Project Deliverable Report

Deliverable nr D6.4. – Exploitation plan

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Abstract (for dissemination)	D6.4 introduces the exploitation plan of the project. It starts with a brief introduction of the project's objectives and planned results. Next, it analyses the results and their stakeholders and the project results especially after the end of the project duration. It discusses the options for exploitation during and after the project period and the actions required during the life time of the project. The main focus is to enable a maximum spread of and access to the results of the project.
Keywords List	exploitation, sustainability, audiences, target groups, material

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1 EXECUTIVE SUMMARY

The purpose of the exploitation plan is to outline the future of the idSpace project and the use of the valuable knowledge gained from it.

This deliverable reports on work carried out in the idSpace project, work package 6, Dissemination and Exploitation. It focuses in particular on task T6.6; i.e., it aims to set up the successful exploitation of the results both during the project lifetime and in particular after the project has concluded. The exploitation plan contains details about the market and research trends and opportunities for new areas for development and application of the idSpace environment.

The main exploitable result of the project is the integrated idSpace platform. The platform is more than a working proof-of-concept. It is, as far as we know, the first online platform to present an integrated suite of knowledge-eliciting and -sharing tools, and creating a collective, sharable memory of the entire design process. The idSpace platform forms the substrate for the emergence of a productive and lasting community of practice and learning that fosters maximum innovation.

Successful exploitation or sustainability of the idSpace results is one of the key objectives of the project. To enable exploitation, this plan includes all the most important aspects: the results to be exploited, the stakeholders, the possible models of exploitations and a first analysis of the fit between these results, the needs and requirements of our stakeholders, and the exploitation models.

In the period immediately after the end of the project, the results will be used primarily for demonstration purposes to encourage new SMEs to use the idSpace platform in their brainstorming sessions. Although the subsystems are exploitable to some extent, the added value of the software solution is depreciated when only a part of the system is used outside the integrated context.

Regarding the exploitation of the results, each partner has specified his or her own exploitation plan to take advantage of both the knowledge acquired throughout the project and its tangible results. The idSpace partners' individual plans are presented in this report.

Finally, the list of all dissemination activities that occurred during the lifecycle of the project is being included at the second part of this report. How to further disseminate the idSpace project outcomes is the subject of ongoing discussion.

2   SCOPE OF THE DOCUMENT

The objective of this document is to present the various exploitation possibilities for the idSpace project. This plan starts by presenting the core product, the idSpace platform, and possible byproducts that could be exploited. It continues with a diversification of the target groups within the global audience and concludes with a list of activities to undertake to reach the optimal audience at the right time. These activities spread the results among the internal and external communities to ensure sustainability after the official end of the project. The exploitation strategy pins down the main activities that will ensure sustainability.

For a successful project lifecycle, careful dissemination and exploitation strategies are essential. While dissemination activities have been performed from the founding of the idSpace project, the exploitation strategy concentrates on the project's results during the last phase and afterward to reach sustainability after the project ends.

The term "sustainability" means:
- ensuring that the developed products are used as the basis for further research activities
    o by the partners;
    o by new projects;
    o by R&D departments of companies;
    o by R&D communities; and
- ensuring that these services/products are used in real corporate creativity contexts.

To enable the transition from an R&D setting to corporate use, important stability, language dependencies, and ease of adaptation requirements should be met. During validation, specific activities have been undertaken to create a complete picture of all these requirements. The results should clarify the best way to exploit each result, including any need for further R&D.

Finally, this document aims to create a common view for all idSpace partners of these exploitation activities. It states how the outcomes should be promoted to support the adoption and use of the product in different academic, educational, and commercial environments.

3   THE IDSPACE PROJECT

3.1   Project overview

For many EU, SMEs, and vendors, effective design of innovative products is the key contributing factor to their sustainable growth. It is well known, however, that the potential for creating designs and bringing them to market is limited due to the inability of teams to learn effectively from each other during the collaborative design process and to the limitations of existing tooling. The idSpace project attempts to remedy this situation by developing an integrated design environment that affords creativity and helps teams design innovative products effectively. The idSpace project will deliver learning enablers in the form of modular guidance and advice scenarios, which can be applied and adapted by the team to maximize the effect for their purpose. It will also deliver tools with which one may articulate, communicate, and process new ideas. Learning scenarios and tools will be combined in the idSpace platform, which should thus improve the creative co-construction process significantly.

Innovation is characterized by an intensive collaborative process of generating and exploring ideas to solve a particular, well-described problem. In the present context, problems are product design problems. Innovation starts with the creativity of individuals who collaborate in teams, exchange ideas, and share knowledge. Sharing and exchanging ideas can be viewed as learning: individuals involved in innovation construct new ideas, but also learn from one another's contributions. Thus, learning how to take advantage of distributed innovation processes is yet another way to stimulate effective design.

The creation, exploration, and co-construction of ideas in innovation processes are supported by so-called creativity tools and techniques. Included are tools and techniques to facilitate representation such as mind mapping, tools for brainstorming, and techniques for systematic problem analysis and solution definition. There are many such tools, but they usually support a single user and a limited view of the ideas. They do not preserve the models that underlie the ideas in any semantic form. At best, only textual labels in scalable vector graphics format (SVG) are stored. This does not allow for an efficient exchange and transformation of the preserved models, nor is support available for social processes such as collaboration, learning, and generating new ideas and knowledge. It is also difficult to manage the models effectively and to benefit from them in organizational learning in long-term innovation processes. Such refinements are necessary in distributed settings in which innovation and creativity are spread across enterprises. Huge numbers of ideas, which are generated, refined into product features, and preserved, cannot be explored by single-user tools. Therefore, support for context-aware recommendations of relevant products, product features, and innovative ideas are much needed.

This project seeks to remedy this situation by developing, in prototypical form, the idSpace software platform. The platform provides an environment that allows designers to

collaborate, but most importantly, to elaborate on ideas and designs that have emerged in previously held sessions with their own group or others. Elaboration is achieved by storing ideas, by reusing and reworking them, and by learning from and talking about them. The user's current context, furthermore, constrains how elaboration will be shaped. To that end, we designed and built a responsive web-based environment, i.e., the idSpace platform. It offers an integrated suite of knowledge-eliciting and -sharing tools, and creates a collective, sharable memory of the entire design process. The idSpace platform tries to support the idea of "collaboration for innovation", which is the motto of the project.

3.2   Project Methodology

Figure 1 reflects work package interactions in the idSpace project. The idSpace project is structured into seven work packages. There are four research and technology development work packages. Work package 1 studies pedagogical strategies for creativity and innovation that feed into work packages 2 and 3. Work package 2 deals with conceptual modeling for creativity as a means to structure knowledge about innovative ideas. It studies different integration and transformation options that suit the best pedagogical scenarios. The conceptual models feed into work package 3, and feedback about the suitability of the pedagogical approaches for conceptual modeling and refinement contributes to work package 1. Work package 3 studies context-aware recommendation and adaptation of the idSpace platform. It studies recommendations and adaptations of different conceptual models as learning resources as well as adaptation of different views and presentation of the platform. Information from work package 3 about suitability of pedagogical approaches in context awareness feeds back into work package 1, while data about the suitability of the semantic metamodel proposed feeds back into work package 2.
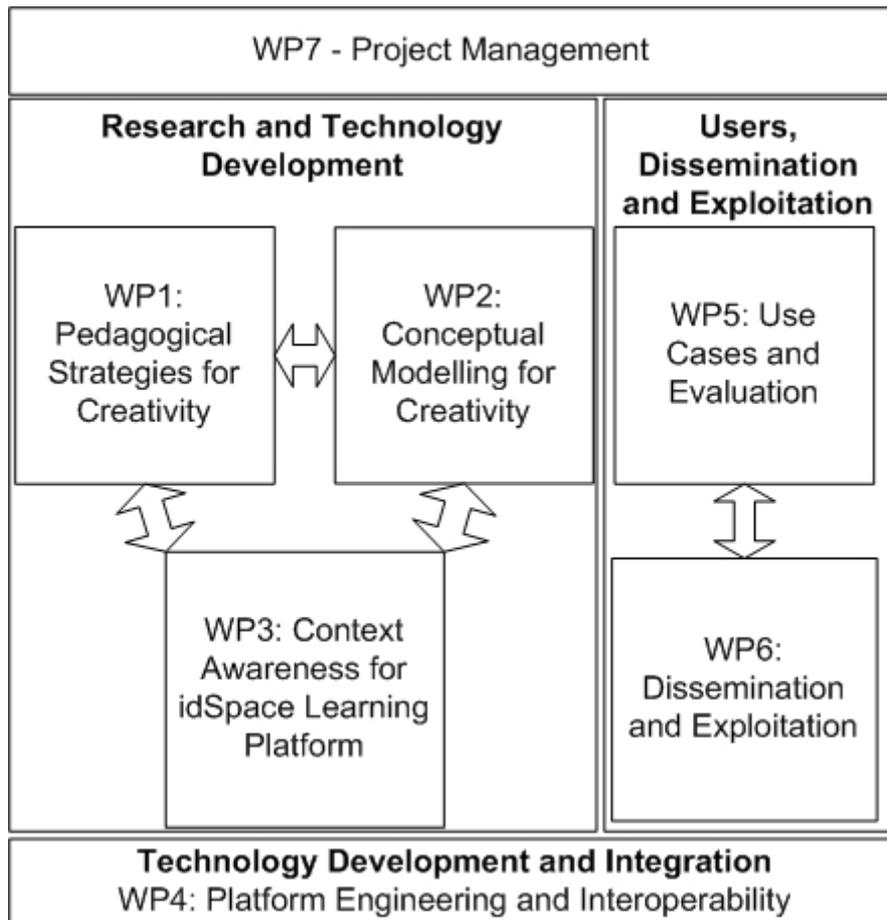
Figure 1. Work package dependencies

Results of research and development work packages feed into work package 4, which is designed to develop an integrated platform based on the research results. The platform extends existing technology brought into the consortium by the Morpheus technology provider.

