DELIVERABLE REPORT
D10.2.2
"Cooperation on report on the project's DGEI clustering second workshop"

MASELTOV
Mobile Assistance for Social Inclusion and Empowerment of Immigrants with
Persuasive Learning Technologies and Social Network Services

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CONTENT

1. EXECUTIVE SUMMARY

This deliverable reports on the second workshop on the clustering initiative Digital Games for Empowerment and Inclusion (DGEI) between the three FP7-ICT projects ASC-Inclusion, MASELTOV and TARDIS. The workshop took place in Chania, Greece, May 15, 2013, in the Akali hotel conference hall.

The report on the workshop provides a focus on the cooperative work performed in the first year following the first DGEI clustering workshop (April 2012, Brussels, Belgium). The highlights of the cooperation consist of the organisation of the First International Workshop on Intelligent Digital Games for Empowerment and Inclusion, IDGEI 2013, who was successfully held in Chania, Greece, 14 May 2013, in association with the FDG 2013, the 8th International Conference on the Foundations of Digital Games. Furthermore, joint scientific work resulted in a number of joint journal and conference publications in 2012 and 2013. A further workshop on "Attention in Cognitive Systems" was cooperatively prepared and will be held in August 5, 2013, in Beijing, China.

The second DGEI clustering workshop activities and results are then presented, ranging from the investigation of common dissemination and exploitation channels, the exchange of user requirements and lessons learned, furthermore, the exchange of engineering requirements and technical solutions, the sharing of methodologies and comparison of approaches, and, finally, the identification of further clustering potential.

The workshop resulted finally in the agreement of a joint work plan as it is outlined in detail in this report. This work plan includes joint dissemination activities in the social media, jointly organised conferences and sessions, networking activities, exchange in information on ethics issues, exchange of user requirement information, and, finally, even exchange of data and technical specifications.

2. INTRODUCTION

Three FP7-ICT projects aim at developing Digital Games for Empowerment and Inclusion (DGEI): ASC-Inclusion, MASELTOV and TARDIS.

The ASC-Inclusion project aims to create an internet-based platform that will assist children with Autism Spectrum Condition (ASC) to improve their socio-emotional communication skills. The project will attend both to the recognition and the expression of socio-emotional cues, aiming to provide an interactive-game where to give scores on the prototypicality and on the naturalness of child's expressions. It will combine several state-of-the-art technologies in one comprehensive virtual world environment, combining voice, face and body gesture analysis, providing corrective feedback regarding the appropriateness of the child's expressions.

The MASELTOV project aims to develop innovative social computing services that motivate and support incidental learning to enable the appropriation of highly relevant daily skills. A mobile assistant embeds novel services that can support activities which lead towards the social inclusion of immigrants. MASELTOV is developing an application that will provide the most essential / beneficial information and learning services, such as ubiquitous language translation, navigation, administrative and emergency health services.

The TARDIS project aims to build a scenario-based serious-game simulation platform for young people not in employment, education or training (NEET) at risk of exclusion at the age of 16 to 25, to explore, practice and improve their social skills. TARDIS will facilitate the interaction through virtual agents (VAs) acting as recruiters in job interviews scenarios. TARDIS will be able to detect in real-time user's emotions and social attitudes through voice and facial expression recognition and to adapt the progress of the game and the behaviour virtual interlocutor's behaviour to the individual users. It will provide field practitioners with an intuitive authoring tool for designing appropriate interview scenarios and for setting agents' behaviours without the help of computer scientists. Furthermore, it will give practitioners a unique access to a systematic record of the specific difficulties that the users experience.

The three projects can be seen as complementary, because they share much in terms of their respective methodologies (user-centred iterative design), technical solutions (all three propose to rely on the serious gaming paradigm to deliver support and to motivate the users) and in terms of the context of the application (in all three projects the target population has special needs, either socially and economically determined, or neuro-developmentally conditioned).

To capitalise on the similarities between the three consortia, ASC-Inclusion, MASELTOV and TARDIS propose specific tasks to identify the potential and the best method for concrete clustering and synergies early in the projects. To initiate this, a first closed workshop for all members of the three projects has been held in Brussels on 19 April 2012 (cf. [D8.3]).

A second closed workshop for all members of the three projects, took place in Chania on 15 May 2013 in order to reflect on the state of the play of performed, on-going and future DGEI clustering activities by the group.

The workshop featured discussion about synergies, collaborations and on-going clustering activities. The discussions were organised around specific activities submitted a priori of the workshop through the DGEI wiki (http://dgeiclustering.pbworks.com) to ensure that the

discussion was well formed and focused and that the outcomes of the workshop were captured in a coherent manner.

In addition, an open workshop/conference with international impact on inclusion and serious gaming, with participation of academics representatives from industry and administrations whose activities are related to social inclusion was held in Chania, Crete, Greece on 14 May 2013, in conjunction with the 8th International Conference on the Foundations of Digital Games (FDG 2013).

The report is structured as follows: first, the three projects are briefly described (Chapter 2) focusing on the main goals and the current state of play of each project in the DGEI cluster; next a description of the second DGEI Clustering workshop is given (Chapter 3), followed by a detailed description of the clustering activities that has been discussed during the workshop (Chapter 4). Next, a tentative work plan is given (Chapter 5) before giving a brief report on the First International Workshop on DGEI. A conclusion is given in Chapter 6. Appendix 1 includes the list of participants at the workshop and the related agenda with the definition of work groups and rapporteurs.

3. DGEI CLUSTER'S PROJECTS

In this chapter a summary of each project in the DGEI cluster is given, with a detailed description of the main goals of the projects and their product concept.

3.1 ASC-INCLUSION

ASC-Inclusion – Integrated Internet-based Environment for Social Inclusion of Children with Autism Spectrum Conditions (ASC)
www.asc-inclusion.eu

ASC-Inclusion aims to create an internet-based platform that will assist children with ASC, and those interested in their inclusion, to improve their recognition and expression of socio-emotional cues. ASC-Inclusion will combine several state-of-the-art technologies in one comprehensive environment, including analysis of users' gestures, facial and vocal expressions, training through games, text chatting, animation, video and audio clips. The user's environment will be personalized, accounting for individual skills and challenges, sensory requirements, and increasing motivation through special interests. Carers will be offered their own supportive environment, including professional information, reports of child's progress and use of the system, chat rooms and forums for parents and therapists. Despite the innovative technologies involved, the ASC-Inclusion is aimed for home use, enabling users all around Europe to benefit for professional training, using standard home computing equipment. Matching the objective of the ICT inclusion call, ASC-Inclusion will aim at self-learning ICT solutions which take into consideration user profiling and feedback, in view to deliver personalised services and enhanced participation in social interaction and through it in education and work. Unlike past ICT solutions, like the Mind-reading [Golan and Baron-Cohen 2006] and the Transporters [Golan et al. 2010], the proposed project will attend both to the recognition and to the expression of socio-emotional cues. [Schuller et al., 2013] gives a presentation of the progress in realising such a serious game platform and provides results for the different modalities.

