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The European Network of Excellence on Serious Games

D7.1 Report on the integration of SGs in corporate training settings No. 1

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ABSTRACT	This report reviews the WP7 aims and objectives, work plans and activities during the first 12 months. Work was carried out on developing SG taxonomy, State of the Art, SG metrics for companies, SG awareness and adoption, and SG integration in companies. Work on community building for Business and Industry was also carried out. This document also explains the future work in the second year within WP7.
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EXECUTIVE SUMMARY

This document presents the first annual report of Workpackage 7 – Integration in Corporate Training.

The document reviewed the SG taxonomy for business and industry and discussed collaboration between SIG.1 SIG.2 in WP3. The state of the art discussed in the document reviewed a classification scheme for SGs. The classification scheme has got two dimensions – simulation level (individual, team, organisation, etc) and skills mediated (hard: product knowledge, etc; and soft skills: learning, creativity, etc.).

The needs and requirements for business and industry were discussed in this document. The points of view from alternative actors in corporate settings is to be gathered and analyzed to help producing a report that highlights the challenges and needs that should be tackled to make SGs more adaptable into corporate environments. Understanding the awareness levels of the use of SGs in corporate settings is the first step. For that a survey of SG awareness and adoption in UK corporate training was carried out.

The Integration methodologies and adoption of SGs for business and industry were also discussed. The four main ways that the SGs can be integrated into companies were identified: in corporate training, in active company interventions, through viral diffusion and with Gamification. Two case studies of SGs integration were described.

The Work on community building for Business and Industry which was carried out were described to form a well established relationship with the community of corporate users and stakeholders that are interested in studying, assessing and promoting the adoption of SGs.

Finally, this document reviewed the future work in WP7 for the second year of the project.

1   Introduction

This document (D7.1) provides an overview of the work progress achieved in the WorkPackage 7 of the GaLA Network during the first 12 months of the project. These WP7 Deliverable Reports will be released every 12 months (12, 24, 36, and 48) to update the European Commission and to take stock of progress achieved. The document describes the approach taken to carry out the work and provides an outlook on the activities for the next 12 months.

WP7 will study SG integration companies considering the different typologies of games (evaluating various dimensions, such as: content, support for reflection, practice, experiment, exploration, familiarization, manipulation, assessment, synthesis), various types of users (i.e. learners with different learning styles, interests, age, cultural background, game skill level, etc.), and various types of training targets. WP7 will consider not only the use and integration of customised SGs and SVWs especially designed and implemented for training purposes, but also the use of Commercial Off The Shelf (COTS) games. Both approaches have advantages and shortcomings (e.g., along dimensions such as cost, availability licences, infrastructure needed, timing requirements) that should be identified and addressed – considering the concrete context of use (e.g. on the job or in a corporate training department) - in order to maximize the educational gain.

WP7 will provide a specific methodology/guidelines that simplifies the manager/instructor's role in aspects such as the selection of the game that should be used, the training phase for which a game is more appropriate, or if a SVW should be used instead.

WP7 will also address how SG and SVWs can be evaluated, particularly their contribution to commercial outcomes, so that more empirical evidence of their benefits in different training settings can be collected, combined and disseminated. This will include designing appropriate methodologies and implementing them in evaluation studies of SGs in corporate settings. A life-long learning perspective will be pursued.

As games and virtual worlds in general are in continuous evolution, WP7 will also consider new and emerging uses and approaches that could be used with educational purposes. For instance, now the revolution of the mobile devices needs to be taken into account and analyse what are the new opportunities that this aspect opens in SGs and SVWs for corporate training. Complementary stakeholder engagement tasks (dissemination, promotion, exhibitions, community building, etc), will also be carried out in collaboration with Task 4.5 (Industry and Stakeholder Community Building) for developer companies.

1.1   WP7 Objectives
WP7 objectives are:

- Investigate how to best integrate different kinds of SGs and SVWs into real corporate training processes in different stages and in different scenarios using sound pedagogical approaches

- Elicit requirements from end-users and corporate training stakeholders, via key stakeholder groups, such as the European Association of Chief Learning Officers (ECLF).

- Collect, systemize and structure experimental data in order to build metrics for assessing and supporting the deployment of SG in corporate training settings.

• Elaborate specific methodologies for non-intrusive integration of SGs and SVWs in the existing training contexts

• Gather and nurture a community of corporate users and stakeholders that are interested in studying, assessing and promoting the adoption of SGs.

WP7 consists of 4 tasks (task leaders are in brackets):

- Task 7.1 Corporate user and training stakeholder requirements (CEDEP)
- Task 7.2 Metrics for SG in corporate training (Cyntelix)
- Task 7.3 Integration methodologies for corporate training (UNOTT)
- Task 7.4 Community of corporate users (NURC)

1.2 WP7 Time Plan

The chart below illustrates the time plan for different tasks within the WP7. The Workpackage lasts for the full project duration of 48 months. Each deliverable (D7.1, D7.2, D7.3 & D7.4) is due at the end of each year till the end of the project.
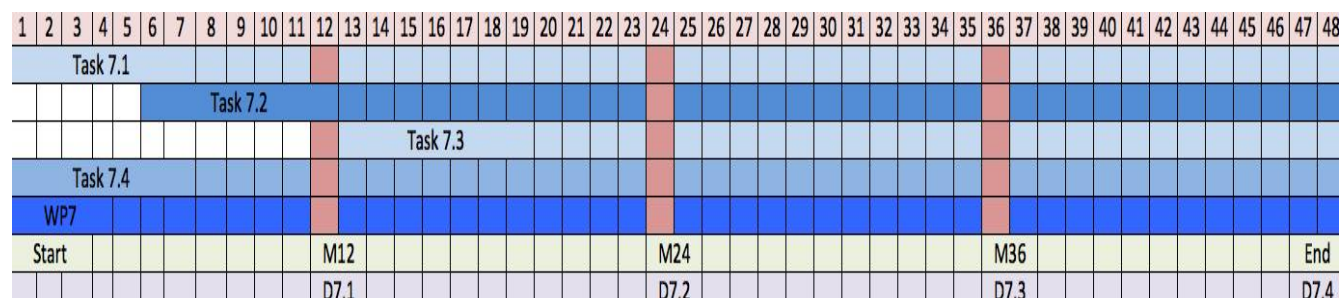