Figure 2 presents an envisioned architecture of the idSpace platform. The tools brought in by the technology provider partners are integrated with the components that are results of the research and development performed in WP1-WP3 at the semantic integration layer. Tool accessibility layer instantiates appropriate views and tools as well as providing appropriate recommendations according to signals coming from session management with different participants.
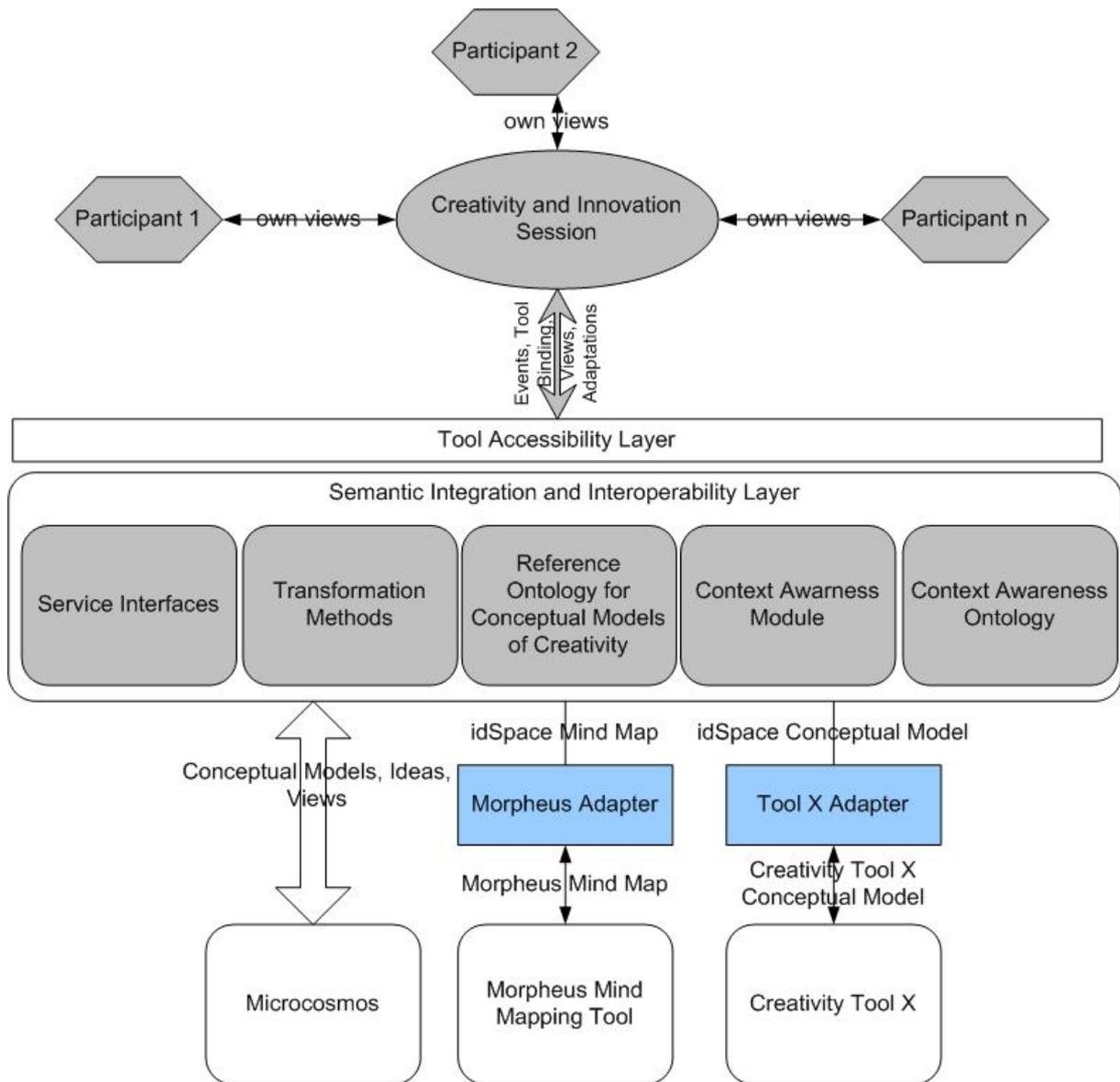
Figure 2. Architecture of idSpace

The usability and pedagogical validation of the platform, conceptual models for creativity, pedagogical scenarios, and context awareness is performed in work package 5. The research results are disseminated and exploited mainly in the context of work package 6. Work package 7 provides a context for management and quality assurance to ensure that the project results are delivered in a timely and high-quality fashion.

3.3   Target Audience

The idSpace project tries to meet the needs of specific audiences.

- Individuals contributing to innovations in enterprises are learners and contributors of new knowledge, which should be passed on to their co-workers within as well as

across organizational boundaries. Therefore, collaborative learning approaches in conjunction with knowledge management for ideas and their refinements into particular semantic models are needed. These models should be supported by an innovative platform, i.e., the idSpace platform.

- Today's students are tomorrow's innovation drivers. Thus, students need to be familiar with and trained to contribute to such problem-oriented innovations. This forces the project consortium to study new technology-enhanced learning approaches and scenarios that support learning how to innovate.

Thus, the idSpace outcomes and particularly the idSpace platform are of great interest for the following user groups:

- individuals (SME personnel, workers in innovative R&D environments, teachers, trainers, etc.);

- SMEs who are working on new product development;

- private and public educational and training organizations;

- e-learning industrial partners (e-learning systems developers and e-learning content providers); and

- research and development groups that work in technology-supported innovation and creativity processes.

3.4   Project Outcomes

The project delivered a comprehensive analysis of pedagogical approaches that are applicable to the various stages of product innovation. This involved an educational perspective on how to engage students and workers in generating new ideas and the definition of innovative designs and features. Thus, the idSpace project proposed a new approach, i.e., the use of Knowledge Sharing Strategies for Collaborative Creativity (KSS4CC). These KSS4CC are a combination of learning and collaboration flow patterns and creative techniques. This approach allows for collaborative learning, whereas using creative techniques alone focuses only on generating ideas. This approach is supported by the idSpace platform, which is, of course, the main project deliverable.

The main objective of the project has therefore been twofold: to design and develop 1) a technical platform and 2) suitable tooling for preserving the semantic networks that the platform users jointly work on.

During the lifecycle of the project, several deliverables have been produced. Table 1 lists all the project deliverables. As will be shown in the following sections, partners have commented that some of them are of particular value for exploitation purposes. The rest of the deliverables have been used for documenting the progress of the project and for giving input to the various activities during the phases of the project.

Table 1. idSpace Deliverables List

Del. No.	Deliverable name	WP no.
D6.1	Dissemination plan and log	WP6
D6.2	*idSpace* public web site	WP6
D6.3	*idSpace* flyer	WP6
D1.1	Baseline report ped. strat.	WP1
D2.1	State of the art in tools	WP2
D3.1	Descr. of context awareness	WP3
D4.1	Design document v1	WP4
D5.1	Report on user requirements	WP5
D7.1	Consortium Handbook	WP7
D7.2	Quality standards plan	WP7
D1.2	Templates v1	WP1
D2.2	Semantic meta-model v1	WP2
D3.2	Definition and implementation of context awareness v1	WP3
D4.2	*idSpac*e platform & user guide v1	WP4
D5.2	Evaluation plan & planning	WP5
D5.3	Report evaluation results v1	WP5
D7.3	Periodic progress report, 1	WP7
D4.3	Design document v2	WP4
D1.3	Templates v2	WP1
D2.3	Semantic meta-model, v2	WP2
D3.3	Definition and implementation of context awareness v2	WP3
D4.4	*idSpace* platform & user guide v2	WP4
D5.4	Report evaluation results, v2.	WP5
D4.5	Adjusted design document, v3	WP4
D6.4	Exploitation plan	WP6
D4.6	*idSpace* platform & user guide, v3, final	WP4
D5.5	Integrated eval. report, v3	WP5
D7.4	Final progress report	WP7

In the next section, we will discuss the fact that only some of the aforementioned deliverables could be further exploited. The rest can be used as supporting material for the knowledge management process within the participating organizations.

3.5 The idSpace platform

At the heart of all creative processes lies the spontaneous generation of new ideas and associations between them. Such generation always comes about in an environment of existing knowledge and competencies, harbored by those who participate in the creative effort. The idSpace project attempts to proceed beyond the current state of the art by designing, developing, and testing a web-based, extensible platform to support creativity and innovation, especially in the early stages. The idSpace platform provides an environment in which ideas in different stages of development from different people are continuously made available to everyone involved. It does so by offering a means for entering and modeling different views. The idSpace platform can allow for local as well as distributed collaboration on the creation and co-construction of ideas. Through the different tools it offers, it can also facilitate the exploration of different points of view.

Thus, the idSpace platform aims to:

- feature extensible, informal, pluggable, pedagogical approaches about innovation processes that drive specific uses of an integrated toolset;

- contain an integrated toolset, which will track and store semantic relationships among the conceptual models that innovators use to describe their ideas, product features, stories about their ideas, and all other kinds of knowledge that they seem relevant for product creation;

- instantiate a flexible, extensible, context-aware, and web-based platform that forms the substrate for the innovators' communities to grow and thrive; and

- contain context-awareness tools that dynamically adapt the platform to learners' actions, contexts, and competencies.

4   CREATING THE EXPLOITATION STRATEGY

4.1   Approach for developing the exploitation strategy

Exploitation of results consists of "multiplication" and "mainstreaming" of results. An exploitation plan contains partners' ideas about how to use the project product and results at local, regional, national, European, and/or international levels. When talking about products and results, we mean all the productions from the idSpace project, whether they are tangible or intangible.

We followed a mixed approach for developing the exploitation strategy. Thus we

- asked partners about their ideas and individual plans for the exploitation of the idSpace products or results. A questionnaire and discussions (either via e-mail and phone conferencing or during the final project meeting) were used for recording the partners' arguments about why they should be using the results. They were asked to make clear what is in it for them.

- identified some gaps in the sector/topic that idSpace is dealing with. This sector is the technology-enhanced practices about innovation and creativity. The idSpace platform has some strong and innovative characteristics compared to similar computer-supported collaborative learning/working tools that can be used to support the creativity process of distributed individuals. This will be discussed in the following sections.

