CARDIAC

Coordination Action in R&D in Accessible and Assistive ICT

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D-2.3: Influence Tree for eInclusion research and development priorities for WP4

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Coordinator: Patrick Roe, EPFL, Switzerland
Tel: +41 76 329 47 36
Fax: +41 21 693 26 73
E-mail: patrick.roe@epfl.ch

Project Website: http://www.cardiac-eu.org/

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Authors:	Yiannis Laouris, Marios Michaelides
Internal Reviewers:	Patrick Roe, Pier Luigi
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What research actions should be supported to exploit emerging network infrastructures and services to facilitate eInclusion?

A Structured Dialogic Design co-laboratory

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Executive Summary

The aim of this deliverable is to report on the third Structured Dialogic Design Process (SDDP-3) of the CARDIAC Coordination Action, which was held in Florence between the 29th-31st of May 2012, and before virtually, on the theme of **"*What research actions should be supported to exploit emerging network infrastructures and services to facilitate eInclusion?"***

The report describes the consultation phases leading up to the event and the two and a half day co-laboratory itself. An initial analysis of the results and influence tree is presented. These results and influence tree will be taken up and further analysed by WP4 and will form part of the overall analysis and roadmap to be drawn up in Deliverable D4.2 "Report identifying R&D areas and activities suggesting how eInclusion could be achieved and describe the foreseeable benefits" due in month 36.

Partner CNR was responsible for the organization of the SDDP as leader of WP4 and partner CNTI was responsible for its implementation as leader of WP2.

1. Introduction

The main aim of the coordination action CARDIAC is to generate research agenda roadmaps and a technology transfer roadmap using the SDDP methodology.

This deliverable reports on the third such SDDP co-laboratory on the theme of eInclusion in response to the specific triggering question of "*What research actions should be supported to exploit emerging network infrastructures and services to facilitate eInclusion?*"

The consultation process was held via the CARDIAC Wikispace http://network-based-applications-sdd-cardiac.wikispaces.com and the material from this Wiki is given in the Annex III to this report.

A list of relevant stakeholders was drawn up several months before the meeting and representatives from the identified stakeholders were invited to participate. The final number of participants was 23 (fourteen from the consortium and nine external participants). The ideal number of participants in such SDDP events is between 20-25 so the number of participants is in the middle of the prescribed range. Table 1 below (on the next page) indicates the areas of expertise of the participants and contributors to the Wiki according to the identified list of stakeholders (columns). It can be seen that each of the identified stakeholder categories/areas of expertise is covered by at least three of the participants. A full list of the participants along with brief descriptions is given in Annex II.

The background information setting the context for the Triggering Question with a view of bringing the participants to a common understanding of the issue has been provided in deliverable D4.1 "Report with basic materials needed to support the SDDP-3 Meeting" (submitted at the previous review) and via the CARDIAC Wikispace: http://network-based-applications-sdd-cardiac.wikispaces.com. This deliverable will therefore focus essentially on phase 5 of the process, i.e.:

-   Collection and clarification of the ideas received in response to the triggering question
-   Clustering of the responses
-   Results of the voting by participants
-   Structuring of the responses through exploration of the links between mechanisms
-   Presentation and initial analysis of the resulting influence tree.

The face-to face part of the event lasted two and half days and was held between the 29th-31st of May 2012 in Florence, Italy. Six weeks ahead of the meeting the twenty-three participants were given the opportunity of submitting their initial responses to the Triggering Question via the CARDIAC Wikispace. The CARDIAC Wikispace was also used to gather further clarifications and analysis of the results. Recorded videos of the participants discussing their contributions can also be accessed via the Wiki.

A further in-depth analysis of the results will be carried out in WP4 and included in deliverable D4.2 "Report identifying R&D areas and activities suggesting how eInclusion could be achieved and describe the foreseeable benefits" due in month 36.

Participants	Users/User organisations	Human factors specialists	Researchers	Mainstream ICT developer	Assistive ICT developers	SME ICT	Educational & Training Organisations	Standardisation & Regulatory bodies	Government Agencies	Service delivery actors/ Marketing
Luis Azevedo		x	x		x	x				x
Dario Carotenuto				x		x				x
Ilemia Gheno	x	x						x		
Hiroshi Kawamura		x			x			x		
Adamantios Koumpis			x			x				
Klaus Miesenberger		x	x	x	x		x			
Luca Odetti			x	x	x					x
Roberto Torena	x	x	x							
Gill Whitney		x	x				x	x		x
Gunela Astbrink	x	x						x	x	
Ilse Bierhoff		x		x	x	x				x
Dr. Noemi Bitterman		x	x				x			
Laura Burzagli		x	x				x			
Prof. Pier Luigi Emiliani		x	x				x			
Prof. Cristina Espadinha		x	x				x			
Dr. John Gill	x	x		x	x			x		
Dr. Ing Helmut Heck		x	x		x					x
Sifis Klironomos		x	x		x		x			
Mikael Larrea		x	x				x			
Prof. Leonor Moniz Pereira		x	x				x			
Mary Nolan	x	x			x		x			x
Patrick Roe			x		x		x			
Rosa Yanez		x	x				x			
Contributors to Wiki										
Prof. Julio Abascal		x	x				x			
Chiara Giovaninni	x	x						x		
Robert Hecht								x	x	
Nestor Garay		x	x				x			
Rocio Garcia Robles		x	x				x			
Jim Tobias		x	x		x	x	x		x	x

Table 1. Areas of expertise of participants

2. Background information on Structured Dialogic Design

The Science of Structured Dialogic Design is a deeply reasoned, rigorously validated methodology for dialogic design, which integrates knowledge from mixed participants in strategic design settings. It is especially effective in resolving multiple conflicts of purpose and values and in generating consensus on organizational and inter-organizational strategy.

Structured Dialogic Design can be seen as a branch of systems sciences with applications in social sciences with its roots in cybernetics, application of systems sciences in social contexts and the science of complex systems, which emerged in the early 1970s. Dr John Warfield is credited with the application of the principle of Interpretive Structural Modelling in the analysis of complex socioeconomic systems, which became a major consensus method in the application of SDD. It was however, Dr. Aleco Christakis and his group that are credited for the formulation of the science of Structured Dialogic Design in its present form.

During the past decade, we have witnessed an exponential growth in the number of dialogues organized using what is known as the *science of structured dialogic design.* An increasing number of facilitators, workshop organizers, participants, scientists, and lay people show great interest in learning more about this science.

The Cyprus Neuroscience and Technology Institute has a long history and experience using this methodology in a range of domains, from education to civil conflict and have in the past utilized the process to great effect in two COST Actions (COST 298 and COST 219ter).

3. Missing research to facilitate eInclusion

Following a two-month consultation with the stakeholders via the Cardiac Wikispace[1], the following Triggering Question was formulated:

What research actions should be supported to exploit emerging network infrastructures and services to facilitate eInclusion?

The consultation was put in place in order to prepare participants for the SDDP meeting, inform them about the methodology[2] and encourage them to begin thinking about their contributions. 57 responses were formulated on the Wikispace ahead of the meeting, some of which came from people who were not able to attend the meeting itself. Many of these ideas made it to the influence tree and the full list given in Annex 1.

During the third SDD[SM] the CARDIAC partners and external participants engaged for two and a half days in a structured dialogue focusing on the above mentioned Triggering Question. The two facilitators, Dr. Yiannis Laouris and Marios Michaelides, served as the persons coordinating the process. There were 23 people participating in this SDD[SM].

The participants of the co-laboratory shared 93 ideas/mechanisms in response to the question. Each idea appears with a detailed explanation in Annex 1 - Ideas with Clarifications.

During the following stage, the participants categorized their ideas, in the following clusters:

Cluster 1: **Usability**
Cluster 2: **Requirements**
Cluster 3: **Cloud**
Cluster 4: **Training methodologies**
Cluster 5: **Personalization**
Cluster 6: **Automatic Inclusion**
Cluster 7: **Interoperability**
Cluster 8: **Adaptability and Adaptivity**
Cluster 9: n/a
Cluster 10: **Social Objectives**

Cluster 11: n/a
Cluster 12: **Ethical, Legal and Security Issues**
Cluster 13: **Multi-Modality**
Cluster 14: **Education on Standards**
Cluster 15: **Data Structure**
Cluster 16: **Assistance on Demand**
Cluster 17: **Value Creation**
Cluster 18: **Methodologies**
Cluster 19: **Side Effects**

4. Cluster List:

Cluster 1: Usability
1: Research on user trust and confidence issues
15: Research on social impact of e-Inclusion
18: Research on changing attitudes
32: Research on the use of social media to reduce isolation
37: Research and design for the intermediate period
44: Research on the reliability of e-Inclusion services
78: Fun, sustainable and accessible support systems
84: Cultural diversity research
93: Address the consequences of system failure for the user

Cluster 2: Requirements
2: Explore how users interact and cooperate with intelligent systems
5: Research on automatic evaluation of end-users needs and preferences while interacting with ICT
20: Research to predict the impact on the decision making process of the end-user
28: Adaptation of the environment to the needs of several persons at the same time
29: Research on simplification of services and infrastructures observing human interactions needs
42: Research to predict the new user-needs created by new environments
50: Problems and possibilities of the AmI environment for e-Inclusion
51: Research on social interaction design to develop new social inclusion tools
66: Research on human – environment relationship
67: Explore how complexity of operation and application can be reduced

Cluster 3: Cloud
3: Exploitation of social network and cloud-based services to support independent living situations
31: Identify impact of cloud platforms
57: Cloud computing for service ubiquity

Cluster 4: Training methodologies
4: Development of training modules about the needs of people with disabilities for developers of AmI systems
16: Getting the details right supporting creators with the micro-issues
60: Research into methods to promote best practice in inclusive design to main stream designers
62: Research on how people can understand and use the full potential of AmI
80: New methods and tools for the design and implementation of
ICT-enabled person-centric service networks and networks of networks

Cluster 5: Personalization
6: Make the world accessible yourself
8: Research on mechanism of technology-mediated collective intelligence in and for e-Inclusion
17: Adoption of the paradigm o fend-user computing to involve users in the service development process
52: Research on dynamics of social networks
70: Research on social cooperation models to support people inclusion
74: Disaster Risk Reduction: participation of persons with disabilities
81: User relationship with public and private e-services

Cluster 6: Automatic Inclusion
7: Research on formal methods to validate e-Inclusion services
14: Content generated by web 2.0 users should be controlled to be accessible
48: Development of tools for testing that proposed AmI systems fully cater for the needs of people with disabilities
55: Design and authoring tools supporting and automating e-inclusion
76: Promoting automatic content Transformation

Cluster 7: Interoperability
9: Integration of web 2.0 with internet of things (IoT)
13: Interoperability of devices networks and services
64: Ambient intelligence that acts: unifying research on AmI and robotics starting from interoperability standards
72: Ambient user interactions
79: Research on human-robot and human-robot-environment relationships

Cluster 8: Adaptability and Adaptivity
11: Adaptable and affordable assistive technologies seamlessly integrating into intelligent environments
38: Adaptable and adaptive systems that support the individual
43: New materials, technologies and methods for seamless natural human environment interaction
49: Research on match-making systems for identifying the best match of available configurations or additional ATs according to the user needs
61: Incremental and evolutionary learning algorithms (machine learning) for users, systems and machines when dealing with web content and complex environments
63: Research on more intelligent interfaces that allow persons with progressive limitations in activities to interact in AmI systems
73: Adaptive user interfaces
86: Invisible technology
87: Personalization of content and user interface

Cluster 10: Social Objectives
19: Research on how to integrate social objectives in ICT
21: Merge research on society and on Education with technological R&D
46: Explore how the work conditions of older people can be improved by AmI systems

Cluster 12: Ethical, Legal and Security Issues
12: Research on process to balance intellectual properties right and the right of access to knowledge
22: Research on data use and data protection related to the information society
24: Research on the ethical and legal requirements and consequences
35: Safe methods for sharing user models-profiles
40: Research on privacy issues from the end-users point of view
45: Research on the emerging dimensions of security and user privacy
in Ambient Intelligence services
54: Research on how to exploit the emerging network infrastructures to enable people to vote securely
56: Assessment of the impact of electronic publishing including digital rights management
69: Research on the ethical and security issues arising due to the storage or
sharing of end-users profiles
71: New perspectives for privacy and security in AmI
83: Privacy and security controls in pervasive sensing technologies (e.g. RFID, WSN)
89: Ethical, legal and social implications legal and social implications

Cluster 13: Multi-Modality
23: Research on multi-modal interaction methods
90: TV and broadband networks

Cluster 14: Education on Standards
25: Research into educating standards committees on accessibility issues
34: Research on accessible knowledge infrastructure that includes scientific knowledge

Cluster 15: Data Structure
26: Research on the optimum structure and content of data storage to accommodate the need of people with disabilities
30: Research on how to structure in an appropriate way all information for e-Inclusion available on the network
36: Promotion of open data applications to improve the implementation of accessible front-end apps
58: Research on the responsive design based on HTML 5 standards to improve access for all kinds of devices

Cluster 16: Assistance on Demand
27: Research on assistance-on-demand systems

Cluster 17: Value Creation
33: Business benefits and business models for e-Inclusion
39: Research on value co-creation in service development environments
41: Better inclusion of industry of assistive technology in mainstream industry
53: Mainstream knowledge developed in the rehabilitation environment
75: Research on economically affordable infrastructures and services
85: Marketing and branding research for facilitating the use of e-Inclusion

Cluster 18: Methodologies
47: Research to determine at what stages users should be involved in e-Inclusion projects
59: Well-controlled field studies and large randomised experimental projects

68: Research on the experience of end-users in e-Inclusion projects
77: Define criteria for success and failure of e-Inclusion
82: Virtual reality for testing new Applications

Cluster 19: Side Effects
65: Explore personal and collective health issues related to the use and misuse of technology
91: To predict the negative impact on users lifestyles created by the new environments
92: Implications of misuse of the Technology

After having clustered all their ideas, the participants cast votes for the five ideas that they each felt were the most important.

The following ideas received votes:

23: *(6 Votes)* Research on multi-modal interaction methods
9: *(5 Votes)* Integration of web 2.0 with internet of things (IoT)
11: *(4 Votes)* Adaptable and affordable assistive technologies seamlessly integrating into intelligent environments
24: *(4 Votes)* Research on the ethical and legal requirements and consequences
32: *(4 Votes)* Research on the use of social media to reduce isolation
89: *(4 Votes) Ethical*, legal and social implications
1: *(3 Votes) Research* on user trust and confidence issues
2: *(3 Votes)* Explore how users interact and cooperate with intelligent systems
4: *(3 Votes)* Development of training modules about the needs of people with disabilities for developers of AmI systems
5: *(3 Votes)* Research on automatic evaluation of end-users needs and preferences while interacting with ICT
6: *(3 Votes)* Make the world accessible yourself
18: *(3 Votes)* Research on changing attitudes
28: *(3 Votes)* Adaptation of the environment to the needs of several persons at the same time
33: *(3 Votes)* Business benefits and business models for e-Inclusion
55: *(3 Votes)* Design and authoring tools supporting and automating e-inclusion
62: *(3 Votes)* Research on how people can understand and use the full potential of AmI
73: *(3 Votes)* Adaptive user interfaces
74: *(3 Votes)* Disaster Risk Reduction: participation of persons with disabilities
79: *(3 Votes)* Research on human-robot and human-robot-environment relationships
7: *(2 Votes)* Research on formal methods to validate e-Inclusion services
13: *(2 Votes)* Interoperability of devices networks and services
15: *(2 Votes)* Research on social impact of e-Inclusion
20: *(2 Votes)* Research to predict the impact on the decision making process of the end-user
30: *(2 Votes)* Research on how to structure in an appropriate way all information for e-Inclusion available on the network
31: *(2 Votes)* Identify impact of cloud platforms
43: *(2 Votes)* New materials, technologies and methods for seamless natural human environment interaction
44: *(2 Votes)* Research on the reliability of e-Inclusion services
52: *(2 Votes)* Research on dynamics of social networks
53: *(2 Votes)* Mainstream knowledge developed in the rehabilitation environment
59: *(2 Votes)* Well-controlled field studies and large randomised experimental projects
61: *(2 Votes)* Incremental and evolutionary learning algorithms (machine learning) for users, systems and machines when dealing with web content and complex environments
70: *(2 Votes)* Research on social cooperation models to support people inclusion
90: *(2 Votes)* TV and broadband networks
3: *(1 Votes)* Exploitation of social network and cloud-based services to support independent living situations
16: *(1 Votes)* Getting the details right supporting creators with the micro-issues
19: *(1 Votes)* Research on how to integrate social objectives in ICT
25: *(1 Votes)* Research into educating standards committees on accessibility issues
34: *(1 Votes)* Research on accessible knowledge infrastructure that includes scientific knowledge
38: *(1 Votes)* Adaptable and adaptive systems that support the individual
39: *(1 Votes)* Research on value co-creation in service development environments
46: *(1 Votes)* Explore how the work conditions of older people can be improved by AmI systems

48: *(1 Votes)* Development of tools for testing that proposed AmI systems fully cater for the needs of people with disabilities
51: *(1 Votes)* Research on social interaction design to develop new social inclusion tools
57: *(1 Votes)* Cloud computing for service ubiquity
60: *(1 Votes)* Research into methods to promote best practice in inclusive design to mainstream designers
64: *(1 Votes)* Ambient intelligence that acts: unifying research on AmI and robotics starting from interoperability standards
65: *(1 Votes)* Explore personal and collective health issues related to the use and misuse of technology
69: *(1 Votes)* Research on the ethical and security issues arising due to the storage or sharing of end-users profiles
71: *(1 Votes)* New perspectives for privacy and security in AmI
72: *(1 Votes)* Ambient user interactions
77: *(1 Votes)* Define criteria for success and failure of e-Inclusion
86: *(1 Votes)* Invisible technology
91: *(1 Votes)* To predict the negative impact on users lifestyles created by the new environments
92: *(1 Votes)* Implications of misuse of the technology

Out of the population of 93 proposed ideas, 54 received one or more votes. This is described scientifically by the parameter of *Spreadthink*[4] or divergence (ST or D respectively), the value of which is in this case is 56% of disagreement. Spreadthink is defined as (V-5)/(N-5) where N is the total number of ideas and V is the number of ideas that received one or more votes.

According to numerous studies, the average degree of Spreadthink is 50%. In this case, the participants showed a slightly higher than average divergence in their ideas regarding the issue. This suggests that process captures a broad spectrum of ideas from the participants which had the effect of marginally increasing the Spreadthink.

In order to enrich the results, i.e. identify the participants' perceived degree of importance among the ideas that received less than three votes, a second round of voting took place. Here, the participants cast votes for the five ideas that they felt were the most important amongst the ideas that received less than 3 votes during the first round.
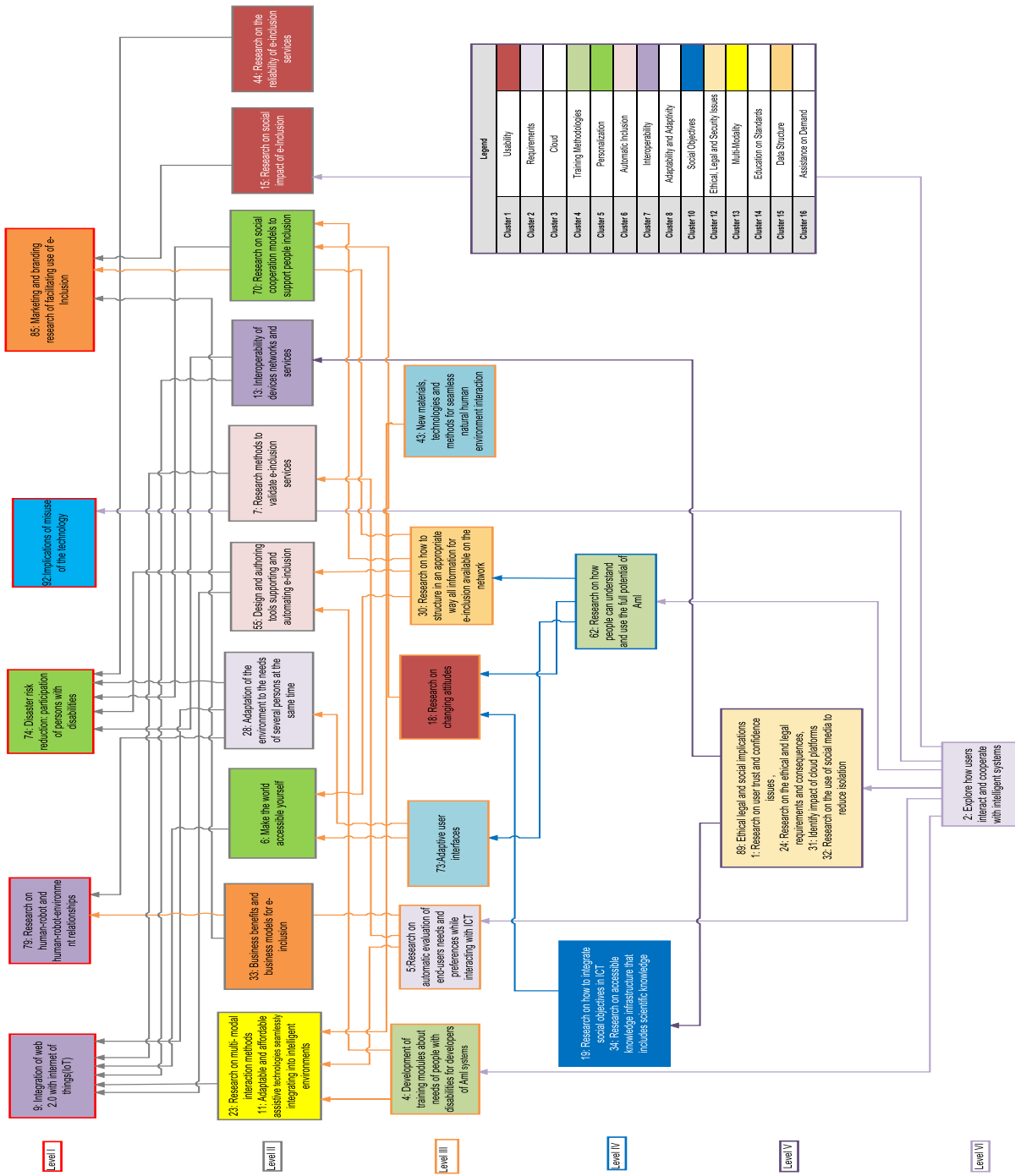
The results of the second round of voting are shown below. All eleven of these ideas were then included in the generation phase of the influence tree.