Table 1: *List of ASC-Inclusion partners*

Part. no	Participant name	Member name
1	Technische Universität München (TUM)	Björn Schuller
2	The Chancellor, Masters And Scholars Of The University Of Cambridge (UCAM)	Simon Baron-Cohen
3	Bar Ilan University (BIU)	Ofer Golan
4	Compedia Software & Hardware Development Ltd (COMP)	Shai Newman
5	Universita Degli Studi Di Genova (UNIGE)	Antonio Camurri
6	Karolinska Institutet (KI)	Sven Bölte
7	Autisme-Europe (AE)	Aurélie Baranger

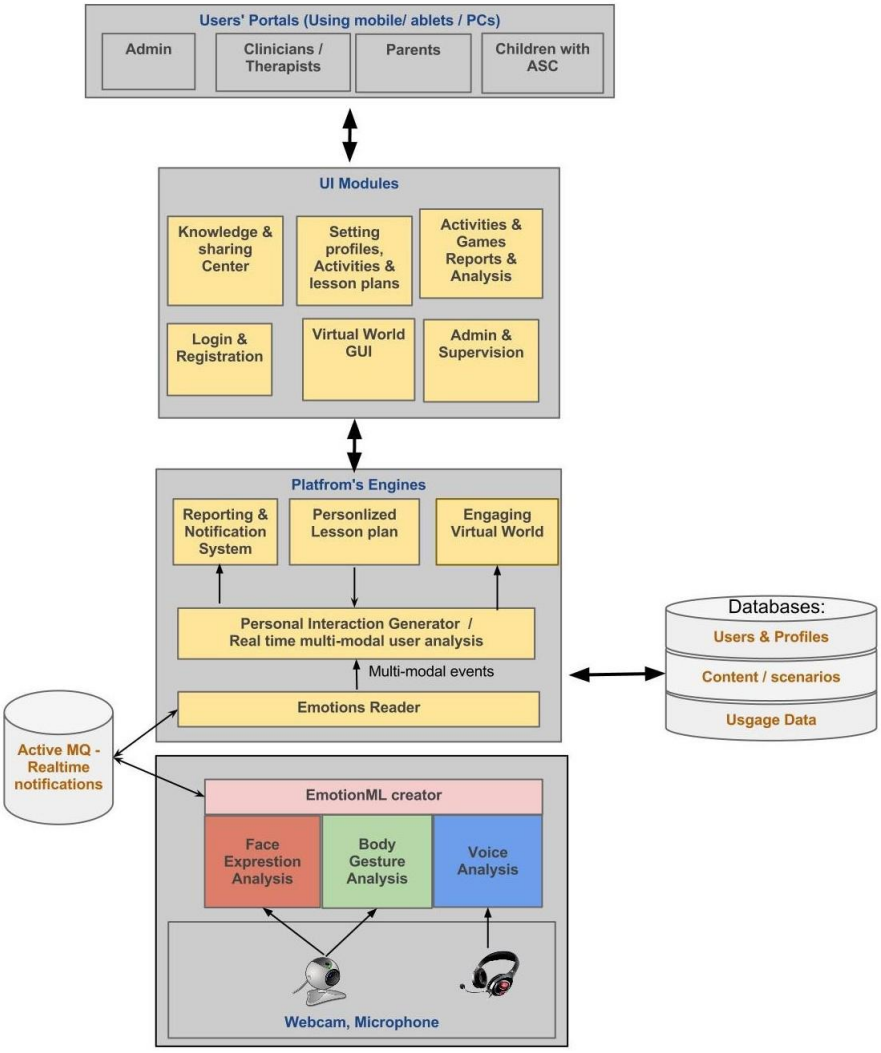

Figure1: ASC-Inclusion platform architecture

3.2 MASELTOV

MASELTOV - Mobile Assistance for Social Inclusion and Empowerment of Immigrants with Persuasive Learning Technologies and Social Network Services
www.maseltov.eu

MASELTOV recognises the major risks for social exclusion of immigrants from the European information society and identifies the huge **potential of mobile services for promoting integration and cultural diversity in Europe**.
Mobile, everywhere/everytime, persuasive assistance is crucial for more efficient and sustainable support of immigrants. MASELTOV researches and develops novel ICT instruments in an interdisciplinary consortium with the key objective to facilitate and foster local community building, raising consciousness and knowledge for the bridging of cultural differences.

Part. no	Participant name	Principal Investigator name
1	JOANNEUM RESEARCH Forschungsgesellschaft mbH (JR)	Lucas Paletta
2	Center for Usability Research and Engineering (CURE)	Manfred Tscheligi
3	Athens Information Technology (AIT)	Sofokles Efremidis
4	Fundació per a la Universitat Oberta de Catalunya (UOC)	Adela Ros
5	The Open University (OU)	Agnes Kukulska-Hulme
6	Coventry University (COV)	Sara De Freitas
7	Czech Technical University (CTU)	Jiri Matas
8	FH JOANNEUM GmbH, University of Applied Sciences (FHJ)	Walter Scheitz
9	Telecom Italia S.p.A. (TI)	Graziella Spinelli
10	Fluidtime Data Services GmbH (FLU)	Michael Kieslinger
11	Busuu Ltd. (BUS)	Bernhard Niesner
12	Fundación Desarrollo Sostenido (FUN)	Kenny Lavacude Parra
13	Verein DANAIDA (DAN)	Marianne Hammani-Birnstingl
14	Migrants Resource Centre (MRC)	Alice Goldie

Table 2: *List of MASELTOV partners*

MASELTOV realises this project goal via the development of **innovative social computing services** that motivate and support informal learning for the appropriation of highly relevant daily skills. A mobile assistant embeds novel services that can support activities which lead towards the social inclusion of immigrants. MASELTOV is developing an application that will provide the most essential / beneficial information and learning services, such as ubiquitous language translation, navigation, administrative and emergency health services.
MASELTOV is researching and developing **enabling technologies** with an industrial potential with the objective to easily exploit the project results on a very large scale.. The project, with its scientifically, technically and socially relevant results, will enable a massive social impact on the future with respect to more cooperative – and hence, more successful – integration of millions of immigrants living together with hundreds of millions cohabitating European citizens.