- adapted ideas and products from and to other contexts (national, European, or international). There are several groups working, especially in the U.S.A., on training individuals to become more creative and innovative.

- investigated what to keep, what to add, and what to change. We took into account the project's strengths and weaknesses. We tried to match key strengths with opportunities to create capabilities that can be developed into competitive advantages.

We adopted an active approach by identifying the most attractive opportunities for exploitation and then planning to investigate these opportunities.

4.2   Exploitation Questionnaire

This deliverable has been done in collaboration with all partners. UPRC sent an invitation to all partners to fill out a questionnaire so they could present their thoughts and opinions about the exploitability of the projects' outcomes. The exploitation questionnaires are composed from ten questions divided in two parts. The first part aimed to investigate which idSpace deliverables could be further exploited. It also contained questions about the strong points, weaknesses, opportunities, and threats to the idSpace platform in particular.

The second part aimed at eliciting the specific individual exploitation plans that each partner has. The exploitation questionnaire is shown in Appendix A. As already mentioned, UPRC conducted follow-up conversations with each partner to clarify issues they had mentioned in their answers to the questionnaire.

4.3 Target groups/audience

The target group for exploiting the project's results include possible stakeholders who might take up the outcomes of the research work. The core product of idSpace product, i.e., the platform, needs further development since it is in a prototypical phase. Therefore, researchers and decision-makers within or outside the idSpace project consortium with research budgets at their disposal and the so-called early adaptors (also within or outside the idSpace project consortium) might look for ways to exploit the idSpace results, especially the platform, which is offered via the GNU General Public License. All the other project deliverables are for public use and can be found on the Internet. The main research achievements have been published in conference proceedings, so they are easily accessible by all interested parties.

In general, the target audience for further exploiting the project outcomes can be classified into distinct subgroups: scientists, developers, and users (general stakeholders) as shown in Figure 3. Partners should first perform communication activities to inform these stakeholders about the added value of the idSpace approach and outcomes, and then should investigate market potential.

Developers
Scientific community & Researchers
SME personnel & New Product Development Managers
Training Organisations

Interested in
Technology supported Innovation & Creativity Process
Computer supported Collaborative Learning/Working
Topic Maps & Context Awareness
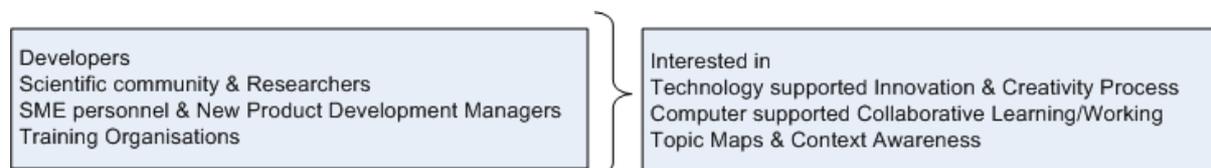
Figure 3. idSpace target audience for exploitation

4.3.1 Scientific Audience

One scientific domain that idSpace can influence is the TMQL (Topic Maps Query Language). Partners (mainly SAS and Morpheus) are influencing the TMQL standard within the SC34/WG3 (full name: ISO/IEC JTC1/SC34/WG3). This is a working group of SC34, which itself is a subcommittee of Joint Technical Committee 1 of the ISO and IEC. In idSpace, we look at graphs (see the work of WP2). This means that we traverse these graphs. This need to traverse graphs is very well established. However, idSpace provides another nice example for that need. In addition, the graph transformations (see D2.3) provide a very nice and novel argument for having UPDATES, INSERTs, and DELETEs in the TMQL. This is a quite recent scientific approach, although some work was done with it outside the ISO work group in Toma and lately also in Tolog. Also, the work of the idSpace project on topic maps might give input to the GTM standard (Graphical notation of Topic Maps). Again, the subject

of using graphs in idSpace can provide another case for how we can best describe these topic maps.

Apart from the topic maps, idSpace has proposed a merger of pedagogical strategies and creative techniques into something we call Knowledge Sharing Strategies for Collaborative Creativity (KSS4CC). KSS4CC will be used to generate recommendations on the workflow used during a collaborative creativity session. Such recommendations may be divided into three categories (see WP1.3):

    i.   higher order recommendations that will help a practitioner choose among the most suitable creativity strategies for a specific scenario/case. This choice will be based on elements such as the type of learning objectives that need to be accomplished, the complexity of implementing a whole strategy, and its constituent activities.

    ii.   organizational recommendations that will involve decisions about the formation of groups, leadership schema, etc.; and

    iii.   technological recommendations that will concern the use of specific tools and features for the implementation of the strategy into a real specific scenario/case.

We envisage a number of directions for future research. First, we think that support for the reuse of actors' knowledge and expertise should be effectively used during the orchestration of the creative process. The use of public profiles on networking websites such as LinkedIn, Facebook, and Myspace to foster social interaction in Learning Networks needs further investigation. Moreover, we think that formalizing the proposed recommendations by means of an ontology language or specifications such as OWL IMS Learning Design may provide us with more usable context-aware mechanisms in technology-supported learning systems. Such modeling approaches can assist moderators in creating pedagogically sound collaboration scripts. It will also take this a step further by recommending to the moderator which script to use, depending on the problem's characteristics.

4.3.2 Developer Communities

This group consists of software developers, R&D groups, and participants in innovative projects. This group may want to establish a body (or an association with existing bodies) of parties that will support a future (Europe-wide) initiative for a continuation of idSpace services in their development, maintenance, and deployment. We can expect that such a group will start to use these services and techniques in other contexts, creating new examples of practical use. For this target group, the source code and documentation of the idSpace platform are of more importance.

The idSpace platform will be released under the GNU General Public License. It is intended to guarantee idSpace partners' freedom to share and change all versions of the platform, to make sure it remains free software for all its users. Thus, partners can protect their rights with two steps: (1) assert copyright on the software, and (2) offer the R&D community legal permission to copy, distribute, and/or modify the software or use pieces of it in new free programs.

4.3.3 Users and target stakeholders

The idSpace project explicitly targets the SMEs as "lead users" who are using strategies for collaborative creativity processes for innovative product development. This target group of lead users is very general and widespread. Ideally, they need to be addressed individually through focused dissemination and marketing actions. This requires skilled staff members who understand creativity strategies that initially can be supported by the idSpace partners by being offered material such as examples of effective case studies or good practices to persuading them to apply the idSpace approach. LiNK (Landesinitiative Neue Kommunikationswege Mecklenburg-Vorpommern e.V.) is playing a lead role in approaching this target audience. LiNK is an association of representatives from industry, professional trades, research and educational institutions, scientific organizations, and economic institutions. Its aim is the dissemination of new Information and Communication Technologies (ICT) in business, education, science, and public services. Since its specific target groups include small- and medium-size enterprises, new businesses, entrepreneurial institutions, support units, and educational institutions, its members could perform information, consulting, training, and coordinating tasks, and, of course, public relations to offer customized solutions to interested targeted audiences. Also the existing dissemination mechanisms established in this project such as Twitter, Facebook, and dig could be used for Web 2.0 marketing. Of course, the idSpace platform needs further development to be of immediate use to this target audience. However, consulting and training services about technology-supported innovation and creativity could be easily performed by reusing the project's outcomes and know-how.

5 MAIN COMPETITORS OF THE IDSPACE PLATFORM

The ultimate goal of the idSpace project was to build, in prototypical form, a platform that should aid distributed teams of innovators who want to collaborate on product design, thereby making use of earlier results. The idSpace environment

- contains an integrated toolset that will track and store semantic relationships among conceptual models that will be used to describe ideas, goals, features, and values;

- exhibits extensible, informal, pluggable pedagogical approaches that drive specific uses of the platform; and

- instantiates a flexible, context aware, web-based platform that forms the substrate for communities of practice to grow, thrive, and learn.

To picture the added value of the idSpace platform and its position in the scenery of related platforms, we conducted a comparative analysis of state-of-the-art related platforms that can be used for collaborative creative tasks, i.e., the main competitors. The outcomes of this analysis are shown in Table 2. Table 2 shows a brief comparison of the functionality of most of the well-known web-based tools that are suitable for collaborative conceptual modeling of creative ideas. The features and functionalities that one expects from a tool to support and facilitate the creation and exploration of ideas established the criteria for the comparison.

Most of the tools offer real-time cooperation and integrate necessary functionalities, like text chat, for instant communication. In addition, the majority of the tools provide a common shared workspace. However, only idSpace seems to support a private ideation process during the collaboration process via a private workspace. Furthermore, a standard feature is the exportation of the ideation product in the form of an image, text, or other type of file for later exploration or to transfer it to another tool. Currently, idSpace allows all progress to be stored only in its database and offers partial exportation of the conceptual model to an image.

Moreover, most of the tools enable users to enrich ideas with attachments and/or hyperlinks to the Web. In its current state, idSpace does not incorporate this functionality. However, the idSpace platform has been built on plug-in architecture, which allows for easy and fast extension of the integrated toolset. The idSpace platform differentiates and innovates in guidance offered to its users throughout the creative process and elaboration on that process. Pedagogical learning scenarios guide the use of the available tools, leading users to an effective and efficient session of creation and innovation.

Table 2. Brief Comparison of the Functionality of Well-known Web-based Tools Suitable for Conceptual Modeling of Ideas.