Idea number	Number of votes in second round	Number of votes in first round	Total number of votes
#19	9	1	10
#31	8	2	10
#7	7	2	9
#13	6	2	8
#70	6	2	8
#34	6	1	7
#30	5	2	7
#90+#92	4	3	7
#43	4	2	6
#44	4	2	6
#85	4	0	4

Table 2. Results of second round voting

The results of the voting procedure were used in order to select ideas for the following structural process. The participants were able to structure 31 (out of the 54 ideas which received votes). The resulting "Tree of Influences" demonstrates the most influential ideas i.e. those, which could have the greatest impact. The tree is made up of 6 levels of influence, 31 ideas (R) and 101 connections (K).

5. Tree of Influences

Legend

Cluster 1	Usability
Cluster 2	Requirements
Cluster 3	Cloud
Cluster 4	Training Methodologies
Cluster 5	Personalization
Cluster 6	Automatic Inclusion
Cluster 7	Interoperability
Cluster 8	Adaptability and Adaptivity
Cluster 10	Social Objectives
Cluster 12	Ethical, Legal and Security Issues
Cluster 13	Multi-Modality
Cluster 14	Education on Standards
Cluster 15	Data Structure
Cluster 16	Assistance on Demand

The 'tree of influences' is made up of 6 different levels. Three ideas are cycled together with others ideas (89 with 1, 24, 31, 32, 23 with 11 and 19 with 34) which means that these groups of ideas were found to influence each other, to receive and to exert influences from and to the same factors. It is also interesting to note the location of the various ideas according to the amount of votes received. Table 3 shows the detailed distribution of the number of ideas according to the number of votes (lines) and level in the influence tree (columns).

Number of votes (1st round)	Level I	Level II	Level III	Level IV	Level V	Level VI
5-6	1	1				
4		1			3	
3	2	4	4	1	1	1
2 and under	2	4	2	2	1	

Table 3. Distribution of ideas according the number of votes received and level in influence map.

The first observation is that there seems to be a tendency for the ideas that received the most votes (4-6 votes) to be either at the foot (levels 5 and 6) or the top of the influence tree (levels 1 and 2). This can be explained by the observation that proposals that receive the most votes often tend to be either 'visionary' ideas that encapsulate widely held aspirations or more practical ideas that encapsulate clearly identifiable issues that need to be addressed as a matter of urgency. This distribution tendency was also observed in the influence map from the second SDDP in San Sebastian on user interaction.

It can be seen from this table that no clear pattern emerges for the ideas that received 1, 2 and 3 votes, where the distribution is spread fairly evenly across all 6 levels with an extra weighting on levels 2 and 3. This seems to indicate then that the overall distribution in terms of number of votes is fairly random with the distribution being more related to the type of idea than the number of votes cast, where the more practical ideas tending to be located towards the foot of the table with the more long-term 'visionary' ideas tending to be more towards the top of the influence map. This phenomenon is known as erroneous priorities effect.

Ideas are structured into the influence map and connected to other ideas based on great majority decisions. Specifically, the participants were asked to explore influences between two ideas. They were asked to discuss and decide whether working on one idea will make working on another idea significantly easier. If the great majority of participants (≥75%) think one idea has a significant influence on another idea a connection between those ideas is established in the influence tree indicating the direction of the influence.

The collective wisdom of the participants revealed that the following four mechanisms were probably the most influential and that the stakeholders should give these a higher priority:

Level VI:
2: Explore how users interact and cooperate with intelligent systems
Level V:
89: Ethical legal and social implications
1: Research on user trust and confidence issues

24: Research on the ethical and legal requirements and consequences
31: Identify impact of cloud platforms
32: Research on the use of social media to reduce isolation
Level IV:
19: Research on how to integrate social objectives in ICT.
34: Research on accessible knowledge infrastructure that includes scientific knowledge
62: Research on how people can understand and use the full potential of AmI

The importance and influence of these nine ideas is graphically illustrated by the 15 sub-influence maps for the ideas in levels 1 and 2 shown in this report. All but two of these sub-influence maps, contain at least one of these nine factors in the corresponding sub-influence tree. The only exceptions are idea #33 and #44. These nine factors will therefore have a direct or indirect impact on the great majority of ideas in the influence tree.

The reason for extracting these sub-influence maps is not only to illustrate the influence that these nine factors at the foot of the influence tree have, but also to help identify the factors that can influence and have an impact on the ideas at the top two levels of the influence tree. Although this information is contained in the overall influence tree, it may not be immediately obvious and easy to extract this information. This should also help with the more in depth analysis to be carried out in deliverable D4.2.

Tables sub-influence maps from SDDP3 in Florence

Table and sub-influence map for Factor #9 (5 votes)

	Supported by	Supported by	Supported by	Supported by
Factor #9	#23 & #11	#4	#2	
		#5 #43	#2	
	#6	#73	#62	#2
	#28	#73	#62	#2
	#55	#4 #30	#2 #62	#2
	#7	#5	#2	
	#13	#89	#2	
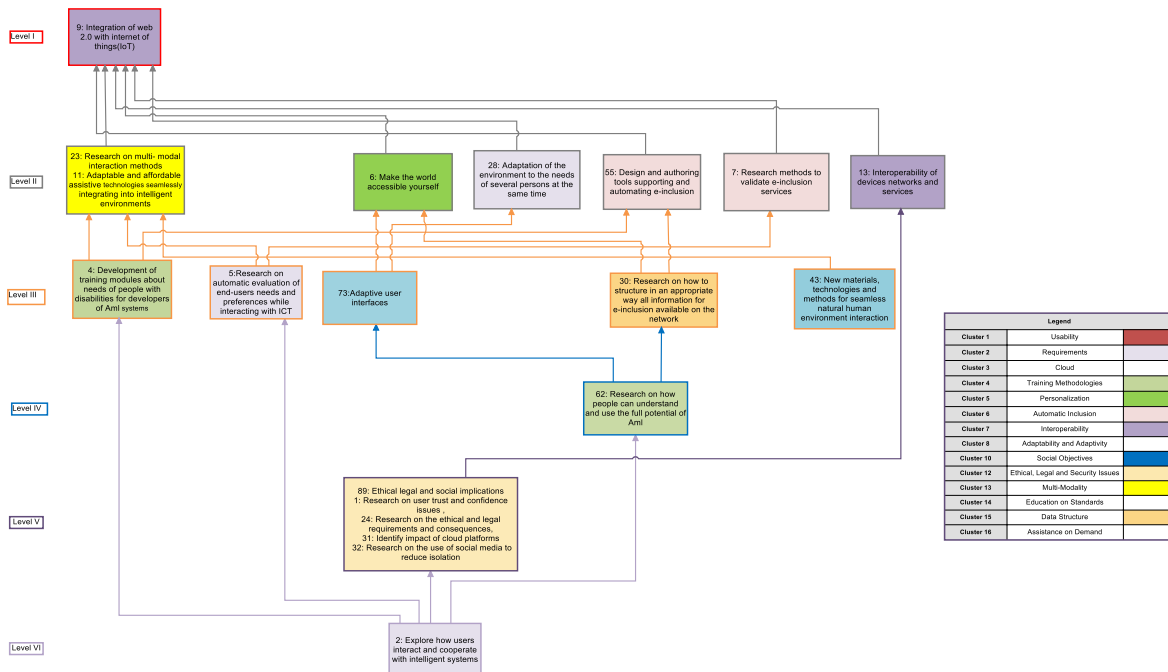
The sub-influence map for idea #9 "Integration of web 2.0 with internet of things (IoT)" is a good example of a more visionary and long-term statement that would benefit and require the direct and indirect support from a number of other actions. The sub-influence map, shows that there are in all 15 boxes containing 20 other actions that would support this visionary

statement. If this topic were to form the overall aim of a particular research call, it would therefore make sense to support research in the other areas contained in this sub-influence map. For this particular example, the number of areas may be too great for a single call and it could make sense to split the process up into several calls where any of the ideas on levels II or III could serve as "Stepping stones" or intermediate research objectives.

If therefore the aim of a particular research programme were to support the integration of web 2.0 with Internet of things (IoT), it would make sense to also support:

- Research on multi-modal methods (#23)
- Adaptable and affordable assistive technologies seamlessly integrating into intelligent environments (#11)
- Making the world accessible yourself (#6)
- Adaptation of the environment to the needs of several persons at the same time (#28)
- Design and authoring tools supporting and automating eInclusion (#55)
- Interoperability of devices networks and services (#13)
- Development of training modules about needs of people with disabilities for developers of AmI systems (#4)
- Research on automatic evaluation of end-users needs and preferences while interacting with ICT (#5)
- Research on adaptive user interfaces (#73)
- Research on how to structure in an appropriate way all information for eInclusion available on the network (#30)
- New materials, technologies and methods for seamless natural human environment interaction (#43)
- Research on how people can understand and use the full potential of AmI (#62)
- Research into ethical, legal and social implications (#89)
- Research on user trust and confidence issues (#1)
- Research on ethical and legal requirements and consequences (#24)
- Research identifying impact of cloud platforms (#31)
- Research on use of social media to reduce isolation (#32)
- Research on exploring how users interact and cooperate with intelligent systems (#2).

Table and sub-influence map for Factor #79 (3 votes)

|	Supported by	Supported by	Supported by	Supported by
Factor #79	#5	#62		
	#28	#73	#62	#2
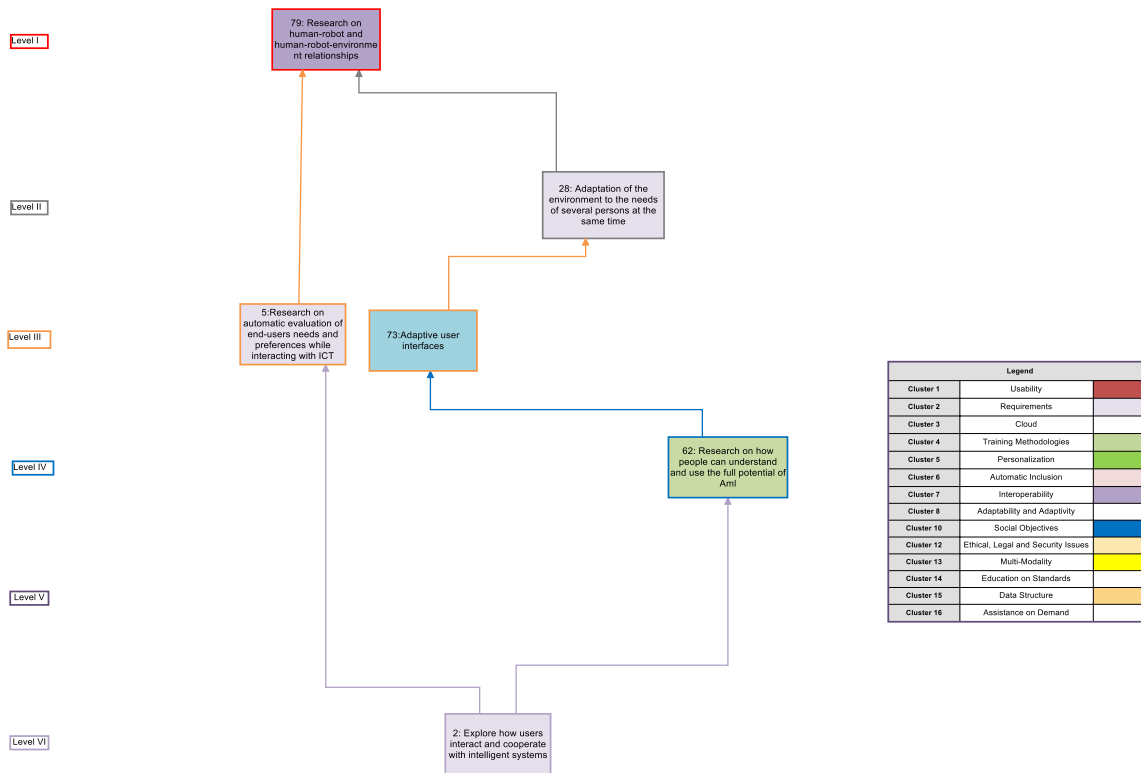
The sub-influence map for idea #79 "Research on human-robot and human-robot-environment relationship" is a less complex influence map with essentially five factors from the overall influence tree supporting this research area. If idea #79 were to be part of a call for proposals it would therefore make to sense to also support the following five actions:

- Adaptation of the environment to the needs of several persons at the same time (#28)
- Research on automatic evaluation of end-users needs and preferences while interacting with ICT (#5)
- Research on adaptive user interfaces (#73)
- Research on how people can understand and use the full potential of AmI (#62)
- Research on exploring how users interact and cooperate with intelligent systems (#2).

Table and sub-influence map for Factor #74 (3 votes)

	Supported by	Supported by	Supported by	Supported by	Supported by
Factor #74	#28	#73	#62	#2	
	#55	#4 #30	#2 #62	#2	
	#13	#89 #2			
	#70	#18 #30	#19&#34 #62	#89 #2	#2
	#44				
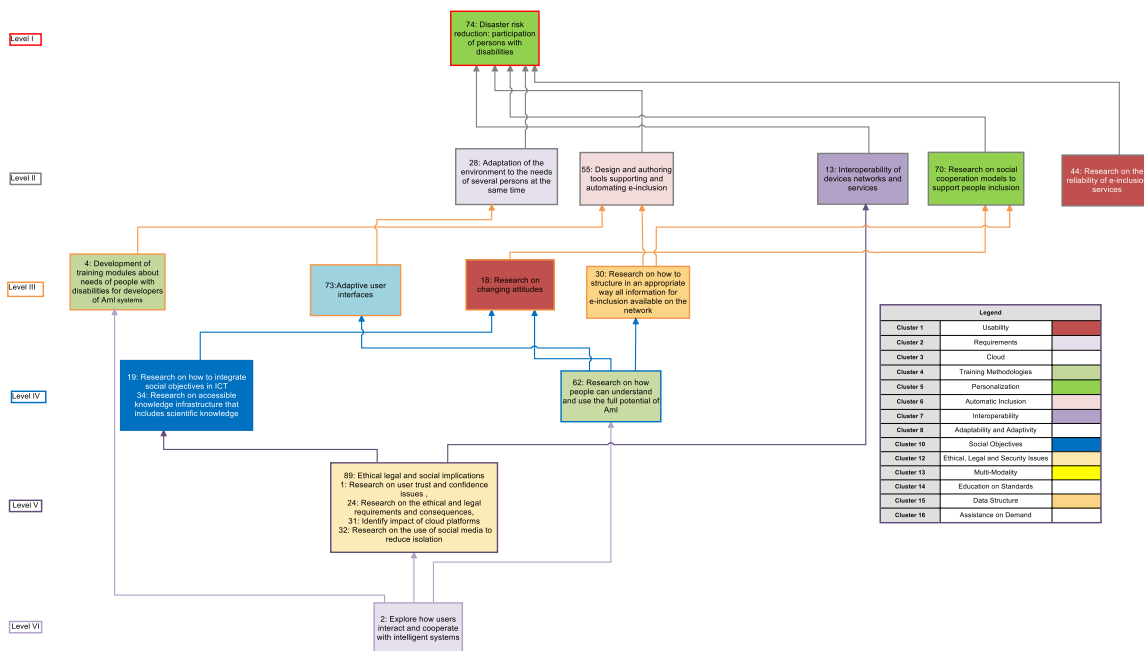
Proposal #74 "Disaster risk reduction: participation of persons with disabilities" is another example of a more long-term visionary idea with a fairly rich and complex sub-influence map containing 13 boxes with 18 ideas overall. Again it may make sense to pursue this research topic

in several stages using any of the ideas on levels II or III as 'stepping stones' or intermediate research objectives.

If idea #74 were to be the focus of a call for research proposals it would therefore make sense to also support:

- Adaptation of the environment to the needs of several persons at the same time (#28)
- Design and authoring tools supporting and automating eInclusion (#55)
- Interoperability of devices networks and services (#13)
- Research on social cooperation models to support people inclusion (#70)
- Research on the reliability of eInclusion services (#44)
- Development of training modules about needs of people with disabilities for developers of AmI systems (#4)
- Research on adaptive user interfaces (#73)
- Research on changing attitudes (#18)
- Research on how to structure in an appropriate way all information for eInclusion available on the network (#30)
- Research on how to integrate social objectives in ICT (#19)
- Research on accessible knowledge infrastructure that includes scientific knowledge (#34)
- New materials, technologies and methods for seamless natural human environment interaction (#43)
- Research on how people can understand and use the full potential of AmI (#62)
- Research into ethical, legal and social implications (#89)
- Research on user trust and confidence issues (#1)
- Research on ethical and legal requirements and consequences (#24)
- Research identifying impact of cloud platforms (#31)
- Research on use of social media to reduce isolation (#32)
- Research on exploring how users interact and cooperate with intelligent systems (#2)

Table and sub-influence map for Factor #92 (1 vote)

	Supported by
Factor #92	#2
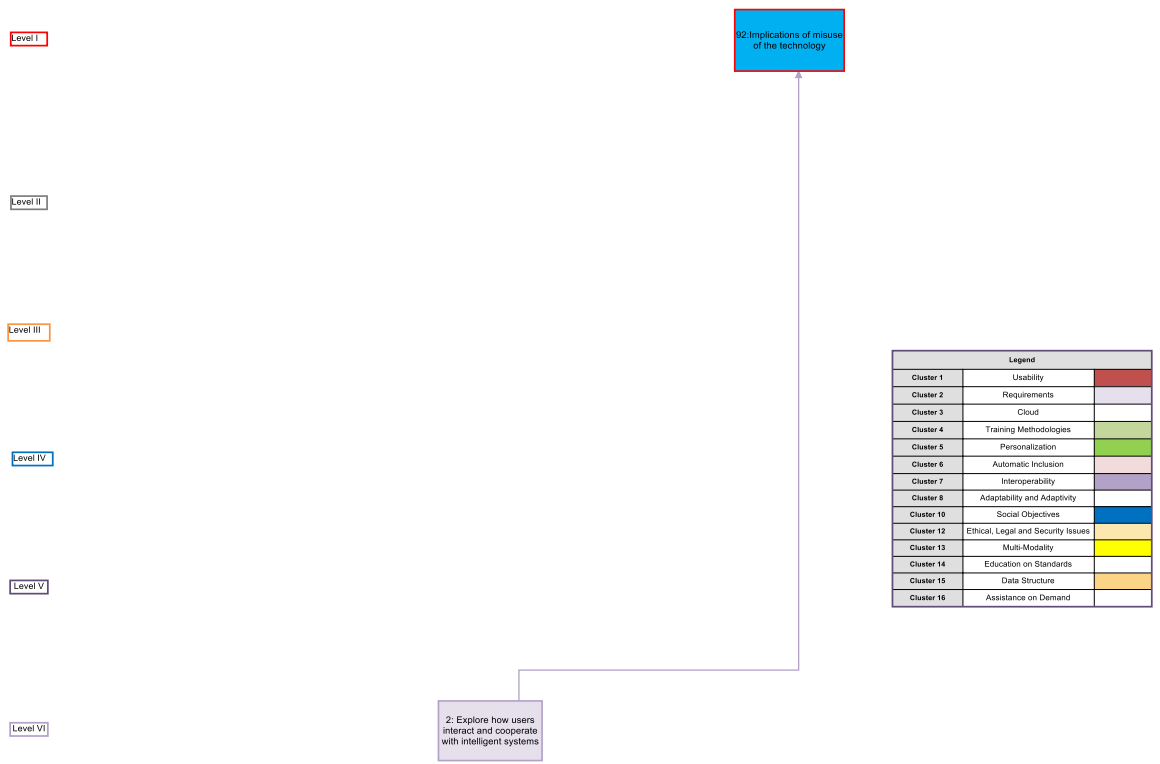
The sub-influence-map for idea #92 "Implications of misuse of the technology" is an example of a very simple influence map with just idea #2 "Explore how users interact and cooperate with intelligent systems" at the foot of the influence tree supporting this particular proposal.

