



Digital Home & Entertainment

Understanding the Digital World

**Innovation
Report**

Serious Games: Issues, offer and market Education • Training • Health Care Information & Communication • Defence (3rd Edition)

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1 Executive summary

Main results

Serious Gaming (SG) is at the crossroads of several disciplines: e-learning, computing, engineering, virtual world design, communication and business expertise (health, energy, training, education, etc.). An "effective" serious game stems from the combination of skills from these various disciplines. While the success of a game is never guaranteed, even when all these core competences are represented in a given project, any failure is likely to be due to the absence of one of them.

The SG industry is currently in the process of addressing the various industrial challenges it faces. Its value chain is experiencing profound changes, especially upstream of production, with the introduction of high-end tools (when deemed necessary). Quality is also gaining ground, in particular through the growing awareness of SG developers of the need to add business skills (health, education, training, etc.) to their teams on top of pure video gaming expertise (game design, level design, animation, storytelling, etc.). Issues related to SG hosting platforms, distribution, marketing and operation are emerging, with the aim of structuring and streamlining, preferentially within a standardised framework, the downstream value chain.

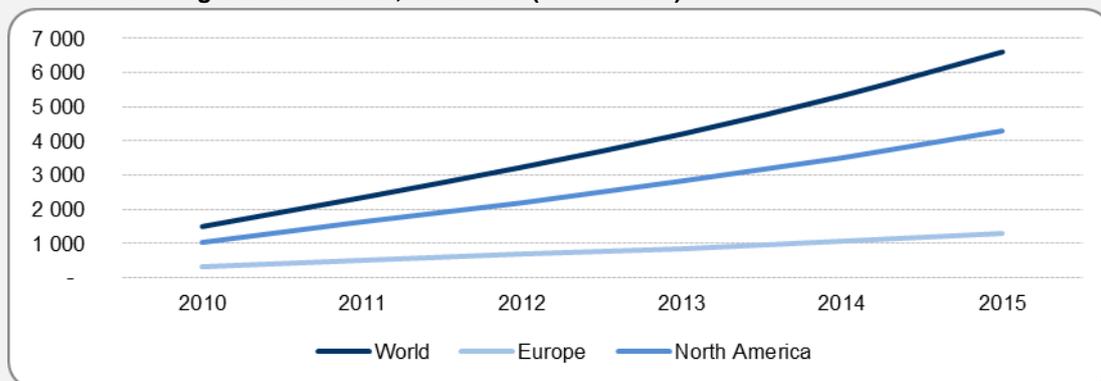
Akin to its predecessor, the video game industry, SG is a cross-platform industry. Currently predominantly deployed on PCs, it will naturally extend to connected TVs so as to reach out to less tech-savvy audiences, and embrace tablets, ideal complements to fixed platforms. It will leverage Internet access in order to integrate social and multiplayer features into the gameplay, but also to enable publishers to better understand how their games are being used, configure them remotely and monitor their success in real time.

Between 2009 and 2010, the number of published titles has dropped by 33%. Whereas the demand may have been overestimated during the activity's take-off phase, this trend is largely due the fact that publishers have started focusing on the quality of their production rather than on the sheer number of new releases. Although, in absolute terms, all SG areas are affected by this decline, in relative terms the fields of health and professional training have strengthened their representation. This phenomenon can be explained by the adequacy of business models with the services provided by SGs, their robustness, the maturity of the offer and a clearer articulation of the public's needs and expectations. New business models continue nonetheless to be carved out and tested.

According to IDATE, the worldwide turnover of the overall SG industry is expected to reach EUR 2.35 billion in 2011. The US alone reportedly account for more than 70% of global revenues. Considering that the reference markets (health, education, education, etc.) represent a cumulated worldwide turnover of approximately EUR 5 trillion, there is substantial room for growth.

France is one of the SG industry's most dynamic markets, driven by a promising economic base and regular tenders for both targeted and general projects, both at the local and national level. Its revenues could reach EUR 47 million in late 2011 and EUR 84 million in 2015.

Evolution of the global SG market, 2010-2015 (million EUR)



Source: IDATE

2 Methodology

The methods employed by IDATE's teams of analysts and consultants are based on an approach that combines:

- research and validation of data collected in the field;
- the application of classic industry and market analysis tools: segmentation, competition analysis, strategic strengths, modelling, assessment and forecasts...;
- the expertise of specialists who contribute their own analytical capabilities and those of their network of market analysts.

More specifically, the tools employed by IDATE's teams are as follows:

1/ A multi-disciplinary team of full-time consultants, specialised by sector of activity

IDATE's analyses are performed primarily by our in-house consultants, and very occasionally by freelance market analysts. This approach allows us to capitalise on our pool of expertise through teamwork, sharing knowledge, ideas, contacts, viewpoints and key data. Each report is drafted by a team of specialists, overseen by senior consultants with a proven track record in their field.

2/ Primary and secondary research

IDATE reports and databases are compiled based on primary data obtained from one-on-one interviews with the sector's decision-makers, and on secondary data which is established by cross-referencing public sources and external databases.

3/ An integrated information centre sustained by a number of tools and proprietary databases

Over the past 30 years, IDATE has established working and data organization methods and proprietary databases that trace the central chapters in the history of our sectors of expertise.

- **Companies:** IDATE's in-house data service tracks the latest news and events to come out of the top telecom, Internet and media industry companies around the globe. Innovative firms and start-ups are monitored by the market experts in the different "Practices".
- **Markets:** IDATE's databases are derived from rigorous processing of fundamental economic variables (GDP, investments, exchange rates, demographics, etc.) and their relation to decisive sector-specific and national elements (capex, national market dynamics, etc.).
- **Technologies:** IDATE's organization by Practice provides us with an efficient means of tracking innovation. IDATE's engineers ensure in-depth understanding of the changing shape of products and services and of the latest innovations in the marketplace.

4/ Contents of the published reports

Each IDATE market report details the structures and issues at play in the market being examined, the decisive forces (technologies, regulation, consumption) and the players involved. Particular emphasis is given to market assessments and forecasts, as part of the central premise. All market reports are laid out in a clear and concise manner, and illustrated with tables and graphs of key market data and trends.

The process of drafting of a market report includes the following stages:

- analysis of the information available in the in-house databases, and review of analyses performed in the recent past;
- based on a preliminary market segmentation and assessment, and as part of an approved interview guide, analysts conduct interviews that enable them to validate working hypotheses;

- a market model is then established, making it possible to test the hypotheses that have an impact on the market's development, and validated by a second series of interviews;
- and, finally, the report's conclusions are discussed by the members of the project's management team, and with the consultants who are experts in the different areas involved in the analysis;
- a final proofreading and editing/revision process, prior to the production of the final version of the report which is delivered to the client.

3 Cross-sectional analysis

3.1 Ten trends and industrial issues

3.1.1 SG as a fusion of several disciplines

SG is at the crossroads of several disciplines. It is the synthesis of the skills of these various disciplines that results in the achievement of an "effective" SG. While the success of a game is never guaranteed, even when all these core competences are represented in a given project, any failure is likely to be due to the absence of one of them.

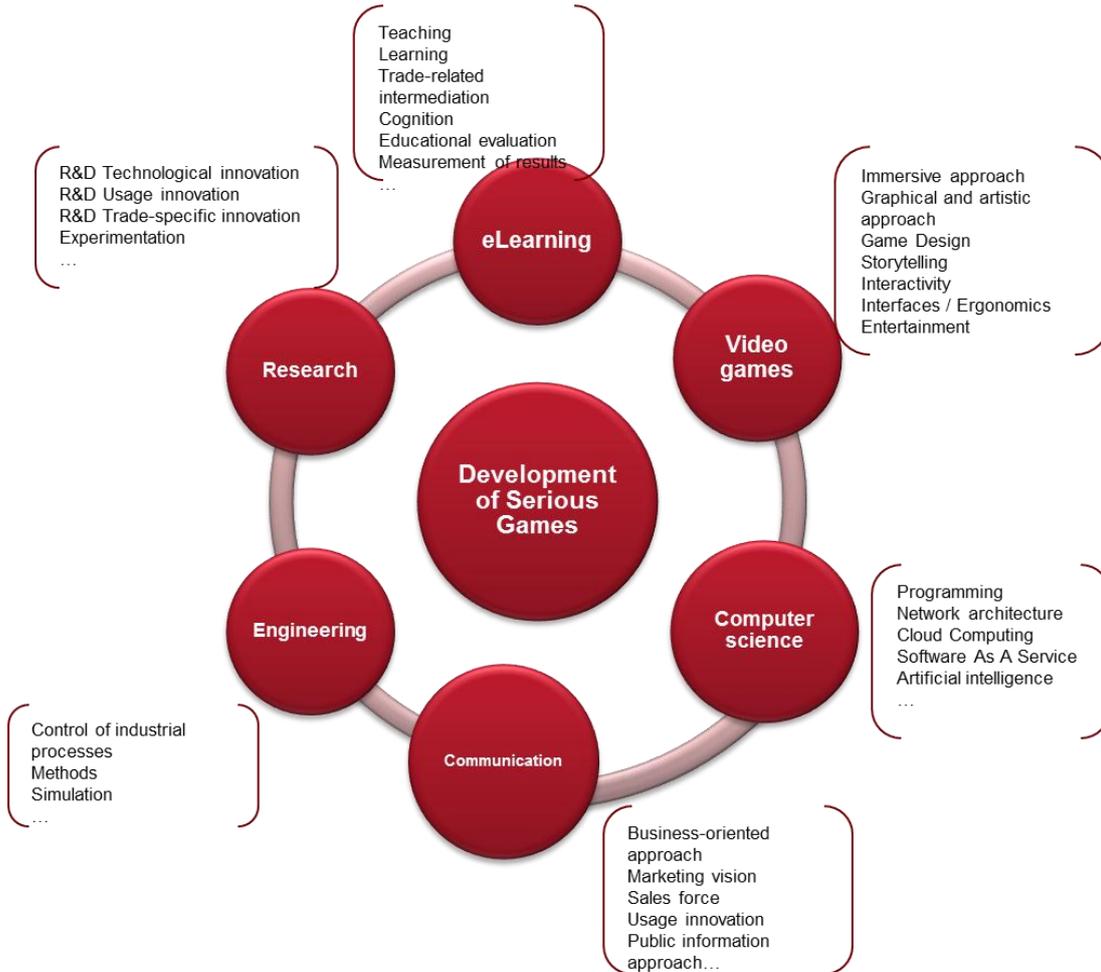
It is difficult to assess the influence of each participant in the success of a given project. However, there is no doubt that publishers from the video game industry have yet to ramp up on educational issues, while they readily assimilated those related to engineering and computing. Similarly, they still make insufficient use of R&D and innovation practices based on the expertise of research laboratories. Yet the latter are now mastering the industrial issues of the video game and SG industries better than in the past.

In addition, numerous e-learning organisations are investing in the development of serious games. This is an opportunity for them to renew the interest of their typical target audiences and recruit new customers in its specialty fields and in areas where they haven't previously ventured. These players have yet to gain expertise in video games (game design, implementation of entertainment dynamics) and finally give this contribution the share that it deserves.

In addition, bridges need to be created between the communication specialists and SG publishers, be they from the video game or e-learning industries. The communication can infuse its "business" orientation, while receiving from video game experts the ability to enrich its multimedia content with immersive components.

More generally, SG players need to position and frequently renew their offerings within a changing technological environment. In fact, given the more specific and demanding requirements of SGs, publishers should actually be capable of more quickly embracing the technological innovations from haptics, physics and computing than players of the video game industry.

Figure 1: SG, an interdisciplinary synthesis



Source: IDATE

3.1.2 Segmentation of the value chain

The SG value chain can be characterised by four groups of players:

- SG publishers and operators,
- SG promoters and investors,
- SG prescribers and end users,
- the target industries and market segments.

The more the industry grows, the boundaries between each category are getting blurred. Two prominent aspects should be observed:

- It is in this diversity and in a timely and efficient "overlay" that SG will find its economic salvation and legitimacy.
- Each category continues to evolve and move away from its origins, rooted in game research, training, and development or in e-learning activities, to generate its own industrial benchmark in SG.

SG publishers and operators

This segment consists in the value chain of SG application development. It is characterised by the emergence of the executive producer position in assistance of developers, mainly with the production of video animations.

Below are technical operators, distributors, and solution and content vendors. These three stages can be in charge of the same player. However, they are generally carried out by specialised businesses, as is already the case in the video game industry.

SG promoters and investors

They are the source of the impulse currently experienced by the industry. SG has been an object of study as much as an investment. The contribution of this category of players will remain significant as long the SG industry remains in a nascent phase. Later, players from this category will continue investing, but increasingly as prescribers and end users. In this context, the existence of public orders and tenders can temporarily address the current paucity of effective demand.

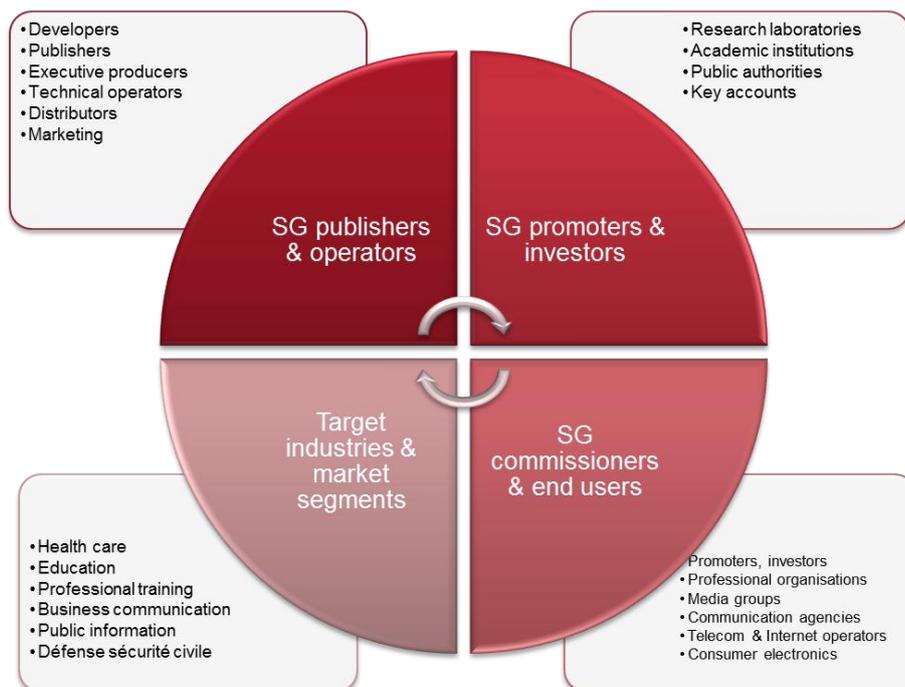
SG prescribers and end users

This category plays a fundamental role beyond to its pioneering and ground-breaking nature. It is this category that will ultimately lead to the adoption of SGs by SMEs. In the United States, it is for example through such players that the industry gets access to the necessary funding (in parallel to the public funds made available through the "Small Business Act") and provides developers with their main source of income.

The target industries and market segments

Six major industries and market segments are currently addressed by SG. They are cross-cutting with more traditional industries. In other words, agriculture, culture, energy, social services, environmental protection and training are addressed by SGs for information, communication, education, training, and simulation.

Figure 2: The players of the SG value chain



Source: IDATE

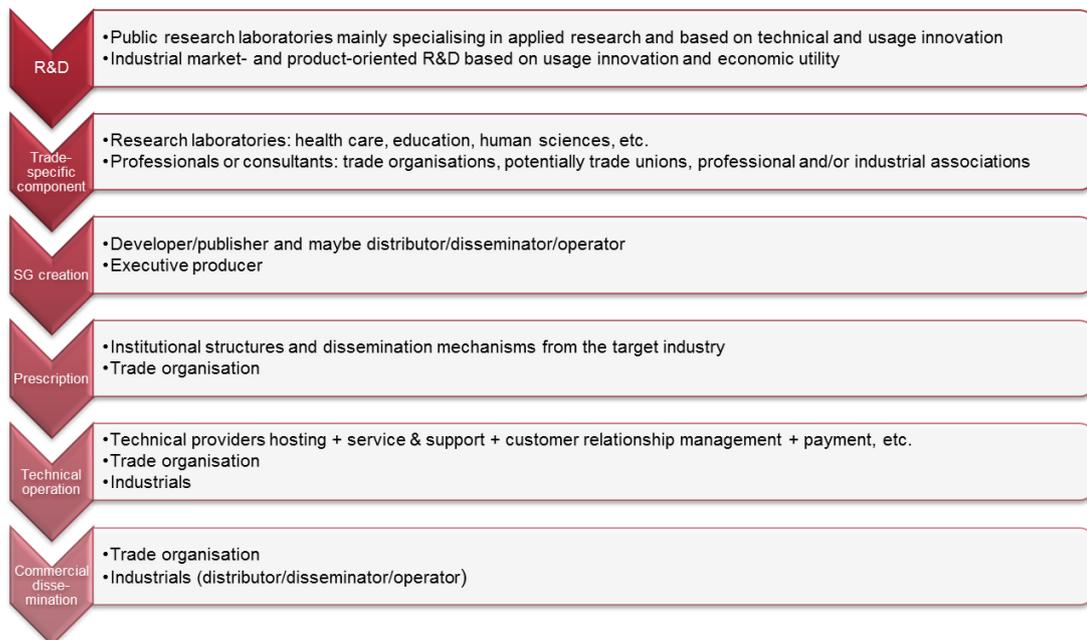
3.1.3 An approach based on partnerships

SG is an industry based on a technological and industrial convergence leading to a community of interest structured around partnerships aimed at the implementation of collaborative projects. It is within this context that SG should evolve, since it finds its essence in interdisciplinary collaboration. Ultimately, SG publishers will specialise in one specific market segment and integrate business expertise within their teams. This is already happening in certain businesses engaged in e-learning and which already have in-house educational skills.

The most common type of partnership is fostered by calls for collaborative projects (usually issued by governments). These can be initiated by any of the players, but they rely in any case on an R&D project, based in turn on the participation professionals with specific business expertise. The latter establish a bridge between content developers, the actual game designers and the prescribers, with whom they are still the closest at this stage of the industry's development. Beyond the actual production of the game, the application developer also intervenes at the bottom of the value chain by contributing to the game's promotion if it intends to act as publisher. It can also choose to take part in the game's dissemination.

Discussions are underway on the need to build **business-specific dissemination platforms**. Various projects are currently being developed. The goal is to build a standardised hosting, distribution, marketing and operation solution for SG developers. This platform would also link application providers with their customers. The industry needs to be structured around such a platform, which would pool and streamline the investments made downstream of the value chain. It is thus crucial for maintaining the activity of the links of the value chain in charge of content creation.

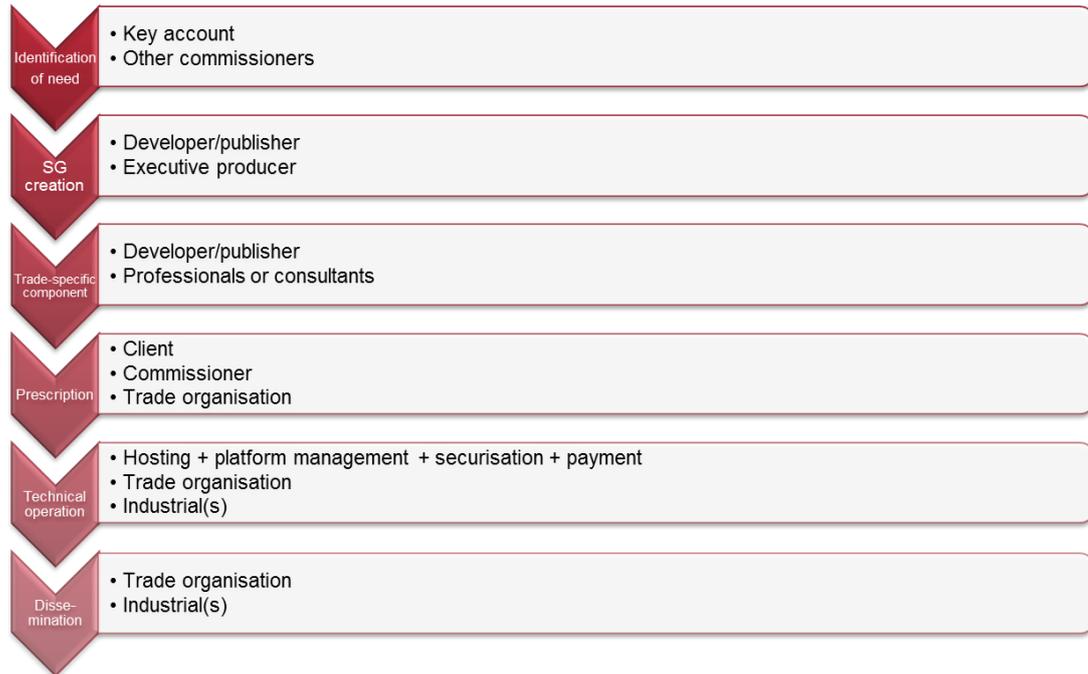
Figure 3: Collaborative R&D projects as part of a consortium



Source: IDATE

At present, **gaming projects** are mainly commissioned by key accounts. For SG developers, the main challenge remains to demonstrate their expertise and the effectiveness of their applications with respect to their stated objectives.

Figure 4: Commissioned gaming projects



Source: IDATE

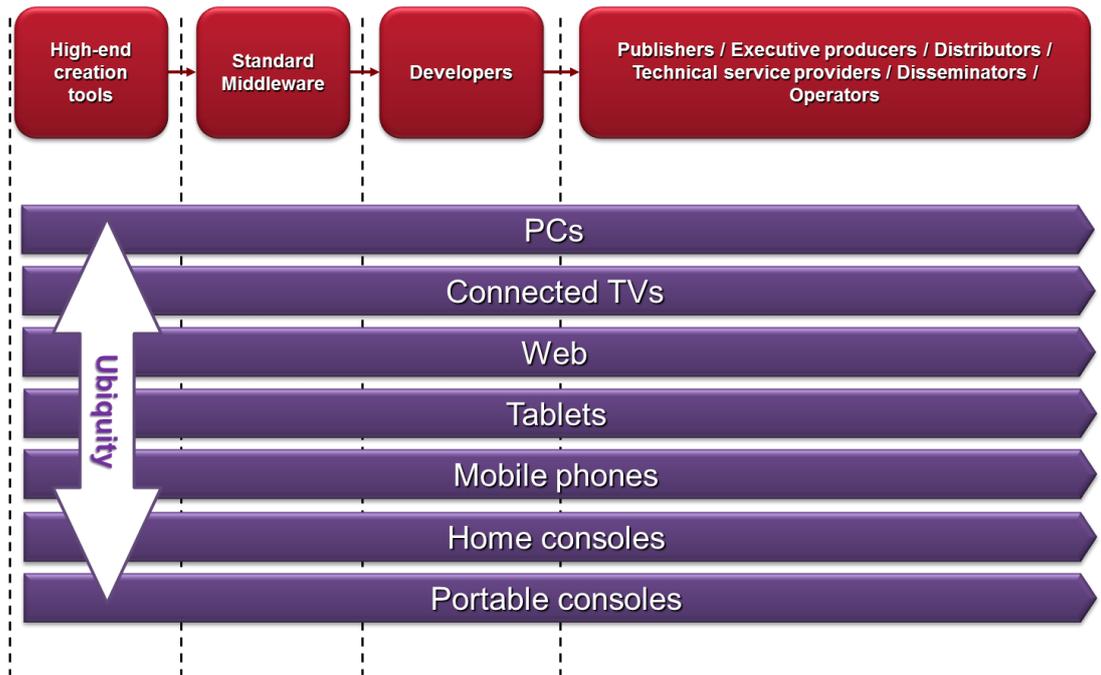
3.1.4 Waiting for ubiquitous SGs and SGs for connected TV

The SG industry is able to easily take up the new industrial challenges arising in the video game industry. The SG value chain is rapidly evolving and improving in quality, especially upstream of the production phase, through the use of high-end tools when they are deemed necessary. As mentioned above, these trends in the value chain should in the medium term (five years) lead to a concentration of the players at the bottom of the value chain.

SGs are cross-platform by definition. Like video games, they are designed to be deployed naturally on all possible mobile and fixed multimedia devices. In this regard, PCs are the preferred medium-term device for SGs. However, in the long run they may be replaced by connected TV, since this device is easy to use and therefore suitable for nearly all users. Online access is a must. It is undoubtedly mandatory for SG applications, both due to their social networking and multiplayer nature and for providing industry experts with real-time usage data enabling them to "manage" remote applications. Mobile phones are in fact the management device of choice for industry specialists and/or application developers and operators. They can also play a role in the gameplay, either in terms of substitution of use or complementarity. In late 2011, Ludoscience thus reported no less than sixty games for smartphones. However, given the comfort offered by the size of their display combined with touch-screen features, tablets are probably better suited than mobile phones for mobile SG uses. A tablet is also the perfect complement to a PC or connected TV. SG applications for these devices can thus be expected to proliferate.

Finally, SGs are inevitably bound to join the era of ubiquitous content, i.e. of content accessible via multiple platforms from a single user account, such as a Facebook account. This involves additional investments, but ubiquitous access is rapidly becoming critical in an increasingly virtualised context.

Figure 5: Medium term industry outlook

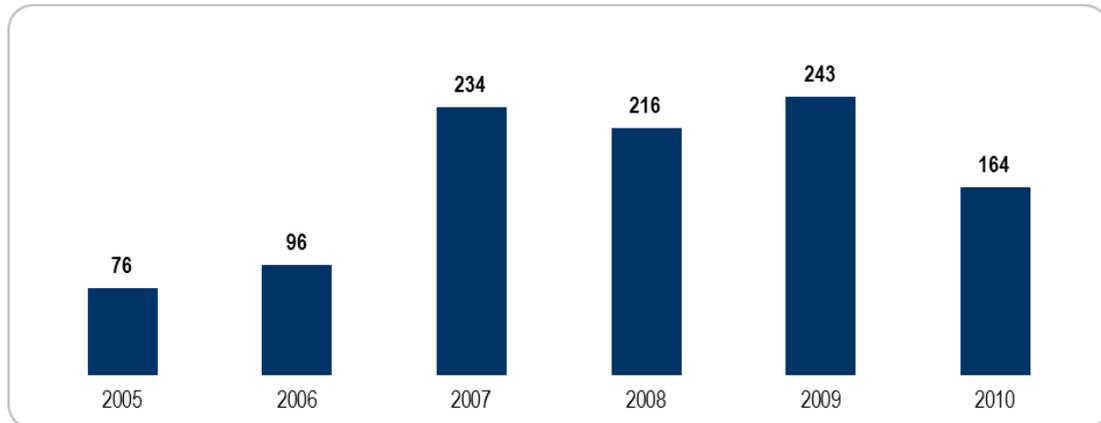


Source: IDATE

3.1.5 Publishing: downward trend in the number of SGs published

SG has experienced a significant drop in the number of titles published worldwide between 2009 and 2010, as reported by Ludoscience. This decline reaches indeed no less than 33%.

Figure 6: Number of SG titles published worldwide between 2005 and 2010



Source: IDATE-LudoScience / Gameclassification

Several factors may justify this trend:

- The amount of funds invested per project is rising. At equal number of players, the number of projects is thus logically reduced.
- Demand is less important than initially believed. At this stage of development, the SG industry is experiencing serious uncertainties and fluctuations in demand. The demand is clearly there, it is even obvious and significant, but to date it has failed to confirm its apparent ambitions.

One can also question the quality of productions. Many actors have entered the SG business regardless of the prerequisites mentioned above, in particular those related to the need for collaboration and integration between players from different disciplines. In addition, SG implies the provision of specific services related to application deployment, administration and usage

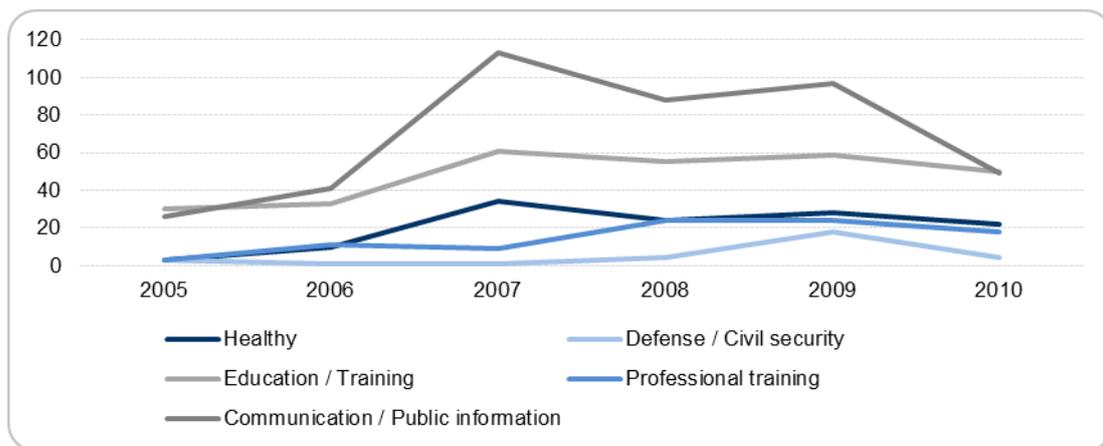
monitoring. This additional involvement is still insufficiently taken into account by the various industry players. Too many of them prematurely anticipate a business relying on off-the-shelf applications.

In France, the offer was boosted by the 2009 call for SG projects. Although this initial momentum slowed in 2010, the effects of this seed support on the number of titles published are clearly visible. The offer could rise again through the Investments for the Future programme, which potentially embraces SG projects.

A last possible explanation for the decline in the number of game titles: current business models have perhaps not yet demonstrated their adaptability to sectoral or business issues, or maybe they are not sufficiently in tune with these issues?

All market segments are affected by this decline. But mass audience information and communication have suffered more than others: a 50% drop in the number of titles between 2009 and 2010.

Figure 7: Evolution of the number of SG titles published worldwide by target industry between 2005 and 2010



Source: IDATE-LudoScience / Gameclassification

3.1.6 A refocusing of SG themes in terms of numbers of published titles

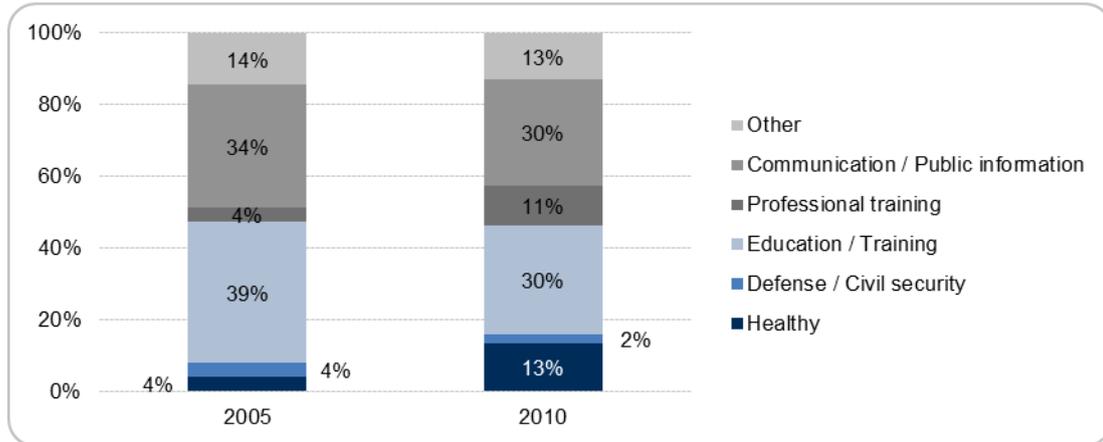
In 2005, the overall production of SGs was dominated by education, training and mass audience information and communication, which represented nearly three-quarters of published titles.

In 2010, two industries stand out in terms of numbers of published titles: health care applications by 9% and professional training applications by 7%.

Three factors may explain this growth:

- The effectiveness of applications due to a successful synthesis between education, business-specific issues and gameplay. It should be added that these two industries have adequately formalised their needs. In addition, health care and professional training are two sectors that invest heavily in information and communication technologies. The success of their espousal of SG is thus rather natural.
- Effectiveness of business models: under certain conditions, ICTs may result in considerable savings in the fields of health care and professional training. SGs are indeed efficient complementary tools for training personnel and health care professionals, as well as for the users themselves. As such, the business models are clearly identified and demonstrate a more convincing effectiveness in these fields than in, say, mass communication. However, business models largely remain to be carved out, particularly in health care.
- The effectiveness of industrial partnerships: these two market segments are better suited to partnerships because of their ties with teaching and research. They thus more easily participate in collaborative research programmes, particularly at the European level in the framework of FP7.

Figure 8: Distribution of SG reference titles worldwide by target market in 2005 and 2010



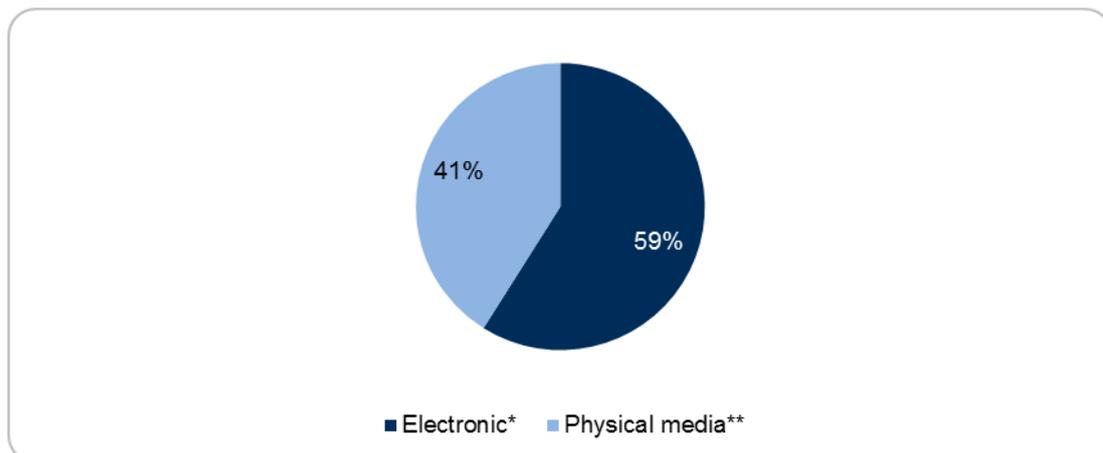
Source: IDATE-LudoScience / Gameclassification

3.1.7 Dematerialisation in line with usage trends

SGs are predominantly dematerialised: almost 60% of the titles published since 2000 are distributed via the Web. This figure depends however on the target industry:

- 90% of communication SGs are dematerialised. The propensity of this industry to embrace the new ICT technologies is high. Such a high level of dematerialisation is therefore far from surprising.
- 71% of professional training SGs are dematerialised: for the same reasons as above, but to a lesser degree, professional training and e-learning rely quite heavily on ICTs.
- More than 60% in health care: on average, this industry will derive increasing benefits from connected devices in the coming years due to the need to transfer data to health care professionals in a context of strong pressure for the development of home support.
- Only 37% in education, which still needs to better integrate SG, including as a development factor for connected applications.