Tool	URL	Multi-Scope	License	Collaboration	Private / Public	Workspace	Guidance	Library	Attachments	Import / Export
idSpace	platform.idspace-project.org	YES	FREE	YES	YES	YES	YES	YES	NO	YES
Webspiration	www.mywebspiration.com	YES	FREE (beta)	YES	NO	YES	NO	YES	YES	YES
gliffy	www.gliffy.com	YES	Commercial	YES	NO	YES	NO	YES	YES	YES
Cacoo	www.cacoo.com	YES	FREE	YES	NO	YES	NO	YES	YES	YES
flowchart.com	www.flowchart.com	YES	FREE	YES	NO	YES	NO	YES	YES	YES
Idea Tree	www.ideatree.us	NO	FREE	YES	NO	YES	NO	NO	YES	YES
exploratree	www.exploratree.org.uk	YES	FREE	YES	NO	YES	NO	YES	YES	YES
Mindjet Catalyst	catalyst.mindjet.com	NO	Commercial	YES	NO	YES	NO	NO	YES	YES
comapping	www.comapping.com	NO	Commercial	YES	YES	YES	NO	NO	YES	YES
Mindomo	www.mindomo.com	NO	Commercial	YES	YES	YES	NO	YES	YES	YES
MAPMYself (Mapul)	www.mapul.com	NO	FREE/Commercial	NO	NO	YES	NO	YES	YES	YES
mindmeister	www.mindmeister.com	NO	Commercial	YES	YES	YES	NO	NO	YES	YES
mind42	www.mind42.com	NO	FREE	YES	NO	YES	NO	NO	YES	YES
DropMind	web.dropmind.com	NO	Commercial	YES	YES	YES	NO	NO	YES	YES
bubbl.us	www.bubbl.us	NO	FREE	YES	NO	YES	NO	NO	YES	YES
WiseMapping	www.wisemapping.com	NO	FREE	YES	NO	YES	NO	NO	YES	YES
Project // Draw	draw.labs.autodesk.com	YES	FREE	NO	NO	YES	NO	YES	YES	YES
Thinkature	www.thinkature.com	NO	FREE	YES	NO	YES	NO	NO	NO	NO
DrawAnywhere	www.drawanywhere.com	YES	FREE	YES	NO	YES	NO	YES	YES	YES
Glinkr	www.glinkr.net	NO	FREE	NO	NO	NO	NO	NO	NO	NO

Through a questionnaire and from the experience gained during the evaluation sessions, idSpace partners specified the strengths and weaknesses of the idSpace platform. These are pictured in Table 3.

Table 3. Strengths and Weaknesses of the idSpace Platform

Strengths of the idSpace Platform	Weaknesses of the idSpace Platform
The possibility of working collaboratively over distance on a problem/challenge	The moderator needs to be familiar with distributed team management.
A workflow provided for working collaboratively. Guides the user through creativity sessions while simultaneously supporting him with related information.	The platform is still a prototype and needs further improvement.
Earlier creativity projects created with the platform can be used as input for new projects, thus transforming ideas into reusable knowledge.	There is no control over what the user is doing, which may lead to a lack of team awareness or a sense of presence.
Open platform and cooperative environment that can contribute to a productive result.	Platform does not utilize the recommendations for adapting its functionality.
Provides the user with the ability to be inspired by ideas expressed in past projects, as well recommending related ideas, suitable users, past solutions, and appropriate pedagogical strategies and creativity techniques.	The user has to be knowledgeable of the various pedagogical strategies to act as moderator in a project.
Supports complete process of project definition, creativity activities, evaluation, and solution formulation.	Lack of usability.
Easy expansion of the collection of creativity techniques that the idspace platform can support.	Small range of supported creativity techniques.

6 COMMERCIAL AND NON-COMMERCIAL EXPLOITATION PLANS

The objective of exploitation activities is to create a plan and scenarios for further exploitation of the project results. The design of the idSpace platform ensures the production of a scalable environment, the functionality of which could be expanded by adding appropriate components for different target audiences. New sets of actions could be proposed with regard to the environment's functionality enrichment to cover other customer or application domain requirements.

To achieve these goals, all partners of the idSpace consortium have collaborated in formulating the exploitation strategy. All partners recognize the need to establish a common exploitation strategy and to follow the defined task to fully exploit the project results. The academic partners (OUNL, AAU, UCY, UPRC, UNI HILDESHEIM) will contribute to the internal exploitation and the industrial partners (LINK MV, MORPH, SAS) will target the relevant markets. In general, exploitation achievements will be regularly monitored to make adjustments as needed.

The exploitation plan will be the main deliverable. Its objectives are twofold:

- to map out the way the consortium can derive academic and commercial benefits during and after the project; and

- to define the way the remainder of the technical work should be conducted to maximize academic and commercial benefits.

6.1 Opportunities for idSpace partners

The results of the recently published "European Innovation Scoreboard 2008[1]" show that further research and development (R&D) activities in this domain in the EU27 should be performed.

The European Innovation Scoreboard is published independently and includes innovation indicators and trend analyses for the EU27 Member States as well as for Croatia, Turkey, Iceland, Norway and, Switzerland. The innovator performance per EU country is shown in Figure 4.

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[1]European Commission, *European Innovation Scoreboard 2008—Comparative Analysis of Innovation Performance* (Luxembourg: Office for Official Publications of the European Communities, 2009).
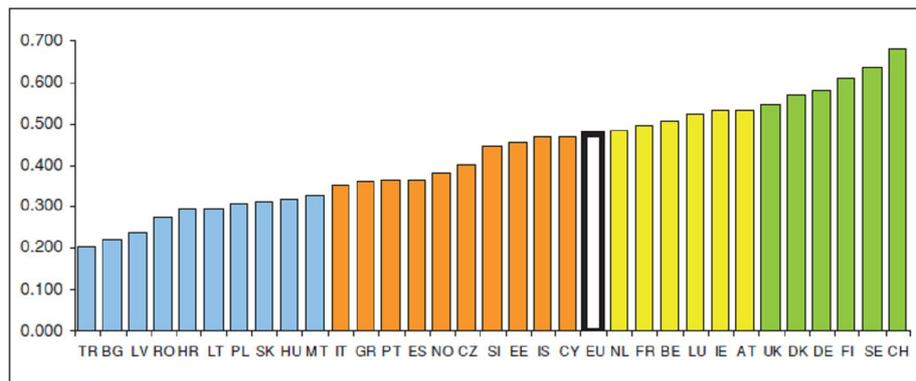
Figure 4. Innovation Performance (Source: European Innovation Scoreboard 2008)

The same report mentions that public and private investment in R&D and innovation are essential to helping economies stabilize and emerge from crisis periods. Thus, there are plenty of opportunities for the idSpace partners to continue working in this domain. The scoreboard included an analysis of creativity and design indicators that showed that countries with a good creative climate tend to have higher levels of R&D and design activities, and also strong overall innovation performance.

Concerning the countries of the idSpace partners, Denmark and Germany are the innovation leaders, with performances well above that of the EU27 and all other countries. Belgium and the Netherlands are the innovation followers, with performances below those of the leaders but above that of the EU27. Cyprus and Greece are the moderate innovators with performances below the EU27. This means that Cyprus and Greece have great opportunities for exploiting the idSpace results. Users in these nations can create systems and training programs and can influence policy-makers to promote innovation and creativity in working environments. In Belgium, the Netherlands, and particularly in Denmark and Germany, companies have the innovative spirit. Thus, the partners will try harder to influence policies but can support SMEs to become more innovative to be more competitive. By focusing on creativity and innovation for individuals working mainly in distributed teams, productivity increases, solutions to problems are found more easily, people's energies and enthusiasms are multiplied, and they feel they have a greater stake in the company's success.

6.2 Non-commercial Exploitation

The first category of exploitation activity concerns non-commercial exploitation. This includes the project deliverables shown in Table 4, which are meant to be further exploited by the project partners and potential external users. A short description is included in Appendix II.

The exploitation options include:

- R&D-projects: use of one or more of the existing products for continued R&D;

- early adaptors projects: use of one or more of the existing deliverables as part of a solution to an existing problem scenario. Further development, experimentation, or adaption are required to customize, facilitate, enable large scale usage, or improve; and

- implementation projects: use of one or more of the existing deliverables as part of a solution to an existing problem scenario.

- sensibiliation' or transfer of knowledge to other consortia. The idea and concepts of distributed and collaborative innovation activities with a focus of implementing these kind of information/knowledge into formal learning curricula can have a long term effect for a variety of target groups.

- training sessions about technology supported innovation and creativity (in schools, universities, further training, adult education).

Table 4. Deliverables that could be further exploited

Del. No.	Deliverable name
D5.1	Report on user requirements
D3.1	Description of context awareness: A unified conceptual model that combines contextual elements, profiles, and semantics
D1.2	Templates V1: Report on informal creativity scenario requirements definition
D2.1	State-of-the-art in tools for creativity
D5.2	Evaluation plan & planning
D1.3	Templates for informal idSpace creativity scenarios
D2.2	Semantic meta-model
D3.3	Definition and implementation of context awareness V2: Design of the conceptual model for context-awareness in the idSpace platform
D4.6	idSpace platform & user guide, v3, final)
D5.5	Integrated evaluation report, V3

Most idSpace partners agreed that deliverables D3.1, D5.2 and D1.3 have the potential to be further exploited without many modifications. The D4.6 -IdSpace platform has a value of its own and it can be further exploited if resources are found and committed to be spent for its enhancement. Deliverables D5.1, D1.2, D2.1 and D2.2 were also proposed for having exploitation value.

Deliverable D3.1 can contribute to better understanding the field of conceptual models and their verification in a specific context of use as the one of creativity sessions.

Deliverable D5.2 is also a rich document that can be used for orientation purposes in similar projects.

Deliverable D1.2 and deliverable D1.3 can be used for further research on learning approaches for promoting creativity and innovation.

On the other hand, deliverable D5.1 can be used for potential developers of platforms similar to idSpace to collect user requirements. Deliverable D2.1 can be a rich basis for further work in technology-supported environments for fostering creativity and is also a tool for identifying distinctive product characteristics. Of course the D6.4-Exploitation plan can be used as a guide for the non-commercial or commercial exploitation of the project results. Last but not least, deliverable D2.2 can be used to propose formalized transformation processes as a basis for creativity. Finally, as it will be discussed in the following sections the evaluation process gave the opportunity for some partners, and especially SAS, to re-use the step-wise mixed method evaluation approach that had been adopted in the project for other development projects. Thus, the D5.5 has also value from exploitation point of view.