Table and sub-influence map for Factor #85 (0 votes – 4 votes)

| Factor #85	Supported by	Supported by	Supported by
	#33		
	#30	#62	#2
	#15	#2	
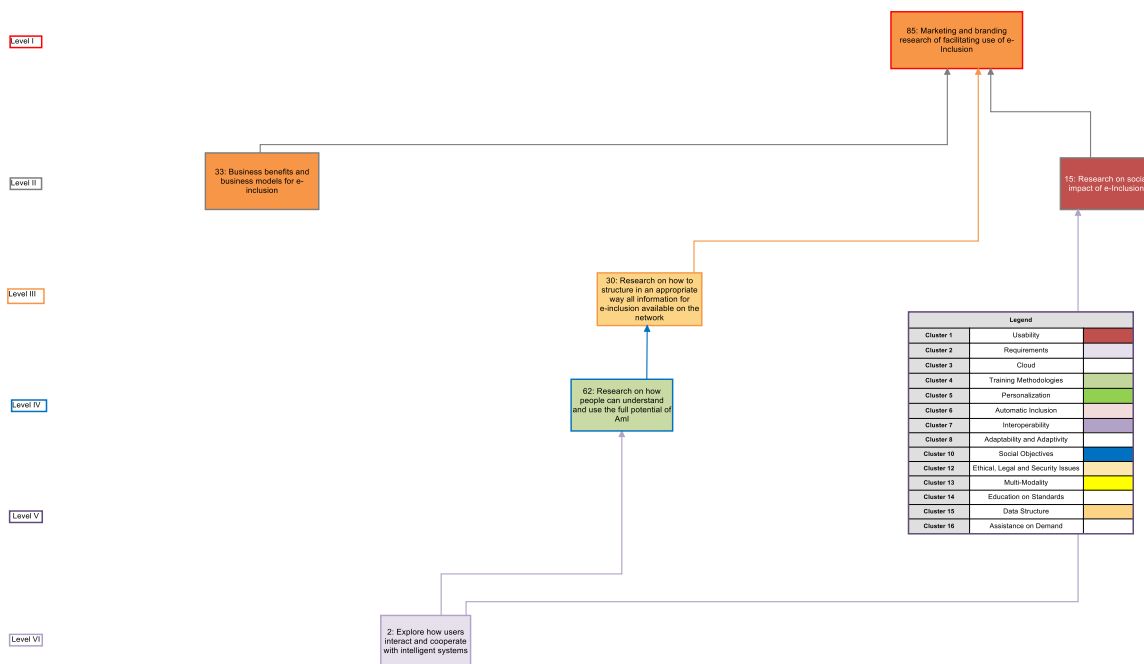
The sub-influence map for idea #85 "Marketing and branding research of facilitating use of eInclusion" is another example of less complex influence map with essentially five factors from the overall influence tree supporting this action. If idea #85 were to be part of a call for proposals it would therefore make to sense to also support the following five actions:
- Business benefits and business models for eInclusion (#33)
- Research on social aspects of eInclusion (#15)
- Research on how to structure in an appropriate way all information for eInclusion available on the network (#30)
- Research on how people can understand and use the full potential of AmI (#62)
- Research on exploring how users interact and cooperate with intelligent systems (#2).

Level II

Table and sub-influence map for Factor #6 (3 votes)

|	Supports by	Supported by	Supported by
Factor #6	#73	#62	#2
Supports directly #9	#30	#62	#2
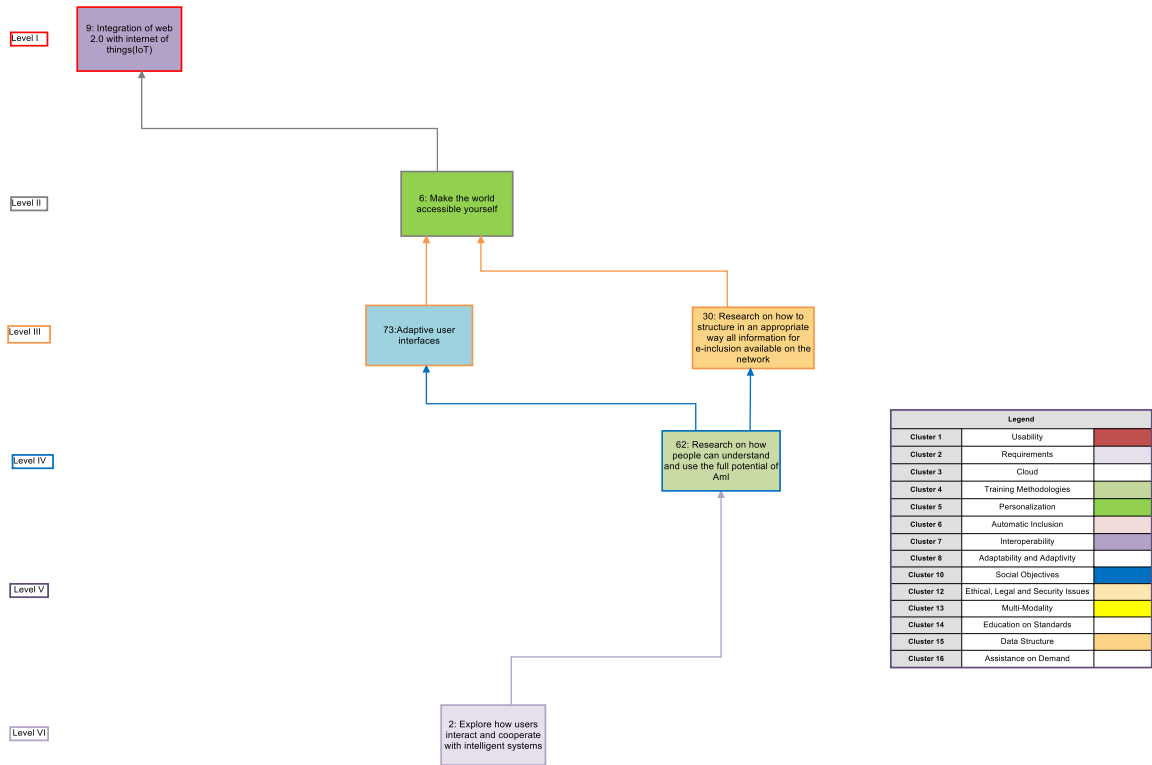
The sub-influence map for action #6 "Make the world accessible yourself" is essentially a subdivision or potential 'stepping-stone" towards the implementation of proposal #9 "Integration of Web 2.0 with Internet of Things (IoT)".

If the overall aim were to help people in making the world accessible by themselves, it would make sense to support the following 4 proposals:
- Research on adaptive user interfaces (#73)
- Research on how to structure in an appropriate way all information for eInclusion available on the network (#30)
- Research on how people can understand and use the full potential of AmI (#62)
- Research on exploring how users interact and cooperate with intelligent systems (#2).

Table and sub-influence map for Factor #7 (2 votes)

|	Supported by	Supported by
Factor #7 Supports Directly #9	#5	#2
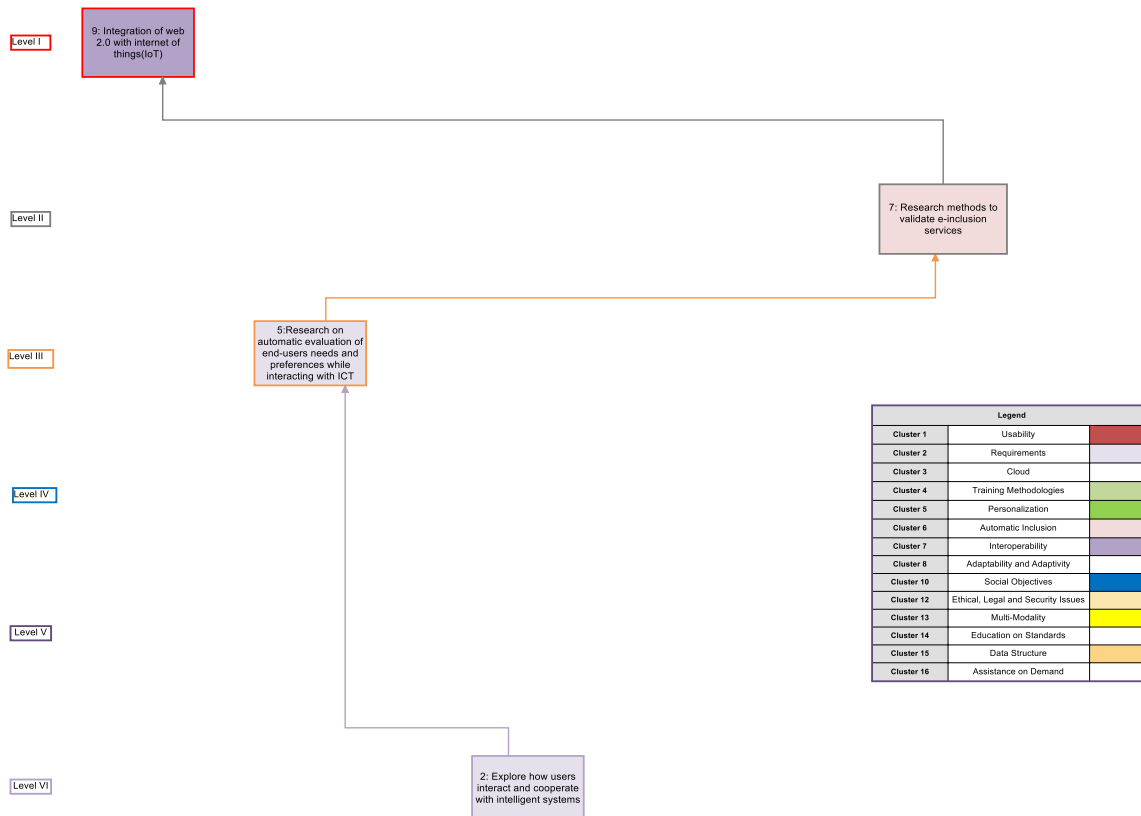
The sub-influence map for action #7 "Research methods to validate eInclusion services" is essentially another example of a subdivision or potential 'stepping-stone' towards the implementation of proposal #9 "Integration of Web 2.0 with Internet of Things (IoT)".

If the focus of a particular call were to support research into methods of how to validate eInclusion services, it would make sense to also support the following 2 proposals:
- Research on automatic evaluation of end-users needs and preferences while interacting with ICT (#5)
- Research on exploring how users interact and cooperate with intelligent systems (#2).

Table and sub-influence map for Factor #13 (2 votes)

|	Supports Directly	Supported by
Factor #13 Supports Directly #9 & #74	#89, #1, #24, #31 & #32	#2
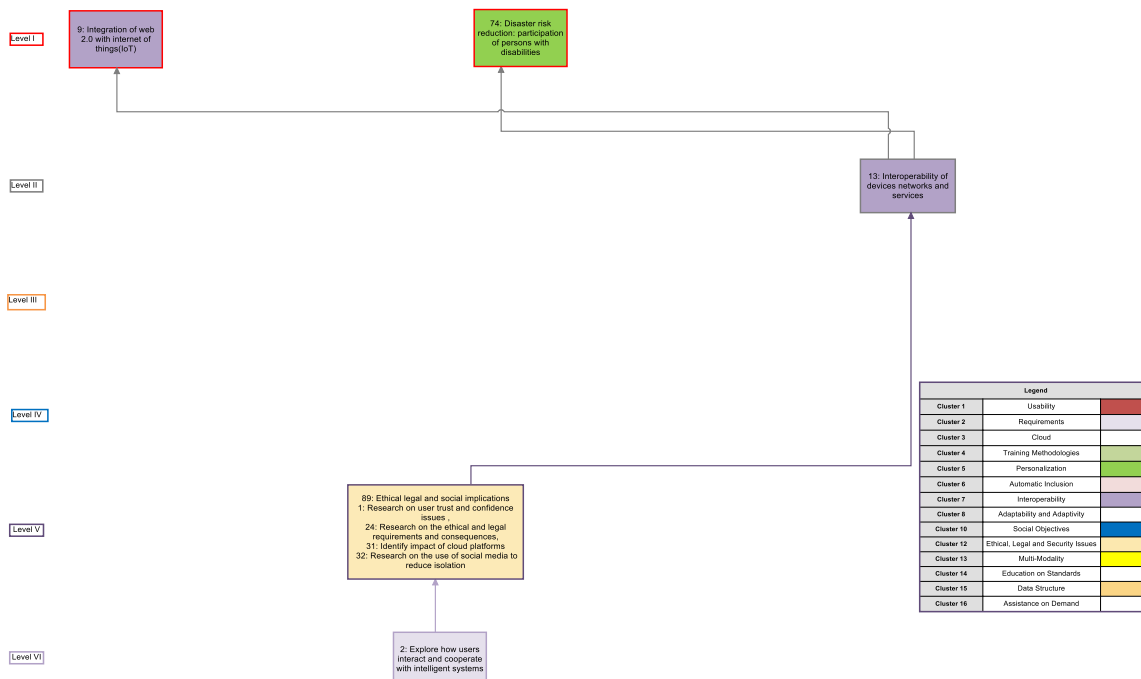
The sub-influence map of idea #13 "Interoperability of devices, networks and services" can be seen as a sub-division of the sub-influence maps of ideas #9 and #74. It could thus serve as an intermediate stage or objective for either of these two proposals.

If idea #13 were to be the focus of a call it would make sense to also support following 6 actions:
- Research into ethical, legal and social implications (#89)
- Research on user trust and confidence issues (#1)
- Research on ethical and legal requirements and consequences (#24)
- Research identifying impact of cloud platforms (#31)
- Research on use of social media to reduce isolation (#32)
- Research on exploring how users interact and cooperate with intelligent systems (#2)

Table and sub-influence map for Factor #15 (2 votes)

	Supports by
Factor #15 Supports directly #85	#2
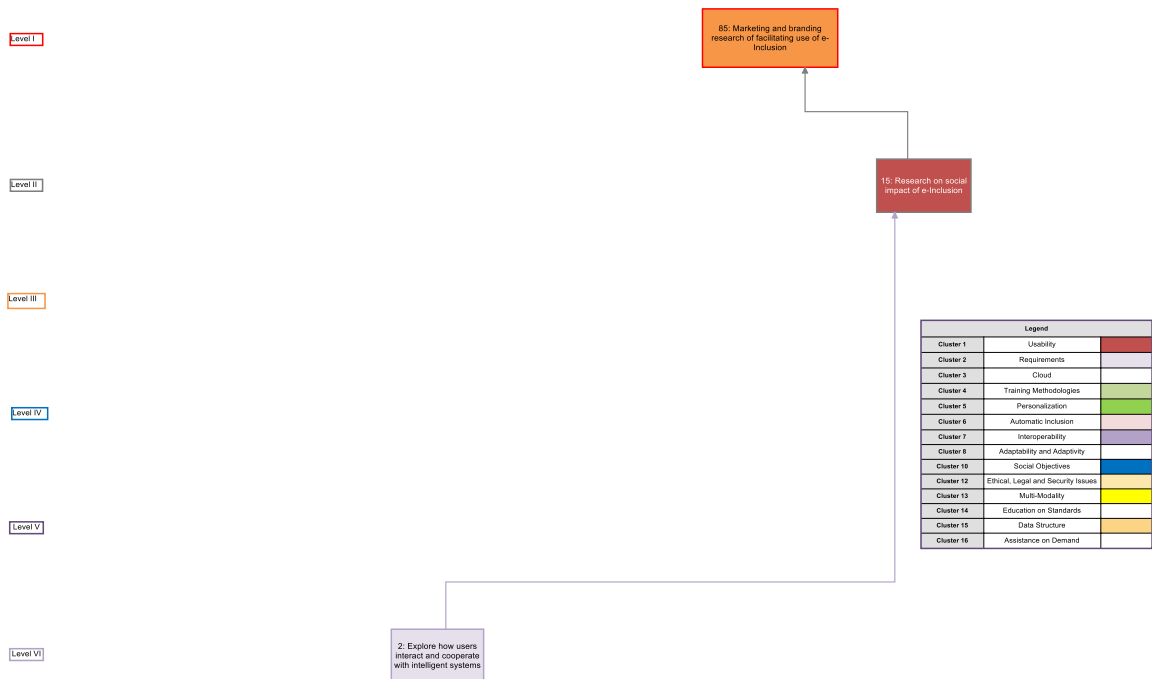
The sub-influence map of idea #15 "Research on social impact of eInclusion" can be seen as a sub-division of the sub-influence map of ideas #85 "Marketing and branding research of facilitating use of eInclusion".

Table and sub-influence map for Factor #23 & #11 (6 votes & 4 votes)

	Supports Directly	Supported by
Factor #23 & #11 Supports directly #9	#4	#2
	#5	
	#43	
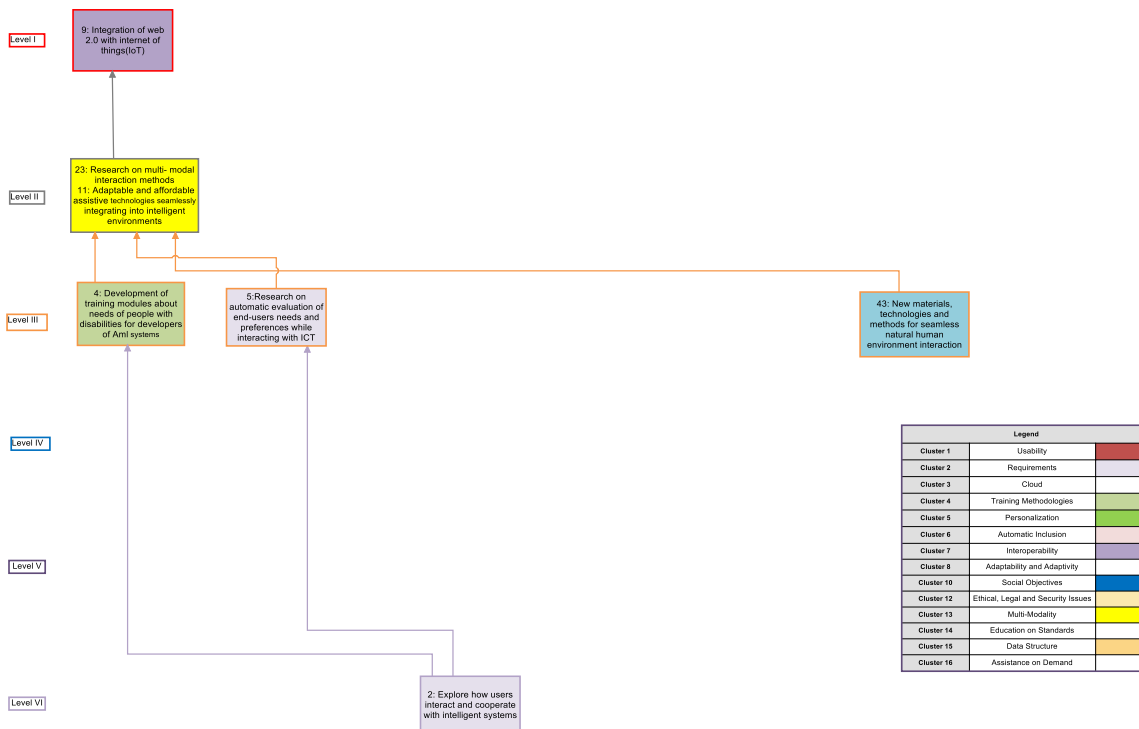
The sub-influence map for action #23 "Research on multi-modal methods" and action #11 "Adaptable and affordable assistive technologies seamlessly integrating into intelligent environments" is essentially another example of a subdivision or potential 'stepping-stone" towards the implementation of proposal #9 "Integration of Web 2.0 with Internet of Things (IoT)".