Figure 9: Dematerialisation of SG distribution media



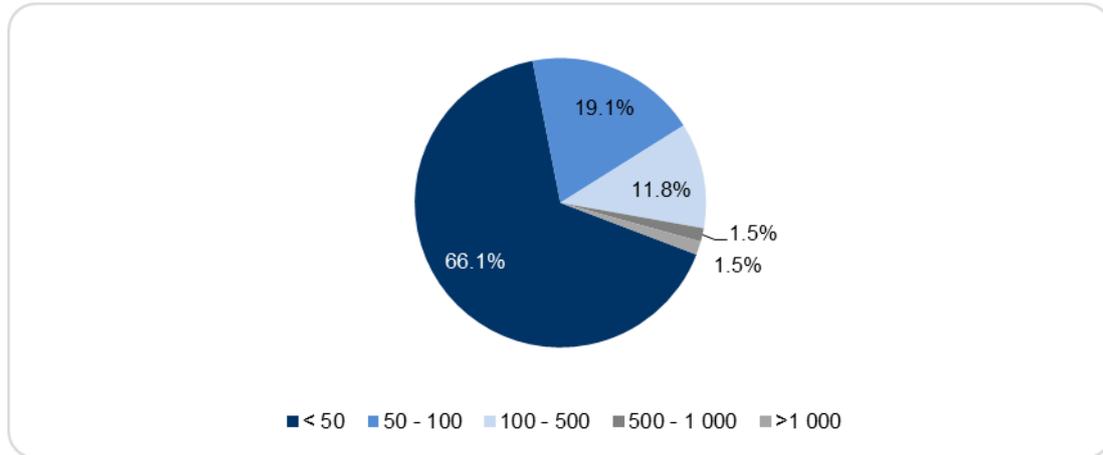
Source: IDATE-LudoScience / Gameclassification

3.1.8 Growing development costs

Two thirds of the SG applications identified by Ludoscience in 2009 and 2010 were produced with a budget inferior to EUR 50,000. The financial arrangements behind these titles were in fact incompatible with significantly larger budgets. Moreover, these budget levels do not impair the quality of the end products, which may very well achieve their goals by leveraging technologies financially accessible by a small team of developers.

However, in a context of ubiquitous and cross-platform applications, project budgets are expected to grow and eventually reach an average of EUR 200,000 to 250,000. This budget level is already being mobilised for projects based on real-time 3D.

Figure 10: Development budgets of SGs in 2009-2010
(thousand EUR)



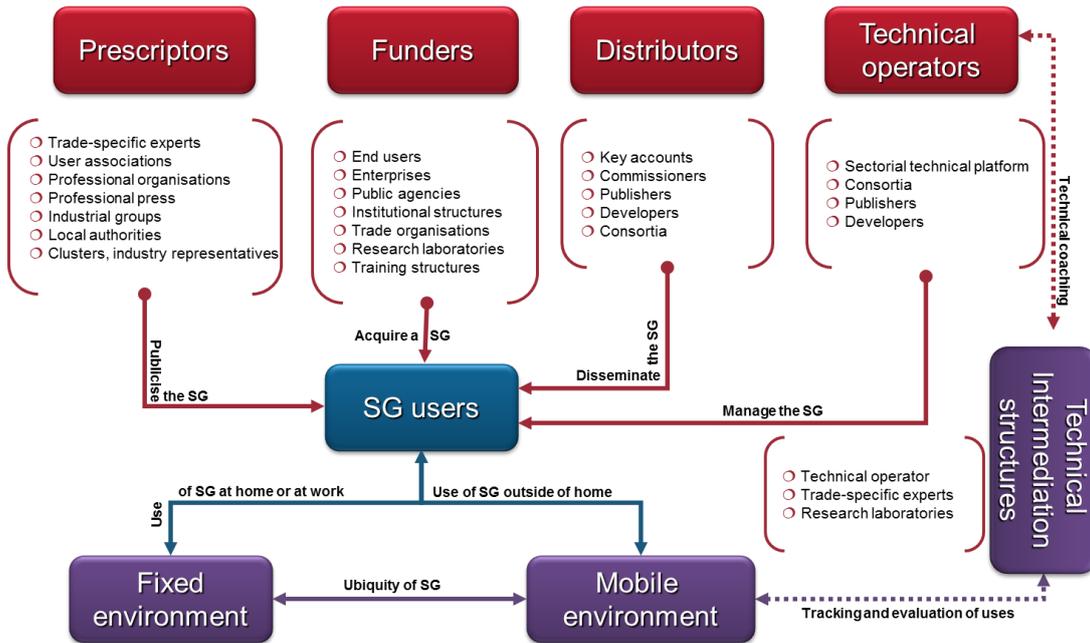
Source: IDATE-LudoScience / Gameclassification

3.1.9 Evolving business models

Beyond the structures involved in the production of SGs (developers, executive producers, publishers) and their end users, there are, from an economic point of view, four categories of stakeholders along the value chain.

- **The prescriber's** role is to disseminate and raise awareness about the SG. It generally comes from the application's business field and can be either a professional body or a representation of SG users. Clusters can also play a prescribing role based on the position they occupy within the business ecosystems.
- **The funder(s):** any type of model is possible at this level, be they licensing or delivery-based, promoted by governments subsidies or based on private funding. Funder can thus be end users, their residential, social or economic environments, private businesses, public agencies, etc.
- **The distributor:** this position can be occupied by SG developers and publishers, as numerous players in the field have shown. But the distribution role can also be filed by the "trade" commissioner, which is supposed to better understand the target audience than the developer.
- **The technical operation** may be left at the discretion of the distributor, the developer or publisher. The proximity of developers with a game's technical issues gives them clear legitimacy. Payment and customer relationship issues tend in turn to give more legitimacy to the SG's commissioner.

Figure 11: Possible flows within SG business models



Source: IDATE

Each of the flows in the diagram above can be matched with a financial flow. This flow chart is naturally an incomplete representation of all possible scenarios. It nevertheless helps to discern some of the issues at stake and certain key scenarios based on the potential stakeholders and the interoperability enabled by the SG, be it ubiquitous or not.

3.1.10 What to expect in 2012

2012 should see the coming of age of publishers, game content and commissioners.

Despite uncertainties about the economy in the year 2011, IDATE believes that the SG industry will record a surplus income of around EUR 890 million in 2012. This will result in revenues of EUR 3,2 billion in 2012 compared to the EUR 2,35 billion reported in 2011.

We have already observed significant progress in terms of the graphic quality of contents, which is slated to continue in the coming years. We anticipate progress in terms of financial revenues in 2012. These will be twofold:

- SG publishers should win customers beyond key accounts. The most likely target are SMEs, which certainly do not have the means to place substantial orders, but which should start looking into the services provided by the gaming applications, at least in the field of training.
- Key accounts should continue to invest in SGs in pursuance of their first investments, which resulted in numerous high quality productions.

Because of its economic and academic environment particularly sensitive and prepared to the development of this industry, France occupies a special place in the international SG landscape, alongside the US and the UK. It is to hope that the dynamism of its private and public stakeholders will confirm this position legitimised by international observers.

With respect to the SG development process, two remarkable aspects should be retained, whose effects will last until 2012:

- SG publishers have worked on the development of in-house middleware and reusable game engines, tools which enable the generation of gains from economies of scale.
- The company Unity Technologies is pioneering with quasi-free games (September 2010). It provides video game developers, and, more broadly, the entire digital image industry, the most reputed of all development tools. This business model change promotes the adoption of its software, which developers can now use for free, provided that the contents developed are not used commercially.

The effects of the widespread adoption of Unity Technologies development tools by SG players should become yet more visible in 2012, after a little over a year of learning to use them. This should result in a significant improvement in the gaming environments and visual creations. The quality of SGs will also largely benefit from the now nearly systematic inclusion of video game experts within development teams. More generally, SGs will greatly benefit from the overall improvement of the available development tools (HTML 5, Flash 11).

3.2 Economic outlook

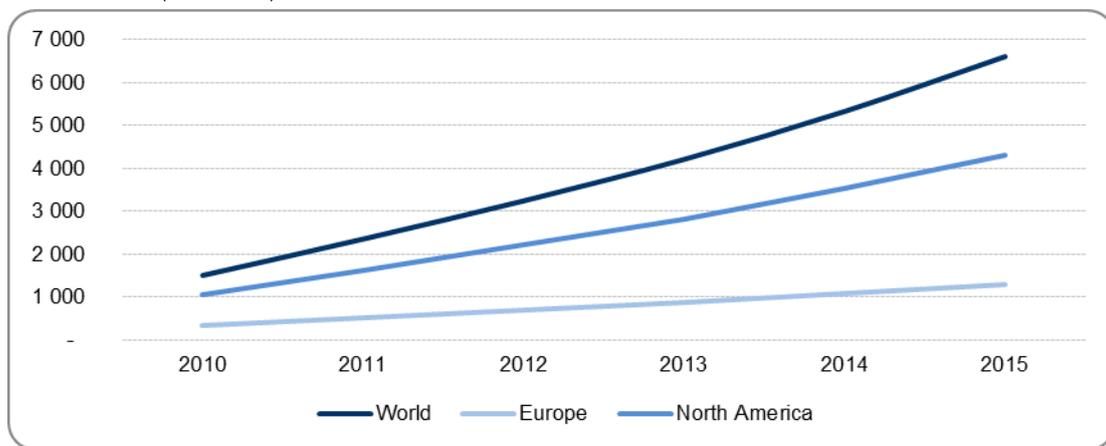
3.2.1 The global SG market

The most structured SG market and the one investing most heavily in this field remains the United States. The UK and France are neck and neck, although their respective SG markets are still in the start-up phase, in need of additional government initiatives to support the emergence of the industry. Belgium (Wallonia) has spurred a dynamic development environment, and is currently setting up the institutional structures needed to join the race. In Germany, China and Spain, governments have yet to be convinced to start seriously investing in the SG market.

This panel of countries is to be viewed only as a sample. Other countries, such as the Netherlands, Canada, Sweden, Denmark, Italy and South Korea are also well engaged in the SG market.

According to IDATE, the worldwide turnover associated with SG is expected to rise in 2011 to EUR 2,35 billion (all market segments combined), with the US alone accounting for more than 70% of this market. This figure takes into account SGs of the B2B and B2C sort.

Figure 12: Evolution of the global SG market, 2010-2015
(million EUR)



Source: IDATE

Table 1: Global SG market, 2010-2015
(million EUR)

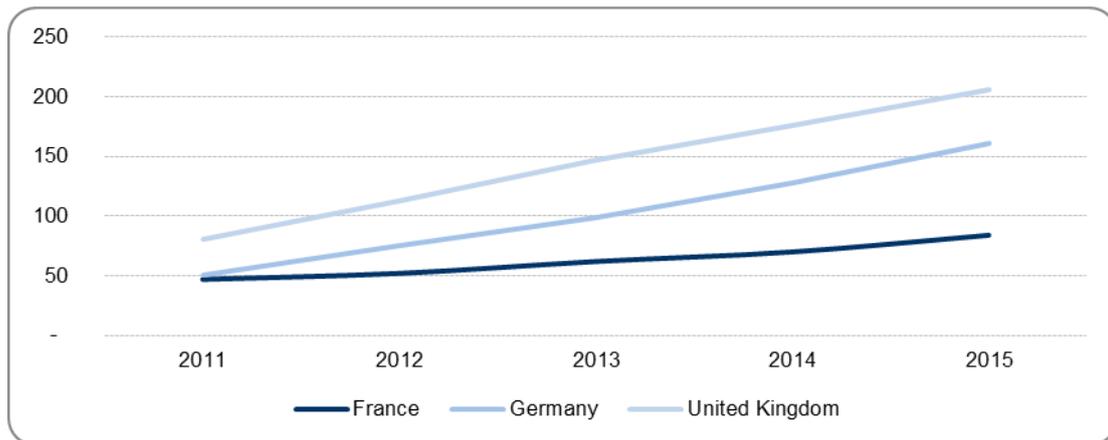
	2010	2011	2012	2013	2014	2015
Europe	330	505	680	863	1 066	1 289
Asia-Pacific	105	188	275	379	506	661
North America	1 050	1 622	2 203	2 821	3 518	4 297
Latin America	15	35	81	147	240	364
Total	1 500	2 350	3 240	4 210	5 330	6 610

Source: IDATE

In Europe, the most dynamic market remains the UK. The government recognised the challenges facing the industry, and, after supporting its emergence, is now letting market mechanisms take over. For its part, the economic fabric surrounding German SG developers, although poorly supported by regional and federal authorities, is sufficiently pragmatic to develop in the wake of latent needs. This should be enough to stifle the industry's active growth in the medium term.

The industry's growth in France should be more moderate. Uncertainty still surrounds the ability of SMEs to mobilise around SG applications, in spite of a strong demand from key accounts. The entry of SMEs in the market should however take place no later than 2014.

Figure 13: Evolution of the SG market in France, Germany and the UK, 2010-2015
(million EUR)



Source: IDATE

But on the ground, the players, especially the European ones, are not yet feeling the SG "boom". "We are still in an offer-driven market," explains for example Marc Meurisse, managing director of the Belgian Belle Productions studio. However, indicators lead to believe that the demand should become very significant around 2013/2014. First, the communication industry is announcing some lucrative orders for the renewal of aging websites both visually and technologically.

In the US, the SG market for the health care industry is receiving up to USD 20 million in public subsidies, which exceeds the USD 10 million budget of *Pulse!*, which remained unmatched since its release in 2007. In parallel, if the clinical protocols demonstrate the added value of SGs in prevention, training of health care professionals and healing support, a colossal global market of over USD 1,000 billion will open. SG could indeed form part of the e-Health segment, estimated to range globally between USD 250 and 500 billion in 2011, all infrastructures combined, by Stéphane Nègre, president of Intel France¹.

In parallel, the e-learning industry, in which the SG is already a legitimate tool, is described as having "the fastest growth in the global education and training industry" according to the "E-Learning: a Global Strategic Business Report" study from Global Industry Analysts². The global market was estimated at USD 52.6 billion in 2010, an increase of almost 50% in one year if we refer to the USD 27 billion that e-learning weighed in 2009 according to Upside Learning. Regarding the progress of SG within e-learning, noteworthy is the 300% increase recorded by Cegos in the number of employees trained via SGs between 2010 and 2011 in Europe.

¹ <http://bit.ly/ruuP75>

² <http://bit.ly/ezj4km>

Table 2: The global SG value market
(billion EUR)

Industry	Estimation of the worldwide overall market (2010)	Estimation of the worldwide online market (2010)	Outlook for the worldwide online market (2015)	Estimated industry share covered by SGs (2010) ³
Education	2 482 ⁴	39.7 (e-learning) ⁵	81 (e-learning) ⁶	1.2
Professional training	226.5 ⁷			0.25
Health care	755 ⁸	188 à 377 (All infrastructures combined) ⁹	188 à 377 (All infrastructures combined) ¹¹	0.1
		7.55 (home health care) ¹⁰	17.36 (home health care) ¹²	
Communication (Advertising)	359.15 (Advertising all media) ¹³	51.64 (Online advertising) ¹⁴	99.73 (Online advertising) ¹⁵	0.5
Defence	1 208 ¹⁶			0.3
Total	5 030	287 à 476 (excl. the defence industry)	386 à 575 (excl. the defence industry) or an increase of over 17% in 5 years.	2.35 this represents a share of 0.04% of all industries identified and about 0.5% of online markets.

Source: IDATE

Beyond the financial aspects, it should be noted that an increasing number of major video game publishers are embracing SG. Nintendo, the world leader of video games, is thus beginning to position itself in the B2B segment of SG with its eSmart application. This exergame, developed in 2010 with budget of USD 2.2 million, aims to train the new employees of McDonalds Japan (3700 restaurants) on the Nintendo DS¹⁷.



eSmart (Nintendo/McDonald's Japan, 2010, Japan)

³ IDATE estimate

⁴ IDATE estimate based on the daily rates of worldometers for July 12 and 13, 2011

⁵ Source: Global industry analysts

⁶ Source: Global industry analysts: <http://bit.ly/bJRexg>

⁷ IDATE estimate

⁸ IDATE estimate

⁹ Source: Stéphane Nègre, President of Intel France

¹⁰ IDATE believes that the range estimated by Stéphane Nègre, President of Intel France, will remain valid until 2015

¹¹ Source: eHealth Review: <http://bit.ly/gITxCG>

¹² Source: eHealth Review: <http://bit.ly/fbUixH>

¹³ Source: eMarketer: <http://bit.ly/nKk9iu>

¹⁴ Source: eMarketer: <http://bit.ly/nKk9iu>

¹⁵ Source: eMarketer: <http://bit.ly/nKk9iu>

¹⁶ Source: Global Issues: <http://bit.ly/gRwVs>

¹⁷ <http://bit.ly/cBRekz>

Bloomberg Businessweek, which in June 2011 identified 25 items likely to change the world, included SGs from Indian publisher ZMQ (featured in the 2010 edition of this report), that are broadcast on mobile phones¹⁸.



Safety Cricket (ZMQ, 2010, India)

Given the importance of the needs that SGs are likely to address and the increasing legitimacy of SG among video game publishers and influential media groups, demand in this area should logically grow significantly in the next two to three years. By then, a strong demand can be anticipated from the different market segments. Industry consolidation driven by the acquisition of development studios by major groups should accelerate this trend. In all segments, it will be important to closely monitor what the various players offer as SGs.

3.2.2 The French market

Spurred on by the call for SG projects launched in 2009 by the Minister of the Digital Economy, Mrs Nathalie Kosciusko-Morizet, with a budget of EUR 20 million, 48 SG projects have been put on track¹⁹. According to the table below, provided by the General Directorate for Competitiveness of Industry and Services (DGCIS), which is in charge of monitoring and managing these projects, the breakdown of subsidies indicates that the training segment has received the most funding, with grants totalling more than EUR 13 million, followed by health care (nearly EUR 4 million) and communication (both consumer and business) (about EUR 2.5 million). Defence and civil security come last with just under EUR 1 million.

The total investments amount to nearly EUR 40 million, consistent with the 50% matching fund requirements put forth by the granting agency for an average project duration of 24 months.

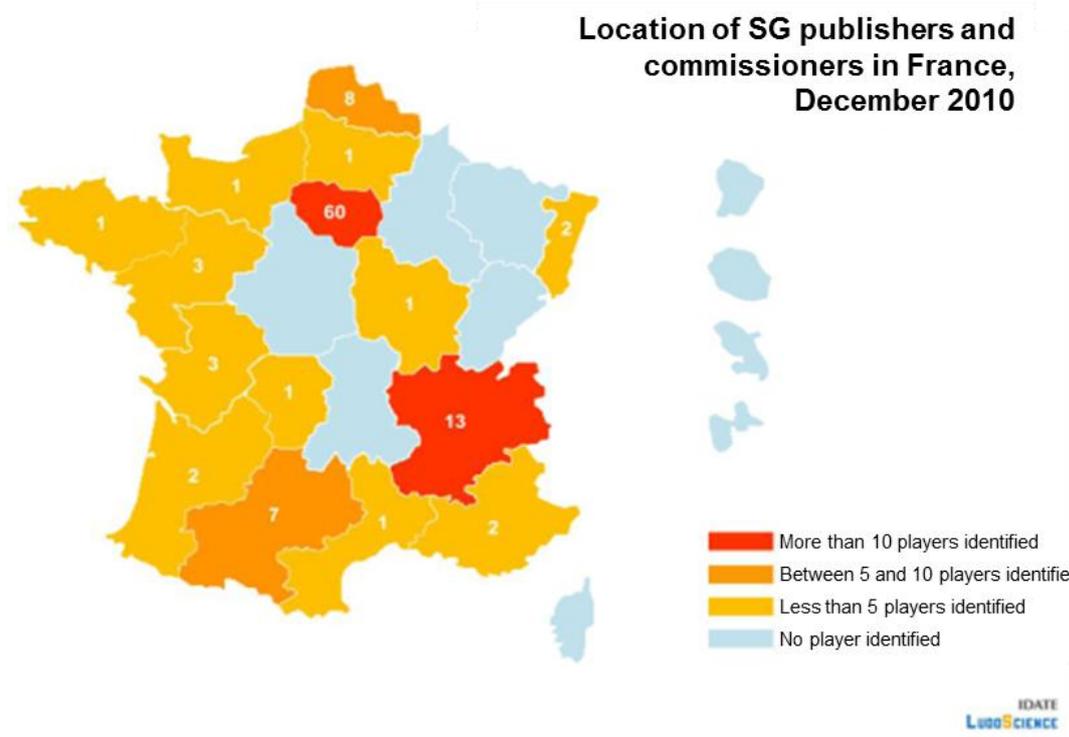
OTeN estimates at EUR 40 million the turnover related to SG in France in 2010.

¹⁸ <http://bit.ly/mLYoWy>

¹⁹ List of retained projects: <http://www.itespresso.fr/serious-game-et-web-20-nathalie-kosciusko-morizet-a-retenu-1-projet-sur-55-31385.html>

In this year, France had 106 SG commissioners distributed as follows:

Figure 14: Location of SG publishers and commissioners in France, December 2010



Source: IDATE, Ludoscience

Table 3: Summary of public and private spending as part of the 2009 call for SG projects (a.k.a. AAP NKM)

	Total funds (EUR)					Grants (EUR)				
	SMEs	Large enterprises	Public agencies*	NGOs**	Total	SMEs	Large enterprises	Public agencies*	NGOs**	Total
Training	18 257 265.60	2 739 144.55	4 135 291.00	678 182.24	25 809 883.39	8 215 769.52	821 743.37	3 873 961.12	229 072.10	13 140 546.11
Business communication	717 646.05	-	347 973.02	-	1 065 619.07	322 940.72	-	347 973.02	-	670 913.74
Health care	5 177 455.25	1 031 030.40	1 577 180.37	-	7 785 666.02	2 329 854.86	309 309.12	1 272 184.45	-	3 911 348.43
Defence / Civil security	1 594 262.11	182 366.78	138 563.17	-	1 915 192.06	717 417.95	54 710.03	138 563.17	-	910 691.15
Consumer communication	2 306 375.49	353 854.48	336 635.00	282 529.11	3 279 394.08	1 037 868.97	106 156.34	336 635.00	113 011.64	1 593 671.96
	28 053 004.50	4 306 396.21	6 535 642.56	960 711.35	39 855 754.62	12 623 852.03	1 291 918.86	5 969 316.77	342 083.74	20 227 171.40

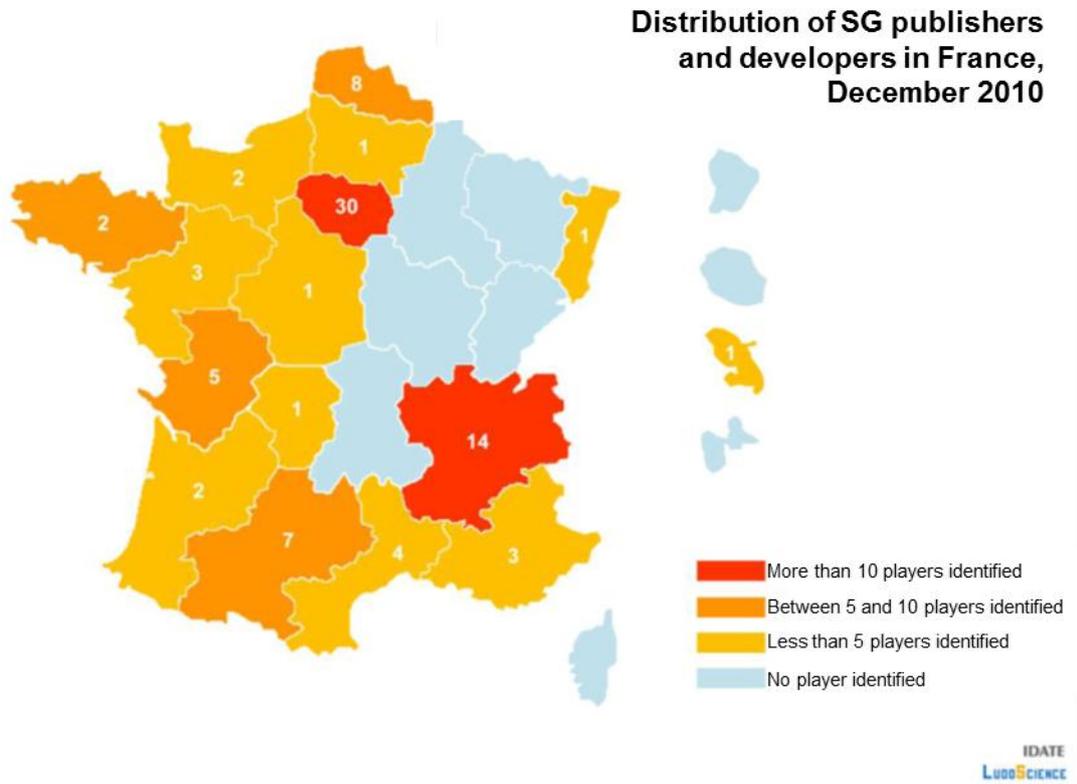
* EPIC / EPA / laboratories

** That were not accounted for as government laboratories or businesses during the grant awards

Source: Direction Générale de la Compétitivité, de l'Industrie et des Services (DGCIS)

With respect to SG designers and developers, 85 were identified in that year, distributed as follows:

Figure 15: Location of SG designers and developers in France, December 2010



Source: IDATE, Ludoscience

The Ile-de-France region is the main pool of SG players and commissioners. Other regions are, in order of importance, Rhône-Alpes, Nord-Pas-de-Calais and Midi-Pyrénées.

The 2009 call for SG projects has been instrumental in creating this momentum, and the structuring of the SG industry enabled France to make up all or a good part of its gap with respect to the UK.

IDATE forecasts the development of the French SG market over the 2010-2014 period as follows:

Table 4: Valuation of the SG industry in France: an approach in terms of value creation
(million EUR)

	2010	2011	2012	2013	2014	2015
Estimated turnover of SG publishers and developers	30.0	35.0	40.0	50.0	70.0	84.0
Estimated support from and government and local authorities*	11.0	12.0	12.0	12.0	-	-
Total	41.0	47.0	52.0	62.0	70.0	84.0

*a/ Government contribution as part of the 2009 "NKM" call for SG projects

b/ Contribution of local authorities as part of the regional "NKM" calls for SG projects in Nord-Pas-de-Calais and Rhône-Alpes

c/ Estimate of the share of the Investments for the Future Programme potentially available to SG projects

Source: IDATE

3.2.3 The German market

According to Dr. Malte Behrmann, General Secretary of EGDF, CEO of CP&PA OnLegends GmbH and manager of HB Games GmbH: *"In Germany, the SG market²⁰ is making progress. However, there is no national call for projects as the one that took place in France in 2009. In Germany, development of SG is supported by local and private initiatives. The most important sponsor, MFG, is based in the south-eastern part of the country. On the private side, there is an important SG initiative in Berlin, although tangible results remain to be seen (grants were awarded, but with no conclusive results to date).*

In Germany, the corporate leaders of SG design and development include Zone 2 and SG Solution, which has been operating a flagship title for the past 15 years: Emergency (to train fire-fighters). These are the two players that large German groups generally contract for their SG projects.

In parallel, there are other players (such as Forty Games) or studios developing small SGs as part of other activities (e.g., Chava Chava), which boils down to one developer producing online titles for NGOs (business model: philanthropic grants)."

In Germany, the best SGs are rewarded by awards.

Dr. Malte Behrmann explains: *"The SG Awards (<http://bit.ly/amcWLP>) are organized by the German equivalent of the SELL (BIU). Laureates are thus essentially interactive videos. In terms of public events, there is also: - The Game Days (<http://gamedays2011.de/index.php?id=71&L=1>), an event hosted by Stefan Göbel in Darmstadt near Frankfurt. - A national award, the Deutscher Computerspielpreis, which awards prizes to entertainment videos and, since 2009, to SGs. Zone2 has won all the prizes awarded during the first two years."*

Although the market is developing, this testimony reveals that SG in Germany still hasn't reached the masses.

3.2.4 The Belgian market

Yasmine Kasba, facilitator and Belgian trainer, moderator of the Seriousgame.be blog, describes her vision of the SG market in Wallonia: *"Over the last year, SG has been getting a lot of attention in Belgium and will become increasingly important. A lot of work naturally remains to be done, such as liberating public subsidies among other things, but I think that following the announcement made by Wallimage at the second annual conference in Louvain, not only will many jobs be created, but the necessary funding will actually follow. In addition, increasing collaborations between northern France and Belgium are creating very interesting ties. SGs have a bright future ahead of them!"*

Specifically, in 2011 Wallonia organized the second edition of the Seriousgame.be day. The event was an opportunity to identify many players participating in the industry's structuring. There are at least 11 studios: *Belle Productions, Crossknowledge, Crossroads, Defimedia, e-doceo, Fishing Cactus, gluconic, Lemon Crush, Now.be, Omedia and Pops Communication.*

This day is also an opportunity to identify players positioning themselves as SG publishers, an indication that Wallonia is starting to shape the market. 5 publishers attended the event: *Alterface, Guru training systems, CBlue, Immeractive, Softkinetic and Taatu.*

Finally, in support of this structuring are several incubators (LabSET, CRIDS) and programmes or organisations supporting SG-related initiatives (e-mage, Microsoft Innovation Center, St'art Wallimage Consortium Claroline, TWIST, INFOPOLE Cluster TIC or AGORIA).

The budgets invested remain relatively modest, but the initiative is on. A third seriousgame.be day is already planned for 2012.

²⁰ <http://www.seriousgames.de/>

3.2.5 The Chinese market

Since 2009, an annual trade show dedicated to SG is taking place in China, the "International Serious Game Exchange", held in Beijing (<http://www.zqcagi.com/fhqnew/ysyxcxfhgl>).

As David Lu, CEO of Macrotellect explains, the projects put forward by the event's website are mostly related to military training.



In answer to the question as to whether the Chinese government supports SG, David Lu says: *"The government has funding for game companies and high tech software companies in China, but no particular funding for SG projects. We received funding mostly for our high tech/biotech/software/animation and game projects, but not for the SG project. So I would say yes, the government is aware of the SG industry thanks to the Exchange and Summit meetings held yearly, but there is no dedicated foundation for SG, as the Chinese government and society have yet to realise its potential and importance. It is just my insight and experience about SG in China, it may be subjective."*

This declaration shows that the current investment environment for SG in China is not as supportive as in South Korea for example. Players seem to be few and far between, and clearly need to be creative to find resources to develop their projects. Such a state of play seems logical in the light of the date of the first official event dedicated to SG in China, 2009. It is also interesting to note the parallel with the United States, which, at their first SG-dedicated event in 2003, featured almost exclusively military games. It is only year after year is that other industries have started appearing.

3.2.6 The Spanish market

Francisco Ibañez, R&D Project Director of Brainstorm, gives his view of the SG market: *"In Spain there's an important market niche for SG, but governments (national and regional) are not supporting its implementation. In our case, the customers are organisations financed by governments, and without support from politicians, the implementation is impossible."*

This testimony illustrates the importance of policy initiatives in the promotion of the SG market. The Spanish government is actually involved in such a programme, called Escuela 2.0, initiated in 2009 with a budget of EUR 200 million to develop ICTs in all schools. In 2011, the 2nd Escuela 2.0 Congress was held in Zaragoza, focused on ICT uses. The worries of teachers with respect to new technologies has been raised, a reassuring sign that the viewpoint of the profession is taken into account. This approach demonstrates that preparing the ecosystem for the deployment of ICTs is part of the equation, which is an essential step for the subsequent development of SG.

Finally, in an exhibition dedicated to ICTs and health care held in Girona in May 2011, it was interesting to note that SG was highlighted by several speakers, such as teachers and representatives of large groups like Telefónica.

Spain is currently fertile ground for the development of SG, but the market is not particularly driven by political initiatives.

3.2.7 The UK market

Coventry University has been home to the SG Institute (SGI) for over five years. SGI estimates the current UK SG market at about EUR 40 to 50 million. This is comparable to the French market. However, in the education segment, despite of being one of the most equipped European countries in terms of computer and ICT penetration rates, Britain shows signs of a slowdown since 2010, following the financial crisis, as documented in a Cap Digital report of April 8, 2011: "ICT Investments: Britain faces exceptional austerity measures." For example, the British Educational Communications and Technology Agency (BECTA) was closed in 2011 due to fiscal restraint measures. While BECTA's activity has been followed up by the Department for Education and Skills (DfES), this closure is an indicator implying that SG may not be a priority development focus for the Department for Education in the coming months. However, some European projects enable British businesses to carry out their initiatives. In addition, SG in the UK is not confined solely to the education market. The UK thus produces numerous titles in the fields of communication in particular. For example, the Department of Energy and Climate Change (DECC) recently commissioned My2050. This game invites users to find the right balance so as to reduce the rate of the country's CO2 emissions by 20% compared to 1990 levels.



My2050 (2011, Delib / DECC, UK)

In summary, SG relies in the UK on structures and on an ICT-friendly environment providing a breeding ground for its development, which is already underway. However, the economic slowdown is currently forcing the country's players to reduce their investment in education. But this does not hinder some of them from accessing European funds in order to pursue their initiatives and other market segments to be invested by SG.