6.3   Commercial Exploitation

The second category of activities is commercial exploitation. This happens through the developed services and their documentation. In this category belong the offer of technical support, consultant services, and project implementations based on the services provided. The commercial exploitation options are in principle open to all interested parties. Given the complexity of the services under development, it is likely that, if this platform is further developed, a partnership of companies and research organizations will be needed to assume the potential roles:

- exploitation and marketing of the project outcomes is typically a role of the business partners in the consortium; and

- universities mainly concentrate on further research, development, and improvement of services as well as offering training or consulting services. As reported in EU documents[2] and openly discussed at the events organized during 2009, the European Year on Innovation & Creativity, lifelong learning programs about creativity and innovation are not just an opportunity, but also a necessity. It seems that some European training organizations have set up economically sustainable training and consulting mechanisms about creativity and innovation. A typical example is the School of Design Thinking at the Hasso-Plattner-Institute, http://www.hpi.uni-potsdam.de/d_school/. Worldwide De Bono seminars, IDEA consulting services and others are success stories.

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[2]A. Ferrari, R. Cachia, and Y. Punie, "Innovation and Creativity in Education and Training in the EU Member States: Fostering Creative Learning and Supporting Innovative Teaching" (Luxembourg: Office for Official Publications of the European Communities, 2009).

The further active exploration of this will depend on the viable combination of existing idSpace products and their further development and local adaptation as well as of effective marketing approaches.

According to idSpace partners, potential target customers for the idSpace platform could be:

- teams in product management and R&D staff at companies and research organizations;

- engineering teams that work on innovative new products (industry independent);

- companies that are active in research activities and programs;

- general working professionals in distributed creativity teams;

- knowledge-intensive organizations; and

- organizations that want to increase control over creative processes.

7   EXPLOITATION OF THE IDSPACE PLATFORM

To use the IdSpace platform one also has to use the Kamala Software of Morpheus. Kamala is a development toolkit and is developed 'on top of' Ontopia by Morpheus to realize and develop interfaces on basis of topic maps content quickly.

Kamala consists of three main parts:

1. Kamala: javascript code.

2. OKS-addons: a JAR-file which has to be used in combination with Ontopia.

3. MORPHOLOGY: a web application on top of Ontopia to do adminstrative tasks and edit the Topic Maps Ontology.

Kamala documentation in Dutch mainly can be found at:

http://kamala.mssm.nl/

The code that Morpheus wrote for the IdSpace portlets can be open sourced. It is not yet clear under which license, but it will probably be Apache or BSD, for their flexibility to combine them with proprietary software and because they permit distribution of software without the obligation to include the source code (the latter would be simply unneeded/unwanted for a regular user).

Morpheus is considering to provide an open license or possibly a Dual license option for Kamala. However, Morpheus needs more time to mature their Kamala product and to explore possible business models based on an open source software suite. Until that time Morpheus does not want to release its Kamala code to the general public. However, Morpheus is of course willing to collaborate with organizations and especially research institutes that are interested in further R&D explorations of IdSpace.

For Research and Education we are going to provide two kinds of services:

Education

Hosting of applications (is also available for other markets)

We are thinking about using the same structure as Amazone has. This would mean that the hosting price is based on the amount of traffic to the server. For development purposes this is a relatively cheap solution. For production purposes other solutions are explored.

Research

For research institutions idSpace can be made available and code can be changed with the dual license option.

7.1   Intellectual Property Rights

The idSpace platform is built using several tools from different vendors. The table below gives an overview of the IPRs per tool.

Table 5. IPRs per Tool

Tool	Vendor	IPR
OKS-5	Ontopia	Open source
Liferay - Community edition	Liferay	Open source
Kamala	Morpheus Kennistechnologie	Partly open source[3]
mxGraph	JGraph	Closed source[4]

The IPR around Kamala are Morpheus property.

The code of IdSpace are the IPR of the consortium. Furthermore users will be able to make an export of the whole idSpace topic map. This topic map can be downloaded and imported in new instances of the platform or in local installations of it. New versions of the idSpace topic map will be made available.

7.2 Stakeholder domains & Customer Benefit

The idSpace platform can be exploited in several domains. Paragraph 6.3. already mentions the rough outlines of the potential customers. Here we will elaborate further on this and define stakeholder domains as well as the benefits to each of them.

7.2.1 Security

MORPH already has done projects with the Dutch Police, using semantics to help improve their processes by enabling them to find more and better information from several disparate systems. Typically the police and intelligence agencies work with large amounts of information and have to solve problems from low to high complexity. In many cases they also require the input from colleagues, both within and outside their organization.

The benefits to this domain are:

- Aid distributed teams of detectives to solve difficult cases.

- Aid distributed teams of specialists to find new ways of fighting crime

- Provide teams with a way to store their ideas produced in meetings in a non-intrusive way.

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[3] Functions created during project are open source. Functions created before project are closed source.

[4] Free for research purposes

7.2.2 IT

IT is characterized by fast paced technological developments. Large companies usually have a wide range of specialists seated in different offices and often also at client locations. Frequently these specialists have the need to solve issues that require the input of colleagues that aren't available at their location. Meeting face-to-face can be a time burden that keeps them from meeting at all.

The benefits to this domain are:

- Provide a platform to consult colleagues (within and outside of their organization) for their problems.

- Provide a creativity platform that captures the ideas and makes them sharable with collegues facing the similar problems.

- Work can be done asynchronously.

7.2.3 Real Estate Development

Western societies are faced with problems of population ageing and with the need for innovative office concepts. This leaves real estate developers with the need to develop new concepts for living as well as working. Typically these concepts require multidisciplinary input and often benefit from input from research organizations.

The benefits to this domain are:

- Strategy and creativity support for complex problem solving

- Resources can be added to enhance and deepen the discussion

- Aid distributed teams of specialists to find new concepts.

7.3 Technical Support and Customer Assistance

Technical support and customer assistance will be available on two different levels. First there is the online support which is available together with the platform. This includes the idSpace wiki, the accompanying documents for the moderator and the project deliverables. These are available free of charge.

For any further assistance and support for the platform MORPH can be contacted for tailored support contracts. Contact information can be found on Morpheus' website at: http://www.mssm.nl

7.4 Commercialization

There are several ways to commercialize the idSpace platform, varying from selling it as a standalone product to incorporating it into existing products. All the options the consortium considers viable are described below.

7.4.1 idSpace as standalone application

The platform can be sold as a standalone application. In order to be valuable for commercialization the platform might need further work in some aspects:

- Add extra strategies to have a more flexible use

- Add extra creativity techniques to have a more flexible use

- Tailor the GUI to enhance usability and fit it to the clients style.

The client will most likely need training for the moderator role as well as for the proper use of strategies and creativity techniques. Also the customer might want to be trained in the field of creativity sessions in general. This can be done either by the company doing the project or by the universities that participated in the idSpace project.

7.4.2 Incorporate it into knowledge management projects

MORPH has been doing knowledge management projects for several years now. It has been recognized that creativity sessions are an important way to generate new knowledge. In order to capture and share this new knowledge and feed it into the organization, a tool is needed that can perform this task.

idSpace is very well suited to perform this task. Since it builds on Topic Maps technology, knowledge sharing with existing ontologies is relative easy. Most likely, the components will be reused with an adapted GUI to match the clients' wishes and to fully incorporate them in an integrated end product.

Like in the standalone application, the client will most likely need training for the moderator role as well as for the proper use of strategies and creativity techniques. This can be done either by the company doing the project or by the universities that participated in the idSpace project.

Also the client might want more strategies and creativity techniques implemented in the platform. In this case the universities can play a role in providing input for the proper implementation.

7.4.3 Incorporate it in the Morpheus Knowledge Suite

MORPH is currently working on defining a product suite aimed at servicing knowledge processes. This suite, with the working title 'Morpheus Knowledge Suite' or in short MKS, uses advanced technologies and services used in previous projects enabling it to offer a significantly higher value than conventional knowledge management suites.

The components of the idSpace platform play an important role in defining the MKS. Like stated in paragraph 7.4.2, creativity sessions play an important role in the process of keeping an organization's knowledge at a competitive level. Newly created knowledge should be fed into the organization's process so it can be used effectively and efficiently.

Besides this, it also allows managers to have control over an otherwise vague and diffuse activity.

Like in the standalone application, the client will most likely need training for the moderator role as well as for the proper use of strategies and creativity techniques. This can be done either by the company doing the project or by the universities that participated in the idSpace project.

7.4.4 Other options

MORPH is also considering the following options for commercialization:

- Hosting web application, installation and configuration to organizations who want to use the final version of the platform.

- Providing workshops and training programs to organizations who want to use the final version of the platform.

- Graph and ideation portlets are functionalities are interesting for other customers of MORPH, such as Police organizations, and might be added to the products we delivered there. (see also ISAF3 EC proposal)

8 CONTRIBUTION TO STANDARDS

8.1 Topic Maps ISO Standard – ISO/IEC 13250:2003

8.1.1 Introduction

Topic Maps technology is used in the idSpace project in order to provide a semantic model that captures live creativity and knowledge. Topic Maps provides a varying degree of formality which makes it human friendly. This allows for existing knowledge and ideas to be extended in a natural and intuitive way.

Topic Maps is an ISO standard (formally known as ISO/IEC 13250:2003) for the representation and interchange of knowledge.

SC34/WG3 (full name: ISO/IEC JTC1/SC34/WG3) is a working group of SC34, which itself is a subcommittee of Joint Technical Committee 1 of the ISO and IEC. SC34/WG3 is working on the Topic Maps related standards:

- **ISO 13250-1: Topic Maps — Overview**: This standard is an overview of the technology and provides definition of general concepts.

