amongst European businesses.

New forms of intermediate organizations will provide highly efficient brokerage that will help seniors engage with businesses in Europe.

There will be significant long-term funding – from both public and private sectors - and the political drive to support new forms of senior associations and other intermediate brokers.

Seniors will have access to the relevant services, including training, which they need to facilitate their transition between their working life and retirement to continue their active professional life.

New organizational cultures will positively embrace relationships between senior professionals and pre-retired (active) professionals.
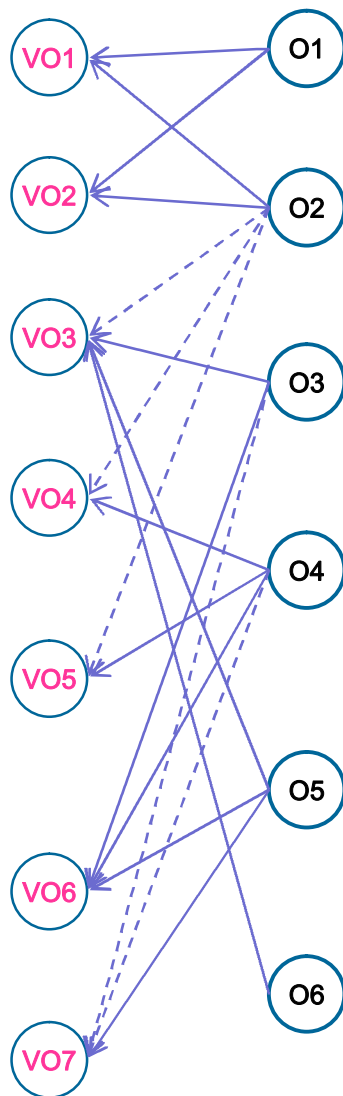
ACTIONS

Enhancing policy and legislation
Identify and assess current national and European policy, legislation and incentives relevant to active participation of seniors in the socio-economic system and recommend new approaches that lower barriers and promote and support active aging.

Keeping links
Investigate new mechanisms that forge mutually beneficial relationships between seniors and their former employers.

Creating organizational structures
Investigate and promote new roles, governance rules and organizational forms for communities of active senior professionals to enhance inter- and intra-community collaboration and to create new opportunities for member engagement.

Improving mediation and brokerage
Characterize and design new roles and modes of operation for intermediate organizations, both public and private, that provide brokerage and assistance to better facilitate integration and collaboration between senior professionals and the socio-economic system.

Guiding career transition
Define new programmes and realistic practices that prepare for and guide the successful transition of senior professionals from full employment to active retirement, taking account of issues of gender, profession and local context.

Meeting and creating market demand
Explore the best fit between capabilities of senior professionals and market demand and identify new channels to harness these resources and potentials in order to generate value and stimulate innovation amongst European businesses, thus supporting the economy.
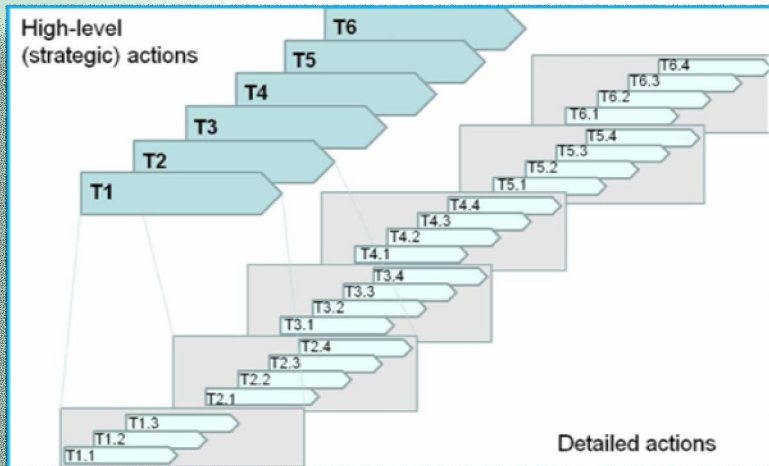
DETAILED ACTIONS – TECHNOLOGY