Figure 2 shows the service architecture, describing the community and social network services and the application of multisensory context awareness that the mobile assistant will be developing.

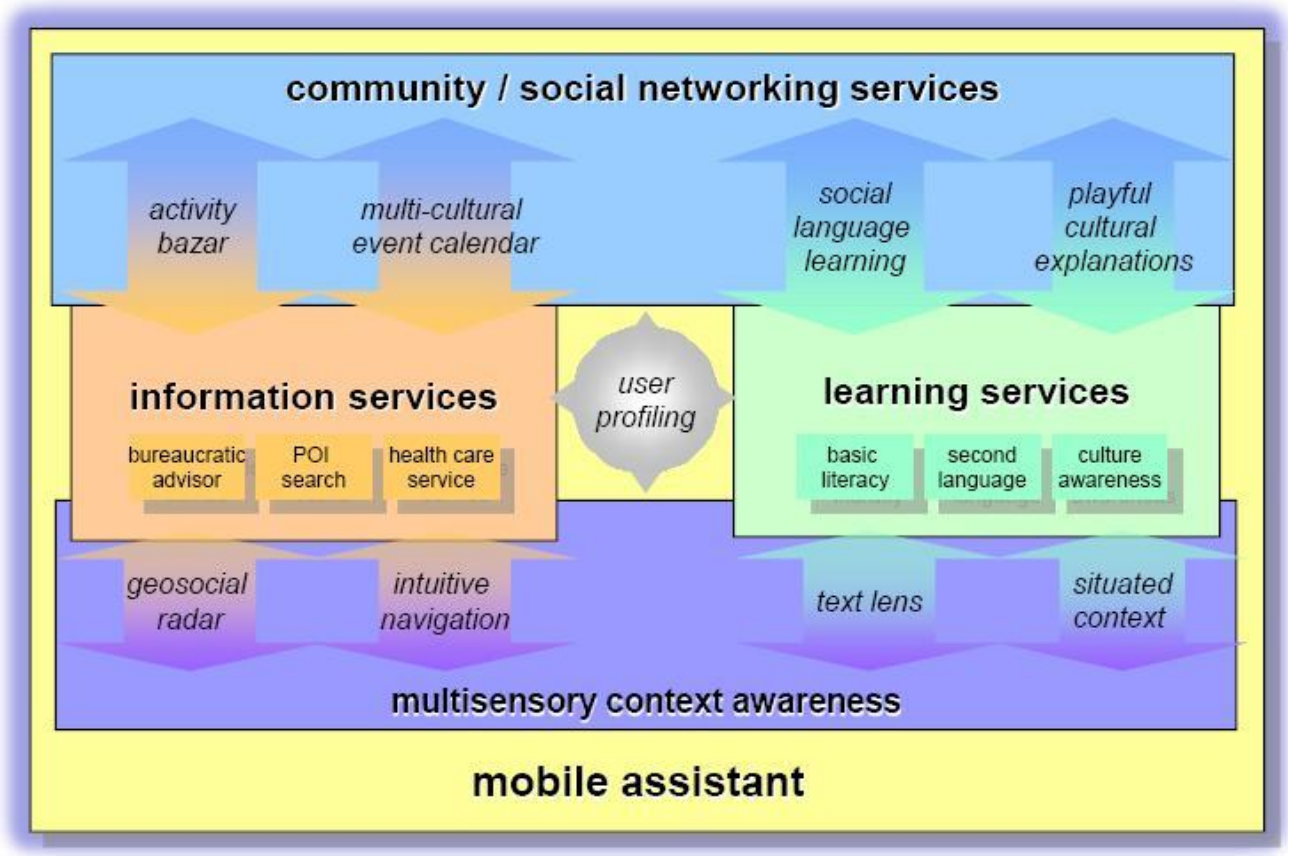

Figure 2: *MASELTOV service architecture*

MASELTOV intends to motivate immigrants with **persuasive learning services** that will support their acquisition of the local language, playful learning of cultural understanding and providing technical aid for basic literacy. MASELTOV takes advantage of the interplay between learning and social computing in order to apply learning (i) through communication as well as (ii) in the situated context, i.e., right at the spot where it matters, therefore jointly reinforcing the learning effect and the fostering of social inclusion.

An overview of this can be viewed in [Dunwell et al., 2013], which gives a presentation of the progress achieved in realising such a platform.

3.3 TARDIS

TARDIS – Training young Adult's regulation of emotions and Development of social Interaction Skills
tardis.lip6.fr

The number of young people not in employment, education or training (NEET) is increasing across Europe. Current research reveals that NEETs often lack self-confidence and the essential social skills needed to seek and secure employment. Youth inclusion associations

across Europe provide social coaching programmes, in order to help young people acquire and improve their social competencies. However, it is an expensive and time-consuming approach that relies on the availability of trained practitioners as well as the willingness of the young people to engage in exploring their social strengths and weakness in front of their peers and practitioners. Digital technologies such as serious-games offer the advantage of repeatable experience that can be modulated to suit the individual needs of the young people. Additionally, such technologies are intrinsically motivating to the young and carry the potential of removing the many barriers that real-life situations may pose, in particular the stress associated with engaging in unfamiliar interactions with others.

Part. no	Participant name	Member name
1	Université Pierre et Marie Curie – Paris 6 (UPMC)	Nicolas Sabouret
2	Deutsches Forschungszentrum für Künstliche Intelligenz GmbH (DFKI)	Patrick Gebhard
3	Institute of Education (IOE)	Kaśka Porayska-Pomsta
4	Institut Télécom (IT)	Catherine Pelachaud
5	Mission Locale Val d'Oise Est (MLVOE)	Fred Ritter
6	Universität Augsburg (UAU)	Elisabeth André
7	Universiteit Utrecht (UU)	Mark Overmars
8	Wizarbox	David Vesa Cohen

Table 3: *List of TARDIS partners*

TARDIS aims to build a scenario-based serious-game simulation platform for young people at risk of exclusion, aged 16-25, to explore, practice and improve their social skills. TARDIS will facilitate the interaction through virtual agents (VAs) acting as recruiters in job interviews scenarios. The VAs are designed to deliver realistic socio-emotional interactions and are credible, yet tireless interlocutors. TARDIS exploits the unique affordances of digital technology, by creating an environment in which the quality and the quantity of emotional display by the agents can be modulated to scaffold the young trainees through a diverse range of possible interview situations. The scenarios are co-designed with experienced practitioners in several European countries in order to ensure their relevance to the different individuals across a number of cultural contexts.