3.2.8 The US market

Noah Falstein, American freelance game designer, states that the SG market continues to be supported in the United States. He also confirms that the main productions are military and medical applications: " *The large majority of serious games in the US are funded from one of 4 general categories: **US Government** - particularly Department of Defence, which is spending huge amounts (probably tens of millions of dollars annually) on a wide range of projects, and the DARPA group and to a lesser extent TATRIC (combat medicine) are also significant players, but the NIH funds many health-related games, and I've also worked on projects funded by USAID (through the US State Department). The larger games (mostly military) have received as much as 20 million in funding for specific games, smaller ones still are in the USD 1 million area. **Private foundations** - Hopelab, York-Zimmerman, the Robert Wood Johnson Foundation, and quite a few other specialist groups have funded lots of games and research projects of various sizes, from several million (Hopelab) to more typical several hundred thousand. **Corporations** (US and multinational) - Cisco has funded dozens of different serious games, but I'm also aware of game projects by IBM, Shell, Chevron, BP, Hilton, and more. Typically in the hundreds of thousands of dollars per game, sometimes more. **Individuals** - As a freelancer I may see more of the small projects than most people,*

sometimes individuals with some money and a specific interest, either social or financial or both, fund serious games. Typically these are in the 10's to 100's of thousands of dollars."

Hence, the US, which are the cradle of SG, continue their investments in this area. Major players, like for example Breakaway, continue to develop big-budget titles, such as Code Orange, which aims to train hospital staff to evacuate a hospital as quickly as possible in case of a disaster. In parallel, Breakaway publishes regular updates of the *Pulse!* flagship title, now tuned with multiplayer features.



Code Orange: Emergency Medical Management Training for Mass Catastrophe (BreakAway, 2011, USA)

3.3 Technology outlook

3.3.1 Human-computer interaction (HCI)

The star device is currently Microsoft's Kinect, which has the advantage of not being intrusive and provides a new mode of interaction with the entire body. Application projects are already identified in the area of health care: R.O.G.E.R., MoJOS, etc. The first projects should be finalised during 2012. For initial and professional training, the Kinect is a very attractive device due to its immersion effect and the ease of use provided by the absence of accessories. The progress of this device should be monitored, as it may be followed by new generations of binocular webcams, which will form part of future terminal packages.

The appeal of the Kinect and Nintendo's "Wii Balance Board" lead to consider that any innovative device from the video game market with an attractive price and commercial success has strong chances of being adopted by the SG industry.

Commercial SG titles dedicated to cerebral sensors such as MindSet make a shy attempt with only one title referenced to this day. Is the Chinese manufacturer Macrottelect an exception, or will others follow suit? In the field of education and training, this seems improbable. However, in the field of health care, the potential uses are numerous. It is in fact in this segment that a massive development of applications is expected in the coming years.

For some players, SG is not necessarily multimedia. Thus, for Christian Molinari, managing director of the French company Abeilles Communication, the development of SGs based on physical games such as card and board games is its main activity in terms of volume: *"In terms of turnover, SG is certainly larger, since budgets are often close to EUR 100,000. But in terms of volume, we are still developing more physical games than multimedia applications."*

While these traditional media should certainly not be ignored as potential SG tools, it is also interesting to note that the new technologies, RFID, tablets, geolocation, tangible objects, etc., are gradually conducting developers to approach SG through all possible game formats. This foreshadows numerous developments in the field of HCI in coming years.

3.3.2 Image processing

Since 2010, there is a marked increase in the number of SGs making use of real-time 3D (*Playing History, The Plague, Jeu serai, R.O.G.E.R, etc.*). Particularly contributing to this development is the use of Unity 3D, but also of Torque, Shiva, and proprietary engines in the production chains.

This trend should continue in the years to come. A weight indicator: Flash, which until now had been the preferred medium of SGs developed in 2D, is losing some ground. In the software's next version, however, Adobe promises a state-of-the-art real-time 3D engine.

In parallel, there is an increased use of frame by frame video and photography, especially in the communication industry, with titles such as *Hunter shots a Bear, Magnum Pleasure Hunt Across the Internet, Replay, etc.*. This technology is expected to grow with the arrival on the market of large communication groups which should seek to streamline multimedia productions through cross-media or transmedia strategies.

In terms of future technological prospects, be it video or real-time 3D, the next step will be three-dimensional displays. However, as long as the technology involves the use of special glasses, this raises logistical, usage and costs issues. For 2012, auto-stereo displays are expected. The first SGs to embrace this technology will likely appear in the following months.

3.3.3 Network games

According to a study conducted by Orange Lab (published in the REE journal in September 2011), network games offer a very good replayability rate, unlike single-player games which are rapidly forgotten once the final level has been reached. However, multiplayer SGs are not very likely to be distributed free on the Web. This may make it difficult for an occasional player to find the number of participants required to start a game. This may in large part limit the use of such applications to areas such as training. The reason is either an insufficiently aggressive communication around these games, or the "serious" game connotation shunning people.

With a market estimated in 2010 at USD 1 billion and a 500% growth forecast by Parker Associates by 2015, the game on RSN is a real Eldorado. Hence, if the goal is to reach the general public with SGs built around RSN, it may be wise in a marketing plan to insist on the entertaining aspects and let the users discover the game's utilitarian dimension by themselves. This hypothesis is supported by a testimony from Dr. Jacques Pellissier, from the University hospital (CHU) of Nimes, who found that residents of nursing homes using the Wii largely favoured fun and entertainment over more "serious" games. Thus, for seniors, gaming is primarily recreational and part of occupational strategies.

Network gaming also includes applications played around tactile boards, tablets, smartphones and devices using tangible objects. These productions are however still too sensitive to form a real market for the time being. But it seems appropriate to monitor this segment, as it represents a pool of products that could rapidly break away and create a buzz.

3.3.4 Mobility

IDATE estimates the global mobile video game market in 2010 at EUR 3.95 billion. This represents a 7.6% share of the overall global video game market, estimated at EUR 51,937 billion for that year. Among the communicating devices, tablets and smartphones are booming. Thus according to Flurry Analytics, in 2010, the share of smartphones games represents 8% of the total US market is USD 800 million²¹. This is a significant figure compared to 5% a year earlier.

In comparison, again according to Flurry Analytics, the computer game market reached USD 700 million in 2010. This increase is not confined only to the US, since in France, for example, the *Micromania* video game franchise now also sells iPods and iPads. This testifies to the fact that Apple's devices are taken very seriously by the interactive video industry.

²¹ <http://bit.ly/dJgJZi>

This increase in smartphones comes at the expense of portable game consoles: in particular Nintendo DS and Sony PSP.

Considering that tablets and smartphones are targeting both individuals and professionals such as doctors, teachers or business executives, it seems logical to think that the SGs developed on these terminals will regardless affect the communication, health care, training and education industries. And it is not impossible that the defence sector will also be concerned. These perspectives suggest that SG on mobile devices should greatly grow in coming years.

3.3.5 Robotics

For the time being, there are few SGs associated with robotics, except on the side of consumer products. Today's flagship product seems to be Parrot's AR Drone. Augmented reality games are available with the aircraft, which is controlled via an iPhone.



On the laboratory side, a few teams own this machine. This could herald the arrival of experimental SGs associated with this device.

Another relevant example is the Lego Mindstorm product (NXT Robotics 2), which enables players to program a customised robot using a PC. This application relies on a language similar to LOGO, which since the 80s allows schoolchildren to understand computer programming by means of the associated Turtle robot.



In terms of market segments, for the time being education seems to be the area most concerned by this robotics solution. The health care industry also makes use of robots dedicated to functional re-education (Manus Project²²). This could herald robotics-based SGs with therapeutic purposes in the coming years.

²² <http://bit.ly/pk7YSA>

3.3.6 Other technologies

In addition to the five technology areas covered, there are other cross-cutting technologies. First, there are software systems designed to allow business segment experts to feed the SG's script. Two main approaches are used:

- encode the script in an external file that is then interpreted by a game engine. This approach requires that the business segment expert comply with a specific syntax. The most commonly adopted language is XML.
- Create the script via a text editor associated with a game engine. In this case, we refer to a "game factory". These come in two categories:
 - those originally dedicated to the development of video games, and thus to entertainment, which will be instrumentalised to generate SGs (adaptation of graphics, sounds, gameplay, etc.). This category includes *GameFactory 2*, *RPG Maker*, *Alice*, etc.
 - those that were created specifically for the development of SGs, such as *Kwizz* (C-Services).

Beyond these two categories, it is also possible to anticipate the arrival of SG-specific modules that will integrate and enrich existing game factories.

Concerning the dissemination of game factories, two trends are emerging. The first is the idea that such technology should remain within the studio that developed it. The idea is thus to develop a uniform line of SGs, like the Daesign studio with its *AVA formation* engine. Conversely, there are studios looking to massively disseminate their technology. The idea here is to impose a standard. This is for example the case of a project led by Succubus since 2005.

Still on the software side, there is another issue, that of metrics, i.e., the ability to record and analyse what the learner is doing while playing. Helen Routledge, Instructional Systems Design Manager at *PixeLearning* (UK), provides an overview of a possible orientation of metrics: *"We are working towards a piece of software where we can accurately assess a learner's behavioural patterns and communication to evaluate their soft skills abilities such as leadership and problem solving. Of course this brings us onto another technological challenge that is central to all L&D – the limitations of the LMS. Originally designed for e-learning, off the shelf LMS's are incredibly limited on what can be recorded; serious games can do so much more than they are currently limited to; so a challenge I am very keen for someone to solve right now is creating a serious games LMS so we can begin to capture the data required to support the industry as a whole."*

This metrics technology was already used by the US military in 2002 in the famous SG *America's Army*, and more recently in university teaching projects such as the *Pedagogical Dungeon*²³.

3.4 Business outlook

Several testimonies from distinct market players confirm the gradual structuration of the SG market. In practical terms, this translates into job opportunities for game designers, ergonomists, educational multimedia engineers, etc. Other players frequently mentioned are businesses resorting to project management coaching (PMC) exclusively specialising in SG, such as Simlinx. Still relatively few in number, these players are designed to help large corporations and public institutions elaborate SG projects and to help them draft the corresponding technical specifications. Stéphane de Buttet, Project Management Coach specialising in SG on behalf of Simlinx, of which he is an associate and founder (www.simlinx.com), describes his main duties: *"For a SG such as Wattou, we conducted for the ERDF, its commissioner, all the necessary project management coaching during the preliminary phase (studies, assessments, pedagogical and technological trade-offs, drafting of the technical specifications, assistance in the selection of contractors), followed by monitoring once the project has entered its production phase (production monitoring, review of deliverables, technical assistance and advice, testing)."*

²³ <http://bit.ly/moUhDm>



Wattou (ERDF, 2010)

Regarding budgets, Stéphane de Buttet explains that PMC generally represents between 10 and 15% of overall project costs. He adds that it fluctuates on a case by case basis according to *"the customer's support needs. In some cases, he has already matured his plan, accomplished an important part of the preparatory work and controls production management, while in other cases, we start from a simple idea, an ambition or vision, with hence substantial upstream preparation, research, assessment, arbitration and formalisation work, followed by equally important coaching services during the production and deployment phases."* Thus, there is no rule for budgets, since needs vary with each specific project. Some interventions may, in some cases, involve less than 5% of the overall project costs.

Still according to Stéphane Buttet, estimating the share of SG projects relying on PMC is *"difficult, since it is already difficult to estimate the exact size of the industry, with all the projects that their sponsors and implementers wish to keep confidential. However, PMCs specialising in SG are still rare, and the teams that need to be coached often find themselves overwhelmed by complex technological and educational issues that they don't know how to resolve."*

If the PMC provided by specialised players is still rather uncommon, who then takes charge of this function? For Stéphane de Buttet: *"It is often the technical service providers themselves who ultimately carry out this work when solicited by their clients, but then arises the problem of neutrality and of the value of advices given by a provider who will naturally be inclined to recommend its own technical solutions, even at the expense of the client's interests."*

In this context, does PMC have any chance of success within the SG industry in the coming years? Stéphane de Buttet is confident: *"We believe this market is effectively bound to develop, first because the market as a whole is growing steadily, and second because many customers now understand the value of coaching for the success of a project and keeping costs under control."* The development of this service thus seems to be whetting appetites. As Stéphane Buttet explains, this has several important implications: *"We are starting to see all sorts of technical service offerings flourish, attracted by this market's prospects, which creates a lot of confusion. It hence becomes increasingly important to be able to sort out the few good ones from the bad and from the mere opportunists who placate the term "SG" in all their communications, without having ever really understood what it is all about. It then becomes increasingly necessary to choose, among the good ones, the one that will best suit your needs and budget."*

While the PMC function takes into account the ecosystems in which an SG will be deployed, others are working to implement or optimise them. Philippe Ourliac, managing director of the Observatory of Digital Territories (OTeN) takes part in this dynamic. He explains what the OTeN does: *"The OTeN's mission is to encourage the development of ICT uses in the information society and educate local communities. To implement its mission, the observatory relies on its main tool, the IRIS (Regional Innovation Initiatives and Strategies). This project allows us to convene stakeholders and practitioners of digital policies. The objective is to share experiences, best practices, produce summaries and comparative studies of the public actions performed in the various regions."*

With respect to the perception of the OTeN on SG, Philippe Ourliac states: *"It should be noted that the study issues, such as SG, are proposed by the OTeN through technology surveys and the perception of strong signals observed here and there, including from abroad. The idea of studying SGs was suggested to the IRIS community in 2008, but this discipline was only just emerging in France, so there was no real feedback to analyse. So we launched the study²⁴ in 2010 considering, in the light of all the progress made in the field, that there was now room for a study in order to provide regions with advice and references. The analysis of SG from the point of view of an industry to be established and/or developed in a given region and between regions, revealed a true economic potential. Since our approach consisted in determining whether the structuration of infra- or extra-regional networks would find a hotbed of development and in identifying the issues, tools, and actions to deploy turns our tool into a real decision-support system for local authorities."*

This evidence supports the idea that the nurturing of a variety of specialty fields related to the development and deployment of SGs is highly likely in the near future, as long as financial revenues are possible and made accessible by an appropriate political and regulatory environment.

²⁴ <http://t.co/REViy4q>

4 Educational SGs

With a worldwide market estimated at around EUR 2 billion all industries combined in 2011, SGs represent only a drop in the bucket in comparison to the EUR 6.8 billion spent every day in the education industry. There is thus space for substantial growth. However, before the market share of SG can take off, it will have to demonstrate its added value and to foster the development of an ecosystem conducive to its expansion.

4.1 Characterisation of the market segment

SGs targeting the school market from kindergarten to college and other higher education institutions (engineering schools, business schools, etc.) form the educational market segment.

Their main objectives are to deliver a message, information, knowledge, or to examine and develop all sorts of personal skills (social skills, know-how, learning skills).

In this segment the main objectives are to:

- ★ Educate students (high school and college students) on topics related to their legal and/or social rights – **Olympe** – (*3D DUO*)
- ★ Demonstrate an educational know-how and recruit for schools – **WinGineer 3** – (*ESIEA*)
- ★ Introduce various Internet businesses by means of a riddle game – **Save ADA** - (*Abeilles Communication*)
- ★ Train students to improve their concentration – **The Mindty Ant** – (*Macrottelect*)
- ★ Teach college students the history of France – **History Games** – (*Interaction game*)
- ★ Introduce college students to the business world – **Komany!** – (*Ouat Entertainment*)
- ★ Introduce high school and college students to ICT-related careers – **Infinity** – (*Crossroads Digital Media*)
- ★ Teach students the major events of world history – **Playing History, The Plague** – (*Serious Games Interactive*)
- ★ Entertain and teach English and French – **Mondokiddo** – (*Mondokiddo*)
- ★ Entertain and teach the history of France – **Marie Antoinette** – (*Nemopolis*)
- ★ Entertain and help to create one's own quiz – **Kwizz** – (*C-Services*).

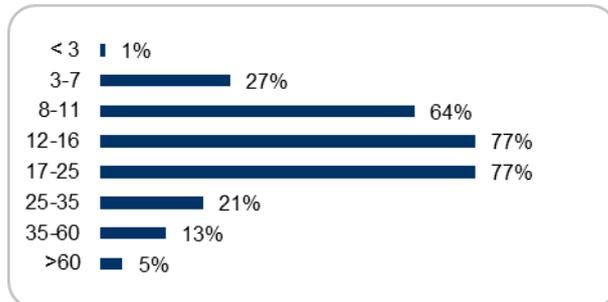
The SGs listed here can be used for transmitting knowledge (*Playing History* or *History Games*), educating learners (*Olympe*, *Kompany! Infinity*), or communicating, for example to assist in educational or vocational guidance (*Saving ADA*) or to publicise a particular institution (*WinGineer 3*). Finally, the after school market features applications such as *Modokiddo* (teaching children the language of Molière and Shakespeare), or *Marie Antoinette* (for learning the history of France while having fun on the Nintendo DS handheld console).

4.2 Statistics

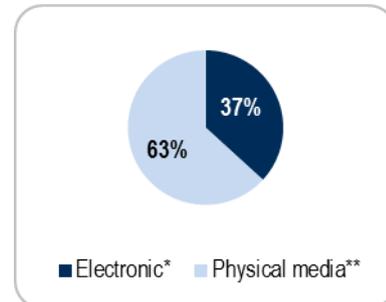
Intention to use



Distribution of users by age group



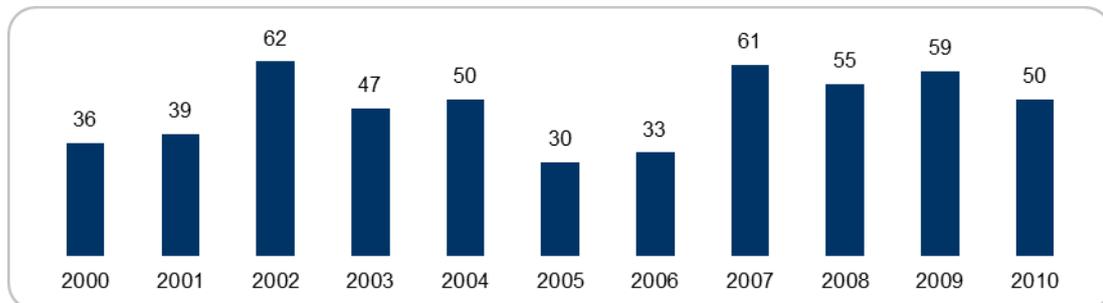
Type of distribution



* Browser / Download

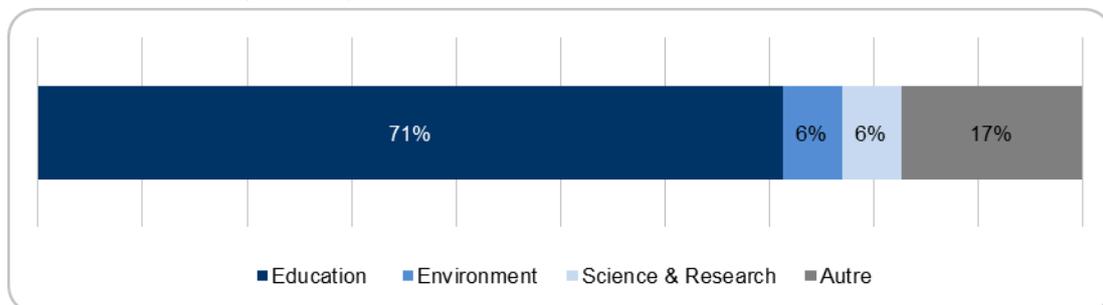
** CD-Rom, Console

Evolution of the number of published titles



Source: the 546 games for which this data was available

Breakdown of SGs by industry



Source: IDATE-LudoScience / Game Classification

4.3 Technology issues

Use of 3D

Games in 2010 and 2011 are increasingly frequently produced in 3D, especially through the use of the Unity 3D technology. This confers them a finish closer to the commercial titles dedicated solely to entertainment. This dynamic is particularly supported by sponsors, which use as references titles from the AAA Class, as Helen Routledge, Instructional Systems Design Manager at Pixelearning Limited: "*[...] people are looking towards AAA games from the commercial sector for guidance for their next simulation.*"

Peripherals

It is worth noting an evolution in terms of peripherals, with the introduction of incoming interfaces such as **Neurosky's MindSet**, a brain wave sensor which enables the user to control the avatar of *The Ant Mindy* game with his thoughts. The idea here is to help users learn how to concentrate. According to David Lu, the manager of the Chinese company that developed this game, Macrotellect, it is not a "one shot" experiment; other SGs using such a device should follow: "*I think biofeedback will be the next revolutionary technology for the SG industry.*"

Another incoming interface is attracting a lot of attention: **Microsoft's Kinect camera**. This is confirmed by Mikkel Lucas Overby, commercial director of the Danish SG Interactive: "*I think we will see advances in the use of motion techs such as Kinect*". As Helen Routledge explains, far from being a simple gadget, the Kinect seems to open real opportunities for exploring other facets of the learner: "*With the success of the Kinect, 'immersive' has taken on a different meaning; leading many to ask why learners should have to sit at a PC to learn? Gesture-based interaction is not a new development brought on by Microsoft, but it has been brought to into mainstream attention. But being able to immerse learners even further in the content is not enough. Related to immersion is the need to advance the assessment capabilities of serious games. In February of this year we won a Technology Strategy Board R&D bid to examine how to integrate software that can capture and assess learner's nonverbal emotional cues*".

The testimonies of David Lu, Mikkel Lucas Overby and Helen Routledge suggest that technological innovations of SG are closely related to those brought by the video game industry. The latter sets indeed the trend by the sheer size of its market, capable of fostering the mass adoption of new technologies and make them economically affordable. This observation, combined with the example of *Marie Antoinette* (Nemopolis), which can be played on Nintendo DS, illustrates the idea that SG industry should seriously adopt the platforms and technologies offered by the video game market.

Not to mention the smartphones and tablets, which also include entertaining features as suggested by François Delpierre, Administrator of the Belgian studio Belle Productions: "*The iPad is an object destined to this game "revolution", smartphones are purely recreational objects, and that's why Apple is so strong: this company has always been driven with the soul of a crazy kid*". Moreover, the edugames market already boasts certain titles, such as *Maths Emotion*, an American game which offers a sensory-motor gameplay based on the gyroscope contained in these devices to help users train their calculating skills.

Development tools

On the software front, issues revolve particularly around "user-friendly" development tools allowing non-programmers to generate SGs, as predicted by Frederik De Grove, Junior Researcher at IBBT- MICT-Ghent University (Belgium): "*I guess that the coming years will see the development of different tools for the rapid development of educational games*".

Indeed, in order to integrate trade-related aspects inside a game, it is necessary to provide the business experts, who are not necessarily programmers, with a means to edit their own scenarios.

4.4 Market segment issues

In essence, the creation of an edugame aims to bring together those who are related to the world of education with those who have mastered the concept of gameplay. To do this, both parties should perfectly understand each other. This may involve a strategy highlighting the strengths of the game, as advocated by David Lu: *" Our goal is to change this stereotype of video game by creating a fun, engaging, educational and meaningful gaming experience in our products."*

However, other studios are questioning whether teachers have an adequate training level for understanding ICTs. According to Helen Routledge: *"Conversely to the forward thinking seen in corporate L&D, education is still dragging its heels. I don't want to paint teachers in a negative light as they do a very hard job, but a large proportion is still not comfortable with new technologies let alone new approaches to teaching"*. Indeed, before demonstrating the potential added value of a video game, its target audience must have had a minimum exposure to ICTs. Added to this are issues related to the ecosystem in which teachers are immersed: *"Teaching is still largely based on the guidelines set by the local authorities and government, leaving little wiggle room for teachers to get creative. But educational serious games are being developed by small developers who understand the medium"*.

This testimony highlights the **need to develop training courses to train teachers in the use of new technologies**. Companies such as Clic-Attitude in Orleans specialise in this niche and propose to explore the SG subject within training courses dedicated to Information and Communication Technologies in Education (ICTE). However, new technologies sometimes find it difficult to penetrate the school grounds. May this in fact indicate the limits of "technopush", and may it be more appropriate to work more on the uses in order to integrate ICT ecosystems more smoothly within education programmes? This reflection, suggests that before developing an SG, the ground should be thoroughly prepared. Conversely, some players believe that the SG dynamics can help changing ecosystems so as to better accommodate ICTs.

Business prospects should see design methods integrate more closely and in finer detail the constraints linked to ecosystems, both on the teacher and on the "game designer" side. **Such a dynamic implies in particular to take into account the social dimensions and the related technologies:** multiplayer, Digital Social Networks (DSNs), ubiquitous contents, etc. Yasmine Kasbi, trainer/facilitator in a digital learning centre in Belgium says: *"I think that SGs will have to be made available on different media in order to reach a wide audience, which tends to favour multiplayer applications that can interface with the major social networks. Primarily education-oriented, whether cultural or social, academic or corporate, medical or advertising, they will reach diverse audiences because exchange will prevail."*

4.5 Market segment outlook

The business models of the education industry

The prevailing business models in the education industry are the commissioning and publishing models. Most SGs developed between 2010 and 2011 offer a qualitative leap in technology, featuring for example real-time 3D technologies or combining interfaces such as the Kinect technology. The idea here is clearly to match the commercial titles of the video game industry. However, in the world of education, which often lacks cash resources, the majority of projects rely on budgets inferior to EUR 50,000. In comparison to the budgets invested in AAA titles, which may sometimes reach into the tens of millions of euros, the gap between the two industries is quite pronounced. This requires educating clients on the results that can be expected with the budgets they are willing or able to disburse. As Helen Routledge explains: *"[...] with budgets being squeezed and the increasing acceptance of serious games, the expectations are rising beyond budgets and development cycles. Time scales are being cut and people are looking towards AAA games from the commercial sector for guidance for their next simulation. This is a blessing and curse in a way, it's great to see more and more RFP's asking for more and more cool stuff, but at the same time if the budget and time scales don't match, someone is going to come away disappointed. So I guess over all, a critical challenge is educating clients on efforts and costing for serious games development vs. commercial games development."*

Low cost SGs: a complex approach

To meet the budgets of the education industry, companies like the French studio Iodine²⁵ are deploying strategies meant to provide low-cost solutions. Some games are thus generated for budgets as low as EUR 3000 to 10,000. The University of Lyon 3 offers a "1 Euro" SG solution²⁶. This consists in providing engines allowing teachers to code their own games. At these rates, the applications offer 2D visuals or in text mode, with minimalist gameplays. Another strategy deployed is to acquire AAA Class games to turn them into educational tools. For example, turning a game like Warcraft 3 into a tool dedicated to the teaching of mathematics.

But the introduction of this approach can cause rejection from learners, as explained by Anne Wix, project manager for digital resources at the ICT Cluster of the Rectory of Aix-Marseille. In an SG experiment conducted in secondary schools of the Academy of Aix-Marseille, the students of a given class opposed the introduction of a game that had been endorsed by their teachers and parents.

For teachers and educational managers wishing to develop from scratch an SG dedicated to education, raising budgets – even lower than 50,000 EUR – is not a simple feat. They must often defend their ideas in front of colleagues and superiors which at best may ask for a demonstration, and at worst may not see any added value. In China, for example, similar situations are taking place, as described by David Lu: "*The biggest challenge that we face at the moment is how to raise the awareness of the importance of SG in families and schools. The concept of "Edutainment" is new and hard to promote to the Chinese market, because of the negative impression of "video game" in parents' minds.*"

In such a context, where everything related to video games can be seen as contrary or detrimental to the idea of teaching, additional and tangible evidence of the educational value of SGs often remains to be provided. In academia, the ROI is not just measured in terms of economic results, but also in terms of educational added value. Studies conducted at ESC Chambéry show that it is essentially at the level of skills (social skills and know-how) that SGs bring real added value with respect to formal education methods. But these results remain to be confirmed²⁷.

Towards new models?

Positioned in the after school segment, Bayard and Milan Editions offer since 1998 titles that for the most part can be likened to SGs. Today, with the range of offers found on the Internet – most of which are free – the need for new business models is obvious: offer subscriptions, as proposed by Mondokkido? Or invest in micro-payment purchasing solutions for specific contents, as envisaged by Yasmine Kasbi? Or even migrate towards the consumer edumarket game by publishing educational content sponsored by commercial brands? The question remains open.

Another avenue to explore is that of nomadic devices. Thus, in most developing countries, the mobile phone is by far the main multimedia terminal. It is interesting to take a look at the business model of ZQM, an Indian company. Its applications, whose development costs are estimated at less than EUR 10,000, can be downloaded for 1 Indian Rupee (INR) (EUR 0.0177). However, with over one billion people in India, the number of downloads achieves nearly 27 million for certain titles. This translates into an income of INR 27 million (close to EUR 478,000).

On the US market, Google records for the year 2010 an increasing number of downloads of games and applications via the *Google Apps Marketplace* dedicated to education, whose market value is estimated at around USD 5 billion, against 4.6 for the previous year²⁸. It is important, however, to subtract from this amount the share represented by SGs, which is not specified by the data source.

Market outlook

According to Worldometers, nearly EUR 6.8 billion are invested every day in education around the world²⁹. In 2009, France invested a budget of EUR 132 billion in education.

²⁵ <http://www.iode.eu>

²⁶ <http://bit.ly/h2GmG4>

²⁷ The evaluation of the efficiency of SGs for learning purposes. How to overcome the knowing doing gap? By Joseph HEILL, Professor-Researcher in Information and Management Systems / ESC Chambéry Savoie

²⁸ Source: Bloomberg: <http://bit.ly/fzxNAz>

²⁹ <http://www.worldometers.info/education/>

4.6 Case studies

4.6.1 History Games

InteractionGame	
Legal status	LLC
Year of creation	1998
Activity	Interaction Games specialises in communication, awareness-raising, entertainment and interactive training by means of serious games
Number of employees	17
Country	Paris / Rouen (headquarters) (France)
Web	www.interaction-games.com
2011 turnover	EUR 1 million

History Games		http://www.history-games.fr/the-game
Date of publication	September 2010 for the Beta version and 2012 for the full version	
Client	This project was initiated by the City Council of Elencourt (a city near Paris actively involved in innovative educational solutions)	
Project objectives	The goal of this project is to teach the entire school history programme to 14 year-old French children. This SG aims to be a complementary support for all teachers wishing to increase the global level of implication of their students	
Designer/Editor	Interaction Games (design, management, development, integration)	

Partnerships	
Technology partnerships	Flash
Trade partnerships	City Council of Elencourt, Initiative terrain association
Sales partnerships	None (This SG is free)

Game description

Gameplay

This teaching tool is customisable. Teachers have the opportunity to present and use this SG in multiple ways (user certification, training or additional content delivered in the classroom...). For the students, this game alternates gaming and exercise phases.

During the gaming phases, they learn about the context, the soldier's missions and the geographic progress of history in time.

During the exercise phases, they are questioned about their knowledge and need to find the right answers and analyse different documents in order to improve their score and reach the next stage.



Technology

Technical information	
Platform	Browser
Special accessories	
Technological characteristic	2D persistent universe, Customisable back-office and SG customisable for and by each teacher
Language	Flash / Php / MySQL
Engine	Flash

Feedback

A recent beta test demonstrates that students are more implicated thanks to the gaming experience. They enjoyed the SG concept.

They improved their understanding of the history programme thanks to this new approach, which is more tangible to them.

Economics of the project

Development	
Total development costs of the project	EUR 100,000
Industry-related contribution to development costs	-
Sponsors (if any) and degree of involvement	Initiative Terrain (NGO)
Reliance on a specific source of financing and amount received	City Council of Elencourt

Business model	
Pricing strategy	Free accessibility and practice for all teachers and students
Revenues and revenue-sharing	This Serious Game is operated as a non-profit project
Sales target	In a first stage, all the teachers and students of the "Ile de France" region, with an extension to the entire country if the experience is successful
Target break-even point	none

Marketing	
Marketing strategy	none
Project's sales and marketing budget	none
Sales force	none
Geographical scope	Ile de France and France in a second stage

4.6.2 Infinity

Crossroads Digital Media	
Legal status	SPRL
Year of creation	2011
Activity	Audiovisual and multimedia creation studio
Number of employees	5 + freelancers
Geographic location	Brussels (Belgium)
Web	www.crossroads.be
Turnover	EUR 520,000

Infinity		www.infinity-thegame.com
Release date	October 2011	
Client	Evoliris SPRL (www.evoliris.be)	
Project objectives	Raise high school student awareness about careers in Information and Communication Technologies	
Developer/Publisher	Frédéric Mignon (Crossroads Digital Media)	

Partnerships	
Technology partnerships	Internal R&D
Trade partnerships	100% internal design and development
Sales partnerships	None. The SG is distributed directly by the client (Evoliris LLC).

Game description

Synopsis

The game was developed on behalf of Evoline to raise high school student awareness about careers in Information and Communication Technologies. From an educational point of view, the real driver of the awareness-raising process is absence: the player must replace six people who disappeared and whose roles are unknown. To achieve this, he must investigate their technical skills, social skills and training. The goal is to have, at the end of the game, an empirical and practical notion of the various IT jobs available today.

Gameplay

Infinity is a classical point-and-click adventure game combined with a quest narrative. The player must navigate through different environments in which he collects clues and meets people with whom he can interact. His first objective is to find replacements for the 6 missing officials in order to unlock a series of situations and allow production to carry on in good conditions.

Technology

Technical information	
Platform	Web browser
Special accessories	No
Technological characteristics	2D Isometric perspective
Language	Flash AS3 – XML - MySQL
Engine	Proprietary isometric engine



Feedback

Game currently in development.

Economics of the project

Development	
Total development costs of the project	EUR 55,000 pre-tax
Industry-related contribution to development costs	25%
Sponsors (if any) and degree of involvement	Not at present
Reliance on a specific source of financing and amount received	No

Economic Model	
Pricing strategy	Available online for free
Revenues and revenue-sharing	n.a.
Sales target	n.a.
Target break-even point	n.a.

Marketing	
Marketing strategy	Dissemination through the classical Web channels (websites & specialised blogs, Facebook, Twitter, etc.)
Project's marketing and communications budget	None. The client is planning to promote the game during the various training programmes it provides and by word of mouth
Sales force	-
Geographical scope	Belgium (both French & Flemish-speaking regions) + France and Canada (Quebec).