- **ISO 13250-2: Topic Maps — Data Model (TMDM)**: This standard defines the data model of Topic Maps.
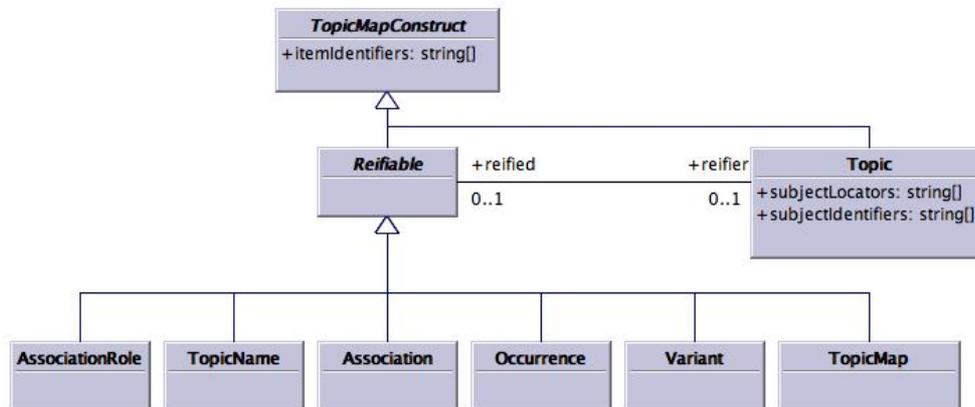

Figure 5. The Topic Maps class hierarchy - as described in TMDM – ISO/IEC 13250-2

- **ISO 13250-3: Topic Maps — XML Syntax (XTM 2.0)**: This standard is syntax for interchanging Topic Maps.

```xml
<?xml version="1.0" encoding="utf-8" standalone="yes"?>
<topicMap xmlns="http://www.topicmaps.org/xtm/" version="2.0"
reifier="#operatm">
 <topic id="puccini">
    <itemIdentity href="file:/base/data/home/apps/toma-
demo/1.338144365110542174/WEB-
INF/topicmaps/ItalianOpera.ltm#puccini"></itemIdentity>
    <subjectIdentifier href="http://psi.ontopedia.net/Puccini">
    </subjectIdentifier>
    <instanceOf>
     <topicRef href="#composer"></topicRef>
    </instanceOf>
 …
```

- **ISO 13250-4: CXTM (Canonicalization)**: Canonical XTM. It allows describing in a unique way a topic map which allows to check if two topic maps are identical.

```
<topicMap reifier="1037">
<topic number="1">
<itemIdentifiers>
<locator>#abbe</locator>
</itemIdentifiers>
<name number="1">
<value>AbbÃ©</value>
<type topicref="1937"></type>
<variant number="1">
<value>Abbe</value>
```

- **ISO 13250-5: Topic Maps — Reference Model (TMRM)**: an abstract model of Topic Maps with minimal ontological commitments. This model provides constraints for future extensions of the Topic Maps standards.

- **ISO 13250-6: CTM (Compact Notation)**: Compact syntax as an alternative to the more verbose XTM.

```
%prefix isbn urn:isbn:

isbn:3-7026-4850-X isa book;
- "Das kleine Ich bin Ich".
```

- **ISO 13250-7: GTM (Graphical Notation)**: A graphical notation for the representation of topic maps for use in designing, explaining, teaching, etc.
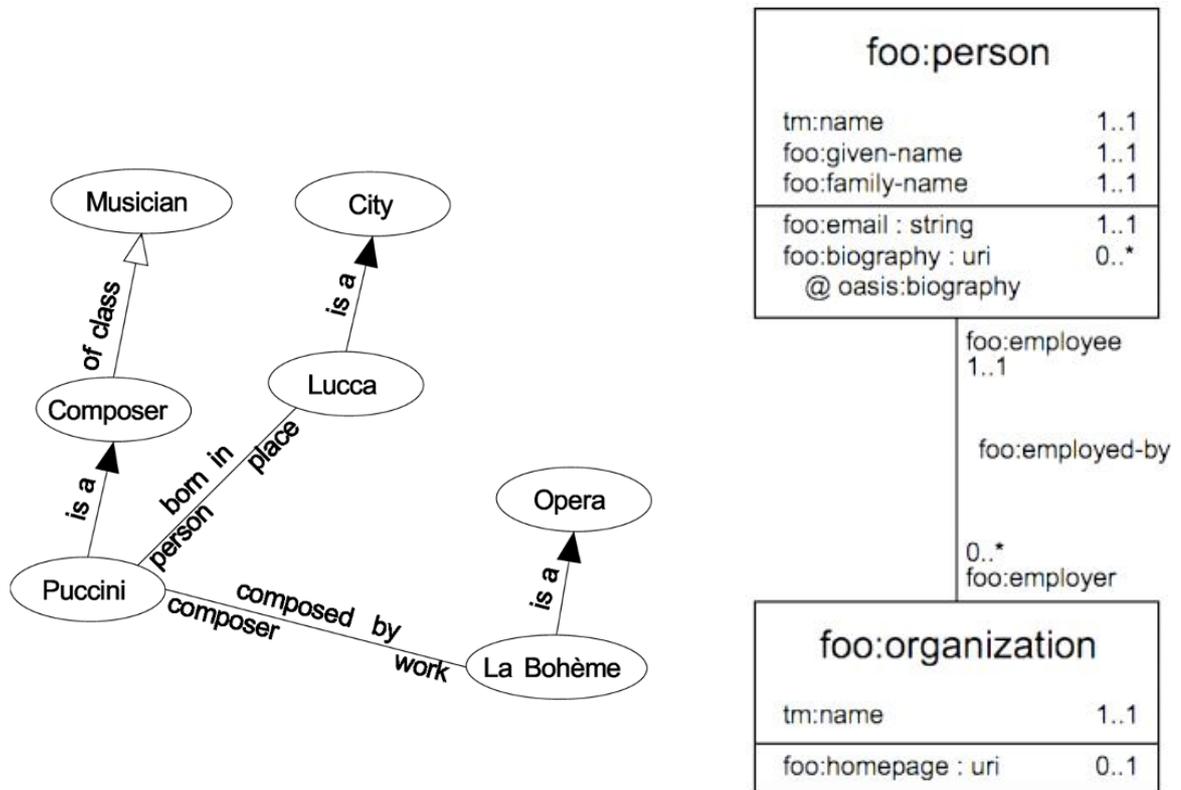

Figure 6. Early suggestions for instance notation (left) and ontology notation (right)

- **ISO 18048: TMQL**: Query (and manipulation) Language over Topic Maps. Currently there are several available languages:
  - Tolog – widely used and implemented.
  - Toma – used in projects done by Space Applications Services, and implemented in the Ontopia open source project.
  - AsTMa* – an academic work done by Prof. Robert Barta.

- **ISO 19756: TMCL**: Topic Maps Constraint Language. The constraints are defined as a topic map that is next to or merged with the topic map in question.

8.1.2 How idSpace influences the Topic Maps standard

Standardization work is a long and tedious process, and not always one can identify clear relationship between certain project and certain changes in the standards.

However, there are some clear influences:

- In IdSpace, we look at graphs (see the work of WP2). This means that graphs are traversed. Therefore, the project provides yet another example for the need to traverse graphs which affects the requirements on the TMQL standard.

- The graph transformations (see D2.3) provide a very nice and novel use case for having UPDATES, INSERTs and DELETEs in the TMQL. Although some work was done with regards to that (outside of the ISO work group) in Toma and lately also in Tolog, SC34/WG3 has only recently started discussions about the manipulation part of the TMQL.

- The work on the GTM standard (Graphical notation of Topic Maps) will start soon. idSpace provides another use case for how best we can graphically describe topic maps, and what are the needs for such notation. For example, the fact that in idSpace the topic that is the type of an association is not drawn in the graph supports the argumentations provided by Rani Pinchuk in the email to the SC34/WG3[5].

Rani Pinchuk from Space Applications Services (SAS) is representing Belgium at SC34/WG3, and is a co-editor of the TMQL (Topic Maps Query Language) standard. Apart from working on the TMQL itself, Mr. Pinchuk took part in meetings of the working group in Prague (Match 2009), Seattle (September 2009), Leipzig (November 2009), Stockholm (March 2010) and Oslo (April 2010). In addition, he took part in the meeting of the Belgian SC34 mirror committee in Brussels (February 2010).

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[5] See http://www.isotopicmaps.org/pipermail/sc34wg3/2009-February/003973.html and http://www.isotopicmaps.org/pipermail/sc34wg3/attachments/20090222/7f835ee5/attachment-0001.pdf.

9 IDSPACE PARTNERS' INDIVIDUAL EXPLOITATION PLANS

All idSpace consortium members were asked to define how the exploitable aspects of the projects would be used and integrated within their organizations. They filled out a questionnaire to explain in detail how the project outcomes could be further exploited as well as which obstacles might exist and how they could be overcome. This subsection gives a brief overview of the idSpace partners' individual exploitation intentions.

IdSpace partners proposed several ideas for strengthening the idSpace platform, making it more concrete, and letting it become more exploitable. These ideas follow.

- The platform does not utilize the recommendations for adapting its functionality. Tips are needed to provoke changes in the workflow of the platform when a pedagogical strategy is being selected.

- It is difficult to use the interface of the platform, which sometimes emerges as a difficulty in following the workflow. A concrete usability evaluation must be performed

- The user has to be knowledgeable about the various pedagogical strategies to serve as a moderator in a project. Excreting of control is one possibility: the moderator should have soft control by having information on user behavior and acting on that information (i.e., guiding the user). We could also extend the use of strategies in the platform to offer more support to teams and to the moderator.

- The pedagogical strategies must play a more crucial role in the platform than just having their descriptions displayed. They must interface with the workflow of the platform and guide the user in every step of the creativity process.

- The usefulness of the recommendations that the platform provides must be increased by adapting its behavior of the platform (e.g., providing the user with the functionality to choose a recommendation and use it appropriately).

The idSpace platform itself and its deliverables are innovative not only as a tool but also as concrete and capsulated knowledge. The partners proposed several opportunities and plans to accomplish better exploitation and dissemination of the outcome.

The OUNL partner proposed incorporation of the idSpace platform and of the notions on creative product innovation in an innovation workshop that will be organized by CELSTEC as part of its regular program of workshops. Moreover, the OUNL offered to explore incorporating the platform in a collaborative (networked) part of the Open Educational Resources to the Dutch language community.