TARDIS offers three major innovations. First, it will be able to detect in real-time user's emotions and social attitudes through voice and facial expression recognition, and to adapt the progress of the game and the behaviour virtual interlocutor's behaviour to the individual users. Second, it will provide field practitioners with an intuitive authoring tool for designing appropriate interview scenarios and for setting agents' behaviours without the help of computer scientists. Third, it will give practitioners a unique access to a systematic record of the specific difficulties that the users experience. This will offer new instruments for practitioners to measure individual's progress in emotion regulation and social skill acquisition, thus facilitating reflection on their own practice and enabling a more flexible and personalised coaching for young people at risk of social exclusion.

Figure 3 shows the platform architecture describing the interactions between the modules within the Open Source platform.

[Jones and Sabouret, 2013] gives a presentation of the progress in realising such a platform.

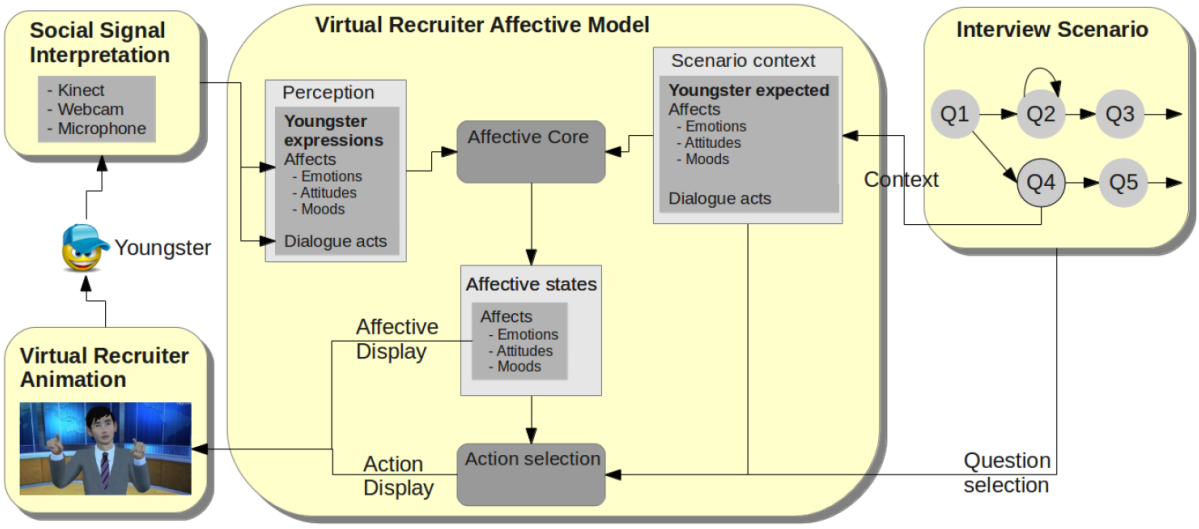

Figure 3: *TARDIS platform architecture*

4. STATE OF CLUSTERING ACTIVITIES

In light of the first DGEI clustering workshop [D8.3], the clustering activities progress is described in the following sections.

4.1 FURTHER DGEI EVENTS

The **2nd DGEI Clustering workshop** has been organised and held on 15 May 2013 in Chania, Crete, Greece.

The **1st International Workshop on Intelligent Digital Games for Empowerment and Inclusion**[1] **(IDGEI)** has been organised on 14 May 2013 in Chania, Greece. The workshop has been held in conjunction with the 8th International Conference on the Foundations of Digital Games[2] (FDG 2013) in order to have an international impact on inclusion and serious gaming, with participation of academics representatives from industry and administrations whose activities are related to social inclusion. This will be reported on in further detail in Section 7.

4.2 COMMON DISSEMINATION ACTIVITIES

The three projects' websites (ASC-Inclusion[3], MASELTOV[4] and TARDIS[5]) are linking and referring each other.

A specific page concerning the DGEI clustering has been created in each of the websites (e.g. DGEI page), including a brief description of the cluster and introducing the main objectives of the three projects.

[1] http://idgei.fdg2013.org/
[2] http://www.fdg2013.org/
[3] http://www.asc-inclusion.eu/
[4] http://www.maseltov.eu/
[5] http://tardis.lip6.fr/

Common dissemination activities also include scientific production such as journal publication and jointly organised conferences.

The following **joint publications** have been produced:

- Björn Schuller, Lucas Paletta, Nicolas Sabouret: *"Intelligent Digital Games for Empowerment and Inclusion - An Introduction"*, in Proc. 1st International Workshop on Intelligent Digital Games for Empowerment and Inclusion (IDGEI 2013) held in conjunction with the 8th Foundations of Digital Games 2013 (FDG), ACM, SASDG Digital Library, Chania, Crete, Greece, 14.05.2013.
- Björn Schuller, Ian Dunwell, Felix Weninger, Lucas Paletta: *"Serious Gaming for Behavior Change – The State of Play"*, to appear in IEEE Pervasive Computing Magazine, Special Issue on "Understanding and Changing Behavior", IEEE, 8 pages, 2013.
- Björn Schuller, Florian Pokorny, Stefan Ladstätter, Maria Fellner, Franz Graf, Lucas Paletta: *"Acoustic Geo-Sensing: Recognising Cyclists' Route, Route Direction, and Route Progress from Cell-Phone Audio"*, to appear in Proc. 38th International Conference on Acoustics, Speech, and Signal Processing (ICASSP), IEEE, Vancouver, Canada, 26.-31.05.2013.
- Ian Dunwell, Petros Lameras, Craig Stewart, Pangiotis Petridis, Sylvester Arnab, Maurice Hendrix, Sara de Freitas, Mark Gaved, Björn Schuller, Lucas Paletta: *"Developing a Digital Game to Support Cultural Learning amongst Immigrants"*, in Proc. 1st International Workshop on Intelligent Digital Games for Empowerment and Inclusion (IDGEI 2013) held in conjunction with the 8th Foundations of Digital Games 2013 (FDG), ACM, SASDG Digital Library, Chania, Crete, Greece, 14.05.2013.

The following **workshops** were **jointly organised**:

- Organisation and chairing of the International Symposium on Attention in Cognitive Systems (ISACS 2013) held in conjunction with the 23rd International Joint Conference on Artificial Intelligence (IJCAI 2013), Lucas Paletta, Laurent Itti, Björn Schuller, Springer LNAI, Beijing, China, 03.-04.08.2013.
- Organisation and chairing of the 1st International Workshop on Intelligent Digital Games for Empowerment and Inclusion (IDGEI 2013) held in conjunction with the 8th Foundations of Digital Games 2013 (FDG), Björn Schuller, Lucas Paletta, Nicolas Sabouret, ACM, Chania, Crete, Greece, 14.-17.05.2013.