Actions #23 and #11 received between them a total of 10 votes, which indicates that these actions were considered as one of priorities by the participants. If therefore the focus of a call were support research on multi-modal interaction methods or on adaptable and affordable assistive technologies seamlessly integrating into intelligent environments, it would make sense to support the following 4 proposals:

- Development of training modules about needs of people with disabilities for developers of AmI systems (#4)
- Research on automatic evaluation of end-users needs and preferences while interacting with ICT (#5)

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- New materials, technologies and methods for seamless natural human environment interaction (#43)
- Research on exploring how users interact and cooperate with intelligent systems (#2).

Table and sub-influence map for Factor #28 (3 votes)

	Supports Directly	Supported by	Supported by
Factor #28 Supports directly #9, #79 & #74	#73	#62	#2
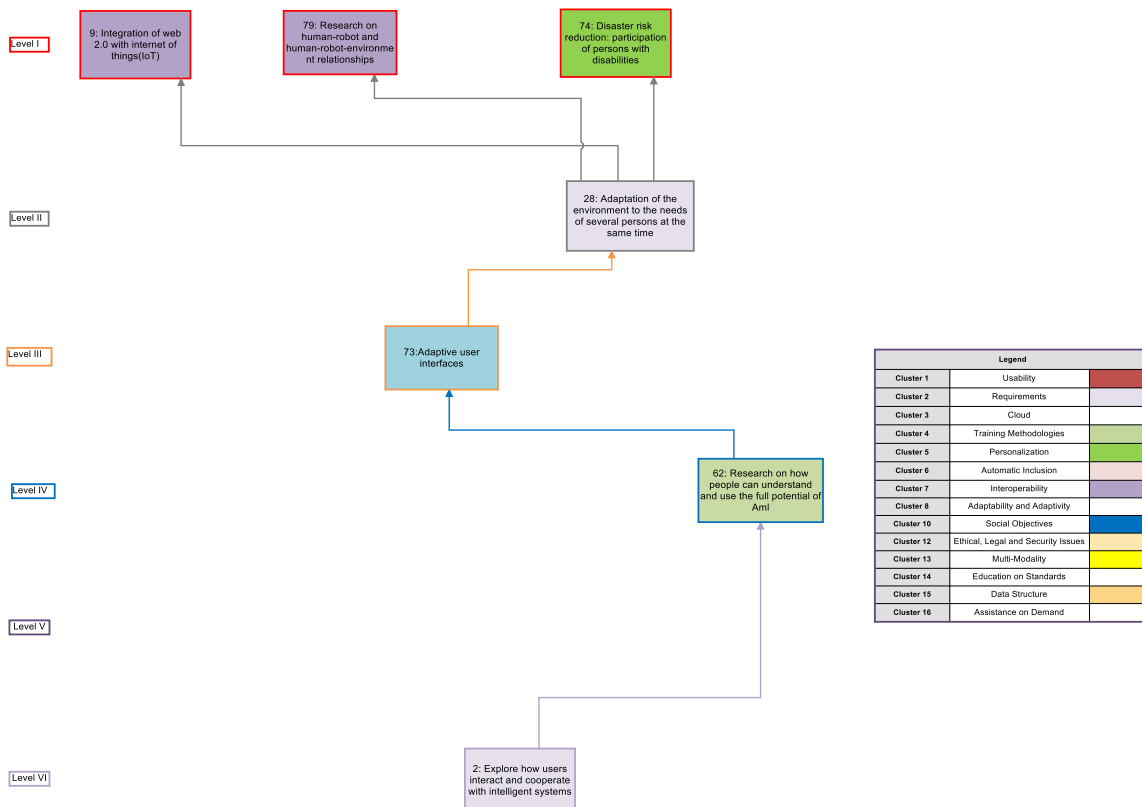
The sub-influence map of idea #28 "Adaptation of the environment to the needs of several persons at the same time" is an interesting case in the sense that it could serve as an intermediate stage or 'stepping stone' for three other proposals (#9, #79, and #74). As such it plays quite a pivotal role for three other level I proposals.

If the focus of a research call were to be the adaptation of the environment to the needs of several persons at the same time, it would make sense to also support the following 3 proposals:

- Research on adaptive user interfaces (#73)
- Research on how people can understand and use the full potential of AmI (#62)
- Research on exploring how users interact and cooperate with intelligent systems (#2).

Table and sub-influence map for Factor #33 (3 votes)

	Supports Directly
Factor #33 Supports directly #85	

Level I

85: Marketing and branding research of facilitating use of e-Inclusion

33: Business benefits and business models for e-inclusion

Level II

Level III

Legend		
Cluster 1	Usability	
Cluster 2	Requirements	
Cluster 3	Cloud	
Cluster 4	Training Methodologies	
Cluster 5	Personalization	
Cluster 6	Automatic Inclusion	
Cluster 7	Interoperability	
Cluster 8	Adaptability and Adaptivity	
Cluster 10	Social Objectives	
Cluster 12	Ethical, Legal and Security Issues	
Cluster 13	Multi-Modality	
Cluster 14	Education on Standards	
Cluster 15	Data Structure	
Cluster 16	Assistance on Demand	

Level IV

Level V

Level VI

The sub-influence map for idea #33 "Business benefits and business models for eInclusion" is simply a branch of the sub-influence map of idea #85, which it directly supports.

Table and sub-influence map for Factor #44 (3 votes)

	Supports Directly
Factor #44 Supports directly #74	
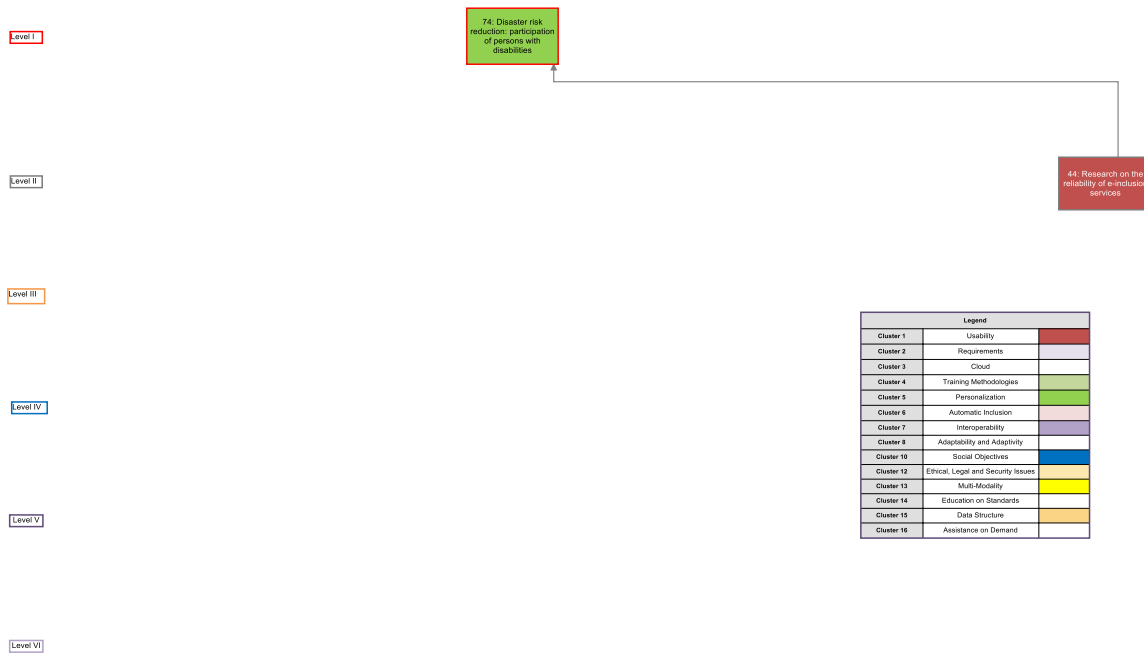
The sub-influence map for idea #44 "Research on the reliability of eInclusion services" is simply a branch of the sub-influence map of idea #74, which it directly supports.
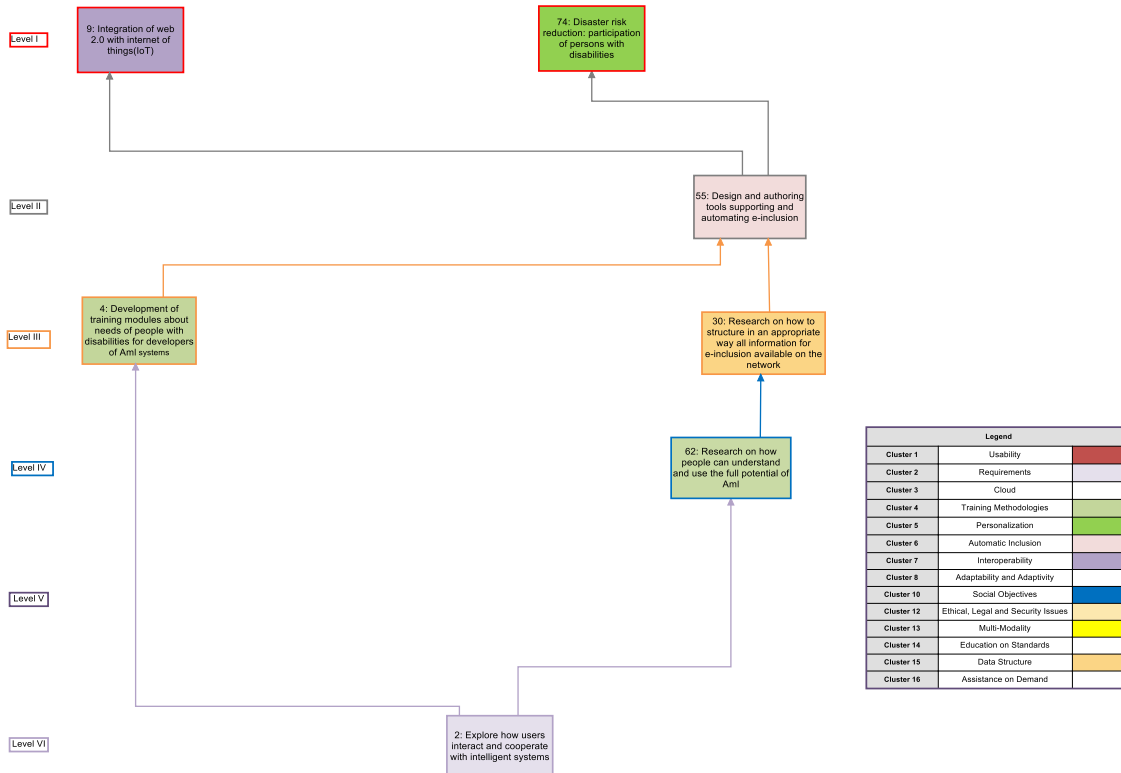
Table and sub-influence map for Factor #55 (3 votes)

|	Supports Directly	Supported by	Supported by
Factor #55 Supports directly #9 & #74	#4	#2	
	#30	#62	#2

The sub-influence map of idea #55 "Design and authoring tools supporting and automating eInclusion" can be seen as a sub-division of the sub-influence maps of ideas #9 and #74. It is another example of a pivotal idea and could thus serve as an intermediate stage or objective for either of these two proposals.

If idea #55 were to be the focus of a call it would make sense to also support the following 4 actions:
- Development of training modules about needs of people with disabilities for developers of AmI systems (#4)
- Research on how to structure in an appropriate way all information for eInclusion available on the network (#30)
- Research on how people can understand and use the full potential of AmI (#62)
- Research on exploring how users interact and cooperate with intelligent systems (#2).

Table and sub-influence map for Factor #70 (2 votes)

	Supported by	Supported by	Supported by	Supported by
Factor #70 Supports directly #74	#18	#19&#34	#89,#1,#24,#31,#32	#2
	#30	#62	#2	
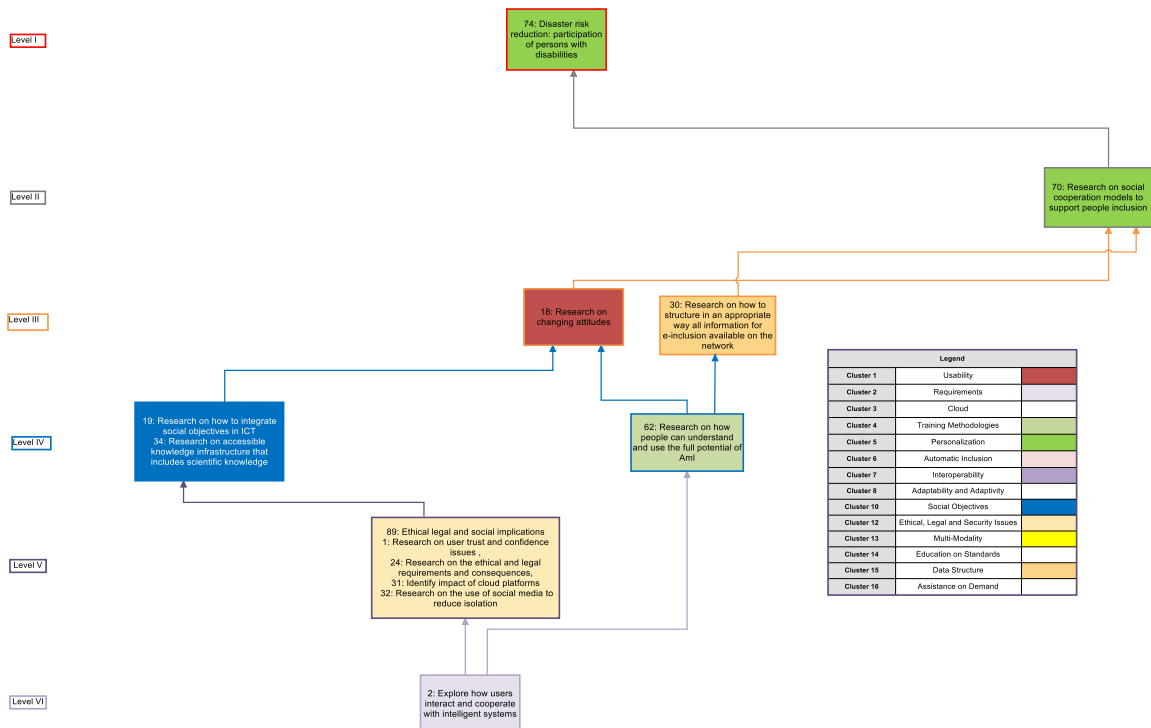
The sub-influence map of idea #70 "Research on social cooperation models to support people inclusion" is another example of a sub-division of the sub-influence map of idea #74. It is quite a rich sub-influence map and could thus serve as a useful intermediate stage or objective for proposal #74.

If idea #70 were to be the focus of a call it would make sense to also support the following 11 actions:

- Research on changing attitudes (#18)
- Research on how to structure in an appropriate way all information for eInclusion available on the network (#30)
- Research on how to integrate social objectives in ICT (#19)
- Research on accessible knowledge infrastructure that includes scientific knowledge (#34)
- Research on how people can understand and use the full potential of AmI (#62)
- Research into ethical, legal and social implications (#89)

- Research on user trust and confidence issues (#1)
- Research on ethical and legal requirements and consequences (#24)
- Research identifying impact of cloud platforms (#31)
- Research on use of social media to reduce isolation (#32)
- Research on exploring how users interact and cooperate with intelligent systems (#2)

6. Conclusions

In the following paragraphs the conclusions are discussed from two different perspectives: (a) conclusions related to the applicability of the SDD^{SM} process; and (b) conclusions regarding the outcomes of the implementation of the SDD^{SM} process.

The application of the SDDP in Florence with 23 participants from a wide range of different stakeholders was conducted according to and in compliance with the SDDP rules. The ideal number of participants is between 20-25, so the number of participants in Florence in the middle of this range and the participants covered the whole range of identified stakeholders as can be seen in Table 1.

With respect to the goals of the co-laboratory from the perspective of the implementation of the SDD^{SM} process, the following is noted:

1.   A list of 93 ideas was generated in response to the Triggering Question. This is considered satisfactory, since the average reported in the literature is 64.

2.   The ideas were clarified and discussed throughout the SDD^{SM}, thus enabling participants to achieve a better understanding of the views of other members and greatly expand their own and others';

3.   The ideas were clustered in 19 categories in an interactive manner, thus providing opportunities for further and deeper clarifications of salient distinctions between separate ideas. The process is crucial for what we call "evolutionary learning" (i.e., during the process participants "lose" connection to their own personal ideas and stereotypes in favor of a collective and shared thinking);

4.   Participants voted for 54 of the ideas that they considered most important. They subsequently managed to "structure" 31 of these ideas and produce an influence tree;

5.   The influence map produced in response to the Triggering Question, containing 31 ideas in the form of the Tree of Influence comprised of 6 levels;

6.   The participants had time to discuss and reflect on the influence tree and in general agreed that the arrows in the map made sense to them;

7.   More importantly, the structured dialogue process empowered the consortium team to identify the most influential research that is missing that could support the exploitation of emerging network infrastructures and services to facilitate eInclusion

The issue itself of what type of research is missing that could harness the emerging network for the benefit of eInclusion is a very complex issue involving a wide range of stakeholders. The results show that the SDD^{SM} methodology is well suited to this kind of multi facet problem with interconnected issues where it can be a useful tool to harness the collective wisdom of a wide range of stakeholders and bring new perspectives and approaches to a given problem. Of course the methodology itself will only generate the raw data in the form an 'Influence Tree". The breaking down of the influence tree into a host of sub-influence maps has been a useful tool for the initial analysis of the influence tree, highlighting a certain number of possible intermediate

objectives or 'stepping stones' on the was to achieving some of the more long-term visionary proposals at the top of the tree in Level I. This initial analysis will be a useful platform for the further analysis and generation of the roadmap to be carried out in deliverable D4.2.

7. Methodology: The Process of Structured Dialogic Design

The term "Structured Dialogue" is sometimes used to simply denote a dialogue more organized than the simple "talking" and exchange of ideas. In contrast the Structured Dialogic Design[10] (SDD[SM])) process is a methodology, which supports the generation of truly democratic and structured dialogue amongst teams of stakeholders with diverse views and perspectives. It is particularly effective in the resolution of complex conflicts, interests, and values, and in achieving consensus based on a common understanding and strategy. It is grounded on 6 complex systems and cybernetics axioms and 7 laws from systems science; it has been grounded both scientifically and empirically in hundreds of settings on a global scale for the past 30 years. Scientists and practitioners worldwide are guided by the Institute of 21st Century Agoras[11].

The Cyprus team has extensive experience in the application of the methodology. They have utilized it in many public debates in order to facilitate organizational and societal change. For example, they have utilized it in many European networks of experts. The COST219ter[12] is a network of scientists from 20 countries (18 European, the USA, and Australia) who were interested in exploring the question of how new technologies ambient intelligence and next generation networks can make their services more useful to people with special needs. The COST298[13] network also aims to make broadband technologies more accessible to the wider public. The scientific communities of Cost219ter and Cost298 utilized SDD in order to outline the obstacles, which inhibit the application of the above technologies on a wider scale. Based on the results of the SDDs, they designed corresponding strategies for the next 3 years. Insafe[14] is a European network of 27 Safer Internet Centers who used SDDs in many meetings in order to identify the inhibitors, produce a vision of the future, and agree on a plan of action. More information is available on the CyberEthics Cyprus Safer Internet website[15].

The UCYVROK[16] network utilized SDD[SM] in order to determine the reasons for which young people in Europe do not participate in European programs. The results were presented to the European Parliament. The SDD[SM] methodology was also used in order to ease the dialogue between Greek-Cypriots and Turkish-Cypriots since 1994. This dialogue culminated in the creation of a peace movement. Many reports are still being utilized by the network, and are available on the program's page[17].

SDD[SM] was designed especially so that it can assist non-homogenous groups in tackling complex problems within a reasonable and restricted time frame. It facilitates the annexation of contributions by individuals with vastly different views, contexts, and aspirations, through a process that is structured, conclusive, and the product of cooperation.