4.6.3 Ludwig

ovos	
Legal status	GmbH (Ltd.)
Year of creation	2004
Activity	e-learning, Serious games, branded entertainment
Number of employees	15
Geographic location	Austria
Web	http://www.ovos.at/en

Ludwig		http://www.playludwig.com/en
Release date	September 2011	
Client	www.ovos.at/en	
Project objectives	Physics game on renewable energy for kids aged 11+, 100% Curriculum-based (Austrian curriculum)	
Developer/Publisher	Project lead: Jochen Kranzer, ovos	

Partnerships	
Technology partnerships	Scientific Partner: Danube University Krems, Didactical Partner: Graz University
Trade partnerships	
Sales partnerships	International sales partners will be contacted

Game description

Synopsis

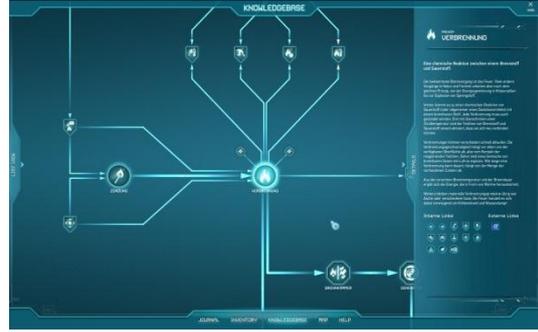
In cooperation with the Danube University Krems, Ludwig has been optimised to promote the knowledge transfer process in classrooms. However, the game can only ever be part of an overall didactic concept. In addition to the game, the integration into a comprehensive learning platform allows the linking of teacher and student profiles. This enables teachers to evaluate their students' learning statistics, to jump to a certain content of the game while in the classroom and to use teaching material from the game, such as worksheets, building manuals, practical handbooks, and so on.

Gameplay

3D Adventure game. The game is about finding, investigating and applying physical principles.

Technology

Technical information	
Platform	PC and MAC (client)
Special accessories	Wii mote / Kinect / Wii Balance board / Eye Toy / Other?
Technological characteristics	Real-time 3D Adventure
Language	German and English (more languages can be added)
Engine	Unity 3D



Feedback

Information not available at this time

Economics of the project

Development	
Total development costs of the project	Between EUR 500,000 and 1 000,000
Industry-related contribution to development costs	-
Sponsors (if any) and degree of involvement	EUR 250,000
Reliance on a specific source of financing and amount received	Grants: EUR 400,000

Economic Model	
Pricing strategy	Classroom licenses
Revenues and revenue-sharing	In development
Sales target	-
Target break-even point	-

Marketing	
Marketing strategy	School promotion and online promotion, PR
Project's marketing and communications budget	-
Sales force	-
Geographical scope	International

4.6.4 Mondokiddo

Mondokiddo	
Legal status	Simplified Joint Stock Company
Year of creation	2011
Activity	Creation and development of a website for kids
Number of employees	Releases scheduled for 2011 – 2012: 3
Geographic location	France
Web	www.mondokiddo.com
Turnover	2011-2012 forecasts: EUR 112,000

Mondokiddo	www.mondokiddo.com
Release date	September 1, 2011
Client	Mondokiddo, SJSC, whose mission is to create and develop culturtainment games
Project objectives	Awaken the desire for learning foreign languages through the discovery of world cultures in 5 different thematic areas: sports, music, monuments, food and travel diaries
Developer/Publisher	Design: Stéphanie Simpson, mondokiddo, France

Partnerships	
Technology partnerships	
Trade partnerships	Mondokiddo is collaborating with several service providers (12 in total).
Sales partnerships	Web marketing agency: Tassha Studio

Game description

Synopsis

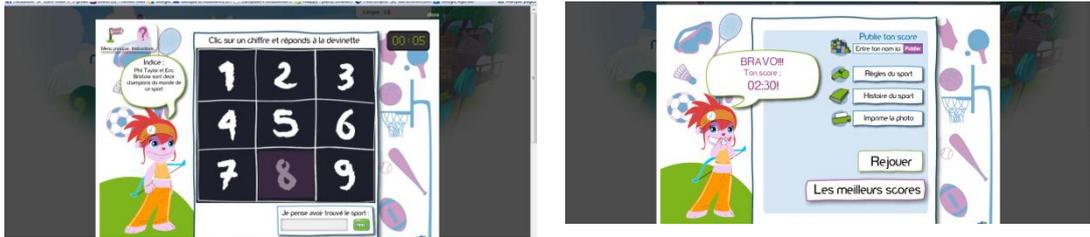
The idea of an Internet exchange platform for awakening children to the cultures of the world germinated in 2000. At the time, Stephanie Simpson, the founder of Mondokiddo, was keeping a little girl of Italian-American origin. Her mother wanted her to learn Italian and imported language tapes from Italy. Stephanie Simpson found that there was a potential market by providing via the Internet a more "direct" way to make children discover foreign cultures. She began to develop the Mondokiddo project in 2010.

Gameplay

Among other features, the MondoKiddo Web platform offers a set of games, including guessing games, skill games, etc. The idea with each game is to confront the child with words and cultural references from a foreign country.

Technology

Technical information	
Platform	Web browser
Special accessories	
Technological characteristics	-
Language	ActionScript
Engine	Flash



Feedback

Two initial demonstrations were given at the Cité du Livre and the Youth Information Office in Aix-en-Provence. Children have a keen interest in the proposed activities: <http://www.mondokiddo.fr/video.html>

Economics of the project

Development	
Total development costs of the project	The budget for the development of the "mondokiddo" website amounts to approximately EUR 80,000. The sports game cost EUR 3,800.
Industry-related contribution to development costs	-
Sponsors (if any) and degree of involvement	none
Reliance on a specific source of financing and amount received	none

Economic Model	
Pricing strategy	Subscription-based website. The "game" section of mondokiddo costs EUR 85/year per child for a minimum of 80 different contents per year (ex: a little French kid may discover thirty British sports per year, about forty English recipes through the "cooking game", etc.)
Revenues and revenue-sharing	Online payment
Sales target	Reach 1,500 subscribers in Year 1
Target break-even point	EUR 120,000

Marketing	
Marketing strategy	Web marketing: blogging mom and dad, e-mailing, targeted advertising, school magazines
Project's marketing and communications budget	EUR 23,000
Sales force	2 (the company founder + 1 community manager)
Geographical scope	59 English-speaking and 49 French-speaking countries, but mainly in France and the UK during Year 1

4.6.5 Olympe

D DUO	
Legal status	LLC
Year of creation	2008
Activity	Video game development studio (Serious Games, Casual Games, Social Games & Cross-Media Games)
Number of employees	12
Geographic location	France
Web	www.3dduo.com
Turnover	EUR 600,000

Olympe		http://www.droitdejouer.com/
Release date	May 2011	
Client	Éditions Législatives (DALLOZ group)	
Project objectives	Educate students (high school and college students) on topics related to their legal and/or social rights.	
Developer/Publisher	3DDUO LLC	

Partnerships	
Technology partnerships	-
Trade partnerships	Les Éditions Législatives and the DALLOZ group
Sales partnerships	Le Pôle Images & Les Éditions Législatives –DALLOZ group

Game description

Synopsis

In early 2009, the senior management of Éditions Législatives wanted to implement, through a series of working groups, the ability to develop innovative concepts likely to benefit the company in the medium-term. For one of these working groups, the primary objective was to explore the potential of serious gaming for the acquisition of crucial information on various legal issues by means of a fun and entertaining simulation scenario. The "Olympe" concept thus emerged.

Gameplay

In Olympe, the player may embody different stakeholders, depending on the issue addressed. In Episode 1 (Dismissal), he embodies Xanthos, unhappy sculptor employed by Poseidon to build his temple.

Throughout the various episodes offered, the player must acquire and/or validate legal and social knowledge through mini-games such as the "Casual game".

An administration tool enables him to change the legal content of the mini-games for replay purposes or in order to update the legal information.

Technology

Technical information	
Platform	Web browser
Special accessories	-
Technological characteristics	Full 3D kinematic, IA on one of the mini-games, administration tools to quickly modify the legal content for each of the mini-games.
Language	ActionScript
Engine	Flash



Feedback

The game's main objective is to raise the awareness of as many people as possible within the target audience (high school and college students). The website has been online since May 1, 2011, so it is still premature to comment its results. However, after just 3 weeks, the daily attendance was already in excess of 2000 visitors per day (www.droitdejouer.com).

Economics of the project

Development	
Total development costs of the project	EUR 80,000
Industry-related contribution to development costs	EUR 10,000
Sponsors (if any) and degree of involvement	No
Reliance on a specific source of financing and amount received	Pole Images, CRRV & CCI of Valenciennes (EUR 30,000)

Economic Model	
Pricing strategy	n.a.
Revenues and revenue-sharing	n.a.
Sales target	n.a.
Target break-even point	n.a.

Marketing	
Marketing strategy	Dedicated website, placement and distribution of flyers at the exit of high-schools and universities, social networks, etc.
Project's marketing and communications budget	EUR 5,000
Sales force	n.a.
Geographical scope	France

4.6.6 Playing History: The Plague

Serious Games Interactive	
Legal status	LLC
Year of creation	2006
Activity	Denmark
Web	www.seriousgames.dk

Playing History: The Plague		www.playinghistory.eu
Date of publication	November 17, 2010	
Client	New Danish Screen	
Project objectives	The Playing History game series utilises the game media to teach pupils about important events and periods in world history	
Designer/Editor	Serious Games Interactive	

Partnerships	
Technology partnerships	Unity 3D
Trade partnerships	None
Sales partnerships	Various educational publishers and distributors

Game description

History

The idea behind Playing History is to focus on the small story that illuminates the big one: to experience the role of individuals in world history and human living conditions in different historical periods. Playing History is based on the belief that learning about history can be fun and exciting. The game aims to create a platform immersing pupils into history and thus raising their interest for the history topics addressed in the classroom.

Gameplay

The first episode in the historical game series is called 'The Plague' and centres on the arrival of the Black Death to Europe. In the game, which is a 3D adventure game, the player is a young boy from Florence, on a mission to save his family from the plague. To complete the game you learn about the dominant religious views, science and living conditions in the Middle Ages.

The Plague is developed to fit curriculum requirements for key stages 2-3. The main goal is to encourage pupils to form an opinion as to how historical accounts differ and how knowledge of history is based on the sources from which this knowledge emanates.

Technology

Technical information	
Platform	Browser
Special accessories	
Technological characteristic	
Language	C+
Engine	Unity 3D



Feedback

Information not available at this time

Economics of the project

Development	
Total development costs of the project	200 000EUR
Industry-related contribution to development costs	
Sponsors (if any) and degree of involvement	New Danish Screen funding EU Media funding
Reliance on a specific source of financing and amount received	130 000 EUR

Business model	
Pricing strategy	Subscription based model. One year subscription for a private user is 9.95 EUR and a School Licence (250+ users) is 79.95 EUR
Revenues and revenue-sharing	Information not available at this time
Sales target	Information not available at this time
Target break-even point	200 000 EUR in revenue

Marketing	
Marketing strategy	The game is sold on the www.playinghistory.eu online portal, mostly targeting schools and educational institutions. It thus comes with a teacher's manual, topic overview and pupil assignments. The marketing strategy and activities are focused on reaching this target audience through direct PR operations and other means, such as e-mail campaigns, social media and industry forums. Furthermore the game has been presented at different educational trade and technology shows, such as BETT 2010 and 2011.
Project's sales and marketing budget	Information not available at this time
Sales force	Information not available at this time
Geographical scope	The game is sold internationally, but is available in the following languages: English, German, Danish and Swedish.

4.6.7 The Mindty Ant

Macrotellect Ltd.	
Legal status	Private Company
Year of creation	2010
Activity	Game Design
Number of employees	Less than 10
Country	PR China
Web	www.macrotellect.com
2011 turnover	USD 10,000 / Month

The Mindty Ant	http://store.neurosky.com/products/the-mindy-ant
Date of publication	December 1, 2010
Client	NeuroSky, Inc.
Project objectives	Attention training through game play for young children
Designer/Editor	Macrotellect Ltd. (www.macrotellect.com)

Partnerships	
Technology partnerships	NeuroSky Inc.
Trade partnerships	NeuroSky Inc. Chinese Educational Institutions
Sales partnerships	NeuroSky Inc. Chinese Educational Institutions

Game description

History

The game, "The Mindty Ant", was one of the training game packages created for NeuroSky Inc. The concept is to create a simple and intuitive user experience that combines attention training and engaging game play for children aged 4-14.

Gameplay

The player needs to use his/her "mind" to control the main character in the game with a peripheral brainwave sensing device (MindSet or MindWave headset). When the player concentrates, the character (the Mindty Ant) will push a fruit forwards until it reaches home. There are different obstacles in different levels. The player needs to resort to different "Mind Control" techniques to go through these obstacles.

Technology

Technical information	
Platform	PC and Mac
Special accessories	NeuroSky MindSet or MindWave headset
Technological characteristic	EEG (aka. Brainwave) Neurofeedback
Language	C#, Javascript
Engine	Unity 3D



Feedback

When the Mindty Ant was tested in school, it generated a lot of interest among students and teachers because it offered a new game concept. Then it was widely welcomed by the parents because of its educational nature. The game package (headset and game software) was recently used as an educational tool in 10 schools in China, and the number is increasing.

Economics of the project

Development	
Total development costs of the project	USD 50,000
Industry-related contribution to development costs	Game Design, Brain Computer Interface, EEG Neuron-feedback
Sponsors (if any) and degree of involvement	n.a.
Reliance on a specific source of financing and amount received	n.a.

Business model	
Pricing strategy	USD 10 per download
Revenues and revenue-sharing	80% for developer and 20% for NeuroSkty, Inc.
Sales target	Children from 4-14, family, schools and research institutions
Target break-even point	10,000 sales

Marketing	
Marketing strategy	Online viral marketing, conference, direct marketing to schools
Project's sales and marketing budget	USD 500,000
Sales force	Experienced sales team of 5-10 people
Geographical scope	Southern Chinese region

5 Training SGs

The professional training market was estimated in 2009 at USD 104 billion in the US and USD 13.24 billion in France. As for e-learning, which occupies a position of choice in the training industry, the global market was estimated at USD 52.6 billion in 2010³⁰. In comparison, for each of these figures, SG dedicated to training represents less than 1% market share. This thus leaves ample room for improvements.

5.1 Characterisation of the market segment

SGs related to the assimilation or the development of a professional activity fall within the training segment. Of all the games considered by this study, the objectives are to:

- ★ Provide management training: **Entretien Recadrage** (*ITycom*)
- ★ Train and raise awareness on the management of diversity and non-discrimination: **Diversité** (*Daesign*)
- ★ Recruit law students: **Houthoff Buruma The Game** (*RANJIT*)
- ★ Enable engineers to test their skills: **EDF** (*Real Fusio*)
- ★ Provide specialised training based on the client's order: **SSC** (Sea Sim Crisis) (*VirDyS*)

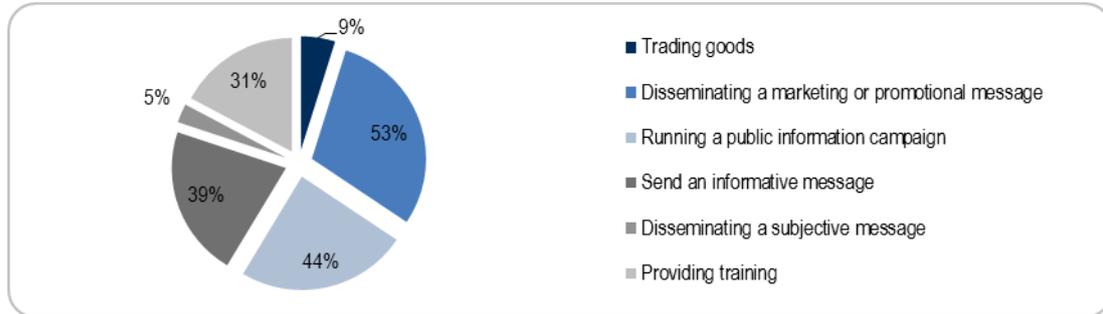
This list is not intended to be comprehensive, but illustrates the possible areas that can be addressed by SGs dedicated to training. Since new areas are regularly being explored, it has become unrealistic to try to list them all. This finding is promising, as it confirms that the SG market dedicated to training is rich and varied.

Another indicator of this fact is that the companies involved in training SGs are among the most reported and most important in terms of turnover: Belle Productions, Breakaway, Caspian Learning, Daesign, Genius Interactive, KTM Advance, PixeLearning, Ranj, etc. But it is worth reminding that these are structures that have no more than 100 employees.

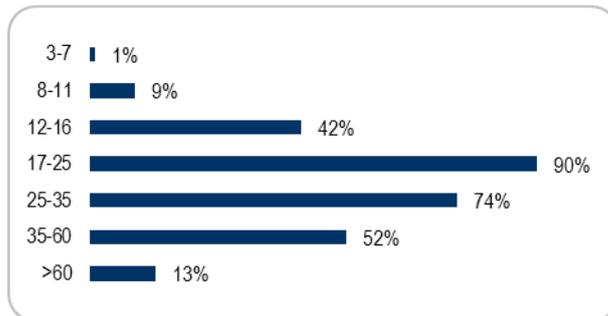
³⁰ <http://bit.ly/iwlbTz>

5.2 Statistics

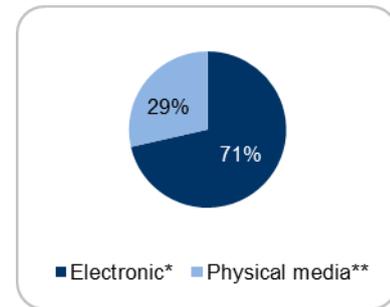
Intention to use



Distribution of users by age group



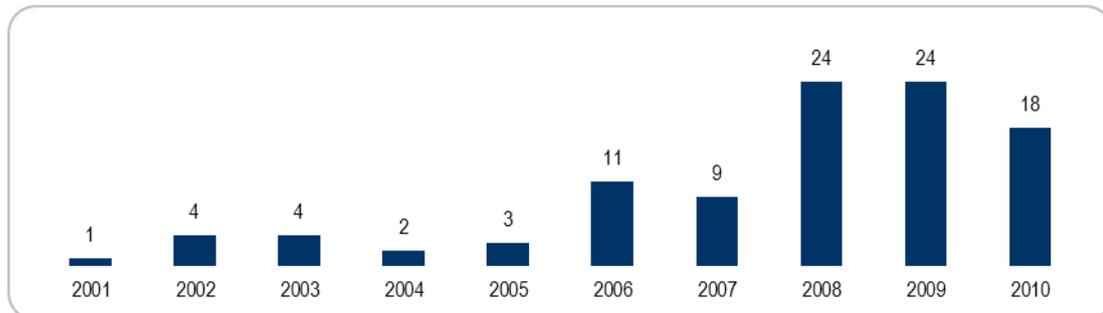
Type of distribution



* Browser / Download

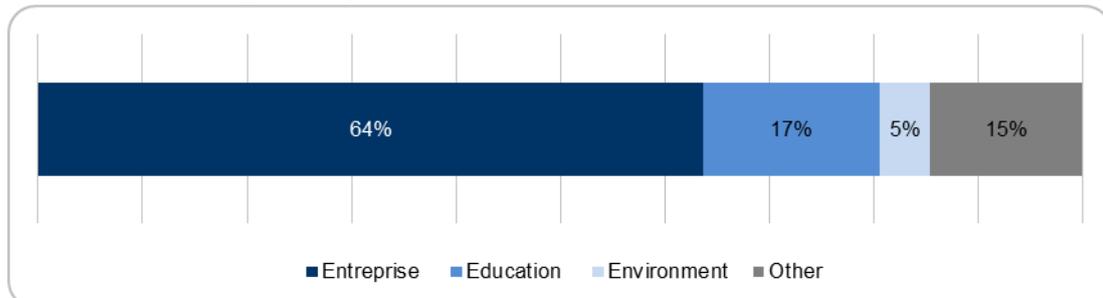
** CD-Rom, Console

Evolution of the number of published titles



Source: the 546 games for which this data was available

Breakdown of SGs by industry



Source: IDATE-LudoScience / Game Classification

5.3 Technology issues

The introduction of 3D, a satisfactory innovation

While the field of training is one of the first to have embraced SG on electronic media (the oldest applications date from the sixties³¹), it is not necessarily the first to adhere to technological innovations, especially when compared to the health care industry. In this sense, the testimony of David Capera from Upetec is representative: *"Our Gambits project consists in offering a system that matches the SG's storyline with the user's level. We are particularly targeting the training market. However, in terms of outlook, it seems that this is still too premature for the market. Indeed, the training centres are currently satisfied by the mere introduction of 3D. So, with an audience of educators that has yet to be trained in ICTs, the prospects offered by Gambits seem to be still misunderstood. We are thus planning to initially apply our technology to video games dedicated solely to entertainment, which ultimately is the heart of our business. Indeed, this segment seems more prone to appropriating technological innovations. To date, SG retains the traits of a rather training market that still needs to mature."*

This statement echoes that of Jean-Marc Dimicoli, CEO of the French studio Serious Factory, who says that the introduction of real-time 3D technology into a web application is currently sufficient to generate a significant ROI. An application like the Colas City³² website developed with the 3D VIA Virtools technology for a budget of EUR 230,000 yielded satisfactory returns to the commissioner, who is planning to order another project based on this positive experience. This observation helps avoid the "gameplay push" trap if the need or demand is not really there.



Ultimately, what must be kept in mind is the application's utility to end users. The testimony of Damian Nolan, commercial director of the French studio Daesign, supports this finding by describing current trends in similar terms, based on the idea to tap into existing technologies (forums, DSN, iPad, etc.) to satisfy a tangible demand in services. This approach differs radically from the "techno push" approach.

"Shorter, more varied and multi-platform training formats, and above all evolving in time (learning games with multiple levels, distributed over time, accessible from a PC but also (at least in part) on iPhone, iPad, etc.). A "social" bond between learners (exchange forums, competitions among players, with the participation of management), the emergence of digital distribution platforms suited to "playful" contents, unlike classical eLearning content and current LMS (Learning Management System)-type platforms".

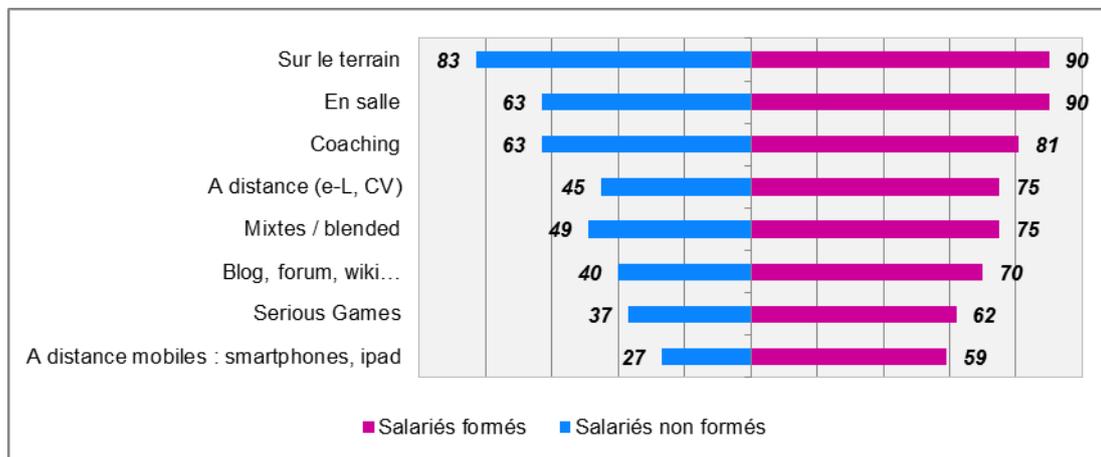
³¹ <http://1.usa.gov/n2QfKl>

³² <http://bit.ly/nu1haR>

The driving role of mobile devices

Concretely, what characteristics must these distribution platforms feature in order to adapt to games? Will we see hybrid portals between the Xbox-Live and Open and Distance Learning (ODL)? The Indian company Educomp Solutions LTD, in partnership with Microsoft, has been exploring this hybridisation of genres since 2007³³. So far the results are less than promising, perhaps due to the device chosen—a game console— perhaps too strongly associated with entertainment to be welcomed in schools. This problem doesn't seem to affect tablets, which are seen as more versatile while still providing interactive entertainment. It is therefore likely that the first distribution platforms tailored to SG will appear on these types of devices. The 2011 study by the Cegos group on "*Professional training today and tomorrow*" confirms this trend. Indeed, between 2010 and 2011, the number of employees reporting to have taken part in distance training via a SG grew from 15 to 45%. The interpretation given by Laurent Reich, Head of Cegos' "Training" offer, is precisely that the explosion in sales of smartphones and tablets, which gives theoretically everyone access to knowledge, plays a major role in the adoption of SG³⁴. However, this observation needs to be contrasted with another result of the same study, which, at the European level, ranks the intention of use of SGs, smartphones and tablets, at the bottom of the list:

If you had the opportunity to follow some training in the near future, which option would you resort to?



Source: CEGOS, 2011³⁵

³³ <http://bit.ly/oTOgix>

³⁴ <http://bit.ly/jugS6n>

³⁵ <http://bit.ly/pUyuvA>

5.4 Market segment issues

Resistance to SGs

Gaining the support and disposition of teachers to use SGs in their classes is an absolute prerequisite. Else, these games are slated to end in a closet. And this adherence is far from achieved. In the field, some resistance is observed even when educational supervisors are in favour of the introduction of SGs. So why such a resistance?

One possible answer is the fear of certain educators to be replaced by ICTs, and therefore by any object referring to it, such as SGs. It is thus common to hear at every conference or seminar dedicated to ICTs, a participant raise this issue timidly, as evidenced, for example, in a video of Delphine Goulat, SVP expert in the professional training industry, explaining the fundamentals of SG³⁶. Of course, there will always be someone to reply that the ICTs will never replace teachers. However, educators are also generally told that they have to change their teaching methods. To move from a rather masterful and formal teaching to project or problem-based learning in a more informal setting. The trainer will thus be asked to step back and become more of a tutor. However, this mutation is also generating quite a lot of concerns, as explained by François Delpierre: "Today in the world of training, teachers and supporters of e-learning are paradoxically the most cautious about the arrival of SGs, for the simple reason that it brutally calls into question their way of thinking and disseminating their knowledge. The change is irreversible. Video games are already heavily used as learning tools in Scandinavian countries, which are at the forefront of many developments in this area. The change will affect all economic sectors, driving, foreign languages, business skills will be taught by playing, even scientific training internships may be replaced by simulations... I think that we are currently witnessing a serious transformation of learning and teaching methods."

The participation of educators in the development of SGs

To anticipate these problems, organisations such as the Centre National de la Fonction Publique Territoriale (CNFPT), whose mission is to manage the training of French civil servants, engage their educators in the process by inviting them to participate in the design phase of their SGs. The adoption of such a strategy requires a lot of energy, since it entails explaining in which way the SG will add value to systems that seem already well-developed. The arguments frequently used in defence of this idea is that Generation Y is sensitive to video gaming objects and that it should therefore be accompanied with SGs. There is also the argument that training time is constantly being reduced: it has become very difficult to block staff over long periods in order to train them. Since it is not feasible to pull out materials meant to be taught over an entire month in less than a week, other teaching methods and new tools need to be found. SGs may be an answer... Despite these arguments, educators are supposed to become themselves responsive to the video gaming object. Without any practice, it is difficult to unambiguously grasp what is a SG. As a result, it can scare due to a poor understanding.

In this context, it may be appropriate to set up places to educate the public on video games. Yasmine Kasbi is a trainer/facilitator in a digital public space, where we uses SGs as part of her training sessions: "*The job of training and moderating is profoundly changing. Initially, these structures were meant to bridge the digital divide. Today the more and more schools resort to their services. Professionals in the field need not be convinced of the effectiveness of SG, since most already use them in some way. I think that for the next few years, these educators will be part of the school curriculum, as teachers are actively soliciting them.*"

This testimony hints at the fact that these educators could soon end up acting as project management assistants (PMAs) helping teachers and other educators to take part in the actual design of the SG, but also to show how to use existing games and perhaps to reassure nervous professionals.

³⁶ <http://bit.ly/r8omqC> (time code: 2'48")

5.5 Market segment outlook

As opposed to the basic education industry, the training industry benefits today from an economic base that allows some companies to share a sufficiently developed market to be able to grow. Moreover, in Europe, "serious games" are often described as an object of "training", while in the United States, SGs have a strong "military" connotation because the army is a major commissioner of such games. The defence and training markets are among the first to have been invested by SGs.

The major commissioners are the key accounts

For the time being, professional training incorporating SG remains the preserve of large corporations. According to Marc Germain, Director and co-manager of Real Fusio, in France it is mainly CAC 40 firms that are in a position to commission such games (Suez, Renault, Orange, etc.). With respect to development costs, Yves Dambach, CEO of KTM Advance, estimates the average development cost of a game at around EUR 250,000, an amount only topped by a few companies. According to Thierry Cotteceau, CEO of Sea Sim Crisis, for higher budgets, it is recommended to use the term "simulation". Indeed, the word "game" can scare sponsors away.

The term "simulation" presents in turn the benefit of not creating confusion between the entertainment and professional worlds... This view is shared by Jean-Marc Dimicoli, CEO of Serious Factory. Applying this logic, he consciously rejected the term "game" from the name of his company. With this approach, he can more easily alternate between the use of "SG" or "simulation" when speaking to potential sponsors. In fact, when asked to differentiate these two concepts, the answers from players of these two fields are technically fairly debatable. On the economic front, some players believe that SGs are a form of low cost simulation. Thierry Cotteceau also denounces the fact that numerous players of the video game industry argue sell themselves as SG developers. This confuses and distorts the term "SG" and may eventually cause it to lose all its credibility. To remedy this, the CEO proposes to introduce a "SG" label by proposing a set of formal criteria that would help do the sorting.

In parallel to large corporations, some public institutions have also started investing in ambitious SG projects, such as the European Centre for Children's Products (CEPE) with Kompany!, which cost EUR 500,000. There is also some financial support provided by large institutions such as the CNPFT, which have resources for SG development. While budgets are still quite modest at about EUR 20,000 EUR per project, this initiative comes in response to serious market growth expectations, as confirmed for example by the SG developed by Real Fusio on behalf of EDF for a budget of EUR 600,000.

Market outlook

Delphine Guidat, SVP expert in the field of professional training, estimates the value of the French market for professional training at EUR 13.24 billion per year. The US market was estimated at USD 104 billion in 2009.

The global e-learning market, which makes up a significant share of the training industry, was estimated at USD 52.6 billion in 2010. According to IDATE, the market share of SG is currently less than 1% of that of professional training. Growth margins are thus considerable, especially if considering:

- the growth of the global e-learning market is described as "the fastest in the global education and training industry" according to the "eLearning: A Global Strategic Business Report" study by Global Industry³⁷. When compared to the USD 27 billion that the e-learning market weighed in 2009 according to Upside Learning, the USD 52.6 billion estimated for 2010 represent an increase of nearly 100% in just one year;
- the 300% growth recorded by Cegos in the number of employees involved and trained in SG-related activities between 2010 and 2011 in Europe. This clearly indicates that demand is expected to increase in the coming years.

In practice, another indicator corroborates this growth forecast: a market concentration is beginning to take place within the SG industry. SBT thus took control of Symetrix, a software developer specialising in e-learning and training-related SGs. The funds invested were in the order of EUR 154,000 in 2010, but this probably heralds the onset of a series of more important acquisitions by large groups.

³⁷ <http://bit.ly/ejz4km>

5.6 Case studies

5.6.1 Diversité

DAESIGN	
Legal status	Simplified Joint Stock Company
Year of creation	2002
Activity	SG Publisher
Number of employees	25
Geographic location	Anney / Paris / Lyon (France)
Web	www.daesign.com
Turnover	EUR 2 million in 2010

Diversité		www.youtube.com/watch?v=BxGFhOGwfK0
Release date	May 2010	
Client	Generic product developed in collaboration with MMA	
Project objectives	A training and awareness-raising tool for diversity management and non-discrimination. Embed diversity in the daily life of businesses and in the practices of senior executives	
Developer/Publisher	Daesign	

Partnerships	
Technology partnerships	
Trade partnerships	Altidem – consulting firm specialising in diversity and MMA
Sales partnerships	Altidem

Game description

Histoire

Born out of a collaboration between the different services of the HR department, the SG project was implemented in the framework of MMA's Diversity Action Plan. The application was implemented as part of a partnership between MMA, Daesign and Altidem, consulting in diversity issues.

This training solution is a device that allows MMA managers to train in making decisions based exclusively on skills criteria.

This SG aims to help managers to argue their choices in any situation they may encounter as part of their daily duties.

This game is also intended to provide information on the complex issue of discrimination, promote the adoption by managers of best practices during recruitment, skills assessment, promotion management and mobility simulation exercises.

Gameplay

Built around five short modules (first contact, recruitment, skills assessment, career management, knowledge base), the SG can be accessed directly from the manager's desktop and allows the HR department to evaluate this training action. Once trained, each manager can download the tool on his computer and return whenever necessary, particularly to consult the document database or simulate an assessment or recruitment interview.

Via his avatar, the player will be confronted with a variety of recruitment, assessment, career management and conflict management scenarios. Specifically, he will be invited to select one of several possible choices offered to him.

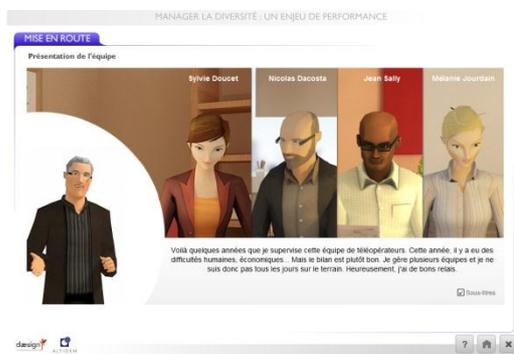
First stage of the SG: making contact with the fictional team members. A staff meeting, followed by an informal discussion by the coffee machine, gives the manager the opportunity

to learn more about his employees. The information exchanged is mostly related to work, but not exclusively. As in the real world, it is difficult to draw a sharp line between professional and personal life: health problems, sexual orientation... These are all indications that may well influence how each person ought to be treated.