Figure 1: WP7 Time Plan

1.3 WP7 Activities First 12 Months

In order to make the management of Workpackage 7 more convenient, the four workpackage tasks were sub-divided into a larger number of smaller activities. These are listed in the table below. Figure 2, below, shows the timeline of the major activities of the workpackage during the first 12 months.

- **Taxonomy**
- **SG State of the Art**
- **SG Adoption Research & Survey**
- **Follow up Interviews**
- **SG Integration Case Studies**
- **SG Metrics**
- **Community Building**
- **Games for Business website**

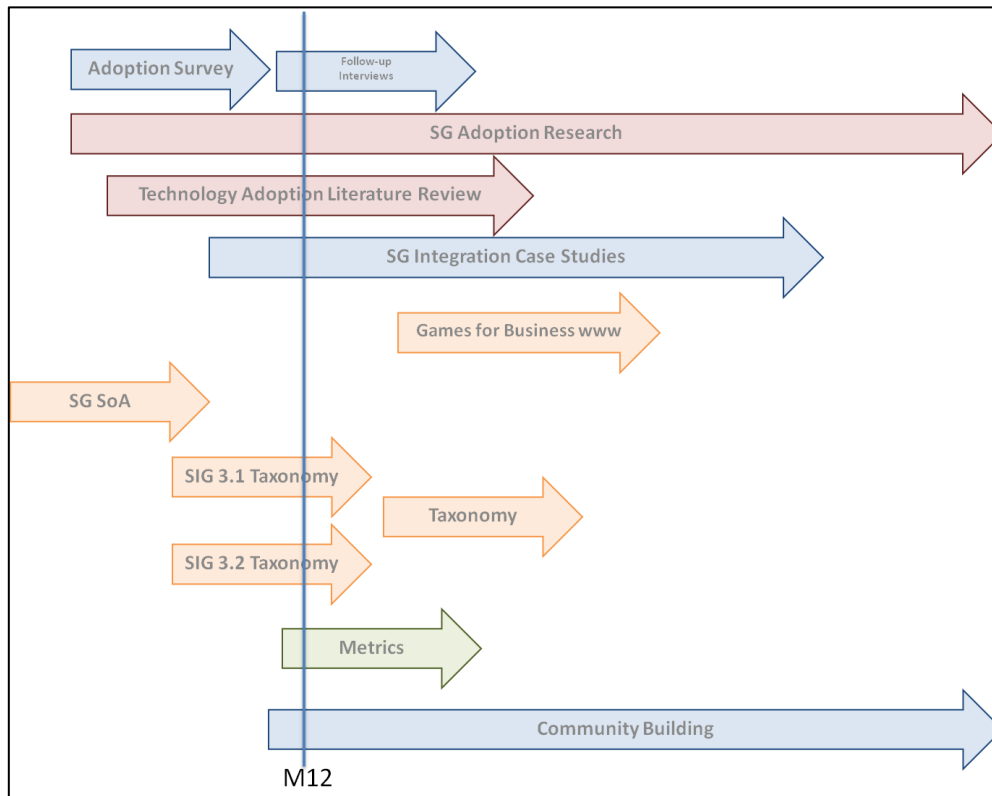The above activities are illustrated in the Gant chart in Figure 2, below.

Figure 2: Overview of WP7 Activities

1.4 Scope of the Workpackage

The primary scope of the workpackage is on the users of serious games in private industry – companies in different sectors of the economy. Excluded from consideration is the public/ government sector (which has its own specificities, particularly procurement regulations). This means the education sector is excluded (this is covered by WP6), as is the health and social care sector (which are partially covered by some of the SIGs).

This means that the focus of the workpackage's activities is on serious games for "business and industry" – broadly defined: from manufacture, logistics, services, commerce, finance and insurance, etc. This has synergies with the two SIGs: 3.1 on Business and Management (led by CEDEP) and 3.2 on Engineering and Manufacture (led by POLIMI). It was decided therefore to work in collaboration with these two SIGs to gain synergies and to avoid duplicating work.

One other aim of the workpackage is to develop metrics for evaluating SGs (Task 7.2 led by Cyntelix) and therefore, it is appropriate to collaborate with the three tasks on Metrics: TC 2.6 Assessment (led by UCM), Task 1.3 Metrics (led by MAN) and Task 6.2 Metrics for Education (led by TUG). Again by collaborating, it is hoped to gain synergies and avoid duplicating work.

2   SG Integration in Companies

Task 7.3 Integration methodologies for corporate training – relying on inputs from all the other WP7's tasks – will be in charge of the elaboration of specific methodologies for a non-intrusive integration of SGs and SVWs in the existing corporate contexts. These methodologies should cover guidelines, best practices, examples, assessment criteria and integration tools, as well as evaluation. These methodologies will be made available through the VRC infrastructure in the form of white papers. Revision and publication of the final versions of the guidelines and methodologies will be provided, also exploiting feedback from the community of corporate users and stakeholders (T7.4). In general, feedback will come from the evaluation of the results of early initiatives as case studies also coming from other projects where GaLA partners are involved. The task will produce annually different white papers/ guidelines/ reports.