MORPHEUS made a showcase of the idSpace platform and project in general at the Second European Network Event Successful R&D in Europe at Düsseldorf on March 4th, 2010. This is a networking event for FP7 program projects, organised by the state of Northrhine

Westphalia, offering the state companies and institutions a platform to meet interested parties from all over Europe.

One essential way to promote our product is by publishing the idSpace platform on SourceForge, as planned in the project's Description of Work; in parallel, we must explore community-type contributions to the further development of the platform.

Furthermore, the presentation of research papers regarding the Context Awareness component can be another way of disseminating our deliverables. These papers will describe how a component such as the idSpace platform may be used as a creativity support tool to enhance user creativity and support collaboration. Moreover, the results of the idSpace evaluation sessions will be reported to show how valuable the recommendations really are to the end user.

UPRC is going to organize an innovation and creativity training course that will help participants:

- acquire a clear understanding of what innovation is and how to apply it;

- complete several practical exercises using different techniques;

- understand which techniques suit which problems; and

- understand how to choose the smartest solution.

UPRC has already created training materials in Greek along with a wiki about the main creativity strategies (http://cosy.ds.unipi.gr/wiki). It has also been invited to join a project consortium led by the CARDET Cypriot NGO to transfer know-how about technology-supported creativity processes. UPRC might investigate the possibility of offering consulting services to SMEs in an attempt to show people how to think outside the box and be more innovative and creative when engaging in new product creation or problem-solving.

The idSpace partners, and Uni Hildesheim in particular, also intend to integrate idSpace project results with work in Requirements Engineering to achieve a comprehensive approach to support the creation and definition of innovative products.

LiNK is organizing on a regular basis transfer workshops for SMEs, business support units, training organizations and other interested parties. One of these workshops will focus on support for creativity and innovation management for SMEs. The results of the idSpace project (the platform and its underlying concept) will be used as content of the workshop giving the opportunity that more partners interested in supporting their business target groups get familiar with the concept and concrete tools of ICT based solutions for innovation management.

In a similar way but on a European wide level LiNK reaches business support units, transfer and consulting agencies as well as SMEs directly by its activities around running the portal on Supporting Innovation in SMEs (www.innosupport.net). The portal contains an online guide to help SMEs in their tasks and activities along the innovation process chain. It also contains a set of concrete and practical tools that help in different stages of the innovation process. This section on 'Innovation Rooms' will be enlarged by a reference to the idSpace platform to give a concrete opportunity exploiting the idSpace results by a huge community

of organizations and individuals dealing with innovation management. The portal community comprises approximately 1800 users from more than 50 countries around the world.

A concrete exploitation of the idSpace results LiNK is currently planning is the initiation of a new project in the framework of the Lifelong Learning Programme Call for Proposals 2010, Action Transversal Programme, Key Activity ICT. In a project proposal that is currently elaborated the idea of developing further the tools provided as 'innovation rooms' using the results of the idSpace project is investigated.

Although Space Applications Services does not see a clear direct exploitation activity from the idSpace project, some indirect exploitation has **already** been done.

Space Applications Services is involved in the idSpace project mainly in the evaluation of its results. Lynn De Proft from Space Applications Services, who is an experienced expert in evaluation of human-machine systems, user interfaces, control systems and information systems, is involved in the project. It should be noted that before Mrs. De Proft started to work on idSpace, she was working in the training domain in Space Applications Services. Her work on evaluation in idSpace has triggered evaluation activities in other projects which in turn triggered the training of several other employees to conduct correct evaluations in professional manner. This resulted in several evaluation activities in the 2009, and with clear potential for continuing this activity in the future.

That is, indirectly, Space Applications Services could already exploit the work on idSpace as leverage for adding a new business line to the company portfolio.

In addition to that, Space Applications Services is currently examining the benefits offered by the integration of the open sourced projects Liferay and Ontopia. This integration work might be exploited in future projects done by the Knowledge Management team of Space Applications Services.

10 PROPOSALS FOR R&D PROJECTS

Partners have planned to reuse the knowhow gained during the idSpace project in new EU funded research and development (R&D) projects. Thus, some of them submitted the following proposals:

- "ISAF3: Interconnected Semantic Analysis Facility", Integration Project (IP) proposal, Work programme topics addressed: Objective SEC-2010.1.2-1: "Information and knowledge management for the prevention of organized crime". Partners involved: SAS, MORPH.

  The idSpace project, http://www.idspace-project.org/ (FP7, grant agreement № 216199) focuses on distributed collaborative product innovation. Topic maps is used to solve a number of issues, such as sharing concepts, reusing ideas and knowledge and creating an integrated ontology that ties all the aspects of a creative process together. It provides the project with a means to help the user establish a fruitful collaboration with other team members working in different locations. In the idSpace project MORPH and SAS have been active and some components can be reused in ISAF3. The real-time online collaboration component of idSpace in which multiple users can add and share ideas by means of drawing is useful for investigators at Police departments as well. Policemen working distributed in different places or countries can share information with the same functionality but most of all they can vote or accept/reject/reinforce for instance statements or intuitions. The software that enables to share important insights in a distributed environments, see the changes in real-time and synchronizing it in the Topic Maps, will be re-used in ISAF3.

- "ISEME: INNOVATION AND SOCIAL ENTREPRENEURSHIP IN SMEs" Leonardo Da Vinci Transfer of Innovation project proposal, LifeLong Learning programme. Partners involved: UPRC

  The aim of the project is to identify and educate on the issues of what is innovation and Social Entrepreneurship and provide a framework on how to be innovative and entrepreneurial as well as act the part. By building on prior knowledge, especially the idSpace project, the project will provide a model to support innovation services for SMEs, via an online platform.

11 CONCLUSIONS

This deliverable describes the exploitation and sustainability opportunities of the idSpace project. The document lists and discusses the possible products, target groups, and exploitation models, both for non-commercial and commercial purposes. It offers a common overview about the planned exploitation options and a set of activities to execute and discuss after the project ends.

The main exploitable tangible result of the project is the idSpace platform. Its exploitability is largely dependent on further development. One of the exploitation plans is to minimize the impact of the platform's limitations and weaknesses, especially those that have been identified by the evaluators, to give the idSpace partners a major competitive advantage. The other main exploitable result is know-how about technology-supported creative processes. Training seminars and consulting services could be organized and further exploited by idSpace partners.

12 DISSEMINATION ACTIVITIES

Dissemination has been an on-going process throughout the entire project. Thanks to the different skills and profiles of the partners, the dissemination activities have reached both academic and industrial communities. The following paragraphs describe the dissemination activities performed during the project:

12.1 Publications, Presentations and Workshops

Many papers, articles, posters and books have been published in a wide range of scientific and academic well known conferences. Also, idSpace has been participated in many workshops. All of this activity is listed below.

Papers

- S. Retalis, M. Katsamani, P. Georgiakakis, G. Lazakidou, O. Petropoulou & T. Kargidis (2010). Designing Collaborative Learning Sessions that Promote Creative Problem Solving Using Design Patterns. Networked Learning Conference 2010, 3–4 May 2010, Aalborg, Denmark.

- R.L.L. Sie, M. Bitter-Rijpkema & P. B. Sloep (2010). Coalition Formation in Networked Innovation: Directions for Future Research. Networked Learning Conference 2010. 3–4 May 2010, Aalborg, Denmark.

- P. Grube, S. El-Sharkawy, & K. Schmid (2010). Automatisierte Kreativitätsunterstützung in der Anforderungserhebung. Softwaretechnik-Trends, GI-Fachgruppen-Treffen Requirements Engineering, 26-27 November 2009, Essen, Germany (accepted for publication).

- S. El-Sharkawy, P. Grube, & K. Schmid (2009). Using Semantically Linked Content to Support Creativity in Product Innovation. The First International Conference on Adaptive and Self-adaptive Systems and Applications (ADAPTIVE'09), 15-20 November 2009, Athens/Glyfada, Greece.

- R.M.G. Dols, & Q. Siebers (2009). idSpace: Distributed Collaborative Product Innovation. Fifth International Conference on Topic Maps Research and Applications (TMRA 2009), 11–13 November 2009, Campus Villa Ida, Leipzig, Germany.

- R.L.L. Sie, M. Bitter-Rijpkema, & P. B. Sloep (2009). The Influence of Coalition Formation on Idea Selection in Dispersed Teams: A Game Theoretic Approach. Proceedings of Fourth European Conference on Technology Enhanced Learning "Learning in the Synergy of Multiple Disciplines" (EC-TEL 2009). 29 September - 2 October, 2009, Nice, France.

- P. Dolog (2009). idSpace: Interactive Social Web Based Learning Support for Creativity in Distrubuted Teams, keynote speech at International Conference ICL (ICL2009), 23-25 Sept 2009, Villach, Austria.

- K. Schmid (2009). Reasoning on Requirements Knowledge to Support Creativity. Second International Workshop on Managing Requirements Knowledge (MaRK'09) at the Requirements Engineering Conference 2009, 1 September 2009, Atlanta, USA.

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- R. L. L. Sie (2009). The influence of coalition formation on idea selection in dispersed teams: a game theoretic approach. Poster presentation at the Fourth European conference on Technology Enhanced Learning (EC-TEL 2009). 29 September - 2 October, 2009, Nice, France.

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- Symeon Retalis' invited talk at Greek Innovation Day organised by Microsoft, February 2010, 23

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- Prof P.B. Sloep keynote speech (with M. F. Peschl) entitled "Innovation as a distributed, collaborative process of knowledge generation", at the 5th EduMedia Conference 2009 "e-creativity and e-innovation", 04-05 May 2009 St. Virgil Salzburg, Austria.