A team of participants, who are knowledgeable of a particular situation, generate together a common outline of ideas based on a common understanding of the current problematic situation and a future ideal one. SDD[SM] promotes the focused communication between participants and supports their ownership of the solution as well as their actions towards implementing it.

8. Structure and Process in a typical SDD Co-Laboratory

When facing any complex problem the stakeholders can ideally approach it in the following way:

1. Develop a shared vision of an ideal future situation. This ideal **vision map** serves as a **magnet** to help the social system transcend into its future state.

2. Define the **problematique**, also known as the wall of inhibitors i.e., develop a common and shared understanding of what are the obstacles that prevent the stakeholders' system from reaching its ideal state.

3. Define **actions/options** and produce a roadmap to achieve the goals.

The three phases are implemented using exactly the same dialogue technique. Each phase leads to similar products:

1. A **list** of all ideas and their clarifications [SDD^{SM} is a self-documenting process].

2. A **cluster** of all ideas categorized according to their common attributes [using a bottom-up approach].

3. A document with the **voting results** in which participants are asked to choose ideas they consider most important [erroneous priority effect = most popular ideas do not prove to be the most influential!]

4. A **map** of influences. This is the most important product of the methodology. Ideas are related according to the influence they exert on each other. If we are dealing with problems, then the most influential ideas are the *root causes*. Addressing those will be most efficient. If we deal with factors that describe a future ideal state, then working on the most influential factors means that achieving the final goal will be easier/faster/more economic, etc.

In the following, the process of a typical SDD^{SM} session, with its phases, is described in more detail.

First   The breadth of the dialogue is constrained and sharpened with the help of a **Triggering Question**.

This is formulated by a core group of people, who are the Knowledge Management Team (KMT) and is composed by the owners of the complex problem and SDD^{SM} experts. This question can be emailed to all participants, who are requested to respond with at least three contributions before the meeting either through email or wikis.

Second   All contributions/responses to the triggering question are recorded in the *Cogniscope II*[TM] software. They must be short and concise: one idea in one sentence! The authors may clarify their ideas in a few additional sentences.

Third   The ideas are clustered into categories based on similarities and common attributes. If time is short, a smaller team can do this process to reduce time (e.g., between plenary sessions).

Fourth   All participants get five votes and are asked to choose ideas that are most important to them. Only ideas that receive votes go to the next and most important phase.

Fifth   In this phase, participants are asked to explore influences of one idea on another. They are asked to *decide whether solving one problem will make solving another problem easier*. If the answer is a great majority an influence is established on the map of ideas. The way to read that influence is that items at the bottom are root causes (if what is being discussed are obstacles), or most influential factors (if what is being discussed are descriptors of an ideal situation or actions to take). Those root factors must be given priority.

Sixth   Using the root factors, stakeholders develop an efficient strategy and come up with a road map to implement it.

9. Further Information on the science SDD[SM]

The interested reader who might want to find out more about the underlying science of structured dialogic design may begin by researching the terms "Lovers of Democracy", "Hasan Ozbekhan", "Aleco Christakis", "Club of Rome", "Structured Dialogic Design", "Cyprus Civil Society Dialogue", etc. Available are also two books co-authored by the Father of the science: [18], [19]. A number of wikis are also dedicated to the science: [20, 21, 22]. Selected publications include a Description of the technology of Democracy [23].

There are several publications of the Cyprus group, which describe the application of SDD[SM] in the Cyprus peace-building process: [24, 25, 26]. Furthermore, two recent publications provide an easy-to-comprehend introduction to the methodology and the ethical considerations associated with its application [27, 28].

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Annex I: Ideas with Clarifications

1: Research on user trust and confidence issues [Iosif Klironomos]
Research on how to ensure user trust and confidence for the new systems is needed. Trust and confidence are crucial factors that affect how users will perceive and ultimately use new technologies.

2: Explore how users interact and cooperate with intelligent systems [Helmut Heck]
It is a characteristic feature of "intelligent" systems that they learn, adapt to changing conditions, and as a consequence change their behaviour. This makes it in principle hard for the user to predict the system's behaviour. How does the user become aware of the AmI system functionality, i.e. the actual support it is going to provide. How will he trust the system; is it reliable according to his expectations?
What is the relation of
-        the view the user has of the system (mental model) and
-        the view the system has of the user (user model)?

3: Exploitation of social network and cloud computing to support independent living [Mary Nolan]
Facilitate full participation of people with disabilities through increasing availability and speed of broadband and internet access extending the availability of mobile computing and exploitation of social networking and cloud based services to support people in independent living.

4: Development of training modules about the needs of people with disabilities for developers of AmI systems [John Gill]
Designers of AmI systems may have a superficial idea of the needs of people with disabilities. These designers might benefit from appropriate training about these needs (e.g., the practical problems experienced by people with intellectual impairments). The development of suitable training modules will not be a trivial task.

5: Research to evaluate automatically end-users needs and preferences while interacting with ICT [Roberto Torena]
Currently there is a research trend on providing user interfaces adapted to the end-user needs and preferences. In order to be able to adapt the interface, the end-user requirements should have been gathered and stored in advance, or during the interaction. The automatic evaluation addresses the question: What are the user requirements for the end-user interacting/using the ICT product/service.
Regarding the automatic evaluation of end-users in advance, in order to provide personalized interfaces, several current trends exist, e.g.:
The end-user selects the most suitable persona from a set of available ones (e.g. the blind persona activates the screen reader)
The end-users specify their needs and preferences through forms (e.g. larger fonts, easier language, high contrast screens, etc.)
The end-user uses games or wizards designed to carry out these evaluations (e.g. measuring the time to respond or the accuracy of the clicking in several objects)
An even more advance trend is gathering the end-user needs and preferences during their interaction with the service (it can start from previously gathered information or from scratch), in order to adapt the interface (adaptive interfaces) according to the end-user interactions with the system.

6: Make the world accessible yourself [Ilse Bierhoff]
Research focusing on the contributions that users can have in terms of making the emerging networks and services accessible themselves. Linking in to the development around web 2.0 where the emphasis is on social interaction and collective intelligence. Going a step beyond asking what users would like and what problems they face by giving them an active role in shaping solutions. Making use of the fact that a large group can be reached that can speed up the process. Focus on the best way to use the practical knowledge that the end-users have and their capabilities to develop.

7: Research on formal methods to validate e-Inclusion services [Dario Carotenuto]
Formal methods to validate e-Inclusion services
Research on specification models, i.e. interactive processes, suitable to describe human interactions and needs in order to develop interactive services for e-Inclusion.
Interactive systems so specified must be validated with automatic/semi-automatic techniques in order to accomplish human needs in some specified context

8: Research on mechanism of collective intelligence technology-mediated in and for e-Inclusion [Laura Burzagli]
Collective intelligence is a phenomenon which is studied in several different fields of application, with good results, as the way to obtain great results with many small contributions and with the help of technology. This mechanism could provide results also in e-Inclusion filed, if studied.

9: Integration of web 2.0 with internet of things (IoT) [Pier Luigi Emiliani]
Augmenting the interaction with people through the Wb2.0 with the possibility of interacting with objects in the environment or in remote places can give people additional possibilities. A trivial example could be a person interacting in a social network about recipes with the selected recipe transmitted to the fridge that controls the availability of all ingredients and, when necessary, buys them in the supermarket.

10: [DELETE] Research on training end-users and carers [Patrick Roe]
SEE 62

11: Adaptable and affordable Assistive Technologies seamlessly integrating into AmIs [Klaus Miesenberger] [Patrick Roe]
Inclusion and participation of people with disabilities often depends on using personal Assistive Technologies (AT) supporting the interaction with systems and services. These ATs have to become more intelligent („micro AmIs") and all other systems and services („macro AmIs") have to respect and implement requirements for these ATs. In this way standard accessibility issues have to be brought into Web2.0 and AmI environments.

TEXT FROM 88 [PATRICK ROE]:
The idea her is research how the emerging network infrastructure and Ami could be exploited to help hearing aids adapt to changing acoustic environments. This could include moving from one room to another with different acoustic properties and changing acoustic environment in the same room, for example if there a party is taking place in the room with 10 more people talking.
This idea is a subset of #11: Adaptable and affordable assistive technologies seamlessly integrating into intelligent environments.

12: Research and process to balance intellectual properties right and the right of access to knowledge [Hiroshi Kawamura]
IPR was originally established to promote cultural, scientific and technological originality and development of the society. I respect the original idea. However, current IPR situation, such as Submarine patent and DRM, is sometimes negatively impact on the rights of access to knowledge. E-Inclusion must solve this issue by scientific analysis so that a society may find the balancing point through open discussion process supported by scientific analysis. Scientist, not only engaged lawyers, need to work on open and scientific analysis of the situation.

13: Interoperability of devices networks and services [Mikel Larrea]
In order to be accessible, services provided through networks must be accessible through a great variety of interoperable devices (including Assistive Technology).

14: Content generated by web 2.0 users should be controlled to be accessible [Rosa Yanez]
Web2.0 is characterized by user content generation. The accessibility of this content should be controlled.

15: Research on social impact of e-Inclusion [Noemi Bitterman]
Involve sociologists and psychologists in research teams to understand better the needs and constrains of users with new technology and the possible impact of e-inclusion on society such as family relationship, social interactions and contact, personal care, social dominance and leadership,

16: Getting the details right supporting creators with the micro-issues [Gill Whitney]
Many systems and services become inaccessible to users not because of the intention of the creator or designer but due to their lack of knowledge. This lack of knowledge can include not knowing that design information is available to help them and not knowing where to look for the information. This lack of knowledge can result in design decisions, which negatively impact the lives of older and disabled people whilst the decisions made may have no positive effect on other aspects of the system. Minor decision decisions can effectively result in systems becoming totally inaccessible for some users. The knowledge the creators require is partly codified in standards. Training is also required for the creators.
(Links to 4 and 60)

17: Adoption of the paradigm of end-user computing to involve users in the service development process [Adamantios Koumpis]
End user computing helps users become builders and co-builders of their own applications and services. So what best than enabling all different categories of users with varying degrees of access capabilities to become co-creators of the services they will eventually use? So the idea here is to accommodate end user computing principles in the future service development environments.

18: Research on changing attitudes [Cristina Espadinha]
Today there is already a lot of information, processes and work done to facilitate e-inclusion. But the dissemination and the implementation are far behind, most due to attitudes of the different actors. How could we use the emerging network infrastructures and services to change the attitudes of: stakeholders, users, political, researchers, designers, etc.

19. Research on how to integrate social objectives in ICT [Luis Azevedo]
Although we all probably agree that ICT has been developed for all human beings, the truth is that we can´t forget that this is a Industry driven area, focusing on getting the most profit to pay their research and development, so specific groups of the population are often "forgotten", namely those with more severe activity limitations. There are groups of persons, e.g. persons with complex communication needs and some order people that many times are not able to communicate face-to-face or at distance. It is crucial that ICT developers take into account in their developments the number of persons that have these "communication" problems are increasing (specially older persons that become more and more isolated) so their social objectives must be taken into account.

20: Research to predict the impact on the decision making process of the end-user [Leonor Moniz Pereira]
To predict the impact of emerging technologies in the decision making process of activities and services. Emerging technology changes the way of thinking and to analyse a concept, a task an activity or a service creating or changing reasoning steps that may conflict with people traditional way to establish their decision – making process leading to technology rejection. This has a particularity importance in relation to the elderly and carers organizations.

21: Merge research on society and on education with technological R&D [Luca Odetti]

If we look at the three-tiers structure of ICT/AmI related EU funding programs (FP7-ICT, AAL, CIP ICT-PSP), it appears that they are potentially effective on Independent Living and Healthy Living, two life settings where technological drivers play a strong role. On the contrary, such programs, as they have been until today, are intrinsically unfit to address life settings like recreational and (from a certain perspective) occupational activities, which are affected more by economic, social and organizational drivers. New actions should be promoted, integrating Technological R&D+I with other instruments, e.g. with lifelong learning and empowerment.

22: Research on data use and data protection related to the information society [Ilenia Gheno]
Explore methodologies, practices and legislations, both at European and national levels, related to the use of data and its protection in the Information Society

23: Research on multi-modal interaction methods [Iosif Klironomos]
Multimodal interaction methods and alternative input-output technologies are essential to ensure participation in the emerging ambient intelligence environment. Apart from looking at the user interface aspects, it is also important to ensure that they are seamlessly integrated within the emerging systems and services.

24: Research on the ethical and legal requirements and consequences [Helmut Heck]
Ethical aspects may refer to
   • Privacy of data (Do other people or systems get to know the user's intention and behavior?)
   • Security and reliability (Who is reliable when the system acts on behalf of the user?)
   • Legal issues (Who may do what and get to know what?)
   • Dependence / independence of the user (How far does the AmI system guide/ lead/ manipulate the user by making decisions for him?) How is "intention detection" and "intention suggestion" related?

25: Research into educating standards committees on accessibility issues [Mary Nolan]
Awareness is a big issue for standards committee and users need to be involved at all stages. Many emerging technologies for people with disabilities depend on the use of open standards so we need to address how standards committees can be further educated about accessibility issues. Awareness campaigns and involve users at all times.

26: Research on the optimum structure and content of data storage to accommodate the need of people with disabilities [John Gill]
If the structure of a data storage system does not allow for data of particular relevance to people with disabilities, then it may be impossible for the service to meet their needs. For instance, an indoor navigation system may need to contain more specific information for a blind pedestrian than for a fully sighted person. Also a blind person might benefit from knowing which buses stop at a particular bus-stop and when the next bus will arrive (and the data will need to be stored such that it can be presented verbally as well as visually).

27: Research on assistance-on-demand systems [Roberto Torena]
Despite advocating for the need of making all Internet content accessible for all sorts of people with special needs, this idea addresses the exploitation of the potential of the Web Services to provide automatic assistance-on-demand, and Web 2.0 in order to provide human assistance-on-demand to overcome existing accessibility barriers.
This may help disabled people when surfing in Internet and dealing with non-accessible content. For example, a deaf user trying to access a non-accessible video would be able to invoke an automatic assistance on demand system that provides automatic captions. Another example, a blind user surfing through a website without alternative text in their images would be able to ask for human assistance on demand to the system to obtain an interpretation of the image.

<u>28: Adaptation of the environment to the needs of several persons at the same time [Ilse Bierhoff]</u>
To be able to personalize the environment, adaptation the environment and a proactive environment are some of the key selling points of AmI. However a lot of cases in that environment more people will be present. How to make that a reality? Therefore research is needed focusing on how to deal with multiple users in the AmI environment. How to adapt the environment to the needs of several persons at the same time? Especially important when there isn't one single interaction device but the entire environment is part of the interaction. If this is possible possibilities for personalization are available which will enhance e-Inclusion.

<u>29: Research on simplification of services and infrastructures observing human interactions needs [Dario Carotenuto]</u>
To simplify the interactions between human and IC services we need to analyse and model human interaction needs. We could drop out many things that are not useful and can simplify our effort to create environments that include all people.

<u>30: Research on how to structure in an appropriate way all information for e-Inclusion available on the network [Laura Burzagli]</u>
Nowadays a lot of information is provided by different sources also in the field of e-inclusion. Up to now a limited number of traditional channels have been used (specific web site, specific mailing list) in order to exchange and extract information, which can help people to solve their problem or to improve their situation. The study of different mechanisms (such as semantic web), which automatically give a structure to this information, can provide a way to make most of this information reusable by other people and by machines in different context.

<u>31: Identify impact of cloud platforms [Pier Luigi Emiliani]</u>
Are cloud platforms only an interesting commercial new idea? Are there service as and applications that cannot exist without being made available on a cloud? Are networks so available and reliable to allow a continuous and seamless use of cloud applications?

<u>32: Research on the use of social media to reduce isolation [Patrick Roe]</u>
It is assumed that all access and usability issues have been resolved, so the idea here is more to look at how social media networks could play a role I reducing isolation from a sociological point a view rather than a technological point of view.

<u>33: Business benefits and business models for e-Inclusion</u>
e-Accessibility and e-Inclusion argue not only for their ethical, social and social-economic benefit, but also for their business benefit for mainstream product, system and service providers. When asked, „where is the evidence" we are still, besides demographic data and some single examples, short of evidence. Providing such data and generating business models leading to investment and return of investment.
Of course this should be embedded into on-going social and social-economic benefit studies where there is also still a lack.

<u>34: Research on accessible knowledge infrastructure that includes scientific knowledge [Hiroshi Kawamura]</u>
E-Inclusion is a process that is supported by active participation of all stakeholders who have different abilities and requirements. Access to scientific knowledge is crucial to take part in the process but sometimes scientists ignore accessibility of their own ideas.
People at large must make decisions based on accurate information and data hopefully with evidence. A scientist with a disability may become the best interpreter of scientific knowledge in each scientific field. Therefore it is crucial to address the special importance to make scientific knowledge accessible to all stakeholders in particular to those with special needs.

35: Safe methods for sharing user models [Mikel Larrea]
Study safe and privacy aware methods to share or export the user models/profiles to allow user adaptation.

36: Promotion of Open Data apps to improve the implementation of accessible front-end Apps [Rosa Yanez]
It is interesting to promote Open Data app implementations or extensions to non-accessible apps. That would improve the implementation of accessible front-end apps.
Some extra explanations:
Open data is the idea that certain data should be freely available to everyone to use and republish as they wish, without restrictions from copyright, patents or other mechanisms of control. Open data is often focused on non-textual material such as maps, genomes, connectomes, chemical compounds, mathematical and scientific formulae, medical data and practice, bioscience and biodiversity. Problems often arise because these are commercially valuable or can be aggregated into works of value. Access to, or re-use of, the data is controlled by organizations, both public and private. Control may be through access restrictions, licenses, copyright, patents and charges for access or re-use. The concept of open data is not new; but a formalized definition is relatively new. The goals of the open data movement are similar to those of other "Open" movements such as open source, open content, and open access.(From Wikipedia: http://en.wikipedia.org/wiki/Open_data)

37: Research and design for the intermediate period [Noemi Bitterman]
Study design strategies for the intermediate period between technologies, and how to influence people to use the new technology, how to "rap up" it in a familiar appearance (interface).

38: Adaptable and adaptive systems that support the individual [Gill Whitney]
The abilities of people change over time (in both the short and long term). As their abilities change they want systems and services to support their life, not the life of some theoretical older and disabled person. This research must adopt a user-centered approach to take into account the non-homogenous nature of older and disabled people.
(links to 11 and 13)

39: Explore methodologies for value co-creation in service development environments [Adamantios Koumpis]
Value affects not only the look and feel of a service or an application but also the functionality it supports, the interface and the overall experience that the user or service consumer receives. Here, the aim is to define methodologies that follow this co-creation path and take care so that value is generated for all involved parties. The idea of value is relative and may vary from context to context. Also aspects of intellectual property of the value created need to be properly addressed.
(See also idea 12)

40: Research on privacy issues from the en-users point of view [Cristina Espadinha]
It is important to research how to assure privacy issues in the infrastructures and services of all users. Also important to research the best ways how to educate the users to also protect their privacy (including ethical and security issues).

41: Better inclusion of assistive technology in mainstream industry [Luis Azevedo]
Mainstream industry often "does not care" too much about making their products accessible to everyone, although they usually state that they follow accessibility rules. They are experts in technology not in accessibility. One possible solution for this problem could be for mainstream technology to follow standards or rules of engagement that allow assistive technology industry to "interface" with their products and make them really accessible. The knowledge on e-accessibility is mainly in the hands of the AT Industry not in mainstream Industry.

42: Research to predict the new user-needs created by new ways to perform activities [Leonor Moniz Pereira]

New requirements appear with emerging networks infra structures and services leading to new user performance needs and careers acceptance. An ongoing process to fulfill the gap between requirements and needs helping the system / users to adapt and to incorporate new activities created by those new environments is necessary to be implemented at different levels (mean fullness: answering to the user life styles, cultural, attitudinal, performance).

43: New materials, technologies and methods for seamless natural human-environment interaction [Luca Odetti]

The living environment must become THE INTERFACE. All human interaction channels can take part in the process: voice, gesture, expression, manipulation/touch, gaze, as well as implicit channels like emotions and health/wellness status, and their physiological symptoms. A wide range of new sensors and actuators, both on-body or embedded in the environment, and of new materials will be needed for this purpose

44: Research on the reliability of e-Inclusion services [Ilenia Gheno]

Analyse the reliability of products and services for e-Inclusion, the reliability of their interoperability, to check the systems in place for coping with eventual failures and to explore the issue of reliability especially from the user perspective

45: Research on the emerging dimensions of Security and user privacy issues in AmI applications and services [Iosif Klironomos]

Security is an increasing concern in the AmI environment and crucial in facilitating Inclusion because of its characteristics related to:
- Size (millions of subjects and objects);
- Mobility (more vulnerability than in a static world);
- Heterogeneity (open system architectures);
- Complexity (regarding both hardware and software);
- Distribution of knowledge coupled with co-operation (individuals & groups interconnected and working together).