In addition a long-term exchange of key personal between partner sites (Coordinator of ASC-Inclusion and MASELTOV) has been carried out for four months.

4.3 COMMON ENGINEERING REQUIREMENTS

With regard to data sharing and collection including annotation and data, it has been initiated Material Transfer Agreement for Mindreading DVD in order to make it available to TARDIS project.

5. CLUSTERING ACTIVITIES: WORKSHOP OUTCOME

Two work group sessions were held during the workshop. This section defines the clustering activities that have been discussed and the work task group formation.

In the first group work session the following clustering topics were assigned:

1. Common dissemination and exploitation channels
2. Common success indicators and validation methodologies
3. Exchange of user requirements and lessons learned

In the second group work session the following clustering topics were assigned:

4. Exchange of engineering requirements and technical solutions
5. Share methodologies and comparison of approaches
6. Further clustering potential

Table 4 in Appendix 1 shows the task groups for each clustering activity including the rapporteurs' name.

In the final session of the workshop, all the clustering ideas were presented by each rapporteur. This chapter comprises the outcome of the work groups' sessions. For each activity a work plan until the end of 2013 is given.

5.1 COMMON DISSEMINATION AND EXPLOITATION CHANNELS

This section presents a list of potential common dissemination and exploitation channels such as social media, scientific production, flyer, press and exploitation strategies that can be used in a common approach.

5.1.1 DISSEMINATION – SOCIAL MEDIA

The possibility of considering additional electronic channels for dissemination was considered:

- **DGEI LinkedIn**: A representative of DGEI will periodically organise a contribution for DGEI on LinkedIn (ideally once a month). This will be done starting from June 2013 and each project coordinator will be responsible for his project contribution. A first contribution will be to introduce projects websites links.
- **Twitter:** A DGEI specific twitter channel to which the projects will contribute ideally with the same content used for LinkedIn.
- **Facebook:** Periodic linking between the projects and provision of periodical contribution from the projects.
- **Newsletter:** Electronic newsletters that refer to other projects. One page referring to the other project will be present in each newsletter (project coordinators will be responsible) until the project end.

5.1.2 DISSEMINATION – SCIENTIFIC PRODUCTION

Additional common scientific dissemination channels and opportunities were discussed:

- **Joint Journals publication:** Potential additional publication for a special issue on the IDGEI workshop topic at the end of the project (COV, autumn 2014) in combination with the 2nd IDGEI workshop.
- **Joint Publications:** Other potential joint scientific production could be achieved in the light of MASELTOV and TARDIS potential future cooperation. The project coordinators will communicate each other on this by 30 September.

- **Jointly organised conferences/session**: A Second International workshop on IDGEI that could potentially be held on September 2014. It will include a forum involving NGOs, companies, and it will contribute to the preparation of the "White paper on digital games for empowerment and inclusion".
- The **connection with the GALA network** will be formalised**.** The DGEI coordinator will contact the GALA coordinator in order to establish concrete common activities (by 31 July 2013).

5.1.3 DISSEMINATION – FLYERS, PRESS AND VARIOUS

Other means of common dissemination are media outlets and leaflets were considered:

- **Flyers:** a small folder on DGEI will be created. It will consist of 4 pages describing the three DGEI projects.
- Communicating and provideing DGEI information to local authorities.
- Written contribution (such as, in scientific publications): mentioning all projects.
- **Press:** general press releases and web journals could be addressed.
- **Exchange of email addresses** of projects consortia with a subsequent creation of a DGEI mailing list.
- The creation of a **DGEI Logo.**

5.1.4 EXPLOITATION

This section comprises potential activities that can enable a common exploitation strategy.

5.1.4.1 TARDIS AND ASC – COMMON COMMERCIAL TARGET GROUPS

ASC-Inclusion and TARDIS are creating products that can be sold to common buyers:

- Healthcare
- Inclusion associations
- Government and NGO

Furthermore, relations with schools can be built, considering what they need and what they already buy.
Parents can be reached through the online marketing. Last, it can be thought about a sponsorship to be used as potential common exploitation.

5.1.4.2 ASC: ONLINE SURVEY, TESTING

Noted: Online survey and testing should include not only users but also policy makers and budget sources.
In order to improve exploitation, it would be advantageous to find high-level, high profile, senior persons from ministries and psychologists that would promote the view that Digital Games can be highly beneficial to empowerment and inclusion.

5.1.4.3 COMMON USERS

In MASELTOV and TARDIS there are potential users in common such as young adults (TARDIS) that are also migrants (MASELTOV):

1. TARDIS involves an NGO (Mission Locale) thus a potential of cooperation between MASELTOV and TARDIS could be enabled to distribute software versions in different language (English, French, German, Dutch). By the end of Oct 2013 a concrete work plan will be discussed to achieve the cooperation. Mission Locale has a very good distribution network in France.

2. Autism Europe will contact Telecom Italia concerning the potential exploitation opportunities by Oct 2013

5.1.4.4 AFFECTIVE COMPUTING TECHNOLOGY (ASC AND TARDIS)

The affective computing technology that has been tested with real young people with inclusion difficulties and can be sold to the game industry and to online conversational agents companies.

5.2 COMMON SUCCESS INDICATORS AND VALIDATION METHODOLOGIES

This section reminds the list of potential common success indicators defined in the First Clustering Workshop, 2012, including: social, academic, commercial and technological indicators.

Social success indicators

- Policy uptake
- Media interest
- Knowledge among users and relatives
- Credibility among users and relatives
- Beneficial effects from using the tool: specific for each project

Social indicators on the user's side

- Improving skills
- Generalization effects
- Better inclusion or integration
- Enjoyment and liking
- User experience: entertaining and educating
- Success or failure if stop using the product

Academic success indicators

- Number of publications
- Rewards and prices

Commercial success indicators

- Number of sold items
- Revenue
- Market share
- Self-sustainability
- Investors

Technological success indicators

- Innovation: showing to lead the development
- Surprises: technology innovation

Success indicators ranking

The members of this work group ranked the proposed success indicators and concluded that social success indicators seem to be the most important followed by academic and commercial success indicators.

5.2.1 CONSIDERATION ON THE SUCCESS INDICATORS

The indicators have been considered by: difficulty to achieve, our progress so far, examples, and strategies we've used. Some of the categories would only be addressed when the projects have workable products thus can be applied only at a later stage.