High-level (strategic) actions — Detailed actions

T1: Developing conceptual models
Establish formal conceptual models for people's professional life cycle and the support environment for active ageing.
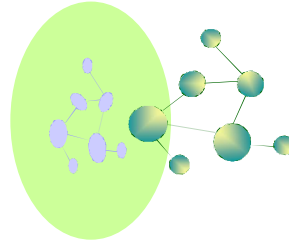
T1.1 - Establish a *reference model* for extension of professional active life and active ageing
T1.2 - Elaborate common *ontologies* for communities of senior professionals.
T1.3 - Develop contractual and *business models* for communities of senior professionals.

T2: Generating adaptive solutions
Develop and integrate self-adaptive and configurable technology solutions in ICT collaboration environments facilitating technology acceptance and enabling customization for/by seniors.

T2.1 - Develop self-adaptive *interface* systems.
T2.2 - Develop *self-customizable* collaboration environments empowering seniors to better use ICT.
T2.3 - Develop technology assistance *wizards*.
T2.4 – Increase involvement of seniors in the *design* of new technologies for seniors.

DETAILED ACTIONS – TECHNOLOGY

T3: Building collaboration platforms
Develop open ICT collaboration platforms for communities of senior professionals that promote human interaction and socialization and are enhanced by affective computing, context awareness, and trust establishment.
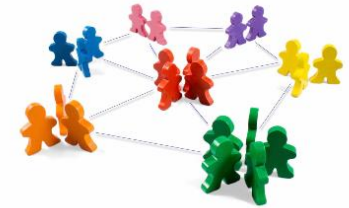
T3.1 - Develop advanced functionalities and systems for management of communities of senior professionals.

T3.2 - Develop affections / emotions management systems for communities of senior professionals.

T3.3 – Design and support reference governance systems for communities of senior professionals.

T3.4 - Develop trust building management systems for communities of senior professionals.

T4: Building collaboration tools
Design and develop collaboration support tools and systems to facilitate value creation, considering the specific needs of senior professionals.

T4.1 – Develop marketing and brokerage support tools for communities of senior professionals.

T4.2 - Develop tools for virtual team creation, negotiation and e-contracting.

T4.3 - Develop tools for virtual team management and collaborative problem solving support.

T4.4 - Develop models and tools for management of Intellectual Property and performance.

DETAILED ACTIONS – TECHNOLOGY

T5: Leveraging legacy
Develop environments that empower seniors to leave a legacy capitalizing on their valuable and transferable personal / professional experience.

T5.1 – Define conceptual *models of talents* and develop user-centered knowledge acquisition tools

T5.2 - Create *reward* mechanisms (system of incentives) to attract user-generated knowledge.

T5.3 – Develop knowledge *assets assessment* and intellectual property models.

T5.4 - Mechanisms to promote *inter-generational inheritance*.
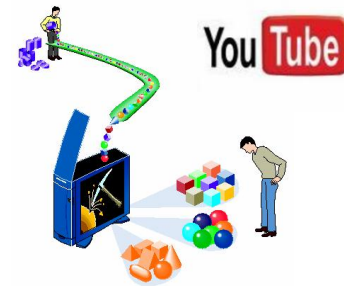
T6: Elaborating behavioural models
Develop approaches that discover patterns and model "the evolution of senior professionals' interests and their involvement in the socio-economic system" and "the behaviour and emotional health of senior professional networks".

T6.1 – Develop a conceptual base for *behavioural modelling*.