Therefore, these new dimensions of Security in the context of AmI infrastructures is have to address:
The reliability of critical infrastructures,
- Their resilience (systems must continue to operate despite threats and despite actual, successful, attacks) and, ultimately,
- Ethics, as AmI environments must be able to provide secure and resilient systems which at the same time are unobtrusive for their users, can identify the goals of users and find out ways to satisfy them with available resources, while inspiring trust and confidence and being easily controllable by ordinary people.

46: Explore how the work conditions of older people can be improved by AmI systems [Helmut Heck]

AmI systems need to be implemented in complex environments or application contexts.
A context worthwhile to analyze in detail is the work place or work conditions of older employees who need to sustain their work capability in a more and more complex getting vocational world – coping with a decrease of cognitive abilities of the older employees. – How could AmI help?

47: Research to determine at what stages users should be involved in e-Inclusion projects [Mary Nolan]

Traditionally designers do not involve users at development stages research into at what stages in the project do users need to be involved in e-Inlcusion projects and what are the perceptions of manufacturers of user involvement in emerging infrastructures and services. What has been the experience of users to date?

48: Development of tools for testing that proposed AmI systems fully cater for the needs of people with disabilities [John Gill]

The developers of AmI systems need tools, which are easy to use which identify potential problems for various groups of people with disabilities. This testing needs to be done while the proposed system is still at concept stage.

49. Research on matchmaking systems for identifying the best match of available configurations or additional ATs according to the user needs [Roberto Torena]

Most mainstream ICTs have several configuration modes for their user interface, and some of them even embedded Assistive Technologies (ATs). However many end-users does not know how to activate them or even their existence.

The automatic identification of the most suitable configuration of the user interface of the mainstream ICE or the invocation of the required AT (either embedded or external to the system) according the end-user needs and preferences may be obtained by algorithms (rule-based, statistic-based, hybrids, etc.) that must be further researched.

50: Problems and possibilities of the AmI environment for e-Inclusion [Ilse Bierhoff]

Research targeted at the balance between the additional problems the AmI environment can create in relation to e-Inclusion and the additional possibilities for e-Inclusion that are available as a result of the AmI environment. By looking at problems and possibilities of the AmI environment better insight will be gained in the relationship between AmI and e-Inclusion.

51: Research on social interaction design to develop new social inclusion tools [Dario Carotenuto]

Research on social interaction design to develop new social inclusion tools. Social tools such as web social networks have much potential to allow people collectively participate to a communication; to better exploit such a potential we have to focus on this new kind of interaction design, the social one.

52: Research on dynamics of social networks [Laura Burzagli]

Research on dynamics of social network: social networks are a current phenomenon which is giving good results in several different fields of application. The study of the specific dynamics can represent a new way to activate interaction between people for a better quality of life

53: Mainstream knowledge developed in the rehabilitation environment [Pier Luigi Emiliani]

Users do not have only needs, but many times they and their carers are also able to develop solutions. It is sometimes written that solutions developed for people with activity limitations are often useful for all. Is it true and to what extent? Is it possible to construct mechanisms for transfer? Example – impact of studies on language difficulties on text interfaces.

54: Research on how to exploit the emerging network infrastructures to enable people to vote securely [Patrick Roe]

The issue of confidentiality, security and trust would be key in setting up any remote voting systems. The idea here is to investigate whether the new possibilities by the emerging technological infrastructures could be exploited to proved a secure means of voting for all members of the public including people with disabilities.

55: Design- and authoring tools ("e-Inclusion Suite") supporting and automating e-Inclusion [Klaus Miesenberger]

Awareness for e-Inclusion is rising, also legal and political demand. But in practice designers and developers are struggling with the complexity of a divers set of users and according needs. We are handing over a huge bunch of requests to mainstream. Guidelines, standards, user models, profiles and simulations of aging and people with disabilities, ATs, testing and checking tools, methods, gadgets, tools, user models, examples (code snippets) … should be integrated in design and development environments

allowing developers and designers access to the know-how when needed and even being forced to implement it. Such support should be integrated or invoke able into design and development environments which mainstream is used to.

56: Assessment of the impact of electronic publishing including digital rights management [Hiroshi Kawamura]
E-publishing may give better opportunity to people with disabilities if we successfully develop standards, applications and social systems. However, we have great concern on preservation and accessibility of current electronic publications in the future. Compared with publications on paper which may last hundreds years, it is not easy to guarantee that people may have access to current electronic publications in 2112 or later for example. When we say accessibility, it is not just for current generation but also for future generations.

57: Cloud computing for service ubiquity [Mikel Larrea]
Network services that need to be deployed in a medium or large-scale scenario can benefit from cloud computing. In this regard, providing interoperability among different cloud computing platforms is important.

58: Research on Responsive Design based on HTML 5 standards to improve access from all kind of devices [Rosa Yanez]
Responsive design is being successfully implemented, based on HTML5 standards, for improving access from all kind of mobile devices. That should be also explored for devices configured for accessibility. It is the fifth revision of the HTML standard and, as of May 2012, is still under development. Its core aims have been to improve the language with support for the latest multimedia while keeping it easily readable by humans and consistently understood by computers and devices (web browsers, parsers, etc.)..These features are designed to make it easy to include and handle multimedia and graphical content on the web without having to resort to proprietary plug-ins and APIs. Other new elements are designed to enrich the semantic content of documents. HTML5 also defines in some detail the required processing for invalid documents so that syntax errors will be treated uniformly by all conforming browsers and other user agents.
(From Wikipedia: http://en.wikipedia.org/wiki/HTML5)

Responsive Web Design (RWD) essentially indicates that a web site is crafted to be able to adapt the layout to the viewing environment. As a result, users across a broad range of devices and browsers will have access to a single source of content, laid out so as to be easy to read and navigate with a minimum of resizing, panning, and scrolling.
(From wikipedia: http://en.wikipedia.org/wiki/Responsive_Web_Design)

59: Well-controlled field studies and large randomized experimental projects [Noemi Bitterman]
Perform field studies (e.g. "living laboratories") to let people check the technology at home at real conditions.

60: Research into methods to promote best practice in inclusive design to mainstream designers [Gill Whitney]
This research must investigate how we can ensure that best practice information on designing technology for older and disabled people is passed on. The information must be passed on in a format, which can be used at the time it is required (or just before). Research is also needed into how we can maximize the chance of audience being receptive to that knowledge.
(links to 16 and 4)

61: Incremental and evolutionary learning algorithms (machine learning) for users, systems and machines when dealing with web content and complex environments [Adamantios Koumpis]
Systems, machines and humans need to accommodate their individual learning needs when interacting

with any new content or system. Improvement of the access to service and content experience can not only happen after training but also as a result of a planned evolutionary learning process.

62: Research on how people can understand and use the full potential of AmI   [Cristina Espadinha] [Patrick Roe]

For example, most people that I know to produce a table of contents in word processor do it by hand. There is a gap between what technologies can do and what users really use it. So it is important besides develop the technological solutions to assure that the most excluded persons will use it in particular.

TEXT FROM 10 [PATRICK ROE]:

The degree of awareness, understanding and adoption of any emerging technology or service is partly dependent on the degree to which end-users and their carers (both formal and informal) are able to use the system and understand the potential benefits. The basic idea here is one of empowerment of the users in ensuring that they are aware of the full benefits and possibilities of Web2.0 and the ambient intelligent environment, especially where there are possibilities for users themselves to intervene directly in the design and setting up of applications. Research should be supported into how this could be best achieved through the development of training courses.

63: Research on more intelligent interface that allow persons with progressive limitations of activities to interact in AmI [Luis Azevedo]

Persons with progressive limitations of activities (e.g. with neurological progressive diseases) that rely a lot on AT products mostly based in ICT products to be able to communicate, need to have interfaces (hardware and software) that in a "intelligent" form, adapts to the progression of their limitations in all the contexts (changes in the environment and/or change in the activity).

64: AmI that acts: unifying research ion AmI and robotics, starting from interoperability standards [Luca Odetti]

Interaction between service robots and smart environments has been addressed in recent EU programs. If a smart environment must be capable of physical actions (e.g., to provide physical support when needed, or to perform an activity on behalf of the user), full and standardized interoperability must be granted between the different logical and physical modules dedicated to sensing, reasoning and acting.

65: Explore personal and collective health issues related to the use and misuse of technology [Ilenia Gheno]

What are the implications and consequences on the health of users when using ICT? And what are they when ICT is not correctly used? E.g. studies demonstrate that the constant zapping from one program or application to another, receiving constant pop-ups, etc. hinder our concentration, our learning abilities, our knowledge management, etc. Studies around health issues on both individual and societal level could therefore be a further subject of research, especially in the long-term perspective.

66: Research on human – environment relationship [Iosif Klironomos]

It is crucial to ensure that the emerging technological environment is actually able to accommodate users needs and requirements according to their personal profile (e.g. culture, technical knowledge, possible impairments), the different contexts of use, and their emotional situation in order to find a compromise between privacy and possible security aspects. The idea here is that users are in a constant dialogue with the emerging technological environment that surrounds them and which is constantly changing / evolving. As such, user needs and requirements are also constantly evolving. Research on this constantly changing relationship between the human and their surrounding technical environment is thus needed.

67: Explore how complexity of operation and application can be reduced by AmI systems [Helmut Heck]

Modern ICT systems often claim to make "life" easier. This may be true to a certain extent. But often the opposite is true: people do not understand how to operate/ use the system and get frustrated. How can AmI improve this situation?

Researchers should develop models of complexity for system operation, including measurement of complexity, as well as cognitive models of the user.

68: Research on the experience of end-users in e-Inclusion projects [Mary Nolan]

Traditionally, designers do not involve users until the product is developed. What are the perceptions of users before moving to exploit emerging network infrastructures and services for e-Inclusion. What has been the experience of users to date in e-Inclusion projects?

69. Research on the ethical and security issues arising due to the storage or sharing of end-user profiles [Roberto Torena]

Recently, we have seen security leaking of users' information in several web services. If the emerging networks are going to be used to store and share sensitive information (e.g., from the information on the interface preferences of their users, an external party may infer information, for example, on the users disabilities), the ethical and security issues involved must be carefully analysed and new systems should be researched.

70: Research on social cooperation models to support people inclusion [Dario Carotenuto]

In many situations society naturally expresses cooperative models to help people with disabilities.

My question is: how can we facilitate and make more sustainable and replicable with technology/new services such cooperation models?

71: New perspectives for privacy and security in AmI [Laura Burzagli]

If privacy and security can represent an obstacle to a more and more adaptive services an appropriate study on these aspects (especially during the design phases of the product or of the service) can give a contribution to e-Inclusion.

72: Ambient user interactions [Pier Luigi Emiliani]

Interactions in AmI environments can be multimedia, complex and changing in time. They are not forced by the metaphor and/or dialogue built in the interface, but must adapt to the complexity of tasks and variability of the situations. The interaction system can be distributed in different objects. The resulting interaction dialogue must be harmonized as a function of the task, the situation and the user abilities.

73: Adaptive User Interfaces [Klaus Miesenberger]

The standard user interface (UI) intends to address as many people as possible. For a big (and growing) number of users these UIs cause accessibility or usability problems. Individualizing the interface, based on profiles, users could benefit much more from available systems, services and AmIs. In particular with AmIs the need for increased usability and adaptation of UIs will increase. But it still can be based on the standard usability/accessibility criteria.

74: Disaster Risk Reduction: Participation of people with disabilities [Hiroshi Kawamura]

World trends of the, DRR in short, becomes more and more "whole community" approach. "Whole community" means that everybody must make them selves a DRR asset, in other words people may not rely on rescue specialist outside of the community. The trends based on human experiences of mass casualty disasters such as March 11th 2011 earthquake in Japan. Rescue operation, which comes later than 30 minutes of disaster incidents, may not effectively save lives of those victims. Whole community approach is a combination of self-help and community based mutual support. If a person is hit by a tsunami or buried by debris it is too difficult to survive more than half an hour. Successful first response needs to be done by neighbors. Mobilizing all assets in the community requires sharing of scientific knowledge on disasters, participation in DRR planning, participation of evacuation drills, and

development of personal scenarios for DRR. So far persons with disabilities including dementia, Parkinson Disease, sensory or physical disabilities, intellectual or cognitive disabilities, psycho-social disabilities, intellectual disabilities and persons who do not understand the main language of the community.

75: Research on economically affordable infrastructures and services [Mikel Larrea]
The economy is a factor that may have influence in the acceptation/rejection of a network infrastructure or service. Therefore, the research of quite expensive network infrastructures and services must be deprecated. The cost includes installation, operation and maintaining the whole infrastructure and service.

76: Promoting automatic content transformation [Rosa Yanez]
Contents transformation that can be done automatically could increase the accessibility level. Includes also different languages of devices and cognitive adaptations to languages.

77: Define criteria for success and failure of e-Inclusion [Noemi Bitterman]
Develop and define multidisciplinary criteria for a success or failure of e-inclusion projects (economical, technical, sociological, satisfaction, long-term effects, side effects, spill over, etc

78: Fun, sustainable and accessible support systems [Gill Whitney]
The use of electronic targeted support systems can be of benefit to the end users and to the society in which they live. These systems can also be sustainable. To ensure the long term use and initial take up of these systems they should also be fun to use.

79: Research on human-robot and human-robot-environment relationships [Adamantios Koumpis]
How will humans communicate with robots? Will there be natural language? Will there be an instruction-based (command and control) style? Will there be any room for emotions? And how should the service robots behave? Are they to be considered as extensions of the machines? Some type of maids with human-like attributes and characteristics? So, there is a lot to explore here and come up with innovative ideas...

80: New methods and tools for the design and implementation of ICT-enabled, person-centric service networks (and networks of networks) [Luca Odetti]
e-Inclusion service networks should rely "natural" support networks (made of relatives, neighbours, friends and other formal/informal carers); so their logical and operational structure should mimic the existing one; the typical "star-shaped" topology, with a service center as a concentrator, should be overcome, and small proximity networks should be implemented, taking into account shared components as well (networks of networks)

81: User relationship with public and private e-services [Ilenia Gheno]
Study how users are affected/ how users user public e-services, such as e-banking, e-voting, e-governing, and private e-services, such as e-commerce, in order to focus and act on the bottlenecks and concerns and find the way to improve those products and services.

82: Virtual reality for testing new applications [Gunela Astbrink]
Virtual reality software have been used by people with disabilities for socialization, learning and business. Finding new ways to utilize virtual reality to test new applications with people with disabilities in a distributed environment could be beneficed in large-scale research projects in different locations. Also, Self-modeling foe people with cognitive impairments and psychiatric disabilities can be used as a technique for disaster management.

83: Privacy and security controls in pervasive sensing technologies (e.g., RFID ,WSN) [Gunela Astbrink]

Pervasive sensor presents opportunities but challenges for privacy and security. For example, revisiting RFID row that the costs have decreased for tags and readers can be used as part of mobile phones should offer new applications. Privacy and security is centered to any new work.

84: Cultural diversity research [Noemi Bitterman]
Have in line a research about adaptation to local culture and cultural diversity, including gender differences

85: Marketing and branding research for facilitating the use of the e-Inclusion [Noemi Bitterman]
Avoid the image of sickness and disability. Develop research strategies of branding and marketing the technology as future living for everyone. Show the advantages for everybody from children to the aged.

86: Invisible technology [Noemi Bitterman]
Research how to make the networks and services invisible and not different from normal current ones. Whenever you enter a home, you want to see that technology is embedded. If using RFID should look like normal and fashionable like a wristwatch or T Shirt. It shod be part of the environment.

87: Personalization of content and user interface [Rosa Yanez]
In order to promote e-Inclusion a higher level of personalization in term of content and user interface design should be supported in social nets and web 2.0 platforms. Content personalization that selects the contents in the appropriate format taking into account the user preferences and context, is critical

88: [DELETE]Link between AmI and hearing aids [Patrick Roe]
Merged to 11

89: Legal and social implications [ANEC] [Patrick Roe]
The opportunities offered by the information society considerably affect the lives of all consumers. However, we also need to remember the enormous impact it can have on the consumer, and this is why ANEC believes the ethical, legal and social implications (ELSI) should be carefully considered, as well as potential privacy and security issues.

90: TV and Broadband Networks

91: Predict the negative impact on the user life styles produce by the activities changes created by the new environments, [Leonor Moniz Pereira]
As we change the way of working, of interacting with people and carrying out leisure activities, this changes our lifestyle. For example, end-users may be spending more time sitting down and less time carrying out physical exercise. We need therefore to understand the potential impact of these changes on our health.

92: Implications of misuse of technology, [Noemi Bitterman]
What might be the implications if people use technologies in the 'wrong way'. Could it cause injuries or damage to both the user and the environment?

93: Address the consequences of system failure for the user
Many smart systems and environments are designed to give vital support to the end-users, which is even more vital in the case of people with activity limitations. What might happen in the case of system failure should be investigated and possible alternative solutions should be explored.

Annex II. List of participants of SDDP and contributors to Wikispace

Facilitator Team

Main Facilitator

Dr. Yiannis Laouris is a Senior Scientist and President of the Cyprus Neuroscience and Technology Institute. He heads the "New Media Lab". Neuroscientist (MD, PhD) and Systems engineer (MS) trained in Germany and the US. Publishes in the area of neuroscience, learning through computers, the web and mobile phones and about the potential role of IT to bridge the gaps (economic, gender, disabilities etc.) in our society. He is a senior SDD^{SM} Facilitator and has several publications about the theory of the science of dialogic design also together with its Founder Prof. (emeritus) Aleco Christakis. He collaborated with Prof. Patrick Roe to implement SDD^{SM} co-laboratories for COST219ter and COST298. He also collaborates with the EDEAN and DfA projects.

Assistant Facilitator

Marios Michaelides is an engineering graduate of the State University of New York at Stony Brook (Mechanical/Systems Engineering) and also of the Mediterranean Institute of Management (Post Graduate Diploma in Production Management). He was founding member of the Cyprus Conflict Resolution Trainers Group and founding member of Cyprus Intercultural Training Initiative. From his position as Senior Training Officer at Cyprus Academy of Public Administration, he collaborates actively with the Cyprus Neuroscience and Technology Institute, especially in the organization and implementation of structured dialogue workshops. He leads the application of SDDP for the government academy and is responsible for the training of a few thousand government employees using this methodology.

Participants

Luis Azevedo. Anditec (P)
Is a researcher at the Center for Analysis and Signal Processing, the Technical Institute, Technical University of Lisbon in the area of Assistive Technology. Hi is the Director of ANDITEC-Rehabilitation Technologies Ltd, a company specializing in marketing, training and development in assistive technologies. His teaching experience includes courses as a Visiting Professor of the Master of Clinical Engineering, Faculty of Engineering, Catholic University, of the Masters in Lusophone University Augmentative Communication, Lecturer's Degree in Occupational Therapy, School of Health Alcoitão, Guest Lecturer for Courses / Seminars on "Assistive Technology for Persons with Disabilities in foreign universities, including Spain, Brazil, Argentina, Chile, Colombia, Ecuador and Costa Rica. He is Scientific Coordinator of National and International Projects in Technologies for Rehabilitation. Invited Expert of the European Commission to evaluate projects in the area of Assistive Technology, Founding member and Board of Directors of the Association for the Advancement of Assistive Technology in Europe (1995 - 1998). He was a member of the Board of Directors of ISAAC - International Society of Augmentative and Alternative Communication (1995 - 2000). Member of the Rehabilitation Engineering Society of North America. Founding Member and Vice President of AITADIS - Ibero-American Association of Assistive Technology. Advisor specialized in the field of Assistive Technology in various Rehabilitation Centres and Hospitals. Author of more than 150 communications to national and international congresses.

Dario Carotenuto - ReXoLcom

He is President and CEO at ReXoLcom S.r.l. where his main activities are: CEO and Business planner, Head of IT Development activities at ReXoLcom S.r.l., ICT Company developing innovative commercial and social networks. He also works as System Architect, Analyst and Developer of the da Vinci European BioBank Design and development of a complete infrastructure to support "da Vinci European BioBank" (daVEB) activities. The project ranges from setting-up of linux-based clusters, arrangement of a network infrastructure, automatic back-up systems, cryogenic systems monitoring, and design and development of an enterprise application.