Academic success indicators will be definitely addressed in order to measure the scientific production.
Commercial success indicators (number of sold items, market share, revenue, etc.) play an important role and the three projects have similar and shared challenges to meet. With this respect NGOs will have an important role to mediate with possible users.

5.2.2 EXCHANGE OF VALIDATION METHODOLOGIES

User-centred design: It would be possible to share high level methodologies but the execution (low-level) of these methodologies is different because of the various target populations.
Personal/online user data: Data should not be directly linkable to a person's name and address; it is still sensitive data, possibly revealing intimate information about the user. In all three projects extra care must be taken to secure the servers and additionally secure and anonymize the users' data. Efforts can be joined to base the servers on a common platform and jointly make this platform as secure as possible.

Ethics and evaluation design: Ethics manuals and evaluation protocols could be shared between the three projects.
User design and evaluation: Findings on validation and experimentation using the systems will be shared among the three projects.

5.3 EXCHANGE OF USER REQUIREMENTS AND LESSONS LEARNED

This section describes potential common activities to be carried out in order to exchange user requirements and lessons learned.

5.3.1 USER REQUIREMENTS AND USER GROUPS

In order to potentially **share user groups** the following action will be taken:

- MASELTOV will discuss internally with NGOs whether they agree to share user groups (by June 2013). MASELTOV will send TARDIS the contact details of London NGO. In the future, TARDIS could also share Paris NGO with MASELTOV and TARDIS could get in touch with MASELTOV Spain NGO.
- Each project's members will act as expert users for the other project's software by month 30 (M30 MASELTOV). Each member will test other software and provide comments and feedback. Each member will also evaluate the software in terms of usability.

In order to **exchange user requirements** the projects a Dropbox folder will be created in order to contain the deliverables related to user requirements from each project (by end of May 2013)

In addition, game companies could exchange experience with regards to usability and educational and motivational aspects by month 24 (M24).

5.3.2 LESSONS LEARNED

The groups discussed what the main lessons learned that can be exchanged within the DGEI cluster. A list of some possible concerns follows:

- "Language" issues – There could be a different lexicon used by technical and clinical partners, so that they don't always use the same terms. In order to facilitate the communication between technicians and clinicians MASELTOV created a glossary to help with this issue.

- Users do not always behave as expected: In TARDIS, users tend to be very still during interactions making recognition of emotions and mental states very difficult.
- Recruitment – It is a good practice to always have back up for users as they not always come for scheduled sessions. Additionally, it is not easy to find users for study and this fact should be better communicated during reviews.
- The bridging between disciplines should be done as soon as possible.

5.4 EXCHANGE OF ENGINEERING REQUIREMENTS AND TECHNICAL SOLUTIONS

This section comprises a list of activities concerning engineering requirements and technical solution.

4.4.1 COMMON ENGINEERING REQUIREMENTS

The three projects will share data collection including annotation and data: A folder called "**Data Exchange**" will be created in Dropbox. Each project will fill in its file by describing which material could be made available to others plus a contact person in order to access the material by end of June 2013.
The three projects will share the platforms' needs: A folder called "**Platform Specification**" will be created in Dropbox. Each project will provide a file with its technical specifications concerning the middleware adoption, implementation strategies and technical solution (e.g. "using Active MQ for message exchange") by end of May 2013.

4.4.2 EXCHANGE OF TECHNICAL SOLUTIONS

The three projects will and are sharing architectural and re-use of components and platforms:

- openSMILE [Eyben et al. 2010] is used in TARDIS
- parts of the SEMAINE[6] project (in which ASC-Inclusion partners participated) have been used in TARDIS
- Common usage of EmotionML[7]
- Experience exchange
- Voice Activity Detector exchange between ASC-Inclusion and TARDIS projects

5.5 SHARING OF METHODOLOGIES AND COMPARISON OF APPROACHES

This section describes the activities concerning potential exchange of methodologies and comparison of approaches.

5.5.1 COMPARISON OF APPROACHES

The three projects will share deliverables on game design aspects and game contents in order to compare their approaches (by M24).
In order to share engineering and technical approaches, the reports related to systems architectures and platform integration will be shared (by M24). In addition deliverables that describe evaluation plans will be shared in order to coordinate deadlines when applicable.

5.5.2 SHARING RESOURCES

Game Design Documents will be shared to figure out the overlapping parts and to enable potential re-usage of specific solutions.

[6] http://www.semaine-project.eu/
[7] http://www.w3.org/TR/2013/PR-emotionml-20130416/

Deliverables will be shared in order to provide to the three consortia high level descriptions of the projects.
Details concerning the Vilnius ICT exhibition[8] meeting will be shared in order to enable all the projects to participate

5.5.3 SHARING STRATEGIES

Strategies concerning how to engage the media and which form of media are best to produce (e.g. video) will be shared.
A common issue that the three projects encountered is how to find participants, thus cooperation on this could be helpful.

5.6 FURTHER CLUSTERING POTENTIAL

The last 'further clustering potential' workshop session in Brussels [D8.3] discussed networks that our projects could participate in such as the GALA network, etc.

Areas for further potential clustering that were identified:

- Informing each other of any further networks that could be relevant for the DGEI cluster to join – such as affective computing network, serious gaming networks, etc.;
- Informing each other of any further organisations and projects that could be relevant for the DGEI cluster to be in contact with over our projects, e.g. Autism-Europe can assist other projects to contact European networks that could be relevant to their project;
- Representatives from the projects can then connect with other relevant networks, organisations and projects (e.g. EU projects and other international initiatives) as they see fit.
- The **connection with the GALA network** will be formalised in order to establish concrete common activities (31 July 2013)

[8] http://ec.europa.eu/digital-agenda/en/ict-2013-conference.

6. TENTATIVE WORK PLAN OVERVIEW

It has been envisioned a tentative work plan for all the above mentioned clustering activities, including deadlines and time assignment with regard to the three projects.