As part of the work undertaken in WP7 it was realised that SGs are not only used in companies for training but also for interventions (that is for example for change management). Second, there are newly emerging trends in serious games – viral diffusion and gamification. It was decided to develop an analysis of these different methods of use or integration in companies, therefore, Serious Games can be integrated into companies in four main ways (See figure 4 below):

1) in corporate training,
2) in active company interventions,
3) through viral diffusion and
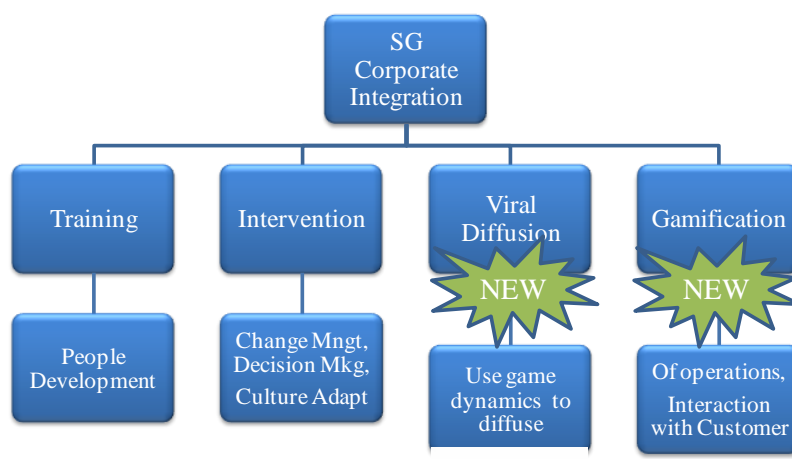4) with Gamification

Figure 3: Serious Games Integration in Companies

These four integration ways are described below:

1) Corporate Training

Games-based learning is gaining credibility and popularity for corporate training. As more and more people play computer-based games for entertainment, corporate employees have come to engage easily with game metaphors and interfaces. Facilitated discussion during the game can solidify the information. Discussion also builds buy-in for the corporate objectives the training supports. Employees enjoy the interactivity, and

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most people will select "playing a game" as the preferred learning model when given a choice. In addition, the effectiveness of knowledge transfer to the job makes serious games a good investment for the company (GaLA DoW, 2010).

As an example, INNOV8, developed by IBM, is a simulator of business activity using interactive 3-D, which helps teach key aspects of managing business processes and facilitates communication between business managers and IT staff of a company. This type of game, although fun, is based on realistic events and processes. The game was taken very seriously and has proved to be an effective method in training initial, continuing and accelerated development of new skills of employees.

2) Active company Intervention

Within the tradition of change management, interventions in companies (typically by consultants) have been used to improve the company. Serious games have also been used as interventions in companies. The aim of these interventions is not to train people, but rather to help transform the people and the company. Classic examples of this approach are Lego Serious Play™ (Lund et al, 2011) and the SimLab™ method (Smeds and Poyry-Lassila, 2011).

3) Viral Diffusion

Similar to viral marketing, the viral diffusion of games in corporate environment happens through strategies such as social networks, awareness of the use of certain games in specific application areas, world of mouth and other techniques. Games integrated through viral diffusion happen outside the formal structure and training processes of companies – the SGs are simply made available to all the relevant staff and marketing campaigns, or tournaments organised, to encourage uptake of the game. This strategy for integration is new and has been enabled by employees having desktop computers and especially recently by mobile gaming.

4) Gamification

Finally, Gamification is the use of game design techniques and mechanics to solve problems and engage audiences. Typically gamification applies to non-game applications (also known as "funware"), particularly consumer-oriented web and mobile sites, in order to encourage people to adopt the applications. It also strives to encourage users to engage in desired behaviors in connection with the applications. Gamification works by making technology more engaging, and by encouraging desired behaviors, taking advantage of humans' psychological predisposition to engage in gaming. The technique can encourage people to perform chores that they ordinarily consider boring, such as completing surveys, shopping, or reading web sites. Gamificiation can be leveraged by companies as sophisticated marketing techniques, wherein customers are engaged in games, while simultaneously being exposed to the company – this can either be in a passive way similar to advertising or more sophisticatedly by engaging customers in a game which encourages there consumption of the company's products/services – eg. a mobile treasure hunt, etc.

In addition to the classification work described above, theoretical work on innovation adoption and how SGs can be seen as innovations was carried out. The existing Technology Acceptance Model (TAM) was reviewed and possible refinements to it discussed. This theoretical work will continue – so as to explain how and why serious games are adopted in business and industry. Having understood the ways in which serious games can be integrated in companies, we turn next to the needs and requirements.

3   SG Needs and Requirements for Business and Industry

Task 7.1 will gather research and study the requirements and challenges of introducing games into different corporate settings. This task will analyze best practice and test data from corporate training contexts. This task will consider the points of view of people involved in the training process (e.g. users, managers, trainers, educators). This study will result in the production of a report highlighting the challenges that need to be overcome, the expectations that need to be addressed and the suggested research lines to facilitate adoption of SGs and SVWs in actual corporate settings. The task would collect best practice cases of how companies use SGs to develop their human resources. The report will be periodically updated by using feedback gathered from the community (T7.4) and observation of other initiatives.

The first task is to measure the degree of awareness of SGs in business and industry – particularly for training and HR managers. In the current economic climate training is probably one of the first activities that companies will reduce spending on. Therefore, we need to be very strong in the arguments and evidence that we use to convince them to invest in SGs – for them SGs need to be more effective and efficient than traditional training means:

- Awareness raising: we need case examples of successful use of SGs in academia and industry
- We should prepare and publish 'magazine' articles promoting SGs for publication in industry publications, particularly industry publications aimed at HR managers.