Once the scene is set, the player is faced with different situations involving decision-making: hiring a new employee, assessment interviews and career management scenarios...

Technology

Technical information	
Platform	Web browser
Special accessories	
Technological characteristics	Real-time 3D
Language	Flash / Proprietary engine - VAA (Virtual Autonomous Agents)
Engine	AVA



Links to a selection of press releases:

- <http://www.argusdelassurance.com/produits-services/mma-promeut-la-diversite.47140>
- <http://www.argusdelassurance.com/assureurs/mma-sensibilise-a-la-diversite-de-facon-ludique.46999>
- <http://www.focusrh.com/strategie-ressources-humaines/diversite-emploi/actualites-rh/2010/12/16/serious-game-chez-mma-pour-former-les-managers-a-la-diversite.html>

The principle of this game has also been declined for BNP Paribas, Mediapost, Banque Populaire Atlantique, AXA, etc.

Economics of the project

Development	
Total development costs of the project	EUR 200,000
Industry-related contribution to development costs	40% of writing time to Altidem for co-writing the SG's script
Sponsors (if any) and degree of involvement	MMA's participation in the development costs: 30%
Reliance on a specific source of financing and amount received	All development was funded by Daesign, Altidem and MMA

Economic Model	
Pricing strategy	Corporate licenses
Revenues and revenue-sharing	50-50 DAESIGN / ALTIDEM
Sales target	EUR 1 million
Target break-even point	

Marketing	
Marketing strategy	Multi-channel publicity campaigns from Altidem and Daesign Mailings Newsletter (electronic and paper) Breakfasts Press release
Project's marketing and communications budget	EUR 40,000
Sales force	Commercial team from Daesign (3 people) + Sales team from Altidem (2 people)
Geographical scope	Only in France for the moment. Translation to other languages scheduled for 2011

5.6.2 Entretien de Recadrage (Refocusing Interview)

ITycom	
Legal status	LLC
Year of creation	2008
Activity	Publisher of Human Resources and Training software solutions
Number of employees	Tens of people (variable throughout the year)
Geographic location	Switzerland, France
Web	www.itycom.com
Turnover	EUR 300,000

Entretien de recadrage	
Release date	The game was created in 2010. It is currently available in both off-the-shelf and customisable versions
Client	Game developed as R&D, aimed at integrating the SG catalogue
Project objectives	Train participants in refocusing interviews. It also aims to raise the players' awareness about the importance of the proper conduct of this interview and of highlighting each participant's strengths and weaknesses. Target participants: middle-level managers, local managers, general audience with management responsibilities
Developer/Publisher	ITycom designed and developed this SG internally, drawing on the expertise of a partner, Sequoia, active in Human Resources & Management training and consulting. The associated expert was one of the partners with over 20 years of experience in this area.

Partnerships	
Technology partnerships	None
Trade partnerships	Sequoia, based in Geneva (see above)
Sales partnerships	ITycom and its distribution partners

Game description

Synopsis

The project grew out of discussions with Sequoia concerning the needs identified in terms of managerial issues. Based on their managerial training and on the issues addressed, a list of topics compatible with a SG was drawn up, including the Reorientation Interview theme.

This version is the first in a series of 5 managerial SGs: "Delegation Interview", "Control Interview", "Feedback Interview", "Refocusing Interview", "Annual Interview"

Gameplay

The "Refocusing" SG is a corporate simulation game in which the player must conduct a refocusing interview. By means of a point-and-click navigation system, he will have to make the right choices at the right time in order to best refocus the troublesome employee.

The refocusing interview is a necessary step if the behaviour of an employee is not appropriate in regard to his responsibilities or to the values and interests of the company. The primary objective is to raise his awareness about the issues and problems to anticipate if he doesn't change his behaviour. The ultimate goal is to convince the employee to change his ways.

Technology

Technical information	
Platform	Web browser (SAAS solution)
Special accessories	-
Technological characteristics	-
Language	The architecture is of client-server type. Client side: ActionScript 3 for the game part and Web for the administration part. Server side: Php / amf / mysql
Engine	Flash



Feedback

The expected educational objectives are currently being achieved with users during training sessions. But better perspective and a greater number of participants are still required in order to confirm the results (including an extension of the test bed to other countries so as to better map the various practices).

Economics of the project

Development	
Total development costs of the project	Not easily identifiable, since they are rooted within a broader SG platform project.
Industry-related contribution to development costs	About 3 days of consulting work on the part of partner Sequoia
Sponsors (if any) and degree of involvement	-
Reliance on a specific source of financing and amount received	-

Economic model	
Pricing strategy	Sold as an off-the-shelf licensed version, or EUR 150 per user for 6 months (sliding-scale rate based on the of volume of licenses ordered)
Revenues and revenue-sharing	The SG can be customised to fit the customer's requirements, in which case it is charged as an adaptation project (provision of additional services)
Sales target	Mandating of the partner on license sales
Target break-even point	-

Marketing	
Marketing strategy	Integrated to the marketing strategy used for all of ITycom's training tools and Blended Learning training services
Project's marketing and communications budget	-
Sales force	ITycom Sales force + distribution partners
Geographical scope	International (game produced in French, English and Russian)

5.6.3 EDF

REAL FUSIO	
Legal status	SJSC with a capital of EUR 40,000
Year of creation	2004 / end 2009: involvement of the AKKA Technology group
Activity	3D consulting and services firm
Number of employees	18
Geographic location	Toulouse, Paris (France)
Web	www.realfusio.com
Turnover	2010: EUR 1,2 million / 2011: EUR 1,8 million (forecasts)

EDF	
	The application is limited to authorised EDF personnel
Release date	A prototype was completed in 2010. The SG is currently in the industrialisation stage.
Client	EDF
Project objectives	Allow maintenance operators of nuclear power plants to verify their knowledge. The second objective is to allow "new" operators to get acquainted with the main procedures.
Developer/Publisher	The SG is being developed by REAL FUSIO with the help of their "rfTrainer" platform. REAL FUSIO is in charge of development, graphic design, sound engineering, 3D animations and interactivity features. CIRCE Interactive operates upstream in order to translate customer needs into educational objectives.

Partnerships	
Technology partnerships	REAL FUSIO
Trade partnerships	CIRCE Interactive: educational aspects/ REAL FUSIO: development, graphic design, production, content creation
Sales partnerships	n.a.

Game description

Synopsis

This SG project was initiated at the request of EDF to enhance its capacity for the training of maintenance personnel.

Gameplay

The SG is approaching a playable FPS in single-player or multiplayer mode. Particular attention has been paid to browsing and interaction features in order to address a diverse population of learners and adapt the game to their respective cultures.

Technology

This SG is a real-time 3D multiplayer game that requires the installation of a heavy client and a connection to dedicated server. The architecture is similar to that of multiplayer FPS games, with the difference that the data are confidential.

Technical information	
Platform	PC, MAC, Linux and IOS, with a strong specificity: being capable of running on older hardware platforms – including those with no 3D card – thanks to our patented VISULIGHT technology.
Special accessories	To facilitate deployment, the SG can be played using the keyboard and mouse. However, the application supports all types of devices (helmets, gloves, Wiimote, etc.), which just need to be configured for use with this game
Technological characteristics	Real-time 3D / Persistent Universe / IA / Multiplayer / Cooperative game / LMS / VISULIGHT (3D with no 3D card!) / Spatialised sound
Language	C++ / Proprietary engine / Assembler, OPENGL, XML, CSS
Engine	Proprietary engine: rfTrainer



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Feedback

N.A. The game has not yet been released.

Economics of the project

Development	
Total development costs of the project	EUR 600,000
Industry-related contribution to development costs	EUR 100,000
Sponsors (if any) and degree of involvement	-
Reliance on a specific source of financing and amount received	No

Economic Model	
Pricing strategy	The price was established based on a single client

Marketing	
Marketing strategy	n.a.
Geographical scope	National: EDF training sites

5.6.4 Houthoff Buruma The Game

Ranj Ltd.	
Legal status	LLC
Year of creation	1999
Activity	Serious games for corporate training, recruitment, education, healthcare and communication
Number of employees	25-35
Country	Netherlands
Web	www.ranj.com
2011 turnover	EUR 1-2 million

Houthoff Buruma The Game	http://www.ranj.com/content/werk/houthoff-buruma-the-game
Date of publication	October 2010
Client	Houthoff Buruma (law firm), Ranj Serious Games (developer)
Project objectives	Recruitment of law students
Designer/Editor	Ranj Serious Games

Partnerships	
Technology partnerships	<ul style="list-style-type: none"> • TNO: AI technology and methodology • JTeam: Java server-side development • ThinkSharp: .Net development
Trade partnerships	
Sales partnerships	Germany: A-punto; Singapore: NBDA Asia

Game description

History

In a tight market, Houthoff Buruma has to stand out from its competitors in the marketing and recruitment process. Traditional methods are no longer sufficient. Hence, Houthoff Buruma contracted Ranj Serious games for the production of a recruitment game.

Gameplay

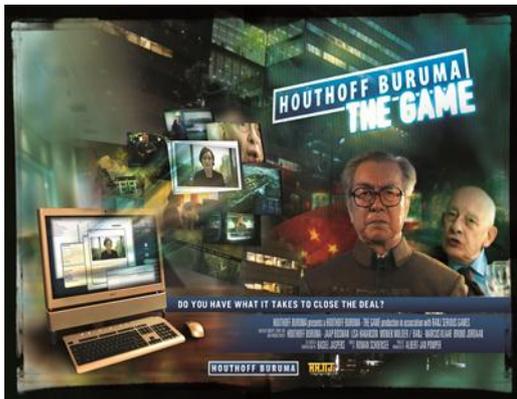
The premise of The Game is the fictional take-over of a Dutch family company by a Chinese state-owned enterprise. The players work for Houthoff Buruma, the legal representatives of this Chinese company. The players have 90 minutes to convince enough shareholders of the target company to sell their shares and to come up with solutions to hidden problems. During this time, they will be confronted with video chats, text chats, film clips, emails, news flashes, websites, social media and more.

A week prior to the start of The Game, the selected players will receive a film clip in which one of the characters will brief them on the story. Proactive students will listen carefully during this briefing, as it contains clues that will later prove to be of valuable use.

Once in the offices of Houthoff Buruma, the students will split in up to five teams, with up to five people in each team, and the teams will be competing against each other in different sessions. During a session, the teams face an overload of information that is inherent to the design of the game. Therefore, it is crucial for each team to opt for a specific strategy and divide the tasks amongst one another in order to cope with this information overload. Once the 90 minutes have passed, a plenary meeting is held, in which the results are presented, and during which each team may argument the strategy and solutions they adopted.

Technology

Technical information	
Platform	Browser / PC
Special accessories	
Technological characteristic	Story-based game/ Cooperative game/ Competitive game
Language	Flash
Engine	Oz Engine, created by Ranj, see http://www.ranj.com/content/standaard/oz-platform



Feedback

- Over 800 students tried the game
- Quality of recruits has improved
- 100% brand awareness within target group
- Over 25,000 unique visitors on YouTube
- A wide range of awards: European Innovative Game Award, E-Virtuoses HR Game Award, Excellence in Legal Marketing, SAN Award (Advertising), Benelux Law Firm of the Year
- Press Coverage: Financial Times, Sunday Times, many Dutch newspapers

Economics of the project

Development	
Total development costs of the project	Between EUR 100,000 and 500,000
Industry-related contribution to development costs	The game's script is being developed in close collaboration between Ranj and Houthoff, using Ranj's Oz Engine software tools for the story logic. The time-investment by Houthoff has not been quantified, but the development of the scenario took approx. 3 months.
Sponsors (if any) and degree of involvement	None
Reliance on a specific source of financing and amount received	None

Business model	
Pricing strategy	Assignment by Houthoff Buruma: work for hire
Revenues and revenue-sharing	n.a.
Sales target	n.a.
Target break-even point	n.a.

Marketing	
Marketing strategy	Highly effective no-budget strategy: trailer on YouTube spread via Facebook/linkedin/twitter (reach of 25.000 unique visitors). The game was launched on the World Expo in Shanghai and gained lots of free publicity in the international press.
Project's sales and marketing budget	0
Sales force	
Geographical scope	The Netherlands

5.6.5 SAUVER ADA (SAVING ADA)

Abeilles Communication	
Legal status	LLC
Year of creation	2003
Activity	Game publishing and game-based communications agency
Number of employees	2
Geographic location	Toulouse (France)
Web	www.abeilles-communication.com
Turnover	EUR 360,000

SAUVER ADA	
	www.sauver-ada.com
Release date	June 1, 2011
Client	The Paris 13 University and the Delegation to the uses of the Internet (Ministry of Research and Higher Education and Ministry of Industry, Energy and the Digital Economy)
Project objectives	The discovery of the various Internet jobs through a puzzle game
Developer/Publisher	Abeilles Communication in partnership with Belle Productions

Game description

Synopsis

Paris 13 University has launched a tender for the creation and implementation of a SG aimed at introducing young people with little access, and more specifically girls aged 15 to 18, to the diversity of Internet jobs as well as the most dynamic and promising fields in this booming industry. The SG pursues the following objectives:

- educate the youth to the Internet industry from a skills-oriented perspective;
- introduce them to the industry's key skills by raising their awareness on its scientific and technological aspects;
- encourage them to adopt an independent and proactive attitude towards information search to assist them in their professional orientation.

Gameplay

Save Ada is a puzzle game on the jobs of the Web industry. The player will have to solve several puzzles while navigating from one blog to another, looking up information on the sites listed, to save the designers of a new type of game. The player embodies a student who has just registered to a social network of Web enthusiasts dreaming to join this industry. The network has just opened its doors. Ada, the site manager, and his friends Hayat, Isis, Turtle, Alsophis and Chichi have already created their profile and posted some information about their studies and their main interests. Each member has a blog, a public space where they can post messages visible to all and a private messaging service, a private space where they can communicate with friends away from prying eyes... During private discussions, Ada and her friends raise the idea of collaboratively creating a puzzle game. Only one person signed up before the player on this social network: the Sphinx. After breaking into the private spaces of several members, he has quickly been dismissed and banned from the network by Ada and her five friends. In revenge, he draws on ideas from the group to develop a game composed of six enigmas corresponding to the areas of interest of the 6 players, and then starts removing those who are unable to solve them.

Technology

Technical information	
Platform	Internet / Smartphone (Android and Windows 7)
Special accessories	-
Technological characteristics	Individual game
Language	CREATIVE COMMONS



Feedback

The first results are expected by the end of 2011.

Economics of the project

Development	
Total development costs of the project	Total development costs: EUR 120,000 pre-tax
Industry-related contribution to development costs	No
Sponsors (if any) and degree of involvement	No
Reliance on a specific source of financing and amount received	No

Economic Model	
Pricing strategy	This game is meant for the promotion of an industry. No financial return is expected from this SG.
Revenues and revenue-sharing	Same
Sales target	Same
Target break-even point	Same

Marketing	
Marketing strategy	An announcement will be made within the Paris 13 University as well as in the 93 department.
Project's marketing and communications budget	-
Sales force	
Geographical scope	93 Department (France)

5.6.6 S.S.C (Sea Sim Crisis)

VirDyS	
Legal status	Simplified Joint Stock Company
Year of creation	January 2012
Activity	VirDyS aspires to develop software and real-time 3Dvisualisation and training interfaces dedicated to industrial and natural risks
Number of employees	6 employees planned for 2012, three people are currently working on this project
Geographic location	Montpellier (France)
Web	Website in development (September 2011)
Turnover	An estimated EUR 250,000 in 2012, with a 25% increase over the next two years

S.S.C (Sea Sim Crisis)	Interface available locally on the ISR (Institute of Science and Risks) website
Release date	June 21, 2011
Client	Engineering of Industrial Environments and Industrial and natural Risks (LGEI) laboratory in Ales
Project objectives	3D application dedicated to the training of decision-makers during a marine pollution event (Polmar plan) and engineering students at the Ecole des Mines of Ales
Developer/Publisher	VirDyS

Partnerships	
Technology partnerships	The Computer Science and Engineering Production laboratory (LGI2P) of the Ecole des Mines of Ales is involved in the analysis, design and prototyping of the visual scripting and interactive crisis simulation module.
Trade partnerships	The LGEI is a partner hosting the developed solutions in its virtual room.
Sales partnerships	Confidential until 2012 (outsourcing of the development of all 3D objects)

Description of the simulator

Synopsis

The VIRDYS project originates from an observation made by Mr Cotenceau, then ICT consultant for a military SG company, at the Eurosatory Fair (land defence and security) in 2008: he recognised that the available software solutions were inadequate: complex products lacking interfaces facilitating the integration of information.

In mid-2009, the project concept was presented to the ISR. It was then endorsed by Innov'up (incubator of innovative projects in Nîmes) for the development of a technical proof of concept of the software tool.

Gameplay

VirDyS @ Training MODS 3D works in a collaborative mode. The application is installed in a network and managed by an administrator who leads the scenario (definition of scenes and actions to be implemented). Once defined, the exercise is played to participants who can then, for educational purposes, learn or repeat business-specific protocols. The scenes are automatically saved, and a subsequent debriefing may be held. The ensuing analysis of the different situations with the various players improves the skills of each of them.

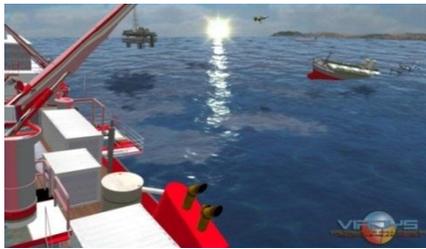
Technology

Technical information on Serious Games	
Platform	Simulation room, room equipped with networked PCs, Web browser version scheduled for 2013
Special accessories	Adaptative NC depending on needs
Technological characteristics	Real-time 3D / IA / Multiplayer / Collaborative simulator / Web version in 2013
Language	Flash / JAVA / C++ /proprietary software for the creation of 3D environments
Engine	Shiva / Unreal / Unity

Feedback

It is still too early to analyse the feedback. However, negotiations with various corporate players are underway for future collaborations.

In terms of technological results, the return of the messages sent by the artificial intelligence to the 3D engine works perfectly. With the latest tools from the world of video games, it is possible to produce code more rapidly while improving the quality of 3D rendering. These time and money savings provide an easier access of developers and communities to this technology.



Economics of the project

Development	
Total development costs of the project	Between EUR 50,000 and 75 000 for a customised simulator (excluding room reservation costs)
Industry-related contribution to development costs	Work on a specific CDC provided by the client
Sponsors (if any) and degree of involvement	None
Reliance on a specific source of financing and amount received	Regional and European for certain projects (collaborative)

Economic Model	
Pricing strategy	In-house 3D development tools
Revenues and revenue-sharing	Pricing in man/days + per 3D object + virtual room reservation costs
Sales target	3 to 5 projects for 2012
Target break-even point	n/a

Marketing	
Marketing strategy	Dedicated trade shows, conference, specialised journals, Internet
Project's marketing and communications budget	15% of annual turnover
Sales force	Prescriptors, outsourcing and 3 salespersons in 2013
Marketing strategy	France in 2012-2013 / International deployment in 2014

5.6.7 SMARTKWIZZ

C-Services	
Legal status	S.A
Year of creation	Created in 2008 as part of the CRONOS group
Activity	Services
Number of employees	35
Geographic location	Luxembourg
Turnover	EUR 4 million for C-Services and EUR 250 million for the CRONOS group

SMARTKWIZZ	www.smartkwizz.com
Release date	July 4, 2011
Client	C-Services
Project objectives	Development of an entertainment platform combining the concept of Quiz games and geolocation relying on smartphones as gaming devices
Developer/Publisher	C-Services

Partnerships	
Technology partnerships	-
Trade partnerships	-
Sales partnerships	Microsoft

Game description

Synopsis

SmartKwizz was born following the successful application to a call for proposals for mobile phones issued by the Microsoft Innovation Center. C-Services wanted to develop a platform for creating entertaining quiz-type content (question/answer games) accessed on smartphones in the form of treasure hunts and/or location-based circuits. The platform offers in fact a tool allowing users to create their own games, which can be automatically published on the smartphones supported by the platform (iPhone, Android and Windows phones). Examples of possible uses of the platform are:

- discover places through the creation of circuits combining useful information with location-based games;
- allow merchants to create games of their own inciting potential customers to visit their store, with and indoor and outdoor operation of the platform.

Gameplay

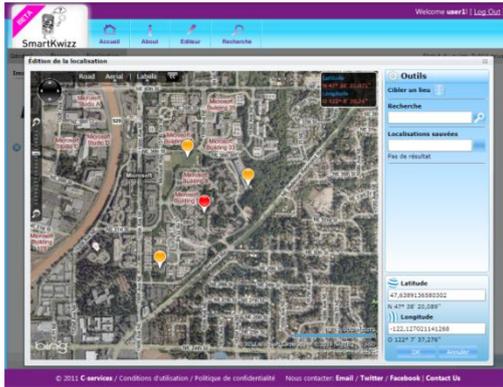
The idea is to create quizzes using a content editor available on the smartkwizz.com website. These questions are then available in defined geographical areas. In order to play, smartphone users must visit the corresponding site.

Questions can be accessed by scanning a QRCode, by validation of the user's position or directly.

Technology

Technical information	
Platform	Web browser / Facebook / Smartphone (Apple, Google et Microsoft) / Tablet PC / Tablet (ipad, Android, Windows 7)
Special accessories	-
Technological characteristics	QR code reading via camera and use of geolocation
Language	NET + specific development on IOS (Objective C, Java on Android and Silverlight pour WindowsPhone)
Engine	Windows Azure

Publisher of Kwizz



Smartphone application



Feedback

The platform was launched in July 2011. Several customers have already signed for the game.

Economics of the project

Development	
Total development costs of the project	EUR 600,000 over 2 years (from October 2011 thru March 2012)
Industry-related contribution to development costs	-
Sponsors (if any) and degree of involvement	Funding proposal with the Ministry of the Economy of Luxembourg (decision expected in July 2011)
Reliance on a specific source of financing and amount received	No

Economic Model	
Pricing strategy	<ul style="list-style-type: none"> For commercial uses: "Pay Per Game" mode, i.e., charged by the number of Kwizz games played For a general audience: marketplace allowing publishers of Kwizz games to sell them
Revenues and revenue-sharing	70% of revenues to the publisher and 30% to C-Services
Sales target	Confidential
Target break-even point	Confidential

Marketing	
Marketing strategy	<ul style="list-style-type: none"> High school contests for the best Kwizz game Joint communication with Microsoft Facebook and Twitter Short-term objective is to work with large "Business to Consumer" (B2C) players to advertise the platform Participation in numerous conferences and public events
Project's marketing and communications budget	EUR 20,000 initially, and growing according to the platform's success
Sales force	1 C-Services salesperson + sales force provided by the CRONOS group
Geographical scope	Currently in search of a retailer specializing in marketing and communication via a business developer contract

5.6.8 Wingineer 3

ESIEA	
Legal status	Non-governmental organisation
Year of creation	1958
Activity	Private higher education institution / Training and research group (Engineering and computing school)
Number of employees	70 employees (excluding part-time professors)
Geographic location	Paris-Laval (France)
Web	www.esiea.fr and www.intechinfo.fr
Turnover	Over EUR 1,000,000

Wingineer 3		http://www.wingineer.fr
Release date	From December 1, 2010 thru April 3, 2011	
Client	ESIEA (http://www.esiea.fr)	
Project objectives	It is a means of communication (to present an educational know-how) and a recruitment resource for the school	
Developer/Publisher	ESIEA professor/researcher Hubert Assner. Blog: http://professeurs.esiea.fr/wassner/ Section on Wingineer: http://professeurs.esiea.fr/wassner/?Wingineer	

Partnerships	
Technology partnerships	Website creation partner: http://www.invenietis.com
Trade partnerships	-
Sales partnerships	Advertising partner: http://www.wingineer.fr Publicity for fee-based communications on the "site du zero" : http://www.siteduzero.com/

Game description

Synopsis

The idea sprang from a desire to assert the identity of the ESIEA as an engineering school (which hence implied a certain amount of content and technical know-how). In addition, it aims to fill a common gap in schools: access to advanced or even basic computer training. It is also suited for the demonstration of educational know-how.

Gameplay

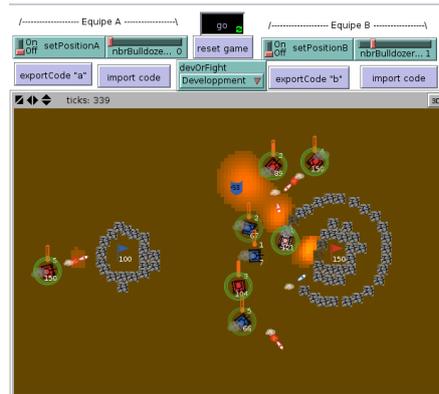
This is a fairly traditional gameplay, a game board on which various elements can compete with each other. Typically, tanks capable of firing missiles or bulldozers capable of building protective shields (bunkers). Two teams of five are in competition, the goal being to destroy the opposing team's flag while protecting one's own flag. The actions that can be performed are bits of code written in very simple language.

The website enables users to reach out to new players in order to challenge them, a point system allowing the final ranking of the various players.

The website archive includes (via the Youtube video platform) a number of recorded games, thus allowing the analysis and study of other players' strategies: <http://www.youtube.com/user/WINGineer>

Technology

Technical information	
Platform	Web browser
Special accessories	-
Technological characteristics	Multiplayer 2D (2 players in asynchronous mode)
Language	Languages used in developing the game platform: Netlogo, java, perl, unix shell, plus the common Web technologies Language used by the players: Netlogo http://ccl.northwestern.edu/netlogo/
Engine	-



Feedback

Positive feedback from the core target audience (computer enthusiast high school students). The finals offer candidates the opportunity to know each other "for real", and not just through a website. This increases the conversion of these prospects into customers. A majority of the finalists enlist in ESIEA.

Economics of the project

Development	
Total development costs of the project	<p>EUR 5-10,000. This cost entails:</p> <ul style="list-style-type: none"> a part time teacher/researcher (discharge of part of the classes) development, maintenance and hosting costs of the website (outsourced) advertising on the Web <p>In addition to these costs:</p> <ul style="list-style-type: none"> packages: attendance fees paid for the contest's 3 finalists, up to 100% for the first, 50% for the second and 25% for the third. Tuition fees are EUR 7,450 per year for 5 years. This represents more than EUR 65,000 for each contest. salaries of professors and communication teams involved in the operation
Industry-related contribution to development costs	-
Sponsors (if any) and degree of involvement	-
Reliance on a specific source of financing and amount received	-

Economic Model	
Pricing strategy	<ul style="list-style-type: none"> • The game is available for free • The goal is to attract students towards the academic programmes offered by the private school.
Revenues and revenue-sharing	
Sales target	0
Target break-even point	Organisation of a contest to foster viral marketing

Marketing	
Marketing strategy	Less than EUR 10,000
Project's marketing and communications budget	Communication through printed media and the Web (blog similar to Presse Citron)
Sales force	EUR 10,000
Geographical scope	-

6 Health care SGs

With a market estimated at over EUR 198 billion in France alone, health care is definitely one of the priority industries for SG. In the US, grants are allocated in this field in close collaboration with the defence industry (in particular DARPA and TATRIC). Such synergies provide technological opportunities that are not found anywhere else. However, a critical challenge is currently at play: demonstrate the value of SGs for clinical trials. If the results are conclusive, therapy-oriented games and those dedicated to prevention should experience a strong growth by 2014/2015.

6.1 Characterisation of the market segment

The first retro SGs dedicated to health date from the early eighties. Example of this type of game include *Tooth Protectors*, an adverggame promoting the merits of a toothpaste brand, *Princess Tomato in the Salad Kingdom*, to explain children the benefits of eating vegetables, and *Drug Watch*, which aims to prevent young people from using drugs.



Tooth Protectors (DSD/Camelot, 1983, USA),
Princess Tomato in the Salad Kingdom (Hudson Soft, 1984, Japan)

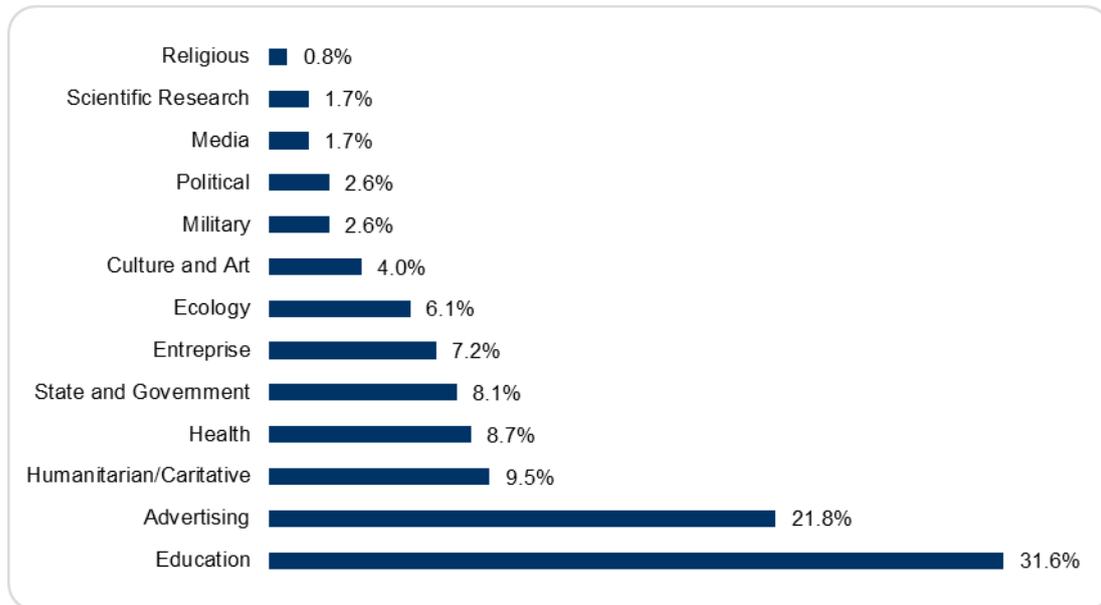


Drug Watch (Nottinghamshire Constabulary, 1984, UK)

Health care has been invested by SG later than other industries, such as communication, education, training and defence.

However, it is one of the most prolific in terms of numbers of titles (see chart below). In order of importance, it ranks in 4th position, after education, advertising and humanitarian/charity applications.

Figure 16: Percentage of SG per market segment from 2002 to 2009



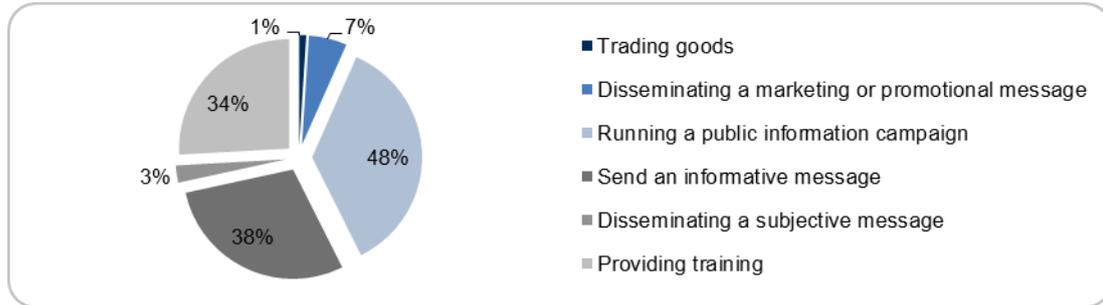
Source: IDATE-LudoScience

The importance of this industry is due in particular to the variety of possible uses (awareness-raising, teaching, training, etc.), the diversity of potential users (patients, individuals, health care professionals, researchers, etc.), the richness of the issues addressed (addictions, pathologies, disabilities, preventions, treatments, welfare, etc.) and the value added by the applications. The SGs listed in this study are only to be seen as a sample of all possible options, illustrating approaches for:

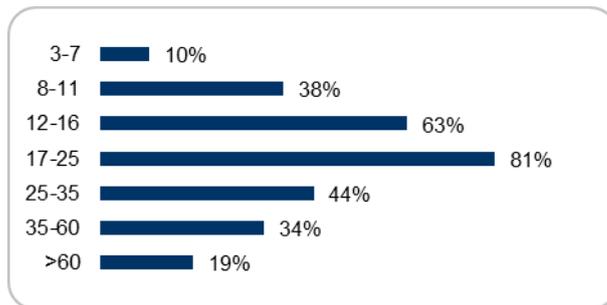
- ★ Raising awareness on the problem of depression: **Elude** (*Singapore MIT*)
- ★ Evaluating the ability of children with Asperger syndrome to recognise facial expressions and handle social interactions: **eMotion** (*VirtualWare*)
- ★ Downplaying the realities of the clinical experience to hospitalised children: **Ludomedic** (*CCCP*)
- ★ Managing behavioural disorders: addictions, insomnia, depression: **Selfcare** (*Manzalab*)
- ★ Helping school psychologists prevent the marginalisation of kids exhibiting antisocial behaviour: **Replay** (*Brainstorm*)
- ★ Training patients with type 1 diabetes treated with a pump in managing their disease: **Out of Time** (*Nemopolis*)
- ★ Observing cognitive behaviour: **R.O.G.E.R.** (*Nemopolis*)

6.2 Statistics

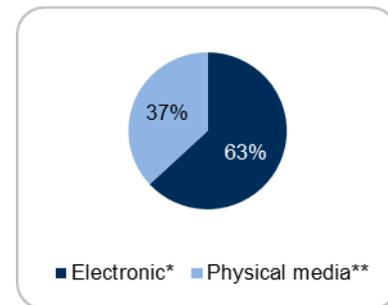
Intention to use



Distribution of users by age group



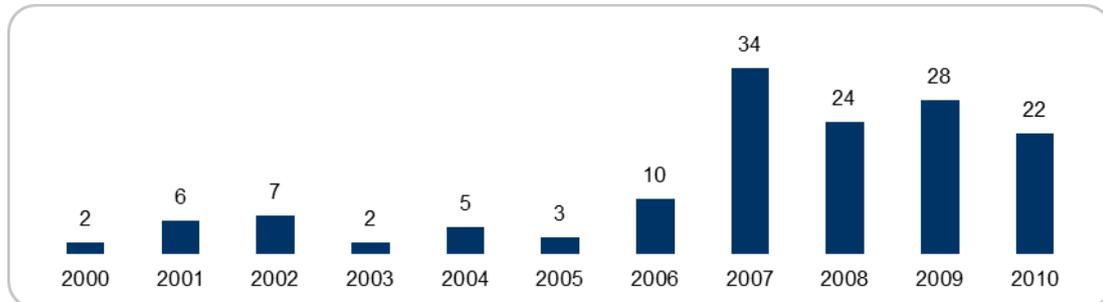
Type of distribution



* Browser / Download

** CD-Rom, Console

Evolution of the number of published titles



Source: the 149 games for which this data was available

Source: IDATE, based on LudoScience/Game Classification

6.3 Technology issues

An industry sensitive to technological innovation

Together with the defence industry, health care is one of the segments of the SG market most open to technological innovation. In fact, several ties exist between these two industries, as evidenced by the *Pulse!*, a game aimed at health care professionals, but whose funding (USD 10 million) came from the Defence Advanced Research Projects Agency (DARPA), a US government agency in charge of funding military projects.