T6.2 - Develop data-mining / machine learning approaches for behavioural *patterns discovery*.
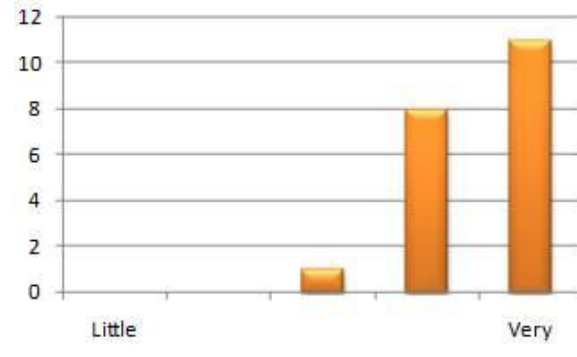
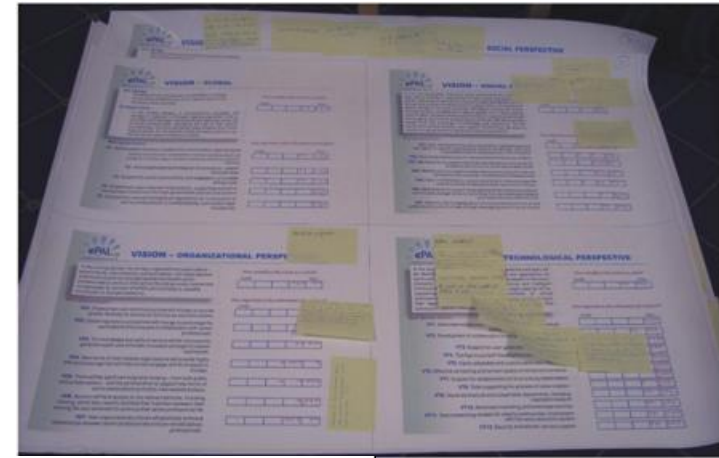T6.3 - Develop *forecasts* and *simulation* methods and tools for behavioural analysis.

T6.4 - Develop models and tools for *emotional health* management
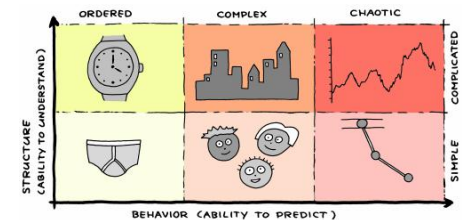
In terms of implementation, each action can lead to one project.

Agreement with vision

Votes on the Actions under the Technological Perspective
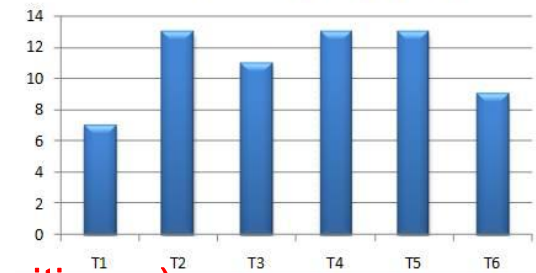
5 + 5 Events
➢**Consensus building**
➢**Feedback collection**
➢**Voting (importance, priorities, ...)**

INVOLVED STAKEHOLDERS

- Researchers
    - ICT – Infrastructures, Collaborative Networks, Affective Computing, Social Computing, Robotics, AI, Machine Learning, ...
    - Gerontology
    - Sociology and psychology
- Senior professionals and associations
- Education and 3rd age universities
- SMEs and start-ups
- Regional development agencies
- Unions
- Governmental entities
- Adult training
- Innovation promoters
- Incubators
- Entrepreneurs
- Free-lancers
- ...