Ilenia Gheno - AGE

Ilenia Gheno is Research Project Coordinator for AGE Platform Europe, the European Platform for Older People, since 2009. She is committed for older people and their involvement in the issues that concerns them most, managing the European research projects in which AGE Platform is involved in. Since 2009 she assured the coordination of the participation of AGE experts and members on project related to Universal Design, health and eHealth, Accessibility and ICT. Her expertise is related to accessibility, acceptance of technology, access to services, safety and security of applications and services and independent living issues. She has managed the End User Platform (EUP) within the Mediate project and is working towards the long-term engagement of the EUP in project and policy activities. She has been working for the needs of older people in the realm of new technologies and web accessibility thanks to her involvement in the Thematic Networks eAccess+ and Atis4All, plus coordinating the User Fora organized within the 7PF projects OASIS and VERITAS. She is also involved in projects dealing with mobility (AENEAS) and CIP-PSP projects on tele-medicine (Dreaming, Home Sweet Home). She is currently working on a practical guidance for the involvement of older people in research activities and policy making and keeps on monitoring the engagement of seniors in different Members States thanks to the support of AGE members.

Mr. Hiroshi Kawamura

Mr. Kawamura is the chairperson of the DAISY Consortium. Previously he was a director of the Department of Social Rehabilitation/NRCD Research Institute. Prior to that he was Director of the Information Center, Japanese Society for Rehabilitation of Persons with Disabilities.

Adamantios Koumpis - ALTER (Gr)

Adamantios Koumpis heads the Research Programmes Division of ALTEC S.A., which he founded at 1996 (then as independent division of Unisoft S.A.). His research interests include quantitative decision making techniques and Info Society economics. He successfully lead many commercial and research projects in Greece in the areas of E-Commerce, public sector and business enterprise re-organisation and information logistics, concerning linking of data/information repositories with knowledge management and business engineering models.

Klaus Miesenberger - Integriert Studieren

Is vice Head of Institute Integriert Studieren at the University of Linz, Austria. He has a background computer science and economics. He is responsible for R&D and teaching at the institute which also runs a service centre for students with disabilities. In 2000 he was guest professor at the Université Claude Bernard, Lyon II. He gave lectures at different Austrian universities and teacher training academies. In 2001 he got his professorship (habilitation) in Human-Computer Interaction with a focus on HCI for People with Disabilities. His research and teaching work is related to IT based Assistive Technologies, eAccessibility and Design for All.

He has been involved in more than 70 national and international R&D projects in these fields. His work is documented in more than 150 peer-reviewed publications. He chairs the working group „Computer Science with/for People with Special Needs" of the Austrian Computer Society. He acts as the organising and publishing chair of ICCHP (International Conference on Computers Helping People with Special Needs. He is member of the scientific and professional societies IFIP, working group 13.3 (HCI and People with Special Needs), OCG, AAATE and FEDORA. He is member of the board of ALS (Arbeitsgemeinschaft zur Lehr- und Lernmittelerstellung für Sehgeschädigte), responsible for access to school books for school children in electronic form, co-operation with authors and publishers and general management. He is the founder and the chair of the international association "International Computer Camps", organising annual computer training events for young blind and visually handicapped students. More than 1000 blind and visually handicapped students from more than 30 countries took part in these events since 1993. He is co-founder of the association UNIABILITY, the organisation of professional counsellors for students with disabilities or chronic diseases at universities in Austria. He acts as the managing director of National Contact Point for EDeAN (European Design for All e-Accessibility Network). He is the scientific co-ordinator for two University distance learning courses, both four semesters: "bfwd: Barrier Free Web Design" and "assistec: Assistive Technologies". He set up and chairs the Regional Competence Centre IT for People with disabilities (KI-I) for the Regional Government Upper Austria. He is Past-President of the Association for the Advancement of Assistive Technology in Europe (AAATE).

Luca Odetti (I)
Luca Odetti is currently the director of the Italian office of the Tecnalia research and innovation. His role covers international business development in Italy, commercial development in Italy for Tecnalia's Manufacturing business areamanagement of R&D projects in the fields of Health Tech and biorobotics.
Between 2003-2008, Luca was with the ARTS Lab, the Bioengineering and Biorobotics Research Laboratory of the Scuola Superiore Sant'Anna, where he worked as research assistant and senior research manager, mainly in the field of rehabilitation engineering and Ambient Assisted Living.As senior research assistant he was in charge of the local and/or international management of research projects in the field of advanced technologies, systems and services for rehabilitation and for the quality of life of people with (motor) disabilities and of older citizens.

Roberto Torena. Technosite - ONCE Foundation (E)
At present, Roberto Torena is the manager of Technosite's Brussels Office for the internationalization of the INREDIS research results and the establishment of European eAccessibility networks. He is also coordinator of the group Accessibility + Interoperability + Ubiquity on the Plataforma Tecnológica eVIA. In 2008, he was a protocol researcher for the INREDIS project "Relation interfaces between users with disabilities and different environments" and managed the Interoperability Protocol Work package.

Gill Whitney - FRSA, CEng, MIET, MSc, BSc
Her research and teaching has lead her to have particular knowledge of the standardization, legislation, training and technical factors needed to support the creation of usable, useful and fun communication technology. Her abilities and expertise can be seen by the combination of her Fellowship of the Royal Society for the Encouragement of Arts, Manufactures and Commerce (RSA), her membership of the Institution of Engineering and Technology (IET) and her work being quoted in the School's 2008 RAE submission. Gill is a chartered engineer who believes

that the advance of technology must be supported by the sharing of knowledge and best practice with all potential users and with partners in the United Kingdom and overseas.

Members of the CARDIAC consortium

Ms. Gunela Astbrink

Ms. Astbrink is based in Australia and she is the Principal of GSA Information Consultants an organisation specialising in conducting research and policy development in many facets of ICT for people with disabilities.. She has 20 years of international experience in research and policy with a focus on regulatory processes to benefit people with disabilities.

Ms. Ilse Bierhoff

Ms. Bierhoff is a research project manager at Smart Homes, an independent expert centre for smart houses and smart living based in the Netherlands. She graduated as human-technology engineer and has specialised over the past 8 years in user centred design and technology for older persons. Her main activities at Smart Homes are in the field of the use of smart home technology for independent living and more efficient care delivery.

Dr. Noemi Bitterman

Dr. Bitterman is the head of industrial design in the Faculty of Architecture & Town Planning at Technion - Israel Institute of Technology, Israel's primary technological university. The research interests of her group include "Social Design"- addressing the needs of special populations, such as elderly, disabled and the ill.

Laura Burzagli - CNR

Laura Burzagli received the degree in electronic engineering from the University of Florence, Italy, in 1986. After an experience of four years in an electronic industry, where she worked in the field of the radar digital signal processing, since 1992 she has been working in the e-inclusion research group of CNR (National Research Council of Italy) - IFAC and since 2005 she is in charge of it. Her current research interests include e-inclusion, design for all, multimodality, web intelligence. She has participated in several national and international research projects. She also authored or coauthored a large number of papers and other publications.

Prof. Pier Luigi Emiliani

Professor Emiliani works at the Institute of Applied Physics (IFAC) in Florence, Italy. The IFAC Department on Information Theory and Processing is involved in research on the theory and applications of signal and image processing and information technology (communications, biomedicine, non-destructive testing, user interface and aids for disabled persons).

Prof. Cristina Espadinha

Professor Espadinha is a doctor in the area of special education and rehabilitation and is a teacher at the Faculdade de Motricidade Humana at the Technical University of Lisbon, Portugal. She also worked as a junior researcher several European projects, including two of the COST219 actions

Dr. John Gill, OBE DSc FIET

Dr. Gill has worked for over 37 years in the area of scientific and technological research for people with disabilities. Based in the U.K. his research has included the design of fonts, public access terminals, tactile communication, orientation systems, automated production of Braille and large print, and access to telecommunication systems and services.

Dr-Ing Helmut Heck

Dr. Heck coordinates R&D projects at the Research Institute for Technology and Disability at Evangelische Stiftung Volmarstein, Forschungsinstitut Technologie und Behinderung in Germany. His current interests relate to computer/robotic applications, human-machine-interaction for people with disabilities, accessibility of IT systems, as well as AAL.

Mr. Sifis Klironomos

Mr. Klironomos is a member of the Human-Computer Interaction Laboratory and Centre for Universal Access and Assistive Technologies of ICS-FORTH – Hellas, one of the largest research centres of Greece. Laboratory carries out research activities focused on developing user interfaces for interactive applications and services that are accessible, usable, and ultimately acceptable for all users.

Dr. Yiannis Laouris

Dr. Laouris has over 15 years of experience in designing and implementing structured dialogue design systems. He works at the Cyprus Neuroscience & Technology Institute which conducts research in areas related to the human brain and learning, technology and social change, accessibility, Web 2.0, global society, conflict transformation and global peace. Dr. Laouris will take a lead role in facilitating this Co-Laboratory.

Mikael Larrea

Mikael Larrea is a senior researcher at the Computer Architecture and Technology Department at the University of the Basque Country located in Northern Spain, from where he graduated with a PhD in computer science in 2000. His main research interests include distributed systems, high availability, fault-tolerance, replication, group communication, agreement protocols, failure detectors, (Soft) real-time systems, mobile and ubiquitous computing.

Prof. Leonor Moniz Pereira

Professor Pereira is a doctor and teaches in the area of special education and rehabilitation and is the president of the scientific board of Faculdade de Motricidade Humana at the Technical University of Lisbon, Portugal. She is the coordinator of the Interdisciplinary Center of Human Performance, Coordinator of FCT rehabilitation evaluation panel (the national organization that promotes the advancement of scientific and technological knowledge). She also worked as a senior researcher on several European projects including the three COST219 Actions.

Ms. Mary Nolan

Ms. Nolan has worked at the CRC for the past four years in the Assistive Technology & Specialised Seating department working on various AT research projects and developing the European Seating Symposium. Prior to joining the CRC, Mary was Head of Group Marketing & Communications at one of Ireland's largest commercial banks, where one of her key roles was to develop the bank's †e-commerce strategy based on key findings from consumer research for disabled and elderly customers.

Prof. Patrick Roe
Professor Roe works with the Acoustic Group of the Laboratoire d'Electromagnétisme et d'Acoustique (LEMA) at EPFL, one of the two Ecoles Polytechniques Fédérales in Switzerland. He worked as a senior researcher on several European projects including the three COST219 Actions, where he acted as Chairman for five years of the COST 219ter Action "Accessibility for All to Services and Terminals for Next Generation Networks".

Contributed to CARDIAC Wikispace, but not present in Florence

The following have contributed actively in the WIKI before the face-to-face SDDP, but were unable to attend the actual meeting in Florence.

Prof. Julio Abascal
Dr. Abascal is a Professor of the Computer Architecture and Technology Department at the University of the Basque Country located in Northern Spain. He co-founded the Laboratory of Human-Computer Interaction for Special Needs that has participated in several R&D projects at national and international level.

Dr. Nestor Garay
Nestor Garay has a degree and PhD in Computer Science from the University of the Basque Country EHU (2000), where he currently an associate professor. His main activities have been in the areas of Web accessibility, ambient intelligence, application of computer technology to design hardware and software (desktop and portable systems) to support the communication of people with disabilities (Assistive Technology) development and application of techniques of human-computer interaction-oriented design of advanced interfaces for people with disabilities and augmentative and alternative communication (AAC), development and application of methods and techniques for designing mobile robotic wheelchair autonomous and self-guided vehicles to transport people, natural language processing, and emotional computing.

Ms. Chiara Giovannini
Ms. Giovannini holds a Bachelors and Masters degrees in law. She is Research & Innovation Manager, responsible for the management of the ANEC research & testing projects as well as the sectors of Design for All and Information Society.

Mr. Robert Hecht.
Mr. Hecht works with the Swedish Post and Telecom Agency (PTS) and is intimately involved in the process of public procurement.

Rocío Garcia-Robles
Ms. Garcia-Robles is a lecturer at the Department of Computer Architecture of the University of Seville. Her publications are mainly related to e-learning standards, accessibility, usability and user-interface design.

Jim Tobias

Jim Tobias, President of Inclusive Technologies, has worked in the field of technology and

disability for twenty-five years. Beginning at Berkeley's Center for Independent Living, he has worked as a rehabilitation engineer with schools, hospitals, private organizations, companies, and state and federal agencies. He worked for ten years at Bell Labs and Bellcore, providing telecommunications and disability consulting for Bell companies and other telecommunications and information industry clients. His technical background supports Inclusive Technologies' hardware and software services. In addition, he specializes in accessible business practices: primary and secondary market research and analysis, customer surveys, focus groups, product trials, product management, strategic partnership development, staff training, internal team-building, and consumer and other stakeholder liaison.

CARDIAC Scientific Advisory Board

Prof Ricardo Baeza-Yates. Yahoo.
Professor Baeza-Yates is the VP of Research for Europe and Latin America, leading the Yahoo! Research labs at Barcelona, Spain and Santiago, Chile, and also supervising the lab in Haifa, Israel. Until 2005 he was the director of the Center for Web Research at the Department of Computer Science of the Engineering School of the University of Chile; and ICREA Professor and founder of the Web Research Group at the Dept. of Information and Communication Technologies of Univ. Pompeu Fabra in Barcelona, Spain. He maintains ties with both mentioned universities as a part-time professor for the Ph.D. program. His research interests include algorithms and data structures, information retrieval, web mining, text and multimedia databases, software and database visualization, and user interfaces.

Ms. Chiara Giovannini
Ms. Giovannini holds Bachelors and Masters degrees in law. She is Research & Innovation Manager, responsible for the management of the ANEC research & testing projects as well as the sectors of Design for All and Information Society.

Mr. Hiroshi Kawamura
Mr. Kawamura is the chairperson of the DAISY Consortium. Previously he was a director of the Department of Social Rehabilitation/NRCD Research Institute. Prior to that he was Director of the Information Center, Japanese Society for Rehabilitation of Persons with Disabilities.

Mr. Peter Korn
Mr. Korn is the Sun Microsystems' Accessibility Architect and Sun' primary representative to the US Access Board Telecommunication and Electronic and Information Technology Advisory Committee. Mr. Korn co-chairs the OASIS OpenDocument Accessibility subcommittee. He helped design and implement the Java Accessibility architecture, and he also developed technology that allows assistive technologies for the Microsoft Windows platform to access Java applications. Mr. Korn is one of the designers of the open source GNOME Accessibility architecture used on Solaris, GNU/Linux, and other UNIX systems. He consults with the Star Division of Sun Microsystems in Germany on the development of an accessible edition of the StarOffice and OpenOffice.org suite of application productivity suite, with the Mozilla and Evolution accessibility teams, as well as other software application groups both within and outside of Sun. Prior to his work at Sun, Mr. Korn spent five years in the assistive technology field at Berkeley Systems, Inc., inventors of the first graphical screen magnification and screen reading technologies. There, he designed the first cross-platform Accessibility toolkit, lead the

team which developed outSpoken for Windows - a Windows screen reader for the blind - and managed the development of several other assistive technology products for the Macintosh and Microsoft Windows. Mr. Korn successfully transitioned these access technologies to ALVA BV in the Netherlands, and assisted them in setting up a US subsidiary. His most recent previous position was that of President of the Berkeley Access division of Berkeley Systems.

Prof Zhengjie Liu
Professor Liu is the Founder and Director of Sino European Usability Center (SEUC), Professor at School of Information Science & Technology of Dalian Maritime University (DMU), Director of NCR-DMU HCI Research Center, Co-founder and Co-chair of ACM SIGCHI China. Former Chinese National Representative (1999-2005) to IFIP TC.13 Committee on Human-Computer Interaction. His areas include usability/user experience, user-centered design (UCD), accessibility and human-computer interaction (HCI).

Dr Mathijs Soede
Dr. Soede is a founder of the Association for Advancement of Assistive Technology in Europe and first president of the AAATE. Editor of the AAATE's Journal "Technology and Disability". Chairman of the AAATE2011 conference, 30 Aug – 2 September 2011, in Maastricht. Background is in human factors (Cybernetic Ergonomy) The focus in his career is on technology for enhancing independence and participation of persons with a disability. Subjects of R&D has been Innovation stimulation in Assistive Technology, Communication aids for speech and motor impaired persons, Robotic Manipulators, Interfaces and accessibility and finally involvement of end-users in Standardization. Main positions have been at the Delft University of Technology, TNO Organization for Applied Scientific Research-Delft, iRv-Institute for Rehabilitation Research- Hoensbroek as managing director and at present a part-time professorship at the Zuyd University for professional education-Heerlen.

ANNEX III

Ideas submitted in the CARDIAC Wikispace, before during and after the SDD in Florence

The ideas have been classified according to the date of the original posting and the numbering may not correspond to the numbering on the Wikispace.

http://network-based-applications-sdd-cardiac.wikispaces.com/page/messages/Round+1+-+Generation

1. Research on the requirements of people with activity limitations in the context of emerging technological environment, Iosif_Klironomos Apr 11, 2012 8:13 am

It is crucial necessary that the emerging technological environment is able to cooperate with the users, according to their profile (e.g. culture, technical knowledge, possible impairments), the context of use, and the emotional situation in order to find a compromise between privacy and possible security aspects. This must be done in a way that entails trust and confidence to the user.

2. Research on the emerging new dimensions of security of AmI applications and services. Iosif_Klironomos Apr 11, 2012 8:13 am

Security is an increasing concern in the AmI environment and crucial in facilitating Inclusion because of its characteristics related to:
• Size (millions of subjects and objects);
• Mobility (more vulnerability than in a static world);
- Heterogeneity (open system architectures)
- Complexity (regarding both hardware and software)
- Distribution of knowledge coupled with co-operation (individuals & groups interconnected and working together).
Therefore, research addressing these new dimensions of Security in the context of AmI infrastructures is needed, to address
- the reliability of critical infrastructures,
- their resilience (systems must continue to operate despite threats and despite actual, successful, attacks) and, ultimately,
- ethics, as AmI environments must be able to identify the goals of users and find out ways to satisfy them with available resources while inspiring trust and confidence and being easily controllable by ordinary people.
MikelLarrea May 10, 2012 4:26 pm
Network-based ubiquitous AmI applications and services need to be dependable in most of its attributes: availability, reliability, safety, integrity and confidentiality. In other words, and since both failures and attacks may occur, network services must be fault-tolerant and secure. Means for providing fault tolerance and security are the adequate use of replication techniques and cryptography protocols to mask failures and protect the service against attacks, respectively. These research areas are very active nowadays.

3. Augmented reality, johngill Apr 17, 2012 12:30 am

Augmented reality has the potential to be a major benefit for those with impaired vision. What is the optimum display for someone with macular degeneration?
cmagnusson1137 Apr 24, 2012 5:22 am

Non-visual augmented reality is generally something we should push more for (at least in my opinion). I doubt we will find "an optimal display" - but probably (hopefully) some designs that work better. Generally I would think along the lines of multimodality - away from the very screen oriented paradigm commonly used.

4. Influencing developers, johngill Apr 17, 2012 12:31 am

Most of the emerging technologies have the potential to be of great benefit to people with disabilities. What is the optimum strategy for influencing developers of new systems to understand the real issues involved?

MN3 Apr 20, 2012 3:28 am

user/trial incentives, user involvement at early development stage.

cmagnusson1137 Apr 24, 2012 5:18 am

The big problem (in my experience) is the lack of motivation. One example - which has worked well (but is technology dependent since we ttalk about mobile usage) is to focus on mobile use where "everyone" runs into problems...more of this argument can be found at
http://www.haptimap.org/designtools/due.html

cmagnusson1137 Apr 24, 2012 5:27 am

Additional thoughts: push for built in accessibility (make it part of the OS).
On the note of multimodality I would also like to see more prototyping tools for the non-visual modalities (paper prototyping tends to drive developers towards visually oriented designs).

RocioGarciaRobles May 28, 2012 2:46 pm

Just as developers use test-cases to assert the correct functionality of their Virtual Learning Environments features, these test-cases should also check that the proper feature interactivity are built correctly following previously agreed accessibility standards. As far as content producers, the implementation of accessibility checklists and audits should be in place.

5. Standardisation, johngill Apr 17, 2012 12:31 am

Since the usefulness of many emerging technologies for people with disabilities will depend on the use of open standards, how can the relevant standards committees be educated about accessibility issues?

MN3 Apr 20, 2012 3:24 am

Do you see this as an issue for universal design also? I see awareness as the biggest issue and suggest that some funding is spent on educating committees on accessibility issues. National awareness campaigns should be considered if any real success is expected

MN3 Apr 26, 2012 4:57 am

standards committees can be educated about accessibility issues if users are involved at all stages.