Several means for determining the needs and requirements of companies were identified: surveys, workshops (at industry conferences/ joint workshops, etc), exploiting our direct links to industry contacts, and exploiting contacts to intermediary bodies (eg. European Chief Learning Officers - ECLF).

It was decided to carry out a survey on SG awareness and adoption in the UK as a first step, see chapter 6 below..

4 SG Taxonomy for Business and Industry

As explained in the introduction the focus of WP7's work is on "business and industry". In order to understand how SGs can address the needs of business and industry a 'map' or taxonomy of the field is required. The map, or taxonomy, of the field of business and industry will allow us to organize our knowledge about SGs application. It will then be possible to know what topics within Business and Industry have already been addressed by SGs and where there are gaps. As both SIG 3.1 and 3.2 are developing taxonomies for their subject areas, it was decided to produce a single integrated taxonomy for Business and Industry applicable to SIG3.1, SIG3.2 and WP7, instead of three separate ones. The summary of SIG 3.1 and SIG 3.2 taxonomies are presented below. The taxonomies will be further discussed and the harmonized taxonomy produced at M18.

SIG 3.1 Taxonomy – Business and Management:

- Business Economics
- Project Management
- Leadership and Organizational Behaviour
- Accounting and Control
- Finance
- Information Systems Management
- Entrepreneurship
- Operations Management
- Marketing and Sales
- Strategy and Corporate Social Responsibility
- Human Resource Management
- General Management

SIG 3.2 Taxonomy – Engineering and Manufacturing:

- *Approaches:*
    - Product design:
    - Sustainable Manufacturing:
    - Supply Chain Management:
    - Design for manufacturing:
    - Lean Manufacturing:
    - Just in time Manufacturing:
    - Agile Manufacturing:
    - Service operation management:
    - New product development:

- *Functions:*
    - Operation unit
    - Logistic unit
    - Quality unit
    - R&D unit
    - Production unit
    - ICT unit
    - Maintenance unit

- o Purchasing unit

- ➢ *Applications (Industry Sectors):*
    - o Metal & Mining
    - o High-tech
    - o Telecommunication
    - o Forest production
    - o Pharmaceutical & Medical Products
    - o Energy industry
    - o Electronics & Semiconductors
    - o Food & Beverage
    - o Automotive
    - o Aerospace

5   SG State of the Art for Business and Industry

Progress has been made on mapping the state of the art for SGs for business and industry. As a first step a classification scheme of serious games for business and industry was devised. The classification scheme has got two dimensions – simulation level (individual, team, organisation, etc) and skills mediated (hard: product knowledge, etc; and soft skills: learning, creativity, etc.). The primary dimension of this classification scheme is that of the simulation level, see Table 1 below. The "simulation level" means the level, or amount, of the world that is simulated in the simulation or serious game. This is a hierarchy starting with the World/ God/ Universe – in which level whole worlds are simulated. The hierarchy then proceeds downwards from nation, industry, inter-organisational, business/ organisation, intra-organisational/ processes, group/ team, discipline, techniques to games addressing the individual. It was found that no serious games for business and industry addressed the World/ God/ Universe simulation level and so it was omitted from the analysis. This could be expected as there is little point in simulating the whole world for a business simulation – it would be far too complex for the participants to learn anything in any meaningful (short) timeframe.

Once the classification scheme had been developed over 39 Serious Games were mapped onto the classification, see Table 2. This work was written up as a paper and presented at the ICE conference:

- *State of the Art of Serious Gaming for Business and Industry @ 17th International Conference on Concurrent Enterprising, 20-22 June 2011, Aachen, Germany.*

Work will continue on updating the State of Art in collaboration with SIGs 1 (business and management) and 2 (engineering and manufacture).

Simulation Level	*Example commercial video games*
World/ God	Civilization, Capitalism, SimCity
National	-
Industry	Transport Tycoon, Railroad Tycoon
Inter-Organizational	Kingpin (gangsters game), Wall Street Trader
Business/ Organization	Theme Park, Theme Hospital
Intra Org/ Org processes	-
Group/ Team	-
Discipline	-
Individual	Flight Sims, Racing games

Table 1: SG Simulation Level Classification – with examples from commercial video games

Simulation Level	No. SGs
National	1
Industry	2
Inter-Organizational	5
Business/ Organization	5
Intra Org/ Org processes	9
Group/ Team	9
Discipline	1
Techniques	3
Individual	7
Total	39

Table 2: SG SoA - Analysis of SGs and Simulation Level

Summarising the current state-of-the art, even though several serious games consider some aspects of inter-organisational relations, there is a clear gap in the market for satisfying the user needs of inter-organisational relations/ processes training. These include extended and virtual enterprises, and due to the complexity of contemporary collaborative production their importance and relevance as business success factors increases. Innovation and in particular service innovation is not well covered by the identified serious games.

The key points of the analysis are:-

•   Serious games are context dependent and require subject knowledge for their development

•   They are active learning methods and promote hard and soft skill development

•   They are multidisciplinary and multi-person games – which should be ideal for industrial purposes

•   They can be complex and based on simulations of real-life systems and processes

•   They need facilitation by human facilitators in order to get the best learning out of them, although they can be used stand-alone.

Most real life skills are complex, i.e. they involve both technical and social aspects, which often lead to an increased complexity of the training. Consequently, a new approach is required to combine the best practices of human and computer managed training tools, for example serious games. Below a number of hard and soft skills which are highlighted in training are mentioned in the tables below:

Creativity	Team Building
Collaboration Skills	Learning
Communication	Inter-Personal skills
Negotiation Skills	

Table 3: Soft Skills for Training

Discipline-Based Training	Innovation	Product/Service Knowledge
Project Management	Customer Service	Risk Management
Sales	Decision Making Skills	Health and Safety
Legal/Regulatory Compliance		

Table 4: Hard skills for Training

Work will continue to develop the list of skills to be trained by serious games – especially the soft skills dimension, which is ideal for training by serious games.