More than 180 contributors

FINAL ROADMAP – IMPLEMENTATION PLAN

Technological perspective

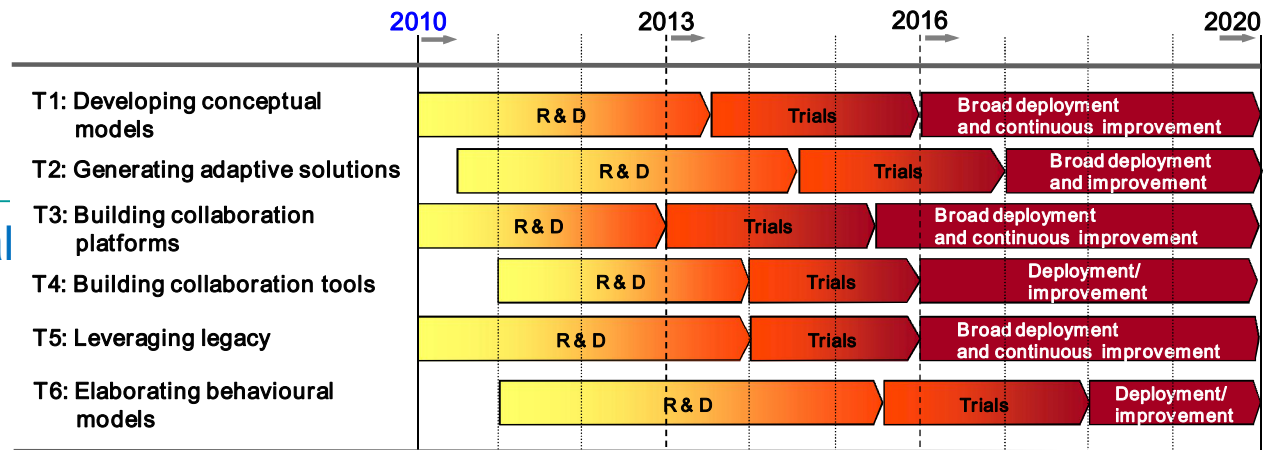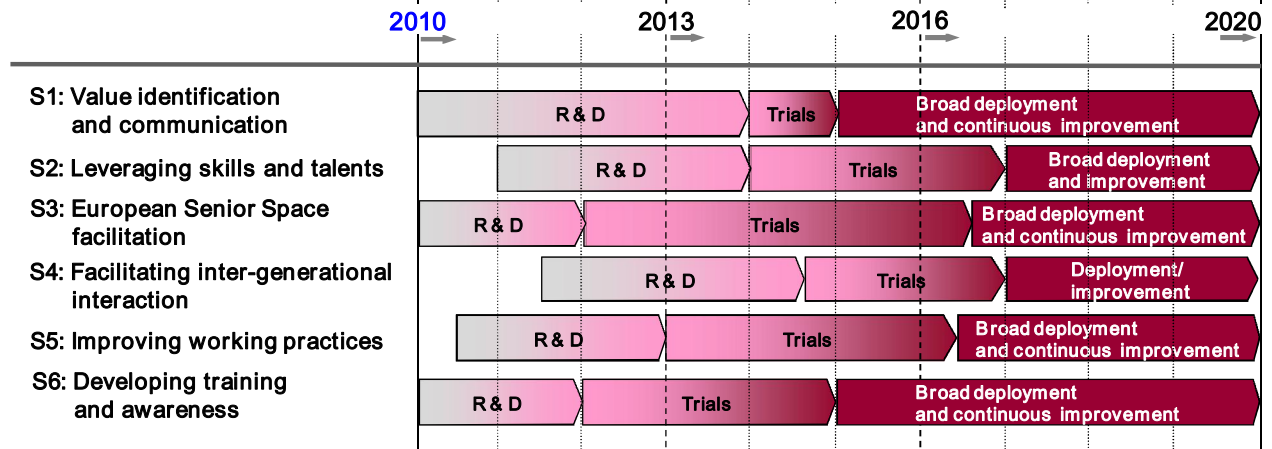|	2010	2013	2016	2020
T1: Developing conceptual models	R & D	Trials	Broad deployment and continuous improvement	
T2: Generating adaptive solutions	R & D	Trials	Broad deployment and improvement	
T3: Building collaboration platforms	R & D	Trials	Broad deployment and continuous improvement	
T4: Building collaboration tools	R & D	Trials	Deployment/ improvement	
T5: Leveraging legacy	R & D	Trials	Broad deployment and continuous improvement	
T6: Elaborating behavioural models	R & D	Trials	Deployment/ improvement	