The appetite of the health care industry for technological innovation is confirmed by Jordan Paquet, Head of Educational Multimedia & Pre-Sales at Interaction Games, a studio specialising in SGs dedicated to health care and distributor of *Pulse!* in France: "*The field of health care is both attentive to innovation and a driver of innovation. New uses thus appear, and technologies, educational models and games designs have to adapt in order to generate new media and new types of SGs using all the advanced technologies relevant to the projects (robotics, haptic interfaces, holographic interfaces, mobile technologies, etc.)*."

Among SGs dedicated to health care, numerous clinical treatments are addressed that need an ability to accurately study their effects on the patients who use them. This involves establishing tailored protocols. Thus, in the framework of the French project *Moteur de Jeux Orienté Santé* (MoJOS), aimed at creating an SG engine, the team plans to validate the basic approach by a Clinical Research Hospital Programme (*Programme Hospitalier de Recherche Clinique*, PHRC). This implementation is intended to verify whether the therapeutic games thus created generate a real added value, quantitatively measured with patients. Specifically, this PHRC, which will begin in the second half of 2011, proposes to test whether combining a therapeutic set with classic functional rehabilitation can significantly accelerate motor recovery of patients having suffered a stroke (CVA). In order to implement such tests, a preliminary step consists in associating the SG with suitable devices, specific Software Developer Kits (SDK), tailored gameplays, dedicated metrics, etc. This example gives an idea of the type engineering behind the development of a game targeting a precise therapeutic function. After that, this engineering needs to be customised based on the investigations that medical research wishes to carry out in different fields: cardiology, diabetology, gerontology, etc. Numerous other fields thus need to be considered, as David Lu, who is committed to developing SGs based on cognitive interactions via the MindSet cerebral interface, suggests: "*The MindSet device provides a new way of interaction by detecting bio-information. It will be meaningful for psychological and mental training purpose, such as attention training for ADHD, relaxation, mediation, improving sleeping quality, emotional control training, and so on*".

User-friendly interfaces

The development of SGs dedicated to health care also implies reflecting on the interfaces best tailored to patients. For example, the *Village aux Oiseaux*, a project driven notably by the French studio *Tekneo*, is a SG project targeted at patients with Alzheimer's disease. It's is a type of sensorimotor game based on reflexes. However, the target audience is mainly composed of elderly people who gradually lose their fine motor skills. Not to mention that most of them have never held a joystick in their lives. For this audience, it is therefore necessary to adapt the joysticks. Catherine Rolland, Project Manager of Health games at the French studio *Tekneo* explains that their consortium has been considering coupling support systems to the Wiimote so as to help seniors handle it.

Nintendo follows a similar approach by offering an XL version of its DS handheld console. This larger version is meant to enable elderly people to better see and interact with the games. While this approach may seem attractive, some players remain skeptical. Anne Decq, director of the e-health centre in Toulouse, believes that the people over 75 years are not ready for such solutions. She considers that affinity with ICT-based applications and SG is rather to search with the baby boom generation (born in the 40s). Anne Decq thus recommends to wait a few years before addressing the eldest generation and to focus meanwhile on a somewhat younger audience.

Patient comfort is also at the heart of concerns, with a certain reflection meant to avoid intrusiveness. In this sense, attention is particularly placed on avoiding to ask patients to wear gloves or sensors (LEDs, colour test patterns, etc.) to use a SG. Beyond the fact that it cuts down on preparation steps, potentially demanding for certain patients, it can also be a source of savings, since it avoids the need for certain logistics, in particular related to hygiene, such as cleaning sensors or replacing them if necessary.

The functional and economic value of the Microsoft *Kinect*

Among the non-intrusive interfaces, it is worth mentioning the binocular cameras, such as those from *Softkinetic*, and a more accessible version, the Microsoft *Kinect*. The latter seems to find many applications in the medical field. The *moJOS* or R.O.G.E.R. projects, developed by the Belgian studio Fishing Cactus, for example, are part of this dynamic. Numerous players believe that Kinect foreshadows the coming technological developments of "health care games". This is for example the case of Pereda Jayo, Operations & Marketing Director at VirtualWare, a Spanish company that develops SGs: *"We anticipate that the interaction with the serious games will be moving towards special peripherals in the motion capture environment – from Kinect to special facial/movement detection hardware."*

Francisco Ibañez, R&D Project Director at the Spanish studio Brainstorm, shares this view, and is also betting on audio recognition as well as on a qualitative improvement of 3D computer graphics: *"I think the main technological evolution will be more realistic avatars and 3D environments, more natural interactions with the games (gesture recognition - Kinect type and voice recognition for conversations with avatars) and adaptive contents in the games depending on the user."*

The attractiveness of the Kinect can also be understood from a strategic point of view: it is a widely used and commercially available device at an affordable price (EUR 150). This enables patients to consider pursuing their therapy sessions at home. In this way, they do not have to constantly check in with health care professionals. Anne Decq explains that remote health care services address a public interest issue which, at the European level, is embodied by a major programme called "health care at home and autonomy".

Telemedicine also involves the use of ubiquitous devices such as smartphones. This is the orientation coveted by Dr. Michael Joubert, from the University Hospital Centre of Caen and member of an NGO called Les Diablotines, which designs SGs intended for diabetic people: *"With Les Diablotines, we plan to develop our future SGs on smartphones by hiring developers specialised in this type of device."* This remote health care services dynamic implies ensuring, where appropriate, the security of medical data exchanged between patients and health care professionals. Thus, before developing such SGs, it seems appropriate to ask operators to guarantee the security of these data transfers and highlight how to implement the necessary measures. Making contact with the competitiveness clusters or with the clusters specifically dedicated to health care is also recommended in order to eventually integrate consortia with similar needs.

To conclude on these technology issues, it is interesting to highlight the point raised by Anne Decq, who warns of the "techno push" approach that consists in trying to impose a technology at any cost. She highly recommends to focus instead on existing uses to identify a promising market in which ICTs, and, by extension, SGs, would find a legitimate place.

6.4 Market segment issues

Value of SG for prevention

While waiting to know whether SGs can actually have a curative dimension, Anne Decq sees a strong positioning of SGs among the 10 to 50 year olds in the field of prevention. The latter can be divided into three stages:

- Primary: the subject is not sick. The idea is to keep him in good health. This includes messages delivered to tell him about healthy living habits: eating fruits and vegetables, exercising, limiting alcohol consumption, quitting smoking, carrying out anti-cancer checks, etc.
- Secondary: the subject has a proven risk of developing a disease. He has a proven propensity, and therefore needs a therapeutic education to prevent or delay the onset of the disease. According to Anne Decq, SGs can here provide suitable training to allow the patient to better manage this situation: for example determining whether a recipe is appropriate for diabetic patients.
- Tertiary: the subject is ill and has to live with the disease. For example, he suffered a stroke. Once the functional rehabilitation phase is completed, he returns home. There he will have to stay away from any risk factors.

Expertise capture from health care professionals

All three phases involve the intervention of physicians who will provide expertise for the development of the SG's gameplay. However, involving physicians in the design of SGs raises a set of questions on the new relationship between health care professionals and patients, as shown in the following exchange between the Dr. Denis Mottet from the "Motor Efficiency and Deficiency" (EDM) Laboratory of the Faculty of Movement and Sport Sciences of the University of Montpellier 1, Professor Stefano A. Cerri from the Computer Research Laboratory of Montpellier's LIRMM and IDATE's J. Alvarez:

Julian Alvarez: *"Could health care professionals potentially design games by themselves?"*

Denis Mottet: *"Yes, this type of approach can be considered. [In France, thanks to the law of telemedicine], it is becoming possible for health care professionals to charge their patients without being in physical contact with them. This opens new perspectives... With respect to games, health care professionals use them for education or rehabilitation. The chronically ill should be treated by transforming the patient into a physician. SGs appear here as an interesting tool. [...]"*

Stefano A. Cerri: *"Doctors will not be left alone. They will interact with professionals (game designers). [...] However, doctors generally lack teaching skills. So it is essential to involve other health care professionals to convert the information into a learning process before being prototyped to a SG. The future is the Cloud dedicated to medicine. Health care professionals will provide guidance through the interaction that generates trust. We find the same pattern in education. [...]"*

Denis Mottet: *"Chronic patients generally have time available... Asking them to produce health care... is rewarding. This is another model of health care that hasn't yet been explored... [...]"*

Stefano A. Cerri: *"If you want to learn something, you must teach it. If you want to heal, you must learn to heal others."*

Between the lines, these statements illustrate the changes that are currently taking place among both health care professionals and patients. As Anne Decq explains, **"we are moving towards a system where doctors are being towards telemedicine and the patient is asked to become an expert of his illness in order to best treat it."**

In light of these remarks, the game factories (game engines associated with a publisher) that enable the development of customised therapeutic games and provide the related project management coaching services are expected to grow in the coming years. However, a key factor is likely to determine the outcome: the publication of clinical results demonstrating the real value of "health games" for therapeutic purposes.

6.5 Market segment outlook

A big budget B2B model and consumer paramedical services

The example of *Pulse!*, produced with a budget of USD 10 million, illustrates the fact that the health care industry can potentially benefit from significant financial support for the production of SGs. Together with the defence industry, health care is the only field that can currently boast a SG title that can be listed in the AAA category, which designates the blockbusters of commercial video games. But *Pulse!* is no longer an exception. According to Noah Folstein, freelance game designer, the budgets of other SG projects in the US are already reported to reach the USD 20 million mark.

The design and development of SGs dedicated to health care falls almost exclusively into the B2B category. Studios are generally solicited by health institution or consortia supported by a health centre. Game publishers or game design studios wishing to enter this market can also rely on sponsorship, grants and calls for projects such as the EC's Research programme. But these funding opportunities are almost exclusively reserved to consortia integrating health care professionals.

In case no medical expert is involved in the project, it is best to look at the **paramedical market, which is highly dynamic**, as epitomised by the commercial success of titles such as *Wii Fit*.

Indeed, disseminating a SG with a therapeutic function among the medical circuit is a long and tedious process. The golden path consists in practicing clinical trials to validate the game's therapeutic value, the duration of which generally ranges between 12 and 24 months. Results then need to be published, which may last another several months.

Altogether, these various steps may add up to a timescale close to five years. With such delays, it is necessary to find alternative financial resources to ensure the sustainability of the company wishing to embark on such an adventure. As for pharmaceutical companies, which could support such initiatives, it seems that their view is nearly the same, as evidenced by Michael Stora, child clinical psychologist and scientific director of the French company Manzalab: *"We are in contact with a pharmaceutical company. However, there is no consensus on the term "SG". In the medical field, there are a lot of things to change."*

For this reason, the scenario based on clinical trials such as the PHRC is an important step for achieving credibility and introducing therapeutic games. Provided of course that the results are positive.

Market outlook

The economics of health care-related SGs is a major potential market, which in the US is already funded with budgets of up to USD 20 million per project, but it is still very much in the making in countries like France. The publication of the first clinical results in 2012 should give set a trend based on the results obtained. The health care professionals involved in SG are confident about the upcoming prospects. They base their prognosis on virtual reality-based therapeutic tests that have already yielded encouraging results and were published in peer-reviewed journals more than 10 years ago. If this proves true, we will probably see a very fast structuring of the SG market dedicated to health care, say no later than 2014.

And the stakes are high, since the health care market in 2009 represented, just in France, just over EUR 198 billion according to IRDES. The breakdown is as follows:

- prevention: EUR 6.161 billion
- training of health care professionals: EUR 1.332 billion
- care for the elderly in specialised institutions: EUR 7.421 billion
- medical and pharmaceutical research: EUR 7.542 billion
- health care expenses and medical goods: EUR 175.705 billion

6.6 Case studies

6.6.1 ELUDE

Singapour-MIT GAMBIT Lab	
Legal status	Laboratory
Year of creation	2006
Activity	Game Research & Development
Number of employees	15 full-time employees, 2 graduate-level students, 60 undergraduate-level student interns
Country	USA
Web	http://gambit.mit.edu

ELUDE		http://gambit.mit.edu/elude
Date of publication	August 2010	
Client	Singapore-MIT GAMBIT Game Lab	
Project objectives	The game was created for multiple reasons: as part of a general research initiative into various types of game research (in this case, metaphor as a way to link game mechanics to theme), as a collaboration between game studies & development and a medical professional, and as a means to train Singapore interns in GAMBIT's game development methodology	
Designer/Editor	Singapore-MIT GAMBIT Game Lab / Birdy, Inc.: a group of 9 interns with 2 associated staff and 1 research consultant	

Partnerships	
Technology partnerships	
Trade partnerships	
Sales partnerships	The games are non-commercial in nature, and free to play on the website

Game description

History

Elude aims to raise awareness about depression and to inform about this dangerous illness. It is specifically intended to be used in a clinical context as part of a psycho-education package to improve understanding from the friends and relatives of people suffering from depression about what their loved ones are going through.

Gameplay

In modelling what depression feels like by contrasting it with other emotional states (normal and happy), *Elude* portrays depression metaphorically. The various parts of the game-world represent emotional landscapes that correspond to different moods, with the gameplay changing according to mood changes. The core gameplay (i.e. "normal mood") takes place in a forest filled with "passion" objects that resonate and act as power ups when one calls out to them. Obstacles on the way to the tree tops, where one reaches "happiness", can only be overcome when infused with passion.

Technology

Technical information	
Platform	Browser
Special accessories	
Technological characteristic	
Language	Flash
Engine	Flixel



Feedback

The game was created as a proof of concept for games of this nature and through collaboration between medical professionals, game researchers, and game developers. The game has been submitted to various research conferences (including the Serious Games Summit at GDC and Games for Health 2011) to explain of this collaboration worked.

Economics of the project

Development	
Total development costs of the project	Less than USD 50,000
Industry-related contribution to development costs	n.a.
Sponsors (if any) and degree of involvement	n.a.
Reliance on a specific source of financing and amount received	Created as part of the summer programme run by GAMBIT, a five-year research initiative collaboration between the MIT and Singapore. The game was one of 7 created at the US lab by 6 teams of interns during Summer 2010.

Business model	
Pricing strategy	The game is free
Revenues and revenue-sharing	None
Sales target	None
Target break-even point	None

Marketing	
Marketing strategy	Facebook, Twitter, research conferences (GDC, Games for Health), game fairs (Indiecade, IGF)
Project's sales and marketing budget	
Sales force	US lab: 1 (full-time outreach coordinator for all our games)
Geographical scope	USA and Singapore

6.6.2 eMotion 1.0

VirtualWare	
Legal status	LLC
Year of creation	2004
Activity	Construction and real estate, Industry simulation and Training
Number of employees	30
Country	Spain
Web	www.virtualware.es
2011 turnover	USD 3 million

eMotion 1.0	http://www.virtualware.es/en/product/emotion.aspx
Date of publication	June 2011
Client	Virtualware
Project objectives	eMotion is a Serious game that allows the evaluation assessment the children capacity for recognising facial expressions (empathy) and facilitates the acquisition of communications and social interaction skills. It is aimed at children with Asperger's Syndrome (AS).
Designer/Editor	Virtualware

Partnerships	
Technology partnerships	None
Trade partnerships	Psychology Department, Deusto University (Basque Country)
Sales partnerships	None

Game description

History

The *Theory of the Mind* is a discipline within Clinical Psychology that explains the innate ability of a person to sense the state of mind of another (comparable to empathy) and to see the world through another person's eyes, another person's point of view.

Children with Asperger's syndrome have difficulties to recognise/understand emotional signals/stimulus through facial expressions. This is also called ability to empathise. Individuals with AS experience difficulties in basic social interaction, which may result in their failure to develop friendships or seek shared enjoyments or achievements with others.

Gameplay

18 minute test game that will take the child through different stages where he/she will be asked to recognise facial expressions or asked to determine which reaction another player would of should have in a given situation.

Technology

Technical information	
Platform	PC
Special accessories	Mounted Displays (Vuzix, eMagin, Nvis and Cybermind)
Technological characteristic	Real-Time 3D
Language	Quest 3D
Engine	Quest 3D



Feedback

This tool has been designed for diagnosing children with AS. In order to know if this tool meets the objective for which it was created, a scientific validation has been performed with a sample of over 1,100 schoolchildren aged 8 to 11. This study was conducted by psychologists from the Deusto University of the Basque Country, and the positive results demonstrated that eMotion 1.0 is a valid method for diagnosing children with AS.

The results of this trial were recently presented at the 1st Latin American Psychology and Health Congress – 6-9 October, 2010. A Coruna, Spain.

Economics of the project

Development	
Total development costs of the project	EUR 70,000
Industry-related contribution to development costs	3D programmers, 3D designers, gameplay designers, psychologists
Sponsors (if any) and degree of involvement	n.a.
Reliance on a specific source of financing and amount received	n.a.

Business model	
Pricing strategy	Each test will cost EUR 1,5 (50% distribution costs included. EUR 3 final price)
Revenues and revenue-sharing	n.a.
Sales target	EUR 585,000
Target break-even point	1 year after launch

Marketing	
Marketing strategy	Marketing of the product will be performed by a specialised psychological test distributor through an internet-based commercial channel.
Project's sales and marketing budget	n.a.
Sales force	n.a.
Geographical scope	Spain – Future deployment to Latin America

6.6.3 Ludomedic

CCCP	
Legal status	LLC
Year of creation	2005
Activity	Development of serious games, casual games et social games
Number of employees	9
Geographic location	Valenciennes (France)
Web	http://le-cccp.com
Turnover	EUR 350,000

Ludomedic www.ludomedic.com	
Release date	December 2011
Client	CCCP (as part of the Serious Games tender launched by the DGCIS in May 2009)
Project objectives	Play down the realities of the clinical experience to hospitalised children Inform parents about standard treatment processes (also known as medical care pathways) Train health professionals (particularly nurses) in clinical reasoning via an LMS system Accommodate different SG productions, including those of CCCP, but also those of other firms
Developer/Publisher	CCCP

Partnerships	
Technology partnerships	Neodial (Text-To-Speech integration assistance); Orange Labs (TTS); Micro'co (tablets); Born to be (for multimedia touch terminals)
Trade partnerships	3 hospitals are partners: IRM (CHR of Arras), Pediatric Surgery (Jeanne de Flandre University Hospital), Chemotherapy (Oscar Lambret Hospital). These partners were in charge of the editorial aspects of the SGs, including the clinical messages for parents, and supervised all the practical information relayed by the SGs
Sales partnerships	Dutti Fruiti: communications agency specialising in health care (retailers)

Game description

Histoire

The Ludomedic project is a continuation an old project called Dolokids. The latter, conceived in partnership with Seclin Hospital, aims to help sick children to play down their pain. Its implementation revealed a real difficulty in disseminating SGs in hospitals due to the heterogeneity of computer systems and networks across institutions. Ludomedic was developed to address these compatibility issues. The first approach aims to create a platform accommodating all types of games regardless of technology. In order to feed this repository, an isometric 3D Flash game publisher is also being contemplated

Gameplay

The games produced by CCCP for the Ludomedic platform are based on adventure games. The gameplay is akin to that of an isometric 3D Pokemon game with a card game between stages featuring individual medical care pathways. It is therefore necessary to explore every pathway in order to collect all the cards. The medical care pathway thus acts as game's unifying thread. To illustrate this, the player must complete quests assigned by the characters he encounters and play mini-games. Each game delivers an important message.

In total, each medical pathway is associated with six key messages. Among them, there is for example a message explaining the importance of avoiding any metallic objects when undergoing a MRI: the related mini-game illustrates this fact by offering the player to remove metal objects from a virtual character as quickly as possible

Technical information	
Platform	Web browser/ Tablet PCs / Touch terminals
Special accessories	Mouse/touchscreen
Technological characteristics	Meta-games between the different pathways
Language	Flash
Engine	In-house isometric 3D engine



Feedback

The games dedicated to MRI were tested in a primary school in March 2011. The objective is to start with groups of healthy children so as to collect opinions independently from a hospital setting and hence determine whether the games are genuinely entertaining. CCCP attaches significant importance to the videotainment aspect of its SGs.

With respect to the perception of messages, 50% of 6-year old children properly render the expected messages. This rate increases with the child's age. It reaches 100% at about 10 years. In a second step, CCCP intends to repeat the same tests with sick children.

Economics of the project

Development	
Development costs	EUR 650,000 (CCCP has received EUR 380,000 for the development of Ludomedic)
Industry-related contribution to development costs	EUR 130,000 have been allocated to Neodial to take charge of the vocal integration. Orange Labs received EUR 20,000 to supervise the integration of the TTS technologies. These are only external costs (server test, etc.), as Orange already paid wages on its own). Finally, each partner hospital received EUR 40,000 for writing content and carrying out user tests. The latter funding covers in turn 100% of the related costs.

Development	
Sponsors (if any) and degree of involvement	The government regarded Ludomedic as one of the key products selected during the 2009 Serious Games tender. This resulted in abundant press coverage. This attracts major partners, to which CCCP offers its visibility. Another form of sponsorship is related to the medical care pathways. The MRI pathway may be sponsored by Philips to showcase its products. CCCP is considering the creation of games focused on other pathways (pain, breathing, hygiene, diabetes, etc.). Smiths Medical, among other potential sponsors, is interested in this concept. Sponsors can thus place their name on the various websites associated with Ludomedic. CCCP also offers a "Product Shop" system, i.e., the sale of consumer products based on the Ludomedic license, such as trading cards, stuffed animals, etc. Other sources of income can be found among SG publishers/distributors, who are seeking to sell their games on the Ludomedic platform. CCCP can also produce SGs for Ludomedic on behalf of other clients.
Reliance on a specific source of financing and amount received	From the EUR 380,000 received by CCCP, 45% of the budget, or EUR 171,000, was provided by the Serious Game tender of the Ministry of Employment and Economic Revival in 2009. This was completed by a EUR 50,000 allocation by the Nord Pas de Calais region. EUR 76,000 were contributed by private partners. The remaining EUR 83,000 is self-financed by CCCP.

Economic Model	
Pricing strategy	The precise strategy remains to be determined. CCCP has yet to convince mutual funds, businesses, and tis partners to fund the advertising campaign... It seems that about EUR 50,000 will be requested from each company.
Revenue-sharing	-
Sales target	The approach consists in generating a virtuous circle between new audience gains and attractiveness to potential partners
Target break-even point	The break-even point has already been reached. Any new source of income is net profit.

Marketing	
Marketing strategy	CCCP resorts to mailing by sending business cards and stuffed animals. Nurses are the main target of this campaign due to their training requirements. Doctors often rely on their opinions, because they generally have very little time to consider these issues by themselves. CCCP also participates in trade shows with touch terminals on the DoloKids project. These terminals are also deployed in waiting rooms. Returns so far have been positive. The idea will be replicated for Ludomedic.
Budget marketing et communication	EUR 100,000 are spent on the marketing launch
Sales force	CCCP (only one person: Frédéric Forest). The recruitment of a salesperson is planned.
Geographical scope	In a first step, the scope is limited to French-speaking countries: France, Belgium, Quebec, Switzerland. Then, it will be translated into other languages. However, porting an SG is not a trivial exercise: it is not just a matter of translating text or voices, but also of adapting the images and cultural references to each country's cultural codes.

6.6.4 My Quit Kit & Khemia

Hoozinga Game Media	
Legal status	Start-Up Company
Year of creation	2009
Activity	Serious games development, online training software development
Number of employees	<10
Country	USA
Web	http://www.hoozinga.com

My Quit Kit & Khemia	
	http://vtquitnetwork.org/game/
Date of publication	June 2010
Client	Vermont Department of Health
Project objectives	Support smokers wishing to quit smoking by providing them tools helping them to understand their addiction, track progress, and deal with cravings
Designer/Editor	Hoozinga Game Media

Partnerships	
Technology partnerships	None
Trade partnerships	None
Sales partnerships	None

Game description

History

My Quit Kit and Khemia were developed in partnership with the Vermont Department of Health as a part of their yearly smoking cessation campaign. The toolkit and game were specifically designed to reach out to and support "independent quitters" in their attempt to cut their addiction to cigarettes.

Gameplay

The application is divided into two components: the toolkit and the game *per se*. The toolkit provides tools to track progress and begin to understand the patterns of each individual's addiction. In addition to the toolkit, My Quit Kit includes the Khemia game, designed to help people deal with cravings. The gameplay is a simple time-based shooting game. The player uses the mouse to aim at a target. When the mouse is clicked, a burst of energy is fired at the target. The targets travel according to slow moving patterns. The challenge is to time the release of the target so as to intersect the pattern.

The game features:

- Two playing modes. A countdown mode for players who like to shoot a lot, and a shot count mode for players who favour precision and planning
- Twenty-five unique, unlockable patterns
- Five difficulty levels, although all five levels are accessible for the first pattern
- High scores and bonuses for hitting special targets and scoring perfect rounds

Technology

Technical information	
Platform	PC and Mac
Special accessories	
Technological characteristics	
Language	Action Script
Engine	Flash

Screenshot of the toolkit dashboard



Screenshot of Khemia



Feedback

The full analysis on the game and data has just begun.

Economics of the project

Development	
Total development costs of the project	Between USD 50,000 and 100,000
Industry-related contribution to development costs	100% of costs
Sponsors (if any) and degree of involvement	None
Reliance on a specific source of financing and amount received	100% client

Business model	
Pricing strategy	Recovery of production costs
Revenues and revenue-sharing	None
Sales target	Licensed usage, one-time sales
Target break-even point	

Marketing	
Marketing strategy	VDH Smoking Cessation campaign and banner ads, promotion through local and national news channels
Project's sales and marketing budget	
Sales force	Unknown
Geographical scope	Vermont, US

6.6.5 Replay

Brainstorm	
Legal status	SME
Year of creation	1992
Activity	3D Graphics for Television
Number of employees	38
Country	Spain
Web	www.brainstorm.es
2011 turnover	EUR 3.8 million/yr

Replay		www.replayproject.eu
Date of publication	Available since September 2011	
Client	Brainstorm Multimedia, Whiteloop Ltd and InnovaTec	
Project objectives	Help psychologists in schools avoid the marginalisation of youngsters from anti-social behaviour	
Designer/Editor	Replay Project Consortium (Brainstorm, Whiteloop, InnovaTec, Toy Research Institute, University Al Cuza)	

Partnerships	
Technology partnerships	Universities, technological centres, technology companies, large companies
Trade partnerships	No
Sales partnerships	Large companies

Game description

History

In recent years, video games have become hugely popular amongst young people. For players, video games offer a rich, engaging virtual world where battles can be fought and races won. For many adults, however, particularly those involved in education, video games are not seen as a positive influence on young people. In fact, evidence suggests that video games can have a negative impact on players, particularly in relation to behaviour, with many video games featuring a violent or aggressive playing context.

The idea of REPLAY is to use the wide appeal of gaming technologies to create an environment within which young people can feel confident, secure, positive and at home. In so doing, this generates an opportunity to engage them in a discussion of their attitudes, values and behaviour, helping them to address these issues in a more open and honest way.

The REPLAY technology can be used with a variety of user groups, but has been developed initially with 10-14 year olds in mind. This group was chosen as our primary target group, as it is around this age that anti-social behaviour – a serious and growing problem in schools across Europe – becomes evident, but also because this is the appropriate age bracket to address this behaviour. The content developed during the project – which involved consultation with experts and end users – is thus targeted at this age group. However, the technology itself can theoretically be applied to any age group, including adults.

The REPLAY project seeks to build on the popularity of gaming amongst young people to help experts – teachers, psychologists, social workers and other people professionally involved with children – to understand and address anti-social behaviour.

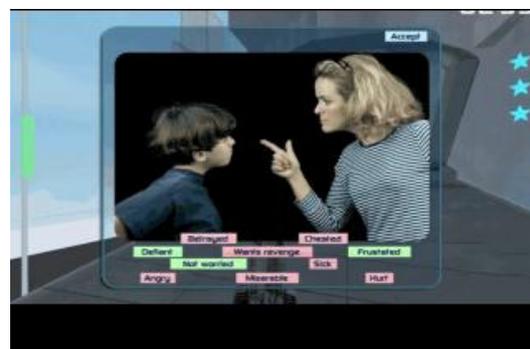
Interspersed with the 'play elements' – jumps, ramps, mini-games and other gaming challenges that are designed just for entertainment purposes - are a series of activities that have been developed to explore the values and motivations of the player. Every activity has to be completed before the player can pursue the race. The activities have been designed to help the young player ponder different scenarios and to ask them to define the type of behaviour they would display in each situation.

The activities have been designed in partnership with experts and draw on the types of approaches currently used by educational staff and experts in engaging with young people who are exhibiting forms of anti-social behaviour. The idea of the REPLAY game is that by presenting these activities within a game environment, the young player will be more open to discussing the subject matter and will, at the same time, build a closer bond with the expert with whom he is playing.

The game itself is divided into two parts. The 'play' mode involves the player completing all the main elements of the game, racing through the course, responding to all the individual activities and reaching the finish line against the clock. Having completed the 'play' part of the game, the player moves to the 'REPLAY' mode. This involves the expert sitting alongside the player and 'replaying' the choices he made in response to the situations presented and discussing these responses with him. This creates the opportunity for an open and honest dialogue about the values and behaviours that these responses reflect. It is also an opportunity to explore issues beyond the scope of the REPLAY content, since a safe and open terrain for dialogue has arisen. This approach is valuable in a number of ways. Not only does this create the chance for a young person to 'open up' and share their feelings, but it also builds trust between the young person and the expert/teacher, and creates a good foundation for a fruitful relationship between the two.

Technology

Technical information	
Platform	PC & TV/Projector
Special accessories	Wii mote / iphone / Specific balance board developed for the project
Technological characteristic	Real-time 3D / Educative Game / Pedagogical Replay
Language	C++ / OpenGL/ Python
Engine	Own engine (eStudio) based on Open GL



Feedback

The REPLAY game has been tested in schools in the UK, Spain and Romania, with more than 150 young people. The results have been extremely promising. Typically, young people were highly motivated, genuinely engaged and positive about the whole game experience. This included not only the strictly gaming components – racing, control options, mini-games and so on – but also the activities and questions. This enthusiasm also applied to the REPLAY session, where play ends and discussion begins. Experts reported significant progress in terms of the openness of the players and measurable improvements in the quality and depth of their relationship to them.

The REPLAY technology is now being further developed in anticipation of a full market release in 2012. This will involve the creation of new contents, improved playability and support tools for teachers and experts.

Economics of the project

Development	
Total development costs of the project	EUR 1.4 million
Industry-related contribution to development costs	
Sponsors (if any) and degree of involvement	No
Reliance on a specific source of financing and amount received	

Business model	
Pricing strategy	EUR 350 without balance board / EUR 1,500 with balance board
Revenues and revenue-sharing	Not foreseen
Sales target	Secondary schools
Target break-even point	5,000

Marketing	
Marketing strategy	Alliances with large educational companies and contacts with regional and national governments for implementation in schools.
Project's sales and marketing budget	Depending on the partnerships established
Sales force	Depending on the partnerships established
Geographical scope	Europe

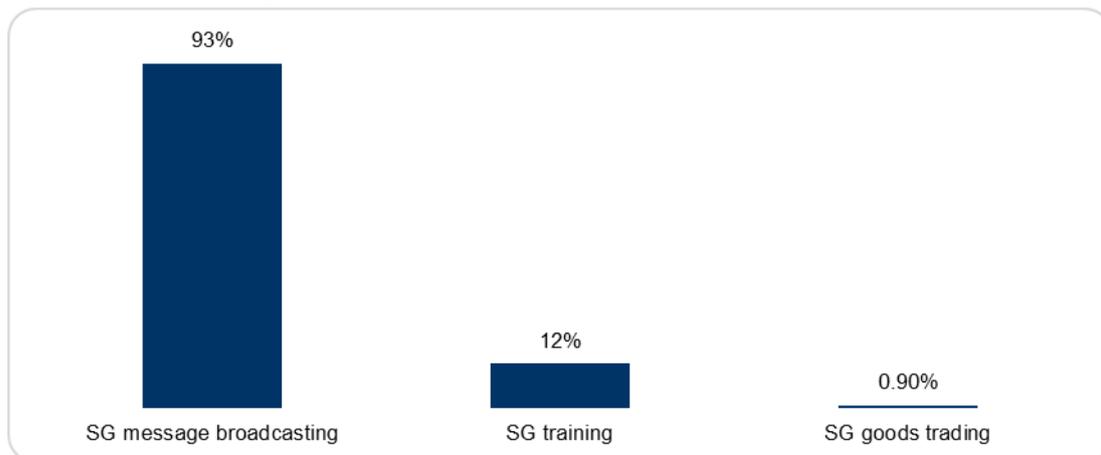
7 Information and communication SGs

93% of SG products convey a message. Advergames, i.e., games dedicated to advertising, represent the largest number of titles published with a 30.6%³⁸ share, and according to our estimates the advergence market reached over EUR 500 million in 2010. The prevailing model, with few exceptions, is the commissioning model. The market segment issues are mainly related to the fact that only disruptive technologies and applications are likely to create a real buzz, which is vital for effective viral marketing. In this context, the idea of evaluating the impact of a game's message on its target audience is becoming increasingly important.