6   SG Awareness and Adoption Survey

In order to understand the level of awareness about SGs in corporate training, it was decided to carry out a survey of companies.

The survey was conducted by Nottingham University Business School during the Months of May-June 2011. The survey questionnaire was posted to a sample of 300 UK-based organizations. *Three potential samples of UK companies were identified - the top 100 companies of: 1) the best companies to work for; 2) the most profitable companies; and 3) the fastest growing technology companies.* The companies were asked to send the response back using a FREEPOST envelope. A sample of selected companies from the lists was used as a reference for further contact by phone for short interview and follow up questions on the survey.

Respondents were asked to answer questions about their opinion on using Serious Games for corporate training, their level of understanding, awareness and adoption of Serous Games in their organization. Also some questions were targeted at the perceived advantages of using Serious Games for corporate training as well as barriers preventing use of serious games. The survey questionnaire is appended as Appendix I. A separate report describing the survey results in full has been prepared and will be published on the GaLA website for download on the "Games for Business" subsite.

Out of the sample of 300 companies posted the survey only 11 companies sent back fully completed survey questionnaires. The response rate for this survey was 3%. This is lower than expected for a postal survey (10%). Suggestions to improve the rate of response can be to conduct a survey at a larger scale, eg. posting it to a larger number of companies, possibly across a number of EU member states. Further, sending the survey to members of associations that use Serious Games is also a solution for achieving a higher response rate for this survey. Despite the low response rate and the low number of surveys returned there are some insights that can be seen in the results. To check the validity the reasons for negative response were analysed. This showed that the main reason the interviewees rejected to respond to the survey was that they were not allowed to respond to questionnaires.

The outcome of the survey analysis brought some new understandings about Serious Games integration in corporate training. The majority of companies are not aware of Serious Games for corporate training. About 36% of the companies are aware of using SGs for corporate training and less than 10% are actually using SGs in practice.
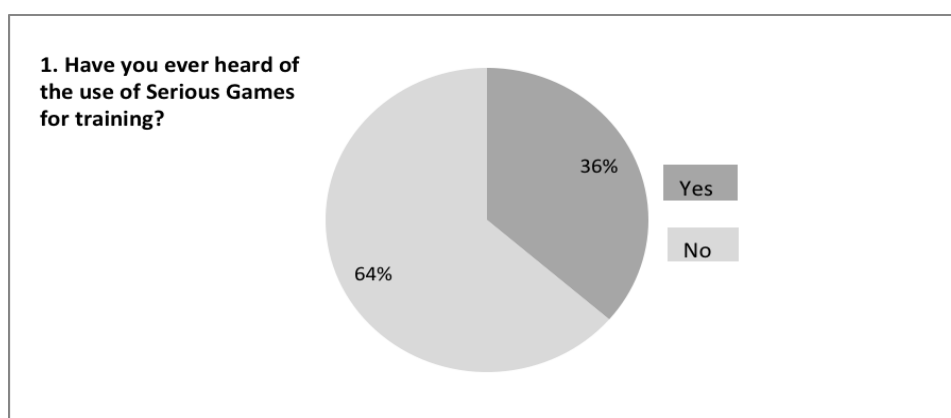

Figure 4: Awareness about the Use of SGs in Corporate Settings

In terms of adopting Serious Games most number of the companies are cautious and would take up the technology only when the benefits are clear. A minority of companies were at the early stages of adopting Serous Games. Further investigations into these companies can reveal what requirements should be provided to make them adopt the technology.

Companies believe that adopting Serious Games could help them improve their coaching and mentoring skills more than other skills at the rate of 48%. Inter-personal and communication skills are also believed to benefit companies at the rate of 42%.
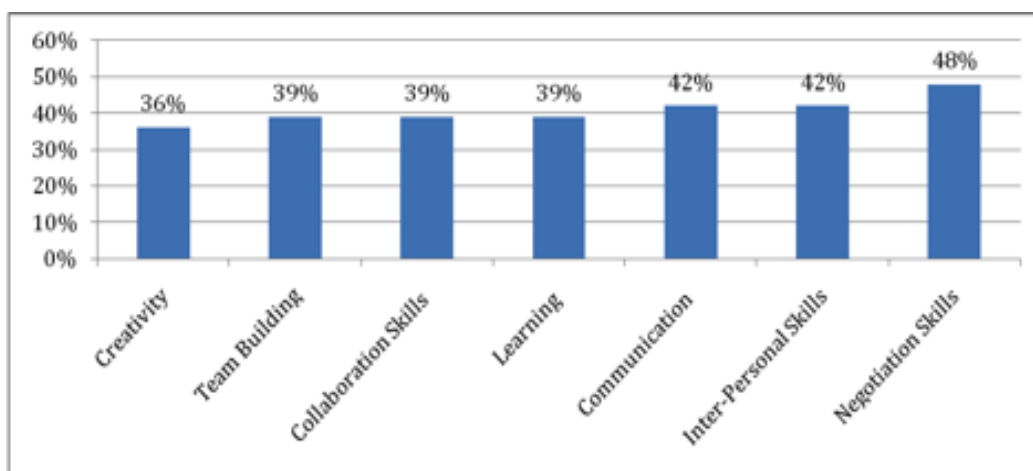
Figure 5: Soft Skills and the use of SGs