Societal perspective

	2010	2013	2016	2020
S1: Value identification and communication	R & D	Trials	Broad deployment and continuous improvement	
S2: Leveraging skills and talents	R & D	Trials	Broad deployment and improvement	
S3: European Senior Space facilitation	R & D	Trials	Broad deployment and continuous improvement	
S4: Facilitating inter-generational interaction	R & D	Trials	Deployment/ improvement	
S5: Improving working practices	R & D	Trials	Broad deployment and continuous improvement	
S6: Developing training and awareness	R & D	Trials	Broad deployment and continuous improvement	

Organizational perspective

	2010	2013	2016	2020
O1: Enhancing policy and legislation	R&D	Trials	Broad deployment and improvement	
O2: Keeping links	R & D	Trials	Broad deployment and improvement	
O3: Creating organizational structures	R & D	Trials	Broad deployment and continuous improvement	
O4: Improving mediation and brokerage	R & D	Trials	Deployment/ improvement	
O5: Guiding career transition	R & D	Trials	Broad deployment and continuous improvement	
O6: Meeting and creating market demand	R & D	Trials	Deployment/ improvement	

Prioritization of actions
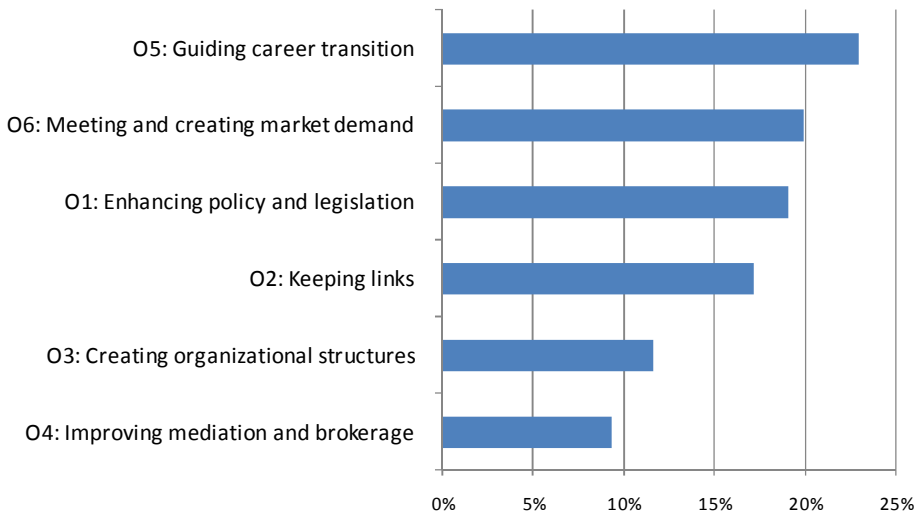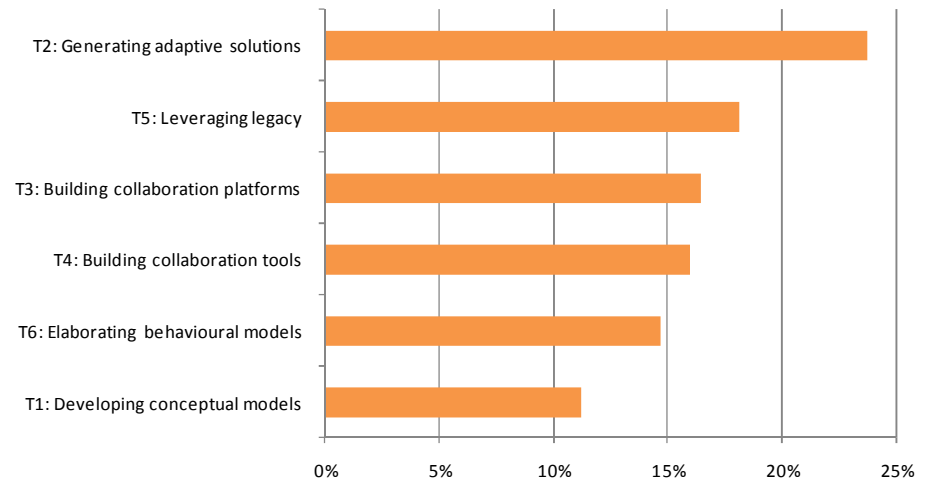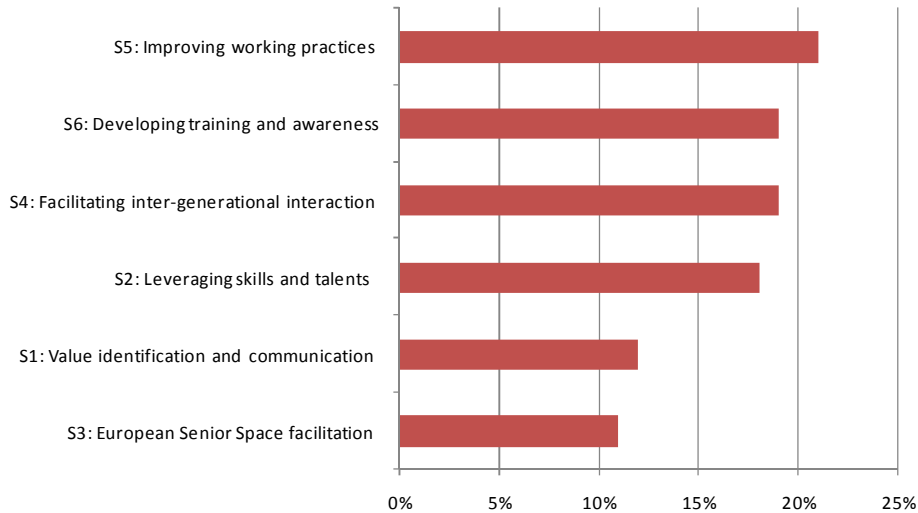
Chart 1 (red bars):
- S5: Improving working practices — ~21%
- S6: Developing training and awareness — ~19%
- S4: Facilitating inter-generational interaction — ~19%
- S2: Leveraging skills and talents — ~18%
- S1: Value identification and communication — ~12%
- S3: European Senior Space facilitation — ~11%