7.1 Characterisation of the market segment

The main objective of information and communication SGs is to disseminate messages. This is the case in 93% of the titles published, as shown in the graph below:

Figure 17: Percentage of the various SG contents from 2002 to 2009



Source: IDATE – LudoScience

These messages can be educational, informative, subjective and marketing-oriented. By comparing the nature of the message with market segments (environment, business, media, culture, etc.), it is possible to identify a broad typology of games: advergames, edumarket games, green games, etc.

To illustrate this diversity, IDATE identified an diversified set of SGs listed by market segment:

Culture

- ★ Stimulating visits to a site: **Rallye Place Royale** (*Musée de la civilisation, 2010, Canada*)
- ★ Commemorating a historic event and publicise the related exhibit: **Devenez un célèbre espion de la Guerre Froide** (*HighFive, 2009, France*)

³⁸ According to LudoScience

Environment

- ★ Fostering young people's understanding of sustainable development issues: **Star'Ecology** (*Playsoft, 2011, France*)

Education

- ★ Providing educational guidance: **Jeu Serai** (*Wizarbox, 2011, France*)

Business

- ★ Helping individuals create their micro-enterprise: **Ma Cyber AutoEntreprise** (*Succubus, 2010, France*)
- ★ Teaching all employees, and especially new entrants, the skills, the structure and the goals of a large industrial group: **Suez Environnement Ambassador** (*KTM, 2011, France*)

Humanitary

- ★ Educating young people about the problems of poverty and social exclusion: **Poverty Is Not a Game** (PING) (*Grin Multimedia, 2010, Belgium*)
- ★ Informing about the actions of Amnesty International, collect email addresses and donations: **BulletProof** (*Mobigame, 2011, France*)

Advertising

- ★ Promoting a brand of shampoo: **L'Expérience** (*ACTIPLAY SA, 2011, France*)
- ★ Placing a product or a brand: **Portal Places** (*TAATU STUDIO SA, 2011, Belgium*)
- ★ Promote a comics license: **Largo Winch** (*Entropic Synergies, 2009, France*)

Politics

- ★ Educating young people about Europe: **Neurodyssée** (À la découverte de l'Union Européenne) (*Belle Productions, 2010, Belgium*)

There are also SGs positioning themselves concurrently on several market segments, such as:

Environment / Business

- ★ Helping companies reduce their energy consumption: **Energy-Wise** (*PixeLearning, 2011, United Kingdom*)

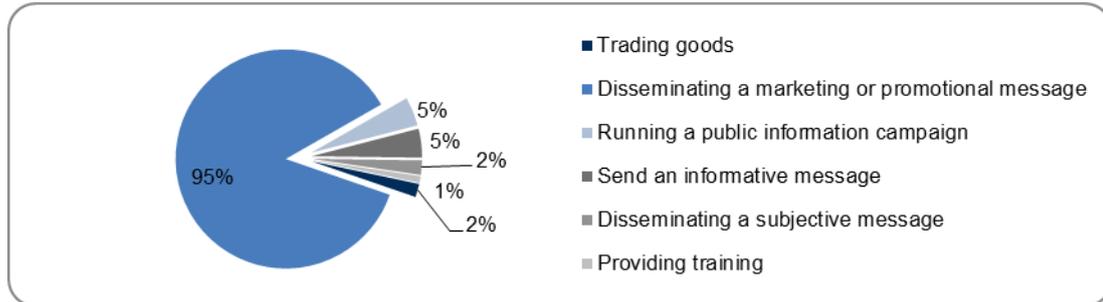
Environment / Education / Government

- ★ Promoting the timber industry: **Forestia** (*Creo, 2010, Canada*)

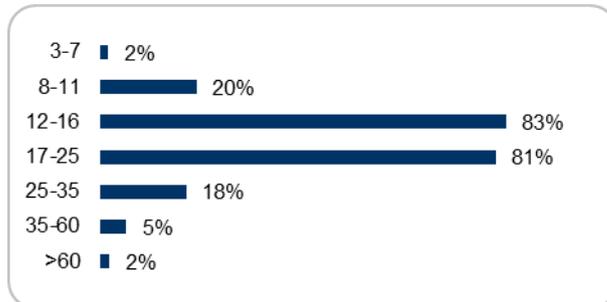
This sample is not intended to be comprehensive, and further examples include news games, political games, or even religious games. The idea here is mainly to give an overview of the range of possible gaming applications in the field of information and communication.

7.2 Statistics

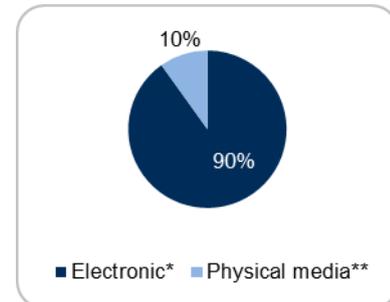
Intention to use



Distribution of users by age group



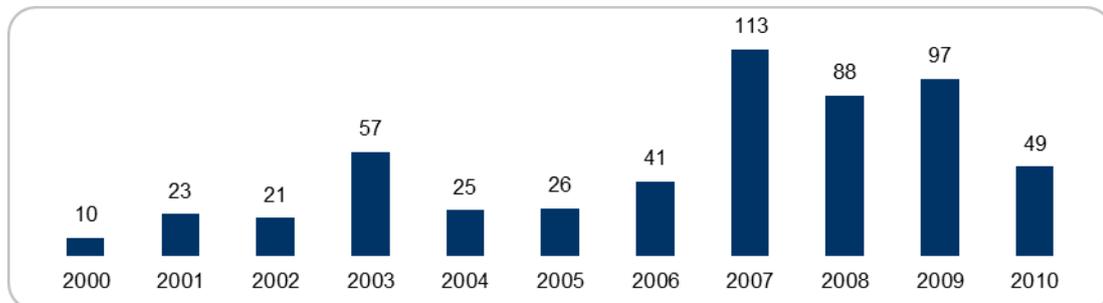
Type of distribution



* Browser / Download

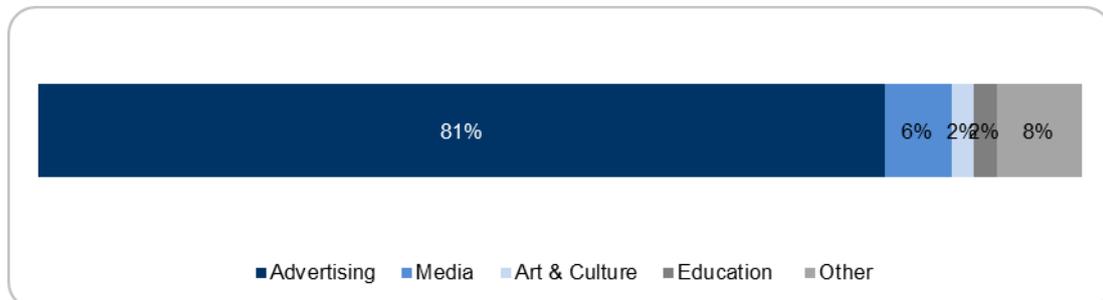
** CD-Rom, Console

Evolution of the number of published titles



Source: the 557 games for which this data was available

Breakdown of SGs by industry



Source: IDATE-LudoScience / Game Classification

7.3 Technology issues

In the 2010 version of this study, IDATE had announced three strategic approaches adopted by players to address their respective audiences with information and communication SGs:

- **foster viral marketing:** relying on the audience for dissemination of the SG through its own networks.
- **make use of cross-media:** connect different types of media or communication devices of which the SG is a part.
- **make use of edumarket games:** combine in a single SG various types of messages, including a marketing message.

The technology issues are mainly related to viral marketing and cross-media. Indeed, edumarket games are primarily concerned with design issues.

Cross-media for creating a buzz

In terms of viral marketing, a recurring strategy is to rely on digital social networks (DSNs). With 750 million subscribers since July 2011³⁹, Facebook is by far the preferred target of this approach. The *L'Expérience* advergame developed by ACTIPLAY, is thus for example used to promote the Head & Shoulders shampoo brand through a go-kart race. The dissemination strategy used in this game consists in pushing each player to share the game with his friends to challenge them and subsequently compare scores with them.

Another possible strategy for achieving visibility on DSNs is to create a buzz. To do this, the game needs to feature a disruptive technology or provide ground-breaking content (either in terms of storyline or artwork). An illustrative example of the latter are three games targeted at cats: *Cat Fishing*, *Tasty Treasure Hunt* and *Party Mix-Up*. These iPad games commissioned by the Friskies cat food brand (part of the Nestlé group), invite cats to catch virtual objects on the screen using their pouch. These games, published in 2011, can be downloaded for free on the Apple App Store.



In another arena, 2010 and 2011 were marked by the release of games such as *A Hunter Shot a Bear* (Buzzman, 2010), *Google Chrome Fastball* (BBH, 2010) and *Magnum Pleasure Hunt* (Unilever, 2011).

These three titles offer a web-based gaming experience. Thus, in *A Hunter Shot a Bear*, the user begins by discovering the YouTube video of a hunter filming a bear raving through his camp. The hunter calls the user and asks if he should shoot or not. Whatever the player's answer, the hunter picks up a Tipp-Ex correction fluid in an external "frame", deletes the word "Shot" from the video's title and prompts the user to enter a new term to change the course of events. Any word used, such as "dance", "kiss", "play", etc. results in the display of a humorous skit between the bear and the hunter. This SG attracted over 17 million Internet users. A good operation for Tipp-Ex.

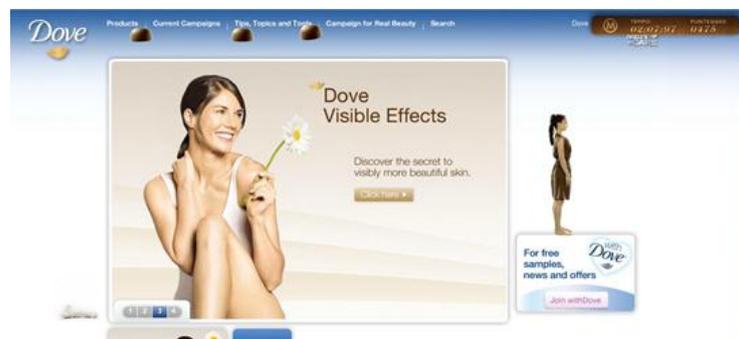
³⁹ <http://bit.ly/q649yv>



Google Chrome Fastball uses the same principle as the interactive YouTube video. In this game, the user is invited to follow the path of a metal ball through a mechanic maze. The video is interspersed with quizzes related to the services offered by Google: Google Maps, Twitter, etc. This game is designed to showcase the company, its applications and its famous browser.



Finally, *Magnum Pleasure Hunt* offers to lead a female avatar to catch Magnum chocolates from website to website. Each site highlights a different brand and offers the player to interact with the available items: the avatar uses pop-ups as an elevator, jumps into the picture of a swimming pool and splashes out somewhere else... The goal of all of these interactions is to collect as many chocolates as possible.



A track to follow is that of Volkswagen and the *The Fun Theory*⁴⁰ concept. Since 2008, the city of Stockholm and is indeed the subject of full scale experiments meant to encourage people to change their behaviour: for example, *Bottle Bank Arcade Machine* calls the

⁴⁰ www.thefuntheory.com

Swedes to recycle their glass bottles in a container equipped with audio and visual effects simulating those of a casino or video game. This animation is intended to stimulate eco-citizen gesture. *Piano Staircase* is a street exhibit that has transformed a metro staircase into a giant piano keyboard. Most of the Swedes, who tend to favour the escalator, choose instead to take the stairs to play a few tunes. Finally, *The Speed Camera Lottery* is a radar displaying the speed of each car it crosses. Instead of punishing drivers, the idea is to reward those who are below the speed limit. Each driver who meets this condition is flashed and receives by mail a ticket to participate in a raffle. These concepts, which apply technologies from the video game industry to daily life, are referred to as "gameification". This street demonstration approach should spread to other cities in the coming years.

On the cross-media side, there are still few titles, such as *Roads* from the British Channel 4, combining Internet, phone, newspapers and SG. Audiences of this Alternate Reality Game (ARG) of 2009 have probably been too modest in comparison with the human and financial resources invested to convince the channel to repeat the experiment.

In 2010, however, another ARG-type SG was released: *Evoke*⁴¹. This title was created by Jane McGonigal, American game designer specialising in ARG on behalf of the *World Bank Institute* and African universities. Sponsors sought avenues to encourage students to get involved in local communities and participate in their development through innovative solutions.

The medium of choice is an interactive comic associated with a DSN. The aim of this game is to present global health issues such as pandemic diseases, the collapse of the food system, the energy crisis, technology inequalities, the global diaspora of refugees, etc. The players then have to come up with innovative solutions to try to solve them. The top 10 players have seen their solutions funded by the World Bank Institute and supervised by professionals.

Evoke is an interesting game in that it shows a hybridisation between DSN and ARG characteristics. This finding is to be related to the technological opportunities forecast by Jules Morissette - Head of Multimedia Projects for the Museum of Civilisation in Quebec, Canada: "*the next technologies that we should be developed and integrated into SG should exploit mobility, geolocation and social media.*" Perrine Corre, Head of Business Development at the French studio Wizarbox, think for her part that "*one of the next technological issues related to SG is likely to be the integration of the highly immersive external devices that recently hit the market in order to achieve even more realistic simulations.*"

Thus, the next generation of information and communication SGs is likely to result from the combination of mobility, geolocation, DSNs, ARG and more immersive external devices.

⁴¹ <http://bit.ly/bCqenC>

7.4 Market segment outlook

Disseminating SGs related to communication involves assessing their impact on users. The title *America's Army* has had a significant impact as a recruitment tool. According to the book *Serious Games: Games That Educate, Train and Inform* published in 2005 by Michael and Chen, S., this military game was the most effective recruitment tool with 16/24 year olds, in front of radio and TV spots...

However, the situation becomes more complex when it comes to determining how game users were actually impacted. Indeed, each player has his own cultural references, his own life course, his own experience of gaming... Add to the uniqueness of each player the fact that the perception of each person is variable. Thus, the same player is likely to react differently depending on whether he is in the midst of exams or on vacation. Playing after receiving a good news or a bad news is also likely to change the perception of a game. Factors to take into account are the physiological state of the player, which varies throughout the day, or the context in which the game is played: at work, at home, in a museum, playing alone, in a group, with colleagues, friends, on behalf of someone else, whether forced or on a voluntary basis, etc. All these parameters affect how the player interprets the message that the game seeks to deliver.

Orange Labs has conducted experiments on the impact of SGs, whose results were published in late 2011⁴². They not only confirm that SGs may indeed impact players, but they also demonstrate that the nature of this impact can be highly variable. Thus, among the various experiments carried out, one of them brought together a panel of 120 people aged 16 to 76, both men and women of different socio professional categories, from the city or the countryside, and playing video games or not. These people were invited to play a dozen SGs remotely from home via the Internet, and to describe the messages they perceived from each game. While the results show a correct interpretation of the messages of certain games, the results for others are still highly patchy. For example, a title like *McDonald's Video Game*, developed by an Italian militant group, Molleindustria, and which denounces the failings of the American fast food chain, nearly 50% of respondents understand the opposite message. They think they are dealing with an advergame promoting the brand. A number of other players praise the educational value of the game, which according to them helps understand the nuts and bolts of fast food management., when the gameplay actually offers to overexploit the staff, to make use of hormones to feed cattle, to resort to GMOs to accelerate the growth of cereals and to bribe doctors and politicians to promote the brand and maximise profits. More than half the players did not perceive these aspects, or associated it with a positive approach enabling users to win!



McDonald's videogame (Molleindustria, 2006, Italy)

This demonstrates the importance of not only defining the target audience as precisely as possible, but also of the disposition of individual users when playing. Taking these

⁴² Published in the 4th edition of the REE journal in September 2011

Market segment outlook

The central question revolving around online video games is the search for profitable business models. SGs disseminated on the Internet are no exception to this rule. But can they actually move away from commissioning models? The *Greenlife Office* game, which aims to teach employees eco-citizen gestures, provides a model for the sale of online licenses, in which companies are invited to acquire an already finalised game.



Greenlife Office (Sysope, 2010, France)

But as explains Jeremiah Pras, in charge of the development of the French company Sysope, the game failed to meet its audience: "*Regarding Greenlife Office, we had to stop marketing due to the poor success of the game with companies. They liked the format, but they were had paltry budgets for such service and support. Our positioning and business model did not fit.*" In this context, SG is often abandoned in favour of more utilitarian applications, as stated by Jeremiah Pras: "*Today, we have refocused on a website targeted at individuals on energy savings based on various simulators: www.calculeo.fr*". This testimony also confirms the interest shown by companies to environmental issues.

Be they associated with environmental aspects or not, the ultimate common denominator of all these games remains the ROI. The latter may differ between a public institution and a company. While corporations prioritise economic efficiency, museums or school may be driven by other objectives. The *Clim'Way* game released since 2008, has been a great success of esteem, as related by its author Eric Gorman, Head of Sustainable Development at Cape Science. This game has been covered by "*more than 250 newspaper articles, radio & TV shows, even an article in the MIT journal!, the solicitation from researchers of Louvain University, more than 450,000 visits for a little over 290,000 unique visitors, and soon 50,000 player accounts created.*" ROI is here measured in terms of notoriety, but also by greatly increased visits to the Cape Science website. However, while Eric Gorman welcomes the positive impact of *Clim'Way* on Cap-Science, a reflection on a financially oriented ROI has been initiated.

Market outlook

The advergame segment weighed just over USD 500 million in 2010 (source: IDATE). Jean-Marc Dimicoli forecasts a significant increase in orders for 2011. For him, the market is currently structuring and become industrialised. This is confirmed by other players in the SG industry, such as Jordan Paquet: "*We believe that SG is getting industrialised, although product optimisation is still needed.*" During various meetings with SG players in the field, this structure emerges when looking at specialty areas: some studios are thus positioned on the most dynamic market segments such as health care, defence, and training. Other studios rather plan to position themselves as developers, others as designers or project management assistants (PMAs). This structuring seems to be motivated by the need to be more profitable on the production costs that each player means to control. But between the lines, there is also the emergence of new acquisition opportunities by large advertising agencies or groups within three to four years.

The main indicator cited by SG players is the gradual multiplication of big budget orders, which can reach EUR 2 to 3 million, aimed at renewing the website landscape to make them

switch to real-time 3D environments with increased interactivity. SGs perfectly fit into this logic, which may whet the appetite of large groups in purchasing existing studios in order to internalise SG-related services by 2013-2014.

7.5 Case studies

7.5.1 Bulletproof

Mobigame	
Legal status	LLC
Year of creation	2004
Activity	Video development and publishing
Number of employees	3
Geographic location	Paris (France)
Web	www.mobigame.net
2010 turnover	250,000 EUR

Bulletproof		http://bulletproof.amnesty.fr/
Release date	20 April 2011	
Client	Amnesty International France	
Project objectives	Publicise the activities of Amnesty International, collect email addresses and raise funds	
Developer/Publisher	Mobigame	

Partnerships	
Technology partnerships	Mobigame only
Trade partnerships	Design and project are an idea of communications agency La Chose, which handles Amnesty International publicity campaign
Sales partnerships	Apple

Game description

Histoire

The synopsis was imagined by communications agency La Chose, in charge of Amnesty International's 50th media campaign. As developer of the game, Mobigame brought its expertise with gameplay and visual effects. The promotional trailer was created by Wanda.

Gameplay

The game is straightforward and puts the player's reflexes and concentration to test. The gameplay consists in symbolically stopping bullets fired by a firing squad.

Technology

Technical information	
Platform	iOS (iPhone, iPad, iPod)
Special accessories	n.a.
Technological characteristics	2D Engine with lighting effects and 3D perspective
Language	C++/Objective C
Engine	Proprietary Mobigame engine (Artemis)



Feedback

A recurrent comment: "a good game for a good deed." The application developer's communications objective has been achieved on an international scale, since numerous journalists have covered the project worldwide. In terms of sales, it's still too early to draw conclusions.

However, the developer observed with regret that nearly 80% of downloads were pirated copies.

In retrospect, Mobigame recognises that it would have been wise to opt immediately for the IAP model ("in-app purchase") backed by a free application. More people would have tried the game out of curiosity. Free applications are downloaded at least 10 times more than the same application for sale. *"As for piracy, 90% pirate downloads at release is very common with iPhone games, and this level drops to about 70% throughout the life of the game"*: David Papazian, CEO of Mobigame.

Economics of the project

Development	
Total development costs of the project	EUR 15,000, donated by Mobigame to Amnesty International
Industry-related contribution to development costs	-
Sponsors (if any) and degree of involvement	-
Reliance on a specific source of financing and amount received	-

Economic Model	
Pricing strategy	USD 0.99
Revenues and revenue-sharing	30% Apple, 70% Amnesty International
Sales target	100,000
Target break-even point	0, not relevant

Marketing	
Marketing strategy	Press release centred on the image of Mobigame and the humanitarian nature of the operation. Numerous partners are relaying the information for free.
Project's marketing and communications budget	0
Sales force	The game is part of Amnesty International's 50 th anniversary media campaign, which includes a movie broadcast in theatres and on television, to be presented at the Cannes festival.
Geographical scope	International

7.5.2 "Become a Famous Cold War spy"

HIGHFIVE	
Legal status	LLC
Year of creation	2007
Activity	Communications consultancy
Number of employees	3
Geographic location	Caen (France)
Web	http://www.facebook.com/pages/Highfive/127986063603
2010 turnover	EUR 200,000

"Devenez un célèbre espion de la Guerre Froide"	http://www.memorial-caen.fr/guerre-froide/mini%20site%20jeu/index.html
Release date	November 2009
Client	The Caen Memorial
Project objectives	<ul style="list-style-type: none"> To mark the 20th anniversary of the end of the Cold War, the Caen Memorial is holding an exhibition event called "Berlin 20 years without the wall" The objective is to provide an educational game on the theme of espionage during the Cold War Showcase the espionage tricks used by the KGB, the Stasi and the CIA
Developer/Publisher	HIGHFIVE

Partnerships	
Technology partnerships	The HIGHFIVE agency
Trade partnerships	The Caen Memorial
Sales partnerships	Partners of the even website (Ouest France, Le Monde, Radio Bleu, France Info) http://www.memorial-caen.fr/guerre-froide/

Game description

Synopsis

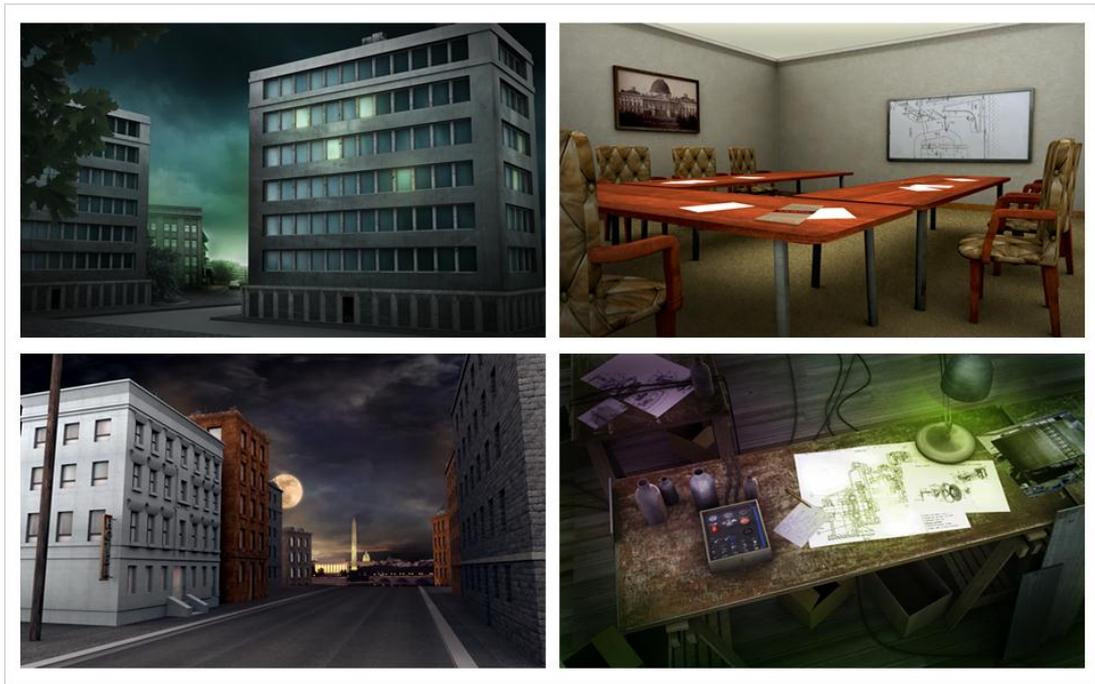
The initial objective was to communicate on the 20th anniversary of the fall of the Berlin Wall and to promote the event exhibition at the Caen Memorial. Espionage was one of the interesting themes of this period, which adequately lent itself to an edutainment approach.

Gameplay

Adventure game based on the dragging and dropping of objects. The player is either on the US (CIA) or on the STASI/KGB side, and must use the most appropriate spy object for each scene/enigma.

Technology

Technical information	
Platform	Web browser
Special accessories	-
Technological characteristics	Pre-computed 3D
Language	Adobe Flash
Engine	-



Feedback

Several hundred players and numerous press articles (publicity banners in Caen...).

<http://cursus.edu/institutions-formations-ressources/formation/15164/kgb-cia-entrez-dans-peau-espion/>

Economics of the project

Development	
Total development costs of the project	EUR 7,000
Industry-related contribution to development costs	We worked together on the webgame's concept and scenario: <ul style="list-style-type: none"> • Memorial: assistance with design + writing (text and objects) • HighFive: design + graphic design + animation and development (Flash)
Sponsors (if any) and degree of involvement	-
Reliance on a specific source of financing and amount received	The Memorial had requested several partners for the "20 years without the wall" event

Economic Model	
Pricing strategy	Free game aimed at introducing the Caen Memorial
Revenues and revenue-sharing	None
Sales target	None
Target break-even point	None

Marketing	
Marketing strategy	Educational game as part of an online communication campaign (Teaser/Games/Event website)
Project's marketing and communications budget	-
Sales force	None
Geographical scope	France (Web)

7.5.3 L'Expérience

Actiplay SA	
Legal status	LLC with Executive and Supervisory Boards
Year of creation	2000
Activity	Publisher of marketing techniques with a strong focus on technology and industrial processes
Number of employees	35
Geographic location	Montpellier (France)
Web	http://www.actiplay.com http://www.actisku.com
2010 turnover	EUR 1.7 million

L'Expérience	
	http://www.facebook.com/experienceheadandshoulders*
Release date	February 25, 2011
Client	Procter & Gamble (Unilever group)
Project objectives	Raise awareness of a male audience that Procter & Gamble (shampoos for men) is a partner of the Formula 1 Grand Prix. The idea is to improve the image of the product vis-à-vis its target audience and build a database focused on its Facebook fan page. Throughout the advertising campaign, Procter & Gamble can thus directly reach out to its core public, represented by the members of the fan page (direct marketing).
Developer/Publisher	Actiplay SA

* The serious game called "L'Expérience" is available on the side of the page

Partnerships	
Technology partnerships	None
Trade partnerships	None
Sales partnerships	CUBING communications agency

Game description

Background

The project builds on an initial request from the communications agency, which wanted an entertaining video content related to the F1 Grand Prix. Indeed, the image of the 2009 F1 world champion, Jenson Button, is associated with the Procter & Gamble shampoo.

It was therefore necessary to exploit the brand, which targets a male audience.

ACTIPLAY responded to the request by offering to adapt a car racing game engine. It suggested replacing the F1 theme by karting. Indeed, it is prohibited to reproduce F1 circuits in the absence of a suitable license. This racing game has been tested and validated by Jenson Button in person. The French Karting Federation also hailed the realism of the game, which ACTIPLAY developed in about two months.

Adaptation and dressing are a delicate phase, because it is crucial to represent the elements and sensations in relation to the represented universe.

Gameplay

The idea is to participate in karting events representing each grand prix race, both against the champion and against the player's friends invited via Facebook. The game is single player, but integrates in each race the distance covered by the friends and Jenson Button. This approach aims to give the player the sensation of actually confronting real competitors. The game is also available on iPhone and iPad.

Technical information	
Platform	Web browser / Facebook / smartphones / tablets / game consoles / Web TV
Special accessories	Joystick / TV remote control / Wiimote / Kinect
Technological characteristics	Online real-time 3D
Language	Modified NextGen 3D proprietary engine
Engine	UNIGINE technological base



Feedback

A month after its launch, the webpage enjoys more than 25,000 visitors and over 6,000 players became fans of the Facebook page associated with the operation.

Economics of the project

Development	
Total development costs of the project	EUR 25,000
Industry-related contribution to development costs	100%
Sponsors (if any) and degree of involvement	0
Reliance on a specific source of financing and amount received	0

Economic Model	
Pricing strategy	Coefficient 4 used for sales
Revenues and revenue-sharing	n.a.
Sales target	EUR 80,000 EUR for each game sold
Target break-even point	EUE 25,000 EUR (threshold exceeded with a single client)

Marketing	
Marketing strategy	Direct sales to industry clients (brands) or indirect sales to communication agencies
Project's marketing and communications budget	0
Sales force	1 salesperson on the project
Geographical scope	National

7.5.4 Forestia

CREO	
Legal status	Individual enterprise
Year of creation	2001
Activity	Production and dissemination of multi-platform science popularisation tools
Number of employees	13
Geographic location	Canada
Web	http://www.creo.ca
2010 turnover	CAD 800,000

Forestia		http://www.scienceenjeu.ca/forestia
Release date	October 2010	
Client	CREO, Téléfilm Canada, Ministry of Natural Resources and Wildlife (Quebec), Quebec Association of Forest Engineers, Laval University, Association of Quebec Biologists, Quebec Federation of Hunters and Fishermen	
Project objectives	<p>FORESTIA, a communications and educational platform developed by CREO, uses game technology to:</p> <ul style="list-style-type: none"> • raise young people's awareness of the complexity of the issues associated with forest management • encourage more young people to engage in forest science research • to interactively present forestry careers 	
Developer/Publisher	CREO	

Partnerships	
Technology partnerships	-
Trade partnerships	Canadian Science and Technology Museum, Canadian Forestry Association in Québec City, Forestry Association of Lanaudière, Forestry Association of the St-Maurice Valley, Canadian 4H, Duchesnay Forestry School, SOPFEU, Sectoral Commission for Forestry Workforce
Sales partnerships	Téléfilm Canada, Ministry of Natural Resources and Wildlife (Quebec), Quebec Association of Forest Engineers, Laval University, Association of Quebec Biologists, Quebec Federation of Hunters and Fishermen

Game description

Synopsis

Forestry engineer and president of CREO, Caroline Julien collaborated on the design of an exhibition on the Canadian forest at the Canadian Science and Technology Museum. Her team had then devised a game that could be featured as part of the exhibition. This game was not developed on time for the exhibition, but it was conceived as an online game through the collaboration of numerous partners.

Gameplay

The FORESTIA game offers users the challenge of sustainably managing a virtual forest. Players must learn to make profit from the ecosystem while protecting biodiversity and taking into account the needs of multiple users: hunters, fishermen, hikers... To achieve this, they must inventory forest stands and make the appropriate planning and management decisions.

Technology

Technical information	
Platform	Web browser
Special accessories	n.a.
Technological characteristics	Simulation (artificial intelligence engine)
Language	Flash
Engine	Proprietary engine developed by CREO



Feedback

Nearly 45,000 players have registered since the launch of the game and teachers use the game with the associated teaching guides. The game has been praised for its quality by the "Elle Québec" magazine (August 2010). The columnist wrote "(...) I loved FORESTIA (...) because it is a simple, fun and interactive game. The questions and answers are interesting, and they arouse curiosity."

Economics of the project

Development	
Total development costs of the project	CAD 688,946
Industry-related contribution to development costs	CAD 25,000
Sponsors (if any) and degree of involvement	CAD 105,000
Reliance on a specific source of financing and amount received	CAS 281,750

Economic Model	
Pricing strategy	Free game

Marketing	
Marketing strategy	Dissemination in forestry-related awareness-raising and outreach activities, in large public events (job fairs, Eureka Science festivals). Distribution of promotional items (bookmarks) referring to the game on sites specialising in educational resources.
Project's marketing and communications budget	-
Sales force	-
Geographical scope	139 countries, with a special focus on Canada and France.

7.5.5 Neurodyssée (À la découverte de l'Union européenne)

Belle Productions	
Legal status	SA
Year of creation	2001
Activity	Video and serious games development studio
Number of employees	5
Geographic location	Genvall (Belgium)
Web	www.belle.be
2010 turnover	EUR 424,567

Neurodyssée		www.neurodysee.eu
Release date	10/1/2010: available in 4 languages 11/2/2011: available in 23 languages and relayed by the 27 countries of the European Union	
Client	The Chancellery of the Prime Minister of Belgium and the European Commission	
Project objectives	By means of a multiplayer family game, educate children to European affairs.	
Developer/Publisher	Belle Productions and d-side Interactive	

Partnerships	
Technology partnerships	-
Trade partnerships	-
Sales partnerships	-

Game description

Histoire

The EC wanted to make a game inviting children to discover and learn about Europe. It entrusted this task to the Chancellery of the Prime Minister of Belgium in order to test the concept in this country. Originally, the game was produced in two formats: a card game to play with friends or family, distributed as a DVD. Subsequently, the need for an online version of the game rapidly emerged.

Gameplay

Neurodyssée is based on the family game concept. The players embody "Neuronians" (aliens visiting earth) who challenge each other with questions on Europe. But Neuronians have a special characteristic: when they are under stress, their brain swells and may burst. Players must thus not only answer the questions, but also handle their stress and/or attempt to stress their opponents.

Technology

Technical information	
Platform	Web browser
Special accessories	None
Technological characteristics	Real-time 3D / Multiplayer
Language	Unity 3D
Engine	Unity 3D



Feedback

The communication campaign targeted at a Belgian audience was launched in mid-2011. The goal is to reach out to all children both at school and at home.

The delivery of the Special Prize at the 2010 Lyon SeriousGame Expo and the recognition of the relevance and quality of the game have prompted the European Commission to extend the initiative by translating it into the 23 official languages and distributing more than 80,000 card sets in the 27 countries of the European Union.

The first effective results should be available in early 2012.

In addition, considering that Europe lacks, strictly speaking, a visual identity for young people aged 12 and over, Mip-Mip (the neuronian) could eventually become a mascot representing the European Union.