The most important benefit of adopting serious games is to help them become more efficient at the rate of 38% and then to improve their staff competencies at the rate of almost 35%. Figure 7 summarizes the benefits the respondents believe SGs can bring into their companies.
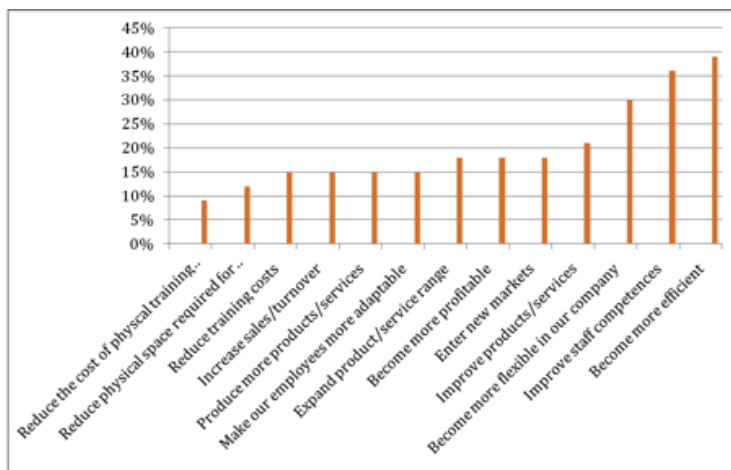
Figure 6: Benefits of using SGs in Corporate Settings

The most important financial barrier towards adopting Serious Games is that the companies are not convinced of the business case when using Serious Games and then low familiarity with SGs could be another main barrier for taking up the technology. Not enough information is known by companies about the practical applications of Serious Games, and in some cases there might be IT support barriers towards adoption of the games.

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In conclusion, although the UK survey suffered from a low response rate, it did produce some insights into companies' awareness of SGs. In particular it indicated that if companies were aware of the benefit of SGs and the business case they would adopt them – cost per se is not an issue.

The future steps to improve the Survey results - there are two options: First, to send the survey to other European countries and second, to send the survey through associations in Europe. Each of these has pros and cons – The first option would give more valid results however needs contribution from GaLA partners. The second option while easier in practice would result in a biased sample. It was decided to send the questionnaire survey through associations in Europe in the next year. As a first step an association in France will be surveyed.

7 SG Case Studies in Companies

Case Studies of SG integration in companies will be written up as full length case studies for dissemination to academic and professional networks (and placed on the Gala website). Short versions of the case studies along with visuals will be prepared for a special section of the Gala website specifically for business and industry end-users. Below the description of two case studies provided by ABN Amro and ESADE are described.

7.1 ABN Amro Case Study

This case presents the application of a serious game to educate and teach each employee on how they can translate core company values to everyday service. The company is an all-round bank servicing retail with private and commercial banking clients. Although the company is strongly represented in the Netherlands, the private banking company offices and services are also internationally established in 13 countries and territories. According to the latest annual report the company employs 26000 FTEs worldwide.

The serious games project was aimed at learning employees of the private banking network (up to €1 million sales) how to deal with the core values of the company in everyday life as an employee. For this project one of the three company core values was selected (the core value "Trusted") and used as a basis for the game. "These core values can become a container concept so easily, we wanted to bring the concept closer to the employee. What does it mean for me?". The serious game was developed in cooperation with an external serious game developer and after a successful launch has already been followed by two other serious games.

7.2 ESADE e-Finance Game Case Study

The eFinance Game (eFG) is a multiplayer game developed for facilitating the introduction to finance to adult lifelong learners in Esade Business School (Spain, Germany, Argentina, Brazil). The eFG has three main objectives:

- Students can practice their knowledge in basic finance concepts: assets and liabilities, and the difference among them.
- Enhance participants' expression of knowledge. Firstly in an individual way; secondly, from a collaborative approach.
- Through the expression of the level of certainty for each item, participants can focus on their different answers and therefore the collaborative process can be guide more effectively.

The eFG invites the students, in individual and collaborative settings, to classify the items appearing on the screen in assets or liabilities in the balance. The added value of the collaborative setting is the interdependency created within the teammates playing together and the explicitation of the Feeling of Knowledge (FOK) during the game, for facilitating the students' understanding of their teammates' knowledge, or Knowledge Group Awareness (KGA).

The FOK are judgments of learning that occur while and after acquiring of knowledge; at the time of retrieval, metacognitive processes such as tip-of-the-tongue judgments and FOK judgments are made. In the finance game, FOK is explicated by a mark used to identify the level of certainty of the student when classifying their answers. Killi (2010) considers this representation of the FOK under the term representation of certainty. Killi considers the representation of a certainty as a game design pattern that "can be used to point out the certainty of knowledge. Certainty is based on the beliefs of the character and it is not determined based on facts". The study of the impact of the FOK explicitation in the eFG game will be analyzed to characterize its influence in the collaborative game performance.

8   SG Metrics for Business and Industry

Task 7.2 Metrics for SG in corporate training (Task leader: Cyntelix)

This task will gather and study qualitative information and quantitative data on the integration of SGs in the actual training processes, considering different typologies of games, various types of users, various types of educational targets that determine different uses, various training situations and what is the role of the teacher/instructor when using the game. Both COTS (also adapted and/or licensed for use in formal training contexts) and SGs developed in projects by the partners (eg. Xdelia in Finance – www.xdelia.org, Target for competence development – www.reachyourtarget.org, Cosiga, Beware, EIS, etc) will be considered and compared. Evaluation methodologies for SGs in corporate training will be designed and developed, building on existing frameworks such as ROAMEF. The perspective of Senge's learning organisation and Nonaka's SECI knowledge model will be considered. The aspect of companies managing human capital and people's capability through SGs will also be addressed. The contribution of SGs to commercial outcomes will be investigated as well. The collected experimental data will be systemized and structured in order to build a set of metrics for assessing and supporting the deployment of SGs in concrete training settings. This task is intended to be carried out in close cooperation with the SG metrics tasks in the other WPs (T1.3 and T6.2).