RocioGarciaRobles May 28, 2012 2:39 pm

If accessibility and eInclusion advocates wish to see practical progress in this area, then they need to have much more modest goals about what is achievable in Virtual Learning Environment development in the short to medium term, and hence adapt their work to make smaller but relevant demands on system development; and accept that major changes will take much longer to implement, and only after successful implementation of smaller changes. The assumption that large scale changes can be "forced" on VLE developers due to the moral worthiness of accessibility needs tends to have the opposite to its desired effect – i.e., it leads VLE developers to ignore unreasonably complex accessibility demands, rather than lead to widespread adoption of practical incremental approaches to addressing these issues.

It can be that the initial accessibility agreement is not as advanced as eInclusion specifications might like, but a solid step forward in this direction is an agreement on minimal, functional

accessibility specifications agreed by all stakeholders involved. It is important to undertake a common approach and a clear understanding of that issue.

ANECngi May 29, 2012 7:42 am

In May 2011, CEN and CENELEC Technical Boards accepted the standardisation mandate M/473 to include Design for All in relevant standardization activities, and have agreed by resolution BT C8/2011 CEN/BT to the creation of CEN/BT/WG 213 'Strategic Advisory Group on Accessibility (SAGA), which Secretariat has been allocated to Standards Norway.
One of the objectives of M/473 is to mainstream Design for All in relevant standardisation activities, i.e. to acknowledge accessibility as a horizontal issue to be considered in all standardisation, and to monitor the revision currently taking place by the ISO/IEC Joint Technical Advisory Group of ISO/IEC Guide 71 'Guidelines for standards developers to address the needs of older persons and persons with disabilities' through liaison with ISO Central Secretariat.

roberthecht Jun 8, 2012 3:10 am

My experience in the field of standardisation (and I work with standardisation) is that standardisation for mainstream use is handled in one place and standardisation to achieve accessibility and usability in a different place.
I agree that education is needed and the research needed is how to let everybody realise fully that what is needed for some are appreciated by many and that it generates goodwill, income and saves cost to standardise with usability and accessibility in mind from the start. Robert

6. Exploit new and emerging ICT network infrastructure and services, MN3

Apr 20, 2012 2:00 am To facilitate full participation of people with disabilities through increasing availability and speed of broadband access and internet access, extending the availability of mobile computing and the exploitation of social networking and Cloud Computing to support people in independent living situations**.**

7. Education: Research into innovative broadband enable online learning solutions, MN3 Apr 20, 2012 3:43 am

In most countries, the Educational technology market suffers from classic market failure that discourages private industry from heavily investing in basic research to exploit emerging information technologies for learning .This requires a substantial research investment for learning. However, Education markets have been difficult to enter due to them being highly fragmentented and political.

jimtobias Apr 21, 2012 1:01 pm

I think to some extent that the Open Educational Resources movement is a response to this, bypassing the traditional educational publishers. On the device side, mainstream products, not those developed expressly for education, seem to be dominating the market. These are both positive trends, I believe, but deserve careful attention to accessibility issues -- nothing is automatic when it comes to the needs of small population segments.

8. Research into user involvement, MN3 Apr 26, 2012 4:10 am

Traditionally, Designs do not include user until the product is developed and users need to be involved at all stages. Research to determine at what stages users should be involved in eInclusion projects, What are the perceptions of designers, manufacturers of user involvement in emerging infrastructures and services? Before moving to exploit emerging network infrastructures an services for inclusion, what has been the experience of users to date?

9. Multiple users in AmI, IlseBierhoff Apr 27, 2012 2:26 am

Research focusing on how to deal with multiple users in the AmI environment. How to adapt the environment to the needs of several persons at the same time? If this is possible possibilities for personalization are available which will enhance eInclusion.

10. Complexity of the AmI environment, **IlseBierhoff** Apr 27, 2012 2:31 am
Research targeted at the balance between the additional problems the AmI environment can created in relation to eInclusion and the additional possibilities that are available as a result of the AmI environment for eInclusion. By looking at problems and possibilities of the AmI environment better insight will be gained in the relationship between AmI and eInclusion.

11. Make the world accessible yourself, **IlseBierhoff** Apr 27, 2012 2:38 am
Research focusing on the contribution of users can have in terms of making the emerging network infrastructures and services accessible themselves. Linking in to the development around web 2.0 where the emphasis is on social interaction and collective intelligence. Going a step beyond asking what users would like and what problems they face by giving them an active role in shaping solutions.

12. Ethical aspect related to AmI, **IlseBierhoff** Apr 27, 2012 2:53 am
For example: To what extent is the environment allowed to adapt 'in public'? Some limitations can be quite invisible so that others aren't aware of it. But what will happen if the environment changes and all of the sudden the limitation is 'exposed'.

13. Business case research and modelling, **roberthecht** May 7, 2012 3:30 am
The widely spread common understanding is that accessibility and usability just adds cost and time to the market.
It is vital to have research that hopefully shows:
- that fixing accessibility and usability from the start instead of trying to fix it later saves lots of money and time.
- that the cost is usually low if you compare with the additional customer base and that the functionality is appreciate by a large majority of the existing users.
Is that research? Yes, from one perspective.
As long as some people claim it is not worth it and others say you can win a lot by focusing on accessibility and usability it is just opinions. If this can be proven in research then much is won.
Do existing business models match the reality today? What can be learned from existing successes and failures?
I also include a good example of accessibility that is a success story.
How the Blind Are Reinventing the iPhone
http://www.theatlantic.com/technology/archive/2012/05/how-the-blind-are-reinventing-the-iphone/256589/

14. Safe methods for sharing or exporting user models, **JulioAbascal** May 9, 2012 4:36 am
Study safe and privacy aware methods to share or export the user models to allow user adaptation.

15. Enhance the interoperability of devices networks and services, **JulioAbascal** May 9, 2012 4:45 am
In order to be accessible, services provided through networks must be accessible through a great variety of interoperable devices (including Assistive Technology).

MikelLarrea May 10, 2012 4:03 pm
Network services that need to be deployed in a medium or large scale scenario can benefit from cloud computing. In this regard, interoperability among different cloud computing platforms will become very important in the near future.

16. Research on economically affordable network infrastructures and services, **NestorGaray** May 11, 2012 3:08 am
The economy is a factor that may have influence in the acceptation/rejection of a network infrastructure or service. Therefore, the research of quite expensive network infrastructures and services must be deprecated. The cost includes installation, operation and maintaining the whole infrastructure and service.

17. Virtual reality, **gunela** May 23, 2012 5:03 pm
Virtual reality programs such as Second Life have been used by people with disabilities for socialisation, learning and business. Finding new ways to utilise virtual reality to test new products with people with disabilities in a distributed environment could be beneficial in large-scale research projects in different locations.

18. RFID, **gunela** May 23, 2012 5:06 pm
RFID presents opportunities but challenges for privacy and security. Revisiting RFID now that the costs have decreased for tags and readers can be used as part of mobile phones should offer new applications. Privacy and security is central to any new work.

19. Better integration of tech and non-tech R&D in EU programmes,
LucaOdetti May 25, 2012 8:06 am
If we look at the three-tiers structure of ICT/AmI related EU funding programmes (FP7-ICT, AAL, CIP ICT-PSP), it appears that they are potentially effective on Independent Living and Healthy Living, two life settings where technological drivers play a strong role.
On the contrary, such programmes, as they have been until today, are intrinsically unfit to address life settings like recreational and (from a certain perspective) occupational activities, which are affected more by economic, social and organizational drivers.
New actions should be promoted, integrating Technological R&D+I with other instruments, e.g. with lifelong learning and empowerment.

20. Changing attitudes, **cespadinha** May 25, 2012 10:10 am
Today there is already a lot of information, processes and work done to facilitate e-inclusion. But the dissemination and the implementation are far behind, most due to attitudes of the different actors. How could we use the emerging network infrastructures and services to change the attitudes of: stakeholders, users, political, researchers, designers, etc.

21. Cloud computing and accessibility, **MikelLarrea** May 29, 2012 2:17 am
Twofold:
1) Accessibility of the cloud itself. Since most cloud platforms are accessed through a web page, this is related to Web accessibility
2) How can cloud platforms and services be used to improve accessibility?

22. Sociological and psychological research, **noemib1** May 29, 2012 2:22 am
involve sociologists and psychologists in research teams to understand better the needs and constrains of users with the new technology .

23. Ethical issue, **noemib1** May 29, 2012 2:37 am
increase research on ethical issues such as : Is it ethical to reduce a person's capabilities?
Who will decide for him what is good?
Removing choice
Transfer of personal information to third party

24. Research for saving privacy, **noemib1** May 29, 2012 2:49 am
Develop sensing technologies to protect privacy such as replacing visual information with
auditory or other senses, replacing pictures with silhouette, developing algorithms for
movements etc

25. Research to protect personal data, noemib1 May 29, 2012 2:52 am
develop techniques for controlling who will see the data and safety procedures on encryption
technology .
Develop mechanisms for storing non-identified data

26. Marketing and branding research, noemib1 May 29, 2012 3:01 am
Avoid the image of sickness and disability.
Develop research strategies of branding and branding as future living for everyone

27. Cultural diversity, **noemib1** May 29, 2012 3:03 am
have in line a research about adaptation to local culture and cultural diversity , including gender
differences

28. Invisible technology, **noemib1** May 29, 2012 3:06 am
Research how to make the networks , and services invisible and not different from normal
current ones

29. Emerging technologies, noemib1 May 29, 2012 3:11 am
Research how to incorporate e-inclusion networks and services with current services for
leisure (movie, TV) and information (weather, stocks)

30. Multimodal display, **noemib1** May 29, 2012 3:16 am
Enable multimodal sensory display (visual, auditory, haptic) for performance of networks,
services and infrastructures , that can be easily changed upon situation or users.

31. Social design, **noemib1** May 29, 2012 3:21 am
research to define how will our society look like with the new technology- e.g. occupations,
educational needs, relationship within family, social connections.

32. Web 2.0 content accessibility, **rosayanez** May 29, 2012 3:26 am
Web 2.0 is characterized by user content generation. The accessibility of this content should be
controlled.

33. Privacy issues, cespadinha May 29, 2012 2:51 am
It is important to research how to assure privacy issues in the infrastructures and services of all
users. Also important to research the best ways how to educate the users to also protect their
privacy (including ethical and security issues).

MikelLarrea May 29, 2012 3:27 am

Assuming that the infrastructure/service provider ensures privacy among different users, the main issue is how to ensure privacy with respect to the provider itself. Do we trust our telecommunications service provider?

34. Multi-use technologies, **noemib1** May 29, 2012 3:30 am

Promote research how e-inclusion can be incorporated to other (more attractive, more prestigious) fields such a business offices, public spaces, sports.

35. Personalisation of content and user interface, **rosayanez** May 29, 2012 3:30 am

In order to promote eInclusion a higher level of personalization in term of content and user interface design should be supported in social nets and web 2.0 platforms. Content personalization that selects the contents in the appropriate format taking into account the user preferences and context, is critical.

36. Research on trust and confidence issues, **Iosif_Klironomos** May 29, 2012 3:30 am

Research on how to ensure user trust and confidence for new technologies is needed. Trust and confidence are crucial factors that affect how users will perceive and ultimately use new technologies.

37. Field studies, **noemib1** May 29, 2012 3:33 am

perform field studies research (such as "living laboratories", let people check the technology at home at real conditions.

38. Social participation for self determination, **lmpereira** May 29, 2012 3:33 am

Research dealing with the emerging network infrastructures in order to facilitate the decision making process to achieve a better social participation and advocate the rights of people with activity limitations.

39. Automatic transformations, **rosayanez** May 29, 2012 3:36 am

Contents transformation that can be done automatically could increase the accessibility level.

40. OpenData, **rosayanez** May 29, 2012 3:37 am

It is interesting to promote Open Data app implementations or extensions to non-accessible apps. That would improve the implementation of accessible front-end apps.

rosayanez May 29, 2012 3:42 am

Some extra explanations:

Open data is the idea that certain data should be freely available to everyone to use and republish as they wish, without restrictions from copyright, patents or other mechanisms of control.

Open data is often focused on non-textual material such as maps, genomes, connectomes, chemical compounds, mathematical and scientific formulae, medical data and practice, bioscience and biodiversity. Problems often arise because these are commercially valuable or can be aggregated into works of value. Access to, or re-use of, the data is controlled by organisations, both public and private. Control may be through access restrictions, licenses, copyright, patents and charges for access or re-use.

The concept of open data is not new; but a formalized definition is relatively new. The goals of

the open data movement are similar to those of other "Open" movements such as open source, open content, and open access.
(From wikipedia: http://en.wikipedia.org/wiki/Open_data)

41. Design strategies for intermediate period, noemib1 May 29, 2012 3:40 am
Study design strategies for the intermediate period between technologies how to influence people to use the new technology , to "rap up" in a familiar appearance (interface).

42. Research on multimodal interaction methods and alternative input – output systems, Iosif_Klironomos May 29, 2012 3:48 am
Multimodal interaction methods and alternative input-output technologies are essential to ensure participation in the emerging ambient intelligence environment. Apart from looking at the user interface aspects, it is important to ensure that they are seamlessly integrated within the emerging systems and services.

43. Training of end-users and carers, **PatrickRoe** May 29, 2012 4:47 am
Support training of end users and carers in understanding and using the possibilities of the Semantic Web.

44. Use of Social media to reduce isolation, **PatrickRoe** May 29, 2012 4:51 am
Support research on how to implement social media platforms in such a way that they are useful, and perceived as such by end users.

45. Use of network-based systems as a means of voting, PatrickRoe May 29, 2012 4:57 am
Research on how network based systems and services could be used by voters with a disability as an alternative way of casting their vote.

46. Link between AmI and hearing aids, **PatrickRoe** May 29, 2012 7:39 am
Research on how the emerging infrastructure could be used to adapt hearing aid algorithms to the environment.

47. Ethical, Legal and Societal implications, ANECngi May 29, 2012 7:40 am
The opportunities offered by the Information Society considerably affect the lives of all consumers. However, we also need to remember the enormous impact it can have on the consumer, and this is why ANEC believes the Ethical, Legal and Social Implications (ELSI) should be carefully considered, as well as potential Privacy and Security issues.
PatrickRoe May 29, 2012 7:42 am
Ethical and security issues will indeed play an important role in the trust that users may or may not have for emerging services

48. Simplify services access, **dariocaro** May 29, 2012 8:33 am
Simplify services access observing human interaction models

49. Social interaction design, **dariocaro** May 29, 2012 8:35 am
Social interaction design to develop new social inclusion tools.
dariocaro May 30, 2012 12:33 am
Research on social interaction design to develop new social inclusion tools:
social tools such as web social networks have much potential to allow people collectively

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participate to a communication; to better exploit such a potential we have to focus on this new kind of interaction design, the social one.

50. Social cooperation models, dariocaro May 29, 2012 8:35 am
Social cooperation models to support people inclusion.
dariocaro May 30, 2012 1:32 am
Social cooperation models to support people inclusion:
In many situations society naturally expresses cooperative models to help people with disabilities. My question is: how can we facilitate and make more sustainable and replicable with technology/new services such cooperation models?

51. Interaction models, **dariocaro** May 29, 2012 8:30 am
Research on human based interaction needs specification and validation models observing context-aware interactions.
dariocaro May 29, 2012 8:50 am
Research on specification models, i.e. interactive processes, suitable to describe human interactions and needs in order to develop interactive services for eInclusion.
Interactive systems so specified must be validated with automatic/semi-automatic techniques in order to accomplish human needs in some specified context.

52. Responsive design based on HTML5, **rosayanez** May 29, 2012 3:39 am
Responsive design is being successfully implemented, based on HTML5 standards, for improving access from all kind of mobile devices. That should be also explored for devices configured for accessibility.
rosayanez May 29, 2012 3:48 am
Some extra explanations: It is the fifth revision of the HTML standard and, as of May 2012, is still under development. Its core aims have been to improve the language with support for the latest multimedia while keeping it easily readable by humans and consistently understood by computers and devices (web browsers, parsers, etc.)..
These features are designed to make it easy to include and handle multimedia and graphical content on the web without having to resort to proprietary plugins and APIs. Other new elements are designed to enrich the semantic content of documents. HTML5 also defines in some detail the required processing for invalid documents so that syntax errors will be treated uniformly by all conforming browsers and other user agents.
(From wikipedia: http://en.wikipedia.org/wiki/HTML5)
rosayanez May 30, 2012 1:59 am
Responsive Web Design (RWD) essentially indicates that a web site is crafted to be able to adapt the layout to the viewing environment. As a result, users across a broad range of devices and browsers will have access to a single source of content, laid out so as to be easy to read and navigate with a minimum of resizing, panning, and scrolling. (From wikipedia:http://en.wikipedia.org/wiki/Responsive_Web_Design)

53. Mainstream and assistive technology, roberthecht Jun 8, 2012 2:52 am
Today Assistive technology and Mainstream to a large extent are two different market systems. We want mainstream to handle as much functionality as possible. Not all functionality can be included.
When functionality is not included it is vital that the interfaces are provided to use Mainstream and Assistive technology together.
I am closely involved in the Mandate 376 work. It is a Commission financed work to set

European requirements for accessible public procurement. We note that a minimum set of Assistive technology interfaces towards Mainstream is not generally agreed on and not used. Research is needed on what functionality should or shall be built in (by software or hardware) and what interfaces are the most important ones towards Mainstream.

Most likely a few interfaces can be used to create needed functionality with the plug in of Assistive technology.

One important example is Braille keyboards and Braille displays. A number of different interfaces are used today, with limited functionality with Mainstream. Robert

54. Proprietary contra open, roberthecht Jun 8, 2012 3:02 am

Standards, Open source, and Open, free and published protocols/interfaces are needed for harmonisation, interoperability and to lower cost for vendors.

At the same time we see Skype, Viber and other proprietary solutions in different fields of ICT being used globally. The companies offering the closed solutions have no interest in making them open solutions.

The companies are free to offer their own closed solutions. It generates money.

Research is needed what needs to be achieved to convince companies offering proprietary solutions to keep on doing that BUT also offer an open interface with limited functionality (compared with the closed solution) to create better interoperability and functionality for all. Robert

55. From narrow standard to widely used, roberthecht Jun 8, 2012 3:22 am

Daisy is a standard for digital talking books. It helps people with dyslexia and people with vision impairments (and others) to read books with the possibility to move around in the chapters, etc. It has been used by people with impairments.

It competes with many other formats and Daisy never reached mainstream.

Until now! A new format will be standardised and is already widely used globally - EPUB (http://idpf.org/epub).

Daisy has been included in EPUB!

EPUB is widely used for all and not just for people with impairments.

Research is needed on how standards for accessibility and usability can be moved into general standards for the benefit of all. Robert

56. Haptic, roberthecht Jun 8, 2012 3:32 am

We have come a far way with solutions for people hard of hearing and deaf, people with vision impairment, people with physical impairments (controlling with eye movements, sucking/blowing, etc). We will see even better solutions because of present research.

Haptic solutions are also researched on but to a smaller extent. For people with deaf blindness (including all shades of the impairment) haptic solutions are vital.

It is already today possible to use combinations of vibrations, vibration intensity and frequency, different places for the vibrations on the body, Braille, etc. More research is needed. Robert

57. Hearing, roberthecht Jun 8, 2012 3:41 am

We used to have analogue transmission over copper. Now everything is moving over to IP. The audio quality has decreased in the IP and mobile solutions. It does not need to be this way. With IP you can create super good audio quality. But generally you limit the use of bandwidth instead. Children, people with hearing impairments, people communicating on a language that is not the first language and people in noisy environments needs better audio quality than adults with good hearing. It is related to hearing in combination with cognition.

More research is needed.
For instance, if I have hearing in a certain frequency spectrum and not in others. Why not use the bandwidth for the sound that I can hear when it is sent in good quality. Robert

Leading Partner

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CARDIAC Consortium

No	Name	Country
1	ECOLE POLYTECHNIQUE FEDERALE DE LAUSANNE (EPFL)	Switzerland
2	CENTRAL REMEDIAL CLINIC (CRC)	Ireland
3	Cyprus Neuroscience and Technology Institute (CNTI)	Cyprus
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13	FACULDADE DE MOTRICIDADE HUMANA (FMH)	Portugal

CARDIAC

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CARDIAC
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Sponsored by:

Contact Information:

Future Worlds Center
(Legal reg.: Cyprus Neuroscience and Technology Institute) 5
Promitheos Str., Off. 4 & 9
1065 Nicosia, Cyprus
Tel:+357 22873820
Fax: +357 22873821
 www.futureworldscenter.org