Economics of the project

Development	
Total development costs of the project	DVD version (two languages - excl. publishing costs): EUR 34,000 Card game version (23 languages – excl. printing costs): EUR 71,000 Online version (23 languages): EUR 182,000 Total development costs: EUR 287,000 pre-tax
Industry-related contribution to development costs	No
Sponsors (if any) and degree of involvement	No
Reliance on a specific source of financing and amount received	No

Economic Model	
Pricing strategy	An awareness-raising game ("edugame") is generally developed with communication and marketing budgets (which is the case here), since the goal is to educate as many people as possible on a given subject. The game is hence freely distributed and does not generate any financial returns.
Revenues and revenue-sharing	Same
Sales target	Same
Target break-even point	Same

Marketing	
Marketing strategy	The marketing strategy is left at the discretion of each Member State of the European Union. In Belgium, several actions are planned or already underway: posters in subway stations in Brussels and throughout the country, equipping a travelling bus that allows visitors to discover and test the game, relay by the French community, in charge of most teaching institutions in the southern part of the country...
Project's marketing and communications budget	The production budget of card games and DVDs may be included among the marketing costs. Current budget:: EUR 390,000 pre-tax For the rest, marketing budgets are managed in Belgium by the Chancellery of the Prime Minister, and in other countries by local representatives of the European Commission. We have no access to this information.
Sales force	Same
Geographical scope	All countries of the European Union.

7.5.6 Portal Places

TAATU STUDIO SA	
Legal status	SA
Year of creation	2010
Activity	Game producer for social networks and smartphones
Number of employees	10
Geographic location	Belgium
Web	www.taatu.com
2010 turnover	EUR 600,000

Portal Places	
Release date	Summer 2011
Client	TAATU STUDIO SA, publisher of virtual worlds in its own name (www.taatu.com) and for third parties, including the virtual world associated with the Plus belle la vie series, called "Plus belle la life"
Project objectives	Develop a Facebook social game combining the qualities of a quest, management and collaboration game as well as a community environment (chat). Single and multiplayer modes, for young and older adults. Advergaming in the form of autographed game, dedicated environment within the existing game, missions associated with a brand or product, decorative elements and virtual equipment or clothing representing that of a specific brand, general interest announcements, game inserted in a brand's Facebook page, etc.
Developer/Publisher	TAATU STUDIO SA, producer of 3D games for social networks and of mobile games (smartphones) for Android devices, iPhone, iPad, etc.

Partnerships	
Technology partnerships	-
Trade partnerships	-
Sales partnerships	-

Game description

Synopsis

Based on its experience with virtual worlds, the developer wanted to create an environment combining the benefits of chat with the interest of quest, management and collaboration games. The game was intended to gradually introduce UGC (User Generated Content) concepts and from the outset integrate NPCs (robots) managed by artificial intelligence in order to multiply the opportunities for intrigue.

Gameplay

The game initially leads the user through multiple adventures and quests to be completed, as well as numerous tasks to be performed. Gradually, as the plot thickens, the player becomes more and more involved and has to make use of his creative abilities. He will also be invited to involve his friends in order to more easily accomplish certain tasks or complete quests.

Technology

Technical information	
Platform	Web browser / Facebook for Portal Places, smartphones / tablets for the other games
Special accessories	None
Technological characteristics	Real-time 2.5D (isometric 3D) - Persistent but evolving universe/ - IA - Single or multiplayer Cooperative game / competition game / construction game / quest games
Language	Flash. Introduction of Unity planned for the future.
Engine	Proprietary (6 years of development)



Feedback

Not yet, the game was released in summer 2011.

Economics of the project

Development	
Total development costs of the project	EUR 500,000. This corresponds to 7 months of 10 full-time staff. This does not take into account the development costs of the pre-existing engine.
Industry-related contribution to development costs	95%
Sponsors (if any) and degree of involvement	-
Reliance on a specific source of financing and amount received	-

Economic Model	
Pricing strategy	Micro-transactions (virtual objects, avatar accessories, game accelerators) via Facebook credits. In parallel, the economic model is also based on advergaming campaigns ranging from EUR 10,000 for a simple animation to EUR 50,000 for the creation of an immersive world, and all the way up to EUR 100,000-150 000 for the creation of a world tailored to the image of a specific brand.
Revenues and revenue-sharing	
Sales target	EUR 500,000 on the first year. By counting € 1 per member per year, the model becomes viable once the 500,000 member mark has been reached, as was the case for Taatu. 2 million members at present.
Target break-even point	A minimum of 500,000 members

Marketing	
Marketing strategy	Viral marketing through Facebook and affiliate programmes of external sites. Presentation at various conferences.
Project's marketing and communications budget	EUR 100,000 for the first year.
Sales force	2 people
Geographical scope	World

7.5.7 Poverty Is Not a Game (PING)

Grin Multimedia	
Legal status	Independent company (SME)
Year of creation	2002
Number of employees	Variable (Fixe < 5)
Country	Belgium
Web	www.grin.be

Poverty Is Not a Game (PING)		www.povertyisnotagame.com
Release date	October 20, 2010	
Client	King Baudouin Foundation – Interdisciplinary Institute for Broadband Technology – Calouste Gulbenkian Foundation – Network of European Foundations – Bernheim Foundation – Robert Bosch Foundation	
Project objectives	Raising the awareness of teenagers on poverty and social exclusion issues	
Designer/Editor	Grin Multimedia	

Partnerships	
Technology partnerships	None
Trade partnerships	None
Sales partnerships	None

Game description

History

The idea to develop the game is based on the fact that 2010 was the European year against combating poverty and social exclusion.

Gameplay

The game is a 3D adventure game in which players can choose between either Jim or Sophia. Both encounter problems such as finding adequate housing, finding a job, finishing studies, etc. The goal of the game is to overcome these hardships. By doing so players will experience what it means to be poor in a hands-on manner.

Technology

Technical information	
Platforms	Browser / Download for PCs
Special accessories	None
Technological characteristics	Real-time 3D
Language	Unity 3D
Engine	Unity 3D



Jim at the real estate agency



Sophia talking to the social assistant

Feedback

This game has been distributed for free in all secondary schools supported by the Flemish government. Moreover, using the website (www.povertyisnotagame.com) it can be played in the browser or downloaded for free. It has been played online over 20,000 times in the first 7 months after its launch, downloaded 4,200 times, and 2,000 CDs have been distributed.

Economics of the project

Development	
Total development costs of the project	EUR 200,000
Industry-related contribution to development costs	
Sponsors (if any) and degree of involvement	King Baudouin Foundation – Interdisciplinary Institute for Broadband Technology – Calouste Gulbenkian Foundation – Network of European Foundations –Bernheim Foundation – Robert Bosch Foundation
Reliance on a specific source of financing and amount received	-

Business model	
Pricing strategy	The game is available for free
Revenues and revenue-sharing	n.a.
Sales target	n.a.
Target break-even point	n.a.

Marketing	
Marketing strategy	
Project's sales and marketing budget	There was no sales and marketing budget. A press release was issued and information on the game disseminated through different websites on educational games.
Sales force	
Geographical scope	Europe

7.5.8 Rallye Place-Royale

Musée de la civilisation	
Legal status	OBNL
Year of creation	1988
Activity	Museum
Number of employees	About 220
Geographic location	Canada
Web	http://www.mcq.org/place-royale/fr/enseignants.php
2010 turnover	

Rallye Place-Royale		http://www.mcq.org/place-royale/fr/rallye.php
Release date	April 2010	
Client	Canadian Culture Online Program, Canadian Heritage	
Project objectives	Promote on-site visits of Place-Royale	
Developer/Publisher	Museum of Civilisation, in partnership with Idéeclic	

Partnerships	
Technology partnerships	Idéeclic
Trade partnerships	Museum of Civilisation
Sales partnerships	Canadian Culture Online Program, Canadian Heritage

Game description

Synopsis

This game was born out of the Museum of Civilisation in order to inform the public about the events that took place at Place-Royale in Quebec City, an important landmark in the history of the Quebec people.

Gameplay

The site concept is to allow visitors of Place Royale, either in situ or virtually, to explore the still visible traces of historic events that occurred in this area, where the founders of Quebec first settled. These events took place over the past 400 years. The proposed SG is an interactive virtual tour (rally) of to the site simulating its exploration while providing a video summary of each of the twelve historical topics addressed.

In terms of content, this project is based on:

- 130 archive documents
- 40 objects from the Museum collection
- 154 objects from the archaeological collection of the Ministry of Culture, Communications and the Status of Women in Quebec
- 5 panoramic views of Place-Royale today with about fifty documented photographs of the current location for accessibility purposes
- 5 clickable maps providing access to thematic texts and documents
- 12 themes, 16 characters and 36 points of interest, points of interest, all dynamically interrelated
- a virtual tour and the associated lesson map, organised around 12 historical themes
- 4 audio podcasts et 4 video podcasts of the tour's points of interest
- 1 downloadable map showing the location of all the points of interest with a picture in order to facilitate their identification during an on-site visit to Place-Royale

Technology

Technical information	
Platform	Web browser Smartphone / a mobile version for iPhone, Blackberry, HTC and most other models Tablet PC and iPad Podcasts and printable map for download
Special accessories	n.a.
Technological characteristics	n.a. Competitive game / The challenge: become Champion of the Hour
Language	Flash / php, javascript and xhtml
Engine	Google Search



Feedback

Visitor and download statistics since the game's release eight months ago:

- 18,732 visits, or 2 340 per month
- 875 visits from the blogues.cyberpresse.ca website with a bounce rate of only 1.94%
- 98 visits from cursus.edu (educational reference) with a bounce rate of only 4.08%
- 12,645 downloads of mp3 and mp4 podcast files
- 377 participants to the virtual tour
- 1,078 downloads of the lesson map

Awards

- Bronze Web'Art Special Prize, WEBSITE – SHOWCASE CATEGORY, won at the Shanghai International Festival of Audiovisual and Multimedia Heritage in 2010, organised by AVICOM, a committee of ICOM (International Council of Museums).
- <http://www.unesco.org/webworld/avicom/index.php?section=4001&sssect=2>

Economics of the project

Development	
Total development costs of the project	USD 475,000
Industry-related contribution to development costs	USD 125,000
Sponsors (if any) and degree of involvement	USD 350,000
Reliance on a specific source of financing and amount received	-

Economic Model	
Pricing strategy	- free
Revenues and revenue-sharing	-
Sales target	-
Target break-even point	-

Marketing	
Marketing strategy	Newspaper ads, referral sites such as the Quebec tourism websites, distribution of printed maps in situ, incorporation in the catalogue of educational products of the Museum, participation in competitions
Project's marketing and communications budget	13,500 USD
Sales force	-
Geographical scope	Canada

7.5.9 Star'Ecologie

Playsoft	
Legal status	Simplified Joint Stock Company
Year of creation	2004
Activity	Development of applications and games on mobile phones, tablets, Facebook
Number of employees	150
Geographic location	France, Poland, Vietnam, United States
Web	http://www.playsoft.fr

Star'Ecologie	
The game is not out yet, and is thus not yet publicly available. It will be hosted on Facebook as a Facebook App, and also on a dedicated website	
Release date	The game is scheduled for in October 2011
Client	Ministry of Ecology
Project objectives	Enable young people to understand sustainable development in all its complexity (interrelatedness of economic, environmental and social issues) and all its scope (pervasiveness of the issue in our daily lives), in a simple and entertaining way.
Developer/Publisher	Playsoft

Partnerships	
Technology partnerships	Playsoft
Trade partnerships	Playsoft & Exploradôme
Sales partnerships	Playsoft

Game description

Synopsis

Playsoft and its partner Exploradôme responded to the Serious Games call for projects issued by the DGCIS in 2009. Playsoft's aim is to develop an online serious/social game destined to a young audience on the issue of sustainable development and eco-citizenship, in partnership with experts in these issues from the Exploradôme. With this game, Playsoft pursues two main goals: diversify its game creation activity by addressing a new type of product and platform (SG on a Web platform) and develop its expertise and in-house staff in order to make this happen.

Gameplay

Star'Ecologie is the unusual encounter between a student life simulation, a "party game" and a massively multiplayer virtual contest, in which each participant aims to become the "Star'Ecologie" of a given campus. In order to achieve this, the player must acquire good daily practices and contribute to the sustainable development of the campus, either alone or with others, while having fun and building up energy, money and stars. Each week, a competition among all players is organised, combining quizzes and mini-games in order to determine the "Star'Écologies" of the week. To increase his chances, the player can bring into play the stars collected during the past week.

Technology

Technical information	
Platform	Web browser / Facebook
Special accessories	
Technological characteristics	Real-time 3D / Multiplayer/ Cooperative game/ Competitive game / Simulation
Language	Flash
Engine	OpenSpace + Proprietary engine



Feedback

Game not yet released.

Economics of the project

Development	
Total development costs of the project	Between EUR 500,000 and 1 000,000
Industry-related contribution to development costs	n.a.
Sponsors (if any) and degree of involvement	-
Reliance on a specific source of financing and amount received	Project funded by the DGCIS in the amount of EUR 458,739

Economic Model	
Pricing strategy	Freemium (free game with content monetised through micro-payments)
Revenues and revenue-sharing	-
Sales target	n.a.
Target break-even point	-

Marketing	
Marketing strategy	Use an intensive dissemination strategy via Facebook and other viral media specific to social games in order to promote the game's adoption
Project's marketing and communications budget	n.a.
Sales force	0
Geographical scope	France + French-speaking countries

8 Defence SGs

SGs dedicated to defence are typically by far the most expensive productions and tend to approach or even exceed the EUR one million mark. As explains Noah Falstein, American freelance game designer: " *The larger games (mostly military) have received as much as 20 million in funding for specific games, smaller ones still are in the 1 million USD area* ". In addition, in 2010 the US military also launched a department for the design of video games specifically dedicated to the training of recruits, with a budget of USD 50 million over five years⁴³. However, some applications produced by independent players offer the kind of features sought by the military at much more modest costs. A spotlight on these SGs is provided in this chapter.

The defence industry is at the forefront of SG. The use of a quality real-time 3D environment, innovative interfaces, and metrics, characterises the majority of productions, including those from the US. For this study, the spotlight was given on defence SGs that deviate from the usual canons. The idea is to show that there are many other possible approaches to this industry, which are often overlooked.

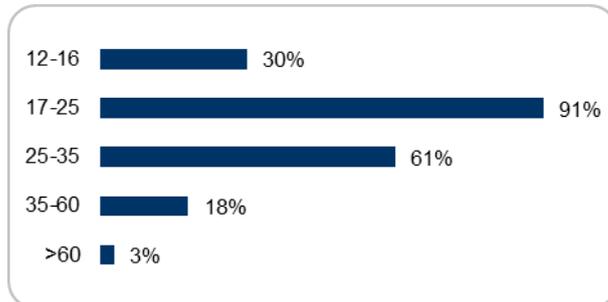
⁴³ <http://bit.ly/12ZCr>

8.1 Statistics

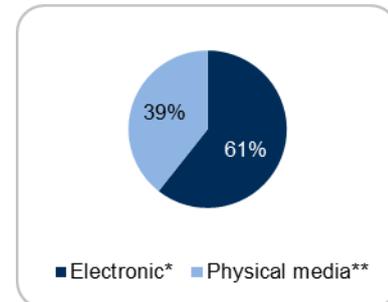
Intention to use



Distribution of users by age group



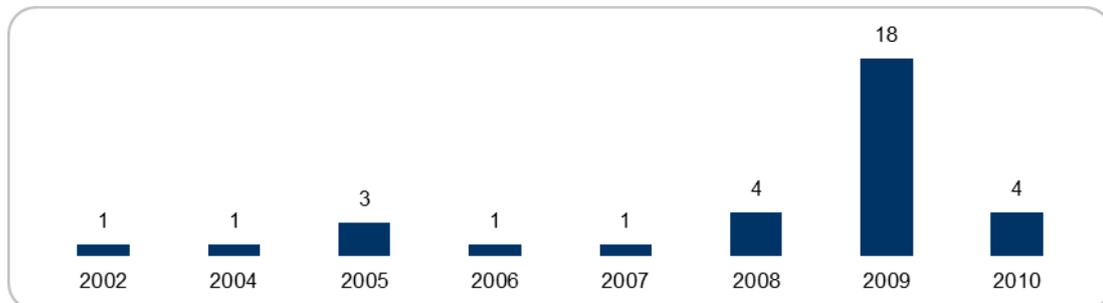
Type of distribution



* Browser / Download

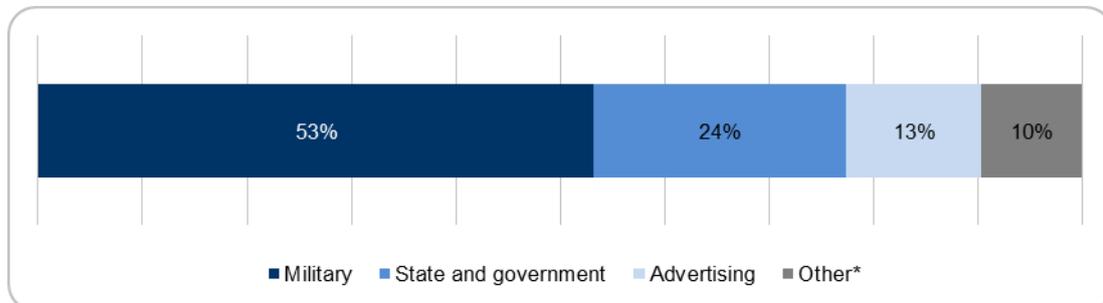
** CD-Rom, Console

Evolution of the number of published titles



Source: the 33 games for which this data was available

Breakdown of SGs by industry

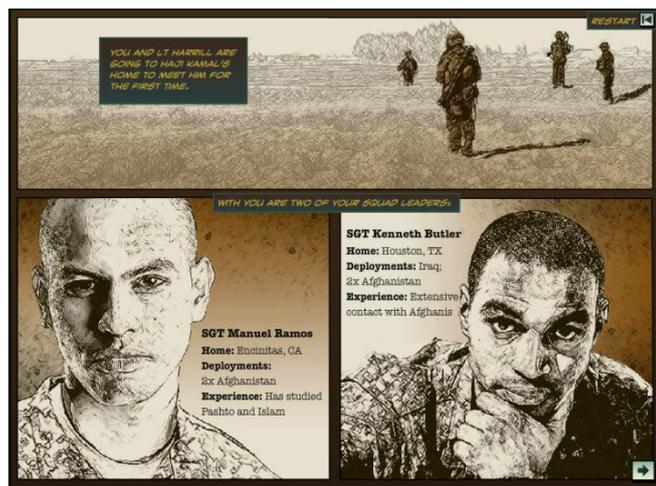


Source: IDATE-LudoScience / Game Classification

8.2 SGs in 2D

The majority of soldiers in the various armies of the world are young people. In order to address this audience and catch its attention, it is thus necessary to resort to appropriate means of communication. Video games is certainly one. To have an impact on this audience, a strategy consists in complying with the best technological standards of the time. In the case of the US military, we thus find emblematic games such as *The Bradley Trainer* (1981)⁴⁴, *Marine Doom* (1996)⁴⁵, *America's Army* (2002)⁴⁶, which all refer to the key titles of the gaming industry of the moment: *Battle Zone* (1980)⁴⁷, *Doom* (1993)⁴⁸, *Medal of Honor* (1999)⁴⁹. Each of these games features real-time 3D graphics and a war-based gameplay. Does it mean that this is an essential approach? The British military proved in 2009 with its *Start Thinking Soldier*⁵⁰ SG series that it is not, which is dedicated to recruiting and relies on interactive video without actually referring to a specific video game.

But shooting video sequences involves important budgets. To reduce them, it is possible to use 2D. But in this case, is this a viable strategy? Apparently yes, but as long as they refer to other codes capable of uniting the target audience. In this perspective, comics can be a medium to exploit. So far, only one defence SG does: *Connect with Haji Kamal*⁵¹. This SG, which was released in 2010, is targeted at US soldiers and aims to teach them the art of negotiation in non-Western countries. This game offers a 2D environment featuring the comics' graphics and narration codes, with some interactive boxes. This narrative is perfectly suited to the presentation of tangible case studies depicting the psychological dimension of characters and the related verbal communication.



Connect with Haji Kamal (Kinecton/World Warfighter, 2010, USA)

The budget of this game is probably less than EUR 50,000, which is far from the USD 7 million invested in *America's Army's* real-time 3D, to name just one example. The Swedish military has also adopted 2D graphics for most of its SGs. This is particularly the case for the 2009 version of *Team*⁵², dedicated to recruitment. This multiplayer game offers minimalist graphics based on primary colours and geometric shapes. The gameplay consists in inviting four players to work together to solve a series of puzzles. Note that since 2010 the Swedish military is embracing Apple's smartphones, for which it provides a series of logic games based on 2D graphics under the title *Försvarmakten*⁵³. But here the distancing with AAA class video game titles is accentuated because the colour palette is often limited to black and white. This game is available for free.

⁴⁴ <http://bit.ly/nqsrnd>

⁴⁵ <http://bit.ly/np4aeP>

⁴⁶ <http://bit.ly/mYi5TR>

⁴⁷ <http://bit.ly/oA5kM1>

⁴⁸ <http://bit.ly/mOBmZO>

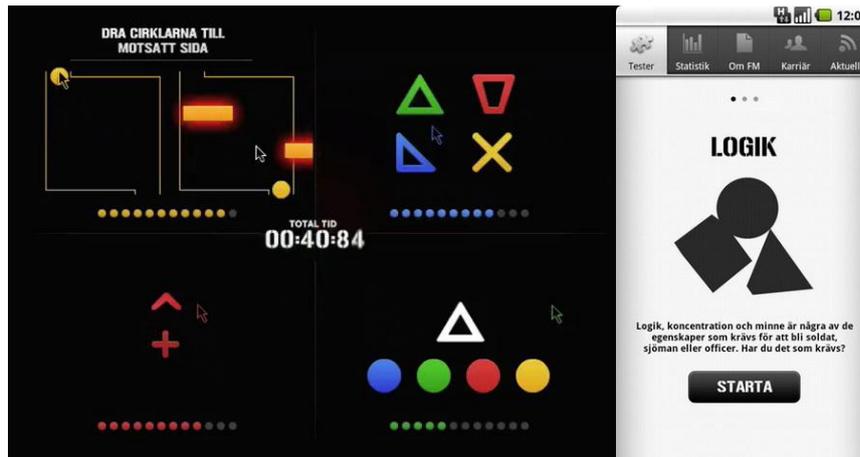
⁴⁹ <http://bit.ly/nRjyIV>

⁵⁰ <http://bit.ly/po3IMp>

⁵¹ <http://bit.ly/9pII Rc>

⁵² <http://bit.ly/qxnh7w>

⁵³ <http://bit.ly/bJjwJx>



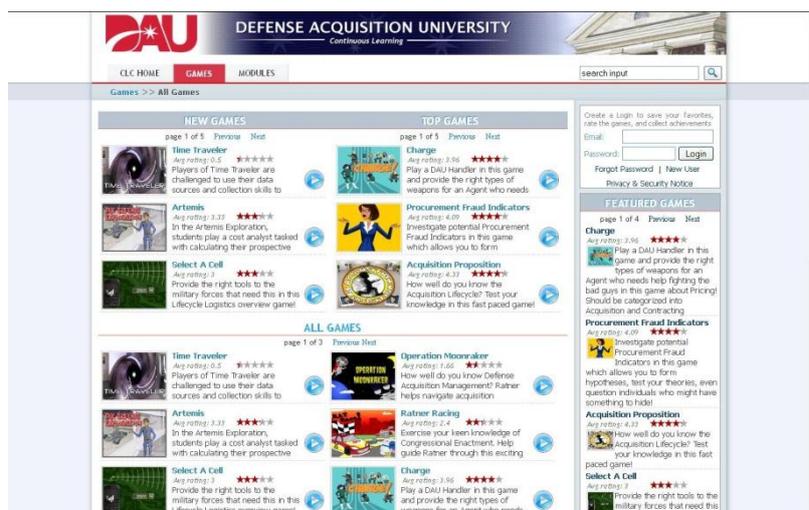
Team (Acne Digital/DDB Stockholm/Swedish Armed Forces, 2009, Sweden), Försvarsmakten (Swedish Armed Forces, 2010, Sweden)

Most of the titles listed here are essentially 2D games developed in Flash. This demonstrates once again that the technology chosen does not necessarily determine the fun that a game can provide. The US military is certainly aware of this, since in 2010 it opened, via the *Defence Acquisition University (DAU)*⁵⁴, a game portal featuring educational games relying essentially on Flash and aimed at students. In the summer of 2011, no less than fifteen titles were released. Most of these games use graphic styles reminiscent of game portals such as Kongragate, that combine professional and amateur titles. A DAU title was awarded in 2010 by the SG Show Case, the military-industrial fair dedicated to SG: *Invasion Prevention Corporation's Continuous Process Improvement (CPI) Trainer*⁵⁵.



CIP (DAU, 2010, USA)

Also note that the only 3D title from the DAU selection is the one with the worst ranking.



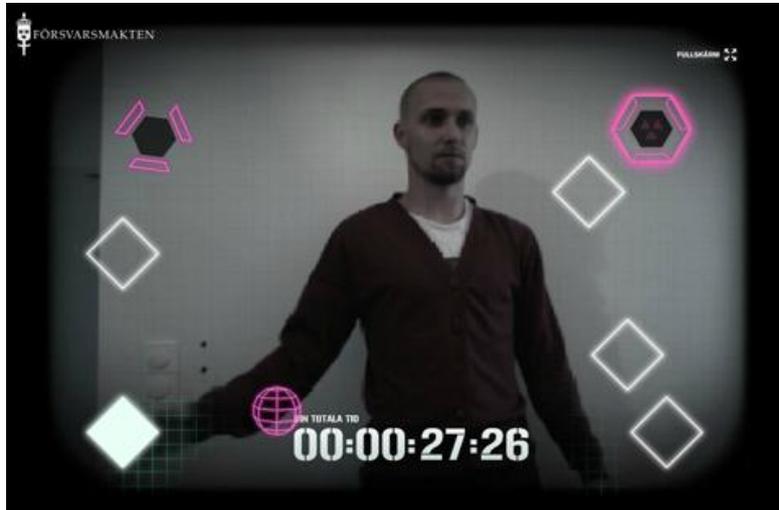
Game portal of the Defence Acquisition University

⁵⁴ <https://clc.dau.mil/games>

⁵⁵ <http://www.sgschallenge.com/archive.shtml>

8.3 Cultivating disruption

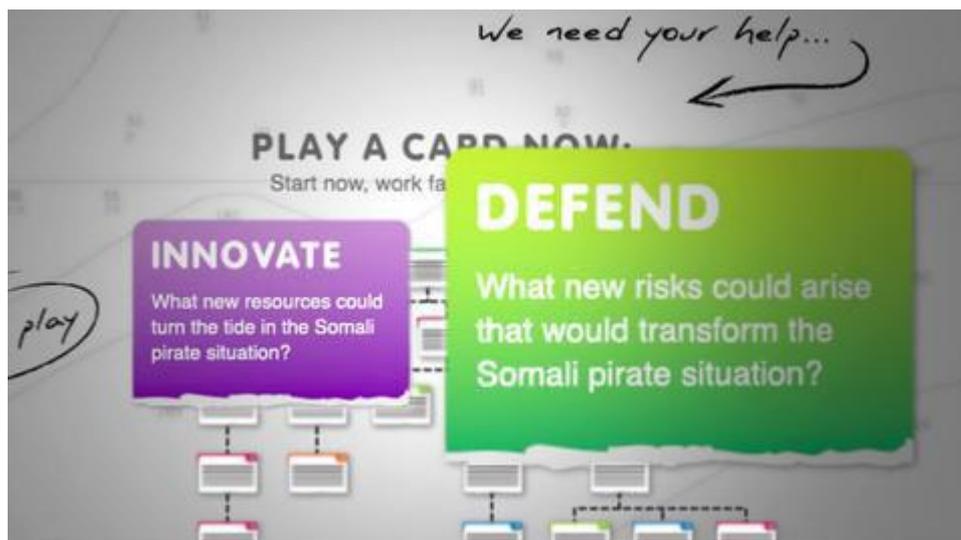
If the choice of 2D can be seen as a disruptive choice in itself, it is possible to go yet further in that direction. Two examples illustrate this idea. First, *SOLDIER/SEAMAN TEST*⁵⁶, developed on behalf of the Swedish military in 2010 by ACNE Production. This game makes use of the player's webcam and invites him to engage a series of exercises based on sensory-motor reflexes.



SOLDIER/SEAMAN TEST (ACNE Production/Swedish Armed Forces, 2010, Sweden)

Sony had already introduced these principles play with the *Eye Toy: Play*⁵⁷ in 2003 on Playstation 2. However, this type of game is currently coming back on centre stage thanks to the Wii, the Kinect and the Playstation Move. It is interesting to note that the phenomenon has not escaped the military, which decided to adopt a similar gameplay.

The second example is *Massively Multiplayer Online War Game Leveraging the Internet* (MMOWGLI), a game made on behalf of the US NAVY with USD 450,000 budget and whose release is scheduled for fall 2011. This game aims to mobilise the pool of Internet users in search for solutions to the problem of pirates attacking merchant ships off Somalia.



MMOWGLI (US Navy, 2011, USA)

⁵⁶ <http://bit.ly/bj41E6>

⁵⁷ <http://bit.ly/qZWjvL>

In this game, images are replaced by pure text. Using a *Twitter*-style microblogging logic, players are invited to post solutions of less than 140 characters to the problems exposed by the Navy. Scores are assigned based on the relevance of answers by relying on a crowdsourcing method. This approach aims to create an emulation climate in which points are assigned, ideas are called into question and the ability to access new rounds depends on a player's success in defending his views. With this game, the US Navy performs data collection, used by less than 1% of SGs if we refer to the chart shown at the beginning of Chapter 6.

The inventory of 2D SGs dedicated to the defence industry shows that it is still possible to create a buzz with conventional strategies, which would consist in using real-time 3D. What is happening through the defence industry finds its parallel in the video game industry. This is indeed the history of Nintendo's Wii, which managed through a disruptive strategy to establish itself as the market leader in home consoles since 2006. However, once engaged in this strategy, it is necessary to find means to remain positioned in this dynamic over time, like for example Apple has managed to do for several years. Shall this process run out of steam, the risk of customer dissatisfaction is serious. This seems to have happened to Nintendo with the announcement of its new Wii U console, which has failed to seduce the specialists at the E3 expo in June 2011 by lack of disruptive features.

8.4 Case studies

8.4.1 Energy-Wise

PIXELearning	
Legal status	PIXELearning Limited
Year of creation	2002
Activity	Serious games development, online training software development
Number of employees	10
Country	United Kingdom
Web	www.pixelearning.com
2011 turnover	GBP 526,000

Energy-Wise		www.energy-wise.eu
Date of publication	June 2011	
Client		
Project objectives	<p>The main objective of the ENERGY-WISE project is to enhance the ability of European SMEs to improve their end-use energy efficiency so that they can contribute to the European (Kyoto) targets for CO2 emission reductions, save money on their energy bills and be more competitive in the world economy. The serious game is aimed at providing an introduction for small and medium enterprises (SMEs) to the methods, processes, procedures and campaigns that could help reduce their energy consumption. To help players, sources of information and supporting e-learning courses are embedded in the game; in order to maximise accessibility, all the information is available in each partner language.</p>	
Designer/Editor	<p>As a project between multiple European collaborators, each partner conducted vital research and contributed input to the concept and content design to ensure that the content would appropriately target the European market and that the message remained consistent and relevant for the widest possible audience. The detailed game design and development was developed by PIXELearning, a leading serious games developer based in Coventry in the UK.</p>	

Partnerships	
Technology partnerships	-
Trade partnerships	<p>A European Funded project (Lifelong Learning Program) with partners:</p> <ul style="list-style-type: none"> • Coventry and Warwickshire Chamber of Commerce (UK) • PIXELearning (UK) • Aliter (Spain) • DemoCentre-Sipe (Italy) • Foretagarna (Sweden) • Virtech (Bulgaria) • Chamber of Commerce and Industry Prahova (Romania)
Sales partnerships	-

Game description

History

European companies need a secure supply of energy at affordable prices in order to maintain standards of living, run businesses, deliver public services and to transport goods and people. At the same time, it is generally accepted, by most businesses, that the negative effects of energy use, particularly fossil fuels, on the environment must be reduced. According to the Carbon Trust businesses are currently responsible for about half of all (UK) carbon emissions.

There are many different ways that businesses can reduce their energy bills and carbon emissions. They can improve energy efficiency by designing more efficient processes, use more efficient equipment or change employee behaviour. Saving energy is also an easy way for them to reduce costs and take advantage of tax incentives offered for investing in energy-saving technologies and products. However, many SMEs are either not aware of the potential benefits offered by implementing more energy efficient practices or they feel that they do not have the necessary in-house skills to do so and/or that the use of external experts would be prohibitively expensive.

Large industry is often singled out as a major contributor to carbon emissions, but SMEs can also work to reduce their energy requirements to make a big impact. The Energy-wise project looks to improve the knowledge held by small businesses across Europe so they can become more energy aware. Therefore the main objective of the Energy Web Interface for Skills Enabling (Energy-wise) project is to improve the ability of European SMEs to improve their energy end-use efficiency.

The initial two-years' of the project have been funded by the Leonardo Lifelong Learning Programme during which time the project partners have developed a suite of e-learning training materials/tools & serious game "Energy-wise".

All resources will be translated into each partner language within Europe – UK, Spain, Sweden, Italy & Bulgaria – in order to achieve its European potential.

The overall goal is that the Energy-wise project will indirectly support Energy Directive 2006/32/EC on energy end-use efficiency & energy services and will also contribute to the promotion of the draft European Energy Management standard prEN16001 by assisting small businesses in Europe to meet the requirements set by the standard.

Gameplay

Training in Energy Management techniques provides administrative and technical training for energy managers, building operators, and other energy-efficiency professionals with the opportunity to make energy savings, reduce carbon emissions, meet their organisation's environmental targets and save money.

Starting from a detailed energy audit and analysis of the existing buildings, systems and controls, the Energy-wise users will be encouraged to develop a feasibility study and a strategy for improving their firm's