9   Community Building for Business and Industry

Task 7.4 will exploit the GaLA VRC facilities to gather and nurture a community of corporate users and stakeholders that are interested in studying, assessing and promoting the adoption of SGs. Complementary stakeholder engagement tasks (dissemination, promotion, exhibitions, community building, etc), will also be carried out in collaboration with Task 4.7 in WP4. Links with already existing communities will be established and/or strengthened by GaLA partners in order to reach a wide audience and receive concrete feedback. A strong support in this direction will come from the already existing Serious Games Institute's community, CEDEP's link to the European Association of Chief Learning Officers (ECLF), the assets of PlayGen, that run one of the largest Serious Games Groups on Linked-in (currently 1400+ members). Playgen also run regular Serious Games Events in their London office (http://playgen.com/category/events/upcoming_events/), and other partners' liaisons with all the major social networking and VW communities. Feedback from this

community will be important for the investigations conducted in this WP's tasks. Promotion of, and support for, specific initiatives within the community for the integration of SGs and SVWs into existing corporate training processes will be strongly pursued, following the most updated versions of the proposed methodologies.

For the coming period it was proposed to hold dissemination events for industry at more industry focused events. Online Educa 2011 in Berlin was identified as the event for this. Nottingham and BIBA will host a workshop and OUNL will host a panel session (at which Nottingham will speak).Also Nottingham is attending the Games for Brands event in London to network, collaborate and establish relationship with companies that are interested in using SGs.

It was suggested that we could develop mini-games to demonstrate the benefits of SGs, in fact we could develop a portfolio of mini-games. They could even be developed to run on smartphones – so that managers could 'play' on the commute to work. Viral games could also be exploited. These ideas will be discussed with other network partners to see if they are willing to develop such games.

It was decided to adopt a strategy of infiltrating existing dissemination groups rather than starting new groups ourselves. That way we build critical mass sooner rather than later. An example is to participate in Playgen/ Kam Star's LinkedIn group. The WP leader has signed up to this group.

10   Plan For the Next 12 Months

This chapter presents activities which are planned to be addressed during the next 12 months of the project, m12-m24.

A number of the activities of the first period will continue: The state of the Art and the taxonomy will be updated and revised versions published at M18.

Research on SG adoption will continue. Further investigations into the literature, interviewing more corporate users of SGs, and developing and finalizing a model for SGs adoption in corporate settings are highlighted as future work within the SGs adoption research for the next 12 months. It is planned to submit a paper on the SG integration framework to the European Conference of Information Systems (ECIS) in Barcelona, June 2012.

On Metrics work will continue in collaboration with Cyntelix in devising and documenting metrics for the use of SGs in corporate settings. The document which is being prepared by Cyntelix will set the agenda of how to approach the topic of devising metrics for SG in corporate training. The document will be published in M15.

Community building is an on going process through the next 12 months of WP7 activities. Making connections with different organizations interested in using SGs and potential users are to be taken into consideration in future. It is scheduled to participate in The Games for Brands (October 2011) event and Online Educa (Berlin, December 2011) to make new connections and possible collaboration with companies attending the event.

It is planned for a specific website to be developed as a sub site of the GaLA website, "Games for Business". It will provide a business friendly description of Serious Games and how they can be used in business and industry. It will also contain case-studies and videos of SG use in companies. The purpose of the website is to

raise awareness of SGs among companies. By analyzing the website traffic we can build an understanding of what interests the corporate sector has. The website will be built and published in M15.

11   Conclusion

The first year's targeted objectives in WP7 have been mostly satisfied. The plan and the aim for each stage of the project are clear.

This document reviewed the SG taxonomy for business and industry and discussed possible integration and collaboration mainly between SIG.1 SIG.2 and WP3. The state of the art discussed in the document reviewed a classification scheme for SGs. The classification scheme has got two dimensions – simulation level (individual, team, organisation, etc) and skills mediated (hard: product knowledge, etc; and soft skills: learning, creativity, etc.), as it was discussed previously in this document.

The needs and requirements for business and industry were discussed in this document. The points of view from alternative actors in corporate settings is to be gathered and analyzed to help producing a report that highlights the challenges and needs that should be tackled to make SGs more adaptable into corporate environments. Understanding the awareness levels of the use of SGs in corporate settings is the first step. To this end a survey of UK training managers was carried out. This showed that there was a low awareness and low adoption of SGs in UK companies. Due to the low response rate of the survey it will be extended to other European countries in the next year.

The Integration methodologies and adoption of SGs for business and industry were also discussed. Four main ways that the SGs can be integrated into companies were identified: in corporate training, in active company interventions, through viral diffusion and with Gamification. Two case studies of SGs integration were described. Further case-studies will be collected in the next year.

The Work on community building for Business and Industry which was carried out were highlighted. As it was described before the aim of this activity is to form a well established relationship with the community of corporate users and stakeholders that are interested in studying, assessing and promoting adoption of SGs. Developing mini games, attending seminars and events (e.g. Online Educa, Games for Brands, etc.) are identified as parts of this activity.

Finally, this document reviewed the future work in WP7 during the second year of the project. Classification of the SGs will be continued. Taxonomy building and research on SGs adoption in corporate environments are to be focused. In collaboration with Cyntelix, metrics for the use of SGs in corporate settings will be documented. Finally community building and developing a "Games for Business" website are planned to be carried out during the M12-M24.