- P. Dolog's keynote speech at Service Oriented Architectures and Software Product Lines (SOAPL) by Dr., September 2008

Presentations

- "Methods & Tools for Computer-Supported Collaborative Creativity Process: Linking Innovative Product Development & Informal Learning", Presentation by Symeon Retalis at Online Educa Berlin, December 2009, 4

- Morpheus idSpace presentation at the session Applications of the TMRA 2009 conference. Campus Villa Ida, Leipzig, Germany. November 2009, 11-13

- IdSpace project sponsored and was presented at UPRC stand at the 1st elearningExpo in Athens, Greece. October 2009, 10-11

- idSpace at 3 Lensus Meeting Heerlen, March 2009

- Online Educa Berlin presentation in video at YouTube.com, January 2009

- Presentation at the FGRE Meeting (FGRE is the RE group of the GI. GI is the Gesellschaft fur Informatik About: Systematische Auswahl von Kreativits techniken fur die Anforderungserhebung (Systematic selection of creativity techniques for the requirements elicitation). November 2008

- idSpace is 'Project of the Months' in German online portal idSpace is in August "Project of the Month" in www.europa-mv.de. August 2008

- idSpace press release. April 2008

Workshops

- ECTEL'09 Workshop on Methods & Tools for Computer Supported Collaborative Creativity Process: Linking creativity & informal learning. Nice, France. September 2009, 30

- idSpace integrating creativity and learning support for collaborative innovation Workshop within the 34th Annual Conference of the Association for Teacher Education in Europe, Palma de Mallorca, Spain. September 2009, 2

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- idSpace project at Online Educa Berlin. Workshop 11. Tooling of and Training for Collaborative, Distributed Product Innovation. Berlin, Germany. December 2008, 3

Articles

- Online article about the idSpace project in German in the eLearnig portal http://www.elearning-mv.de/

- idSpace exposure in Dutch "Informatie" IT magazine "Informatie" is the monthly thematic magazine for Dutch IT professionals.

Sponsoring events

- JTEL Winter School on Advanced Learning Technologies, 1-5 February 2010, Vill, Innsbruck Innsbruck

- International Conference on Innovation & Creativity, Athens Greece, 11 October 2009 (within E-learningExpo.GR 2009).

- idSpace sponsor in TMRA 2009, fifth event in the annual series of international conferences on Topic Maps Research and Applications, Campus Villa Ida, Leipzig, Germany, November 2009, 11-13.

Submitted papers

- M. Bitter-Rijpkema, S. Retalis, P. Sloep, M. Katsamaniiki, & R. Sie (2010). A new approach to collaborative creativity support of new product designers, (Submitted to) *International Journal of Web Based Communities (IJWBC)*, special issue on "Community-based Innovation: Designing Shared Spaces for Collaborative Creativity.

- George A. Sielis, Christos Mettouris, Aimilia Tzanavari, & George A. Papadopoulos, Modelling the Context of Creativity: The idSpace Context Awareness Ontology, (Submitted to) *ACM SIGCHI Symposium on Engineering Interactive Computing Systems*, Berlin-Germany, 21-23 June 2010.

- George A. Sielis, Christos Mettouris, Aimilia Tzanavari, & George A. Papadopoulos, A Context Aware Recommender System for Creativity Support Tools, (Submitted to) *ACM Recommender Systems 2010*, Barcelona, 26-30 September 2010

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13 APPENDIX I. IDSPACE PARTNERS' EXPOITATION QUESTIONNAIRE

Dear colleague,

Please spend few minutes in order to give your opinion about the exploitation plans of the idSpace project deliverables. The following questions will help the exploitation WP leader to collect and analyse ideas concerning the possibilities for further deployment and exploitation of the project outcomes and particularly the strengths, weaknesses, opportunities and competitors of the idSpace platform.

Please help use identify whether the developed products are used as basis for further research & development activities
- by the project partners
- by new projects
- by R&D departments of SMEs
- by R&D communities

Please be analytical and specific and record all thoughts and ideas.

Partner Organisation: _____

Name: _____

Date: _____

1. The core idSpace deliverables are the following. Which ones have exploitation value and why?

Del. No.	Deliverable name	Is there an exploitation value? Yes/No	If yes, give some justification
D5.1	Report on user requirements		
D3.1	A unified conceptual model , which combines contextual elements, profiles and semantics		
D1.2	Report on informal creativity scenario requirements definition		
D2.1	State of the art in tools for creativity		
D5.2	Validation design & planning		
D1.3	Templates for informal *idSpace* creativity scenarios		
D2.2	Semantic meta-model		
D3.3	Design of the conceptual model for context-awareness in the *idSpace* platform		
D4.6	IdSpace platform (final)		
D5.5	Evaluation report		

2. Which are the target customers of the idSpace platform?

_____

_____

_____

_____

3. Is there a target market for the idSpace platform? Yes / No

If yes, give us some details

_____

_____

_____

_____

4. Name the main competitors of the idSpace platform

_____

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5. List the main Strengths of the idSpace platform

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6. List the main Weaknesses of the idSpace platform

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7. Which elements of the idSpace platform need strengthening in order to become more exploitable?

_____

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8. What obstacles or difficulties might you face when trying to exploit the idSpace platform?

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9. Is changing technology threatening the exploitability of the idSpace platform?

_____

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10. Please list all the opportunities and plans that your organisation has for the exploitation of the idSpace project deliverables

_____

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_____

14 APPENDIX II. PUBLIC PROJECT REPORTS

The following **public** reports will be produced as project deliverables:

- idSpace **D1.1 – State of the Art on Pedagogical Strategies**

  This deliverable focuses on support to enhance creativity via pedagogical strategies. It does so by influencing learning processes involved in the collaborative creation of new products. It presents an overview of the state of art regarding context factors that need to be taken into account when creating affording circumstances for creativity. And it surveys the development over time of perspectives on creativity and collaborative knowledge creation. Finally, it describes a selection of approaches to collaborative learning and working that are particularly relevant for the design of support strategies for idSpace and are based on existing pedagogical insight.

- idSpace **D1.2 – Templates of informal idSpace pedagogical strategies for creativity v1**

  This deliverable introduces a pattern based approach to systematically construct configurable recommendations of teams working in idSpace. The "collaborative flow patterns for creativity" are based on pedagogical insight offering pedagogical strategies to support collaborative creativity for idSpace new product design.

- idSpace **D1.3 – Templates V2**

  This deliverable describes the improvements and further specification of recommendations for idSpace's new product design teams. Patterns based on learning heuristics focus on stimulation of effective knowledge sharing for collaborative creativity, implementation of pedagogical scenarios and recommendations into the V2. idSpace prototype

- idSpace **D2.1 – State of the Art in Tools for Creativity**

  This deliverable provides a survey of creativity techniques that have been developed over time. It provides a reference model for characterizing them as a basis for selecting techniques that are particularly appropriate for the idSpace project. The deliverable also surveys existing creativity tools and characterizes them in terms of underlying techniques. Finally, the deliverable describes requirements for the idSpace-environment and discusses to what extent it can benefit from existing tools.

- idSpace **D2.2 – Semantic meta-model, integration and transformations v1**

  This report introduces a topic maps based metamodel for creativity techniques, creativity process, and idea maps as results from creativity process. It proposes a graph based and hierarchical graph based transformation of idea maps for combination and integration of results of different creativity sessions. It further suggests a service composition model as an integration model based on service oriented architecture which integrates various creativity process supporting tools as services.

- idSpace **D2.3 – Semantic meta-model integration and transformations v2**

  This deliverable discusses an extended set of requirements for transformations and metamodel for creativity techniques. Based on the requirements, the deliverable provides refined meta-model. The metamodel allows for more advanced transformation concepts besides the previously delivered graph transformation approach for merging idea graphs. This includes production rules for generating new associations between ideas and managing transactional histories for exploring changes and evolutions of ideas. Finally, we discuss some preliminary experiments with the approach as well as service oriented implementation with portlets and widgets in the Liferay portal.

- idSpace **D3.1 – Description of Context Awareness in idSpace**

  This deliverable describes context awareness as it is envisaged to appear in the idSpace platform. It

first offers an overview of the state-of-the-art in the area. Next context awareness in idSpace is summarized and presented in an ontology format.

- idSpace **D3.2 – Definition and Implementation of the Conceptual Model for Context Awareness in idSpace v1**

  This deliverable defines the methods of implementation of the conceptual model for the first version of the Context Awareness prototype for idSpace. It defines the architecture of the proto-type and describes the parts of the context component. Samples of code are given, explaining the overall structure of the proto-type and the partial use of the component in the individual architectural layers.

- idSpace **D3.3 – Definition and Implementation of Context Awareness v2**

  This Deliverable describes the Context Awareness component v2 of the idSpace platform. It refers to the technologies used for its implementation, its structure and the methods followed for the computation of the included recommendation packages. Moreover, the meta-model of the current implementation is presented, as well as the ideal meta-model for Context Awareness. In addition, a description of how the component was preliminary tested using dummy data is presented.

- idSpace **D4.1 – Design Document v1**

  The first version of the design document for the idSpace platform.

- idSpace **D4.2 – idSpace platform & user guide v1**

- idSpace **D4.3 – Design Document v2**

  The second version of the Design Documnet for the idSpace platform. This document describes the functional design of the platform which will be built in D4.4 of the idSpace project. It does so in terms of processes, functionality, usability, accessibility, information flow and architecture. The technical aspects of the platform are only described by its larger contours, such as the architecture and the information model. A real technical design is out of scope for this deliverable. Chapter 11 elaborates on the development process some more. The purpose of this document is to provide the reader with an unambiguous blueprint of v2 of the idSpace platform.

- idSpace **D4.4 – idSpace platform & user guide v2**

- idSpace **D5.1 – idSpace User Requirements**

  User Requirements analysis identifies user requirements through use cases. The idSpace target user groups are staff members of organizations and companies in different European countries, who are conducting creative innovative processes.

- idSpace **D5.2 – Evaluation Plan & planning**

  This deliverable has two major objectives: Evaluation Methodology Development. Planning of the Evaluation Activities. With the evaluation of idSpace, we will measure the characteristics of the platform, in the attempt to compose a general idea about its attributes and features. While doing so, we will unveil the points of strength and weakness. This document is intended to be read by the people who are involved in the evaluation.

- idSpace **D5.5 – Report on evaluation results, final version**

- idSpace **D6.1 – Dissemination Plan**

  The aim of this document is to specify and explain the steps the idSpace project team will take to ensure effective and efficient dissemination.

- idSpace **D7.1 & D7.2 – Consortium Handbook and Quality Standards Plan**