Cf. Sec.	Clustering activity	Deadline (time of the year)	Month (ASC-I)	Month (MASELTOV)	Month (TARDIS)
4.1.1	**DGEI LinkedIn:** introduce projects websites links. Contribute periodically to the DGEI channel on a monthly basis.	06/2013	M20	M18	M20
4.1.2	**Joint publications:** work plan for joint scientific production (MASELTOV/TARDIS).	09/2013	M23	M21	M23
4.1.2	**Jointly organised conferences/session**: Second International workshop on IDGEI	01/2014	M27	M25	M27
4.1.2, 4.6	**GALA network:** coordinators to establish concrete and formal connection	07/2013	M21	M19	M21
4.1.3	The **DGEI logo**	08/2013	M22	M20	M22
4.1.4	TARDIS and MASELTOV come up with a concrete work plan for potential **cooperation in exploitation** with NGOs	10/2013	M24	M22	M24
4.1.4	Autism Europe to discuss with Telecom Italia for **potential exploitation opportunities**	10/2013	M24	M22	M24
4.2.2	**Ethics and evaluation design:** Ethics manuals and evaluation protocols could be shared between the three projects	08/2013	M22	M20	M22
4.3.1	**Share user groups:** MASELTOV will discuss internally with NGO whether they agree to share user groups	06/2013	M20	M18	M20
4.3.1	Each project's members will act as expert users for the other project's software: **experience the software** and provide comments and feedback	04/2014	M30	M28	M30
4.3.1	**Exchange user requirements:** a Dropbox folder will be created in order to contain the deliverables related to user requirements from each project	05/2013	M19	M17	M19
4.3.1	Game companies could **exchange experience on usability** and educational and motivational aspects	10/2013	M24	M22	M24
4.4.1	Create "**Data Exchange**" in Dropbox to contain info about material that can be made available	06/2013	M20	M18	M20
4.4.1	Create "**Platform Specification**" in Dropbox to contain info about technical specifications concerning the systems	05/2013	M19	M17	M19
4.5.1	Share **deliverables on game design aspects** and game contents	10/2013	M24	M22	M24
7.7.5	Share **reports related to systems architectures and platform**	10/2013	M24	M22	M24

7. FIRST INTERNATIONAL WORKSHOP ON INTELLIGENT DIGITAL GAMES FOR EMPOWERMENT AND INCLUSION9 (IDGEI)

This Chapters reports on the First International Workshop on Intelligent Digital Games for Empowerment and Inclusion. This was a workshop with international impact on inclusion and serious gaming, with the participation of academics, and representatives from industry and administrations whose activities are related to social inclusion. The event washeld in Chania, Crete, Greece on 14 May 2013, in conjunction with the 8th International Conference on the Foundations of Digital Games[10] (FDG 2013).

Digital Games for Empowerment and Inclusion possess the potential to change our society in a most positive way by preparing selected groups in a playful and fun way for their everyday life's social and special situations. Exemplary domains span as far as from children with Autism Spectrum Condition to young adults preparing for their first job interviews or migrants familiarizing with their new environment. The current generation of such games thereby increasingly demands for computational intelligence algorithms to help analyse players' behaviour and monitor their motivation and interest to adapt game progress. The development of such games usually thus requires expertise from the general gaming domain, but in particular also from a game's target domain, besides technological savoir-faire to provide intelligent analysis and reaction solutions.

IDGEI 2013 aimed at bridging across these communities and disciplines by inviting respective researchers and experts to discuss their latest perspectives and findings in the field of Intelligent Digital Games for Empowerment and Inclusion.

The workshop **topics** authors were invited to respond to were:

- Machine Intelligence in Serious Games
- Mobile and Real-World Serious Gaming
- Emotion & Affect in Serious Games
- Player Behaviour and Attention Modelling
- Player-Adaptation and Motivation
- Security & Privacy Preservation
- Novel Serious Games
- User Studies & Tests of Serious Games

The workshop aimed *(i)* to bring forth existing efforts and major accomplishments in the design of intelligent serious games, *(ii)* to provide a forum for exchange in experience with intelligent serious games in practice including space for technical demos, *(iii)* while encouraging the design of novel applications in context as diverse as health-oriented gaming, general learning and driving environments, or emergency preparation, and *(iv)* to focus on current trends and future directions in the field.

The following talks were given during the workshop:

Guest Talks:

- *Iterative didactic design of serious games*: Michael G. Wagner and Thomas Wernbacher
- *The effects of age on player behavior in educational games*: Eleanor O'Rourke, Eric Butler, Yun-En Liu, Christy Ballweber, and Zoran Popovic

[9] http://idgei.fdg2013.org/
[10] http://www.fdg2013.org/

- *Children's collaboration in emergent game environments*: Björn Berg Marklund, Per Backlund, and Mikael Johannesson
- *Games for therapy: Defining a grammar and implementation for the recognition of therapeutic gestures*: David Maung, Roger Crawfis, Lynne V. Gauthier, Lise Worthen-Chaudhari, Linda P. Lowes, Alex Borstad, and Ryan J. McPherson

Keynote Speech: *`Gamification' of educational and healthcare systems/applications : principals & test cases*: Shai Newman

Session 1: Social Serious Gaming

- *Investigating Social Cue-Based Interaction in Digital Learning Games*: Ionut Damian, Tobias Baur and Elisabeth Andre
- *The Four Keys of Social Impact Games*: Dana Ruggiero
- *ASC-Inclusion: Interactive Emotion Games for Social Inclusion of Children with Autism Spectrum Conditions*: Björn Schuller, Erik Marchi, Simon Baron-Cohen, Helen O'Reilly, Peter Robinson, Ian Davies, Ofer Golan, Shimrit Friedenson, Shahar Tal, Shai Newman, Noga Meir, Roi Shillo, Antonio Camurri, Stefano Piana, Sven Bölte, Daniel Lundqvist, Steve Berggren, Aurelie Baranger and Nikki Sullings

Session 2: Intelligence in Digital Games

- *A set of Full-Body Movement Features for Emotion Recognition to Help Children affected by Autism Spectrum Conditions*: Stefano Piana, Alessandra Staglianò, Antonio Camurri and Francesca Odone
- *EShadow: A Tool for Digital Storytelling Based on Traditional Greek Shadow Theatre*: Marios Christoulakis, Andreas Pitsiladis, Argiro Moraiti, Nektarios Moumoutzis and Stavros Christodoulakis
- *Serious Game Design for Inclusivity and Empowerment in SmartGrids*: Aikaterini Bourazeri and Jeremy Pitt

Session 3: Games for Empowerment and Inclusion

- *Developing a Digital Game to Support Cultural Learning amongst Immigrants*: Ian Dunwell, Petros Lameras, Craig Stewart, Pangiotis Petridis, Sylvester Arnab, Maurice Hendrix, Sara de Freitas, Mark Gaved, Björn Schuller, Lucas Paletta
- *TARDIS - A simulation platform with an affective virtual recruiter for job interviews*: Hazaël Jones and Nicolas Sabouret
- *Traveller – Intercultural training with intelligent agents for young adults*: Nick Degens, Gert Jan Hofstede, Samuel Mascarenhas, André Silva, Ana Paiva, Felix Kistler, Elisabeth André, Aleksandra Swiderska, Eva Krumhuber, Arvid Kappas, Colette Hume, Lynne Hall, Ruth Aylett