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Appendix – SG Adoption Survey Questionnaire

Training and Serious Games in Business

Main business of your organization:

Approximate number of employees:

A serious game is a game designed for a serious purpose – to deliver educational content, but in an entertaining way. Serious games, or sometimes computer based simulations, have been used in many industries - defence, education, health care, crisis/ emergency management, city planning, engineering, religion and politics.

▢ Yes   ▢ No

1   Have you ever heard of the use of Serious Games for training?

2   How do you consider the approach of your organization to Serious Games?

▢ **Early adopter** – you are willing to use the very latest new technologies, taking the risk of unprofitability or uncertainty

▢ **First follower** – you could take the risk of deploying new technologies relatively early if they are promising

▢ **Slow adopter** – you are cautious and will deploy new technologies only when the market is mature and the benefits are clear

▢ **Forced adopter** – you will deploy new technologies only if your customers, government regulation, etc. oblige you to

3   What is the level of adoption of Serious Games in your company?

   (tick only one)

▢   We have never investigated their applicability

▢   We are carrying out an investigation into their applicability

▢   At the moment serious games do not apply to us

▢   We have already planned to invest in serious games in the near future

▫ We are carrying out a pilot/testing project

We have adopted serious games for training to:-

▫ a limited extent   ▫ to some extent   ▫ to a large extent   ▫ completely

4   How much do you use the following training methods:

	Not	A little	Some	Very
Traditional Classroom Lecture Based Method	▫	▫	▫	▫
Group Discussion-Based Method	▫	▫	▫	▫
Training that uses Simulation	▫	▫	▫	▫
Training that uses Business Games	▫	▫	▫	▫
Training that uses Role Play	▫	▫	▫	▫
Training that uses Case Studies	▫	▫	▫	▫
Coaching and Mentoring Based Methods	▫	▫	▫	▫
Guest Speakers	▫	▫	▫	▫
Participants' Personal Stories/experiences	▫	▫	▫	▫
Story Telling	▫	▫	▫	▫
Outward bound courses	▫	▫	▫	▫
Video	▫	▫	▫	▫

Other (Please Specify) _____

5 How interested would you be in using Serious Games to address the following business areas?

	Not	A little	Some	Very
Soft Skills:				
Team Building	▫	▫	▫	▫

	Not	A little	Some	Very
Communication	☐	☐	☐	☐
Inter-Personal Skills	☐	☐	☐	☐
Negotiation Skills	☐	☐	☐	☐
Creativity	☐	☐	☐	☐
Collaboration Skills	☐	☐	☐	☐
Learning	☐	☐	☐	☐
Hard Skills:	☐	☐	☐	☐
Product/Services Knowledge	☐	☐	☐	☐
Sales	☐	☐	☐	☐
Discipline-Based Training (eg. accountancy, purchasing, stock control)	☐	☐	☐	☐
Customer Service	☐	☐	☐	☐
Project Management	☐	☐	☐	☐
Decision-making Skills	☐	☐	☐	☐
Innovation	☐	☐	☐	☐
Risk Management	☐	☐	☐	☐
Health & Safety	☐	☐	☐	☐
Legal/ Regulatory Compliance	☐	☐	☐	☐

Other (Please Specify) _____

6 What in your opinion are the benefits of the adoption of Serious Games?

	Not	A little	Some	Very
	⬇	⬇	⬇	⬇
improve our products/ services	☐	☐	☐	☐
improve our staff competences	☐	☐	☐	☐
reduce our training costs	☐	☐	☐	☐
become more efficient	☐	☐	☐	☐

increase our sales/ turnover	☐	☐	☐	☐
produce more products/ services (increase volume)	☐	☐	☐	☐
expand our product/ service range	☐	☐	☐	☐
become more profitable	☐	☐	☐	☐
become more flexible in our company	☐	☐	☐	☐
enter new markets	☐	☐	☐	☐
reduce the cost of providing physical training facilities	☐	☐	☐	☐
reduce the physical space required for training	☐	☐	☐	☐
make our employees more adaptable	☐	☐	☐	☐

7 What in your opinion are the barriers to the adoption of Serious Games?

(tick all those that apply)

Not enough is known about their practical application	☐
Unconvinced of the business case	☐
Difficult to estimate the Return On Investment	☐
Cost of Serious Games	☐
Unwilling to invest in developing serious games	☐
It is not easy, or practical, in our business to develop serious games	☐
Lack of knowledge (self, company) about Serious Games	☐
Low Familiarity with using	
Online Training	☐
Skype	☐
Video Conferencing	☐
Web-based Conferencing	☐
Virtual Worlds	☐
3D Environments	☐

Not sure of the reliability of the technology	▢
Lack of good quality information about Serious Games use in training	▢
Worries about the integration of Serious Games in to existing training	▢
Worries about serious games not satisfying the company's purpose	▢
Lack of training staff who are willing/ experienced in using serious games	▢
Staff and employee perception that playing games is easy and not valuable	▢
Not understanding the mechanisms in games that make them educational	▢
Lack of IT Support	▢
Lack of IT/ technical facilities for using serious games	▢
Not enough time to use Serious Games in our company	▢
Difficulty to measure the learning outcome	▢
Lack of awareness of the benefits of Serious Games	▢

Other (please specify)

Would you like to receive a copy of the results?   ▢Yes   ▢ No

Would you like to be interviewed by phone?   ▢ Yes   ▢ No

Would you like to be interviewed in person?   ▢Yes   ▢No

Name: _____

Company: _____

Telephone: _____

e-mail: _____

Your position in the organization: _____

Thank you for completing the questionnaire!

Please return the questionnaire promptly using the enclosed FREEPOST addressed envelope.

Yours sincerely,   Tel: 07960609328

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