Chart 2 (orange bars):
- T2: Generating adaptive solutions — ~24%
- T5: Leveraging legacy — ~18%
- T3: Building collaboration platforms — ~16%
- T4: Building collaboration tools — ~16%
- T6: Elaborating behavioural models — ~15%
- T1: Developing conceptual models — ~11%

Chart 3 (blue bars):
- O5: Guiding career transition — ~23%
- O6: Meeting and creating market demand — ~20%
- O1: Enhancing policy and legislation — ~19%
- O2: Keeping links — ~17%
- O3: Creating organizational structures — ~12%
- O4: Improving mediation and brokerage — ~9%

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Extended version

Synthetic version

ePAL
extending Professional Active Life

BRAID
-Promoting socio-economic inclusion
-Extended view of silver economy
-Supporting ageing well
-Supporting care / assistance

Silver Economy

Active ageing / Ageing Well

Society and ageing
Elderly **inclusion** in a changing society

Ambient Assisted Living

A new project

Other initiatives

SoA

ICT&Ageing projects cluster

SoA

BRAID

RTD roadmap

Vision

Stakeholders community

AALIANCE

CAPSIL

ePAL

SENIOR
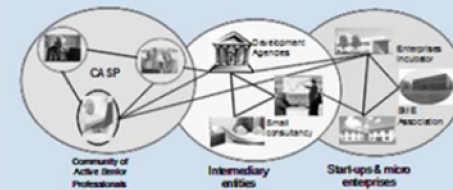
■ Extending active professional life becomes an important need as the expectancy of a longer healthy life increases

■ ICT can be an important enabler in facilitating the creation of collaborative networks involving not only (virtual) communities of seniors, but also potential recipients of their services and intermediary entities

■ New organizational models in order to support the ePAL approach are needed

■ **Given the sensitivity of the area, sustainable R&D efforts are required to be carefully designed through roadmapping**

■ ePAL has elaborated a strategic roadmap towards the implementation of a new vision for active ageing promoting **demographic sustainability**