Technical Demo Session

- *Virtual meeting and playing on Second Life*: Hein de Graaf
- *ASC-Inclusion: Vocal Emotion Games*: Erik Marchi and Björn Schuller
- *ASC-Inclusion: The Gaming Platform*: Shai Newman
- *MASELTOV: a Digital Game to Support Cultural Learning amongst Immigrants*: Lucas Paletta
- *The TARDIS simulation platform*: Hazaël Jones, Patrick Gebhard, Ionut Damian, Mathieu Chollet

Best Paper Award

Ionut Damian, Tobias Baur and Elisabeth Andre, *Investigating Social Cue-Based Interaction in Digital Learning Games*

8. CONCLUSIONS

Summing up, a second closed workshop for all members of the three projects has been held in Chania on 15 May 2013. The workshop featured discussion about synergies, collaborations and on-going clustering activities. The discussions were organised around specific activities.

The outcome of this workshop was a prolific discussion on the following topics:

- Common dissemination and exploitation channels
- Common success indicators and validation methodologies
- Exchange of user requirements and lessons learned
- Exchange of engineering requirements and technical solutions
- Share methodologies and comparison of approaches
- Further clustering potential

Furthermore, suggested strategies and synergies to adopt for each activity were discussed, and a work plan devised to achieve the potential clustering ideas.

In addition, an open workshop with international impact on inclusion and serious gaming, with participation of academics representatives from industry and administrations whose activities are related to social inclusion was held in Chania, Crete, Greece on 14 May 2013, in conjunction with the 8th International Conference on the Foundations of Digital Games (FDG 2013).

All the material collected during the workshop can be found in the DGEI clustering WIKI (dgeiclustering.pbworks.com) or into the DGEI Clustering folder in Dropbox.

9. REFERENCES

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10. APPENDIX

10.1 PARTICIPANTS

This section enumerates the list of attendees and the agenda for the related clustering workshop. Table 1 shows the participants sorted by project and affiliation.

Name	Project	Affiliation	Email
Björn Schuller	ASC-Inclusion	TUM	schuller@tum.de
Erik Marchi	ASC-Inclusion	TUM	erik.marchi@tum.de
Peter Robinson	ASC-Inclusion	UCAM	pr10@cam.ac.uk
Ian Davies	ASC-Inclusion	UCAM	ipd21@cam.ac.uk
Helen O'Reilly	ASC-Inclusion	UCAM	heo24@medschl.cam.ac.uk
Delia Pigat	ASC-Inclusion	UCAM	delia.pigat@gmail.com
Shai Newman	ASC-Inclusion	COMP	newmans@compedia.net
Alessandra Stagliano'	ASC-Inclusion	UNIGE	Alessandra.Stagliano@disi.unige.it
Stefano Piana	ASC-Inclusion	UNIGE	steto84@hotmail.com
Aurélie Baranger	ASC-Inclusion	AE	aurelie.baranger@autismeurope.org
Nikki Sullings	ASC-Inclusion	AE	nikki.sullings@gmail.com
Lucas Paletta	MASELTOV	JR	lucas.paletta@joanneum.at
Jan Bobeth	MASELTOV	CUR	bobeth@cure.at
Mark Gaved	MASELTOV	OU	mark.gaved@open.ac.uk
Ian Dunwell	MASELTOV	COV	dunwell.i@gmail.com
Walter Scheitz	MASELTOV	FHJ	walter.scheitz@fh-joanneum.at
Graziella Spinelli	MASELTOV	TI	graziella.spinelli@telecomitalia.it
Samuel F. Ricardo Ruiz	MASELTOV	FUN	intervencion@fundeso.org
Hazaël Jones	TARDIS	UPMC	hazael.jones@lip6.fr
Damian Ionut	TARDIS	UAU	damian@hcm-lab.de
Cathy Ennis	TARDIS	UU	c.ennis@uu.nl

Table 1: *List of participants*

10.2 AGENDA

The DGEI clustering workshop agenda is shown in Table 2. It describes the actual schedule of the meeting, the main topics that has been discussed and the structure of the work groups and their related clustering items.

14:00	**Welcome** (Björn Schuller, Lucas Paletta, Nicolas Sabouret)
14:15	**Plenary Discussion: Cluster Experience – Half way into the projects** (all)
	Work groups
14:45	**Short intro, formation of work groups** (coordinators, 15 min)
15:00	**Group work I** 1. Common dissemination channels and exploitation 2. Common success indicators and validation methodologies 3. Exchange of user requirements and lessons learned (3 groups à N persons with 1 rapporteur, 40 min)
15:40	**Group work II** 1. Sharing of engineering requirements and technical solutions 2. Sharing of methodologies and comparison of approaches 3. Further clustering potential (e.g., GALA network) (5 groups à ~<N> persons with 1 rapporteur, 40 min)
16:20	COFFEE BREAK (20 min)
16:40	**Work group summaries** (6 rapporteurs, each 4 min + ~3 min discussion)
17:20	**Agreeing on work plan (incl. next meetings / task group definitions) and any other business** (all)
18:00	WORKSHOP END

Table 2: *Actual agenda*

10.3 WORK GROUP DEFINITION

First group work session	Second group work session
Group 1 **Common dissemination and exploitation channels**	**Group 4** **Exchange of engineering requirements and technical solutions**
Lucas Paletta (rapporteur) Hazaël Jones Ian Dunwell Graziella Spinelli Shai Newman Aurélie Baranger Nikki Sullings	**Björn Schuller** (rapporteur) Erik Marchi Stefano Piana Ian Davies Peter Robinson Ionut Damian Lucas Paletta
Group 2 **Common success indicators and validation methodologies**	**Group 5** **Share methodologies and comparison of approaches**
Mark Gaved (rapporteur) Delia Pigat Ian Davies Peter Robinson Helen O'Rielly Alessandra Stagliano' Cathy Ennis	**Ian Dunwell** (rapporteur) Jan Bobeth Cathy Ennis Alessandra Stagliano' Mark Gaved Shai Newman
Group 3 **Exchange of user requirements and lessons learned**	**Group 6** **Further clustering potential**
Ionut Damian (rapporteur) Björn Schuller Erik Marchi Samuel F. Ricardo Ruiz Stefano Piana Walter Scheitz Jan Bobeth	**Nikki Sullings** (rapporteur) Aurélie Baranger Delia Pigat Helen O'Rielly Samuel F. Ricardo Ruiz

Table 3: *Work groups in the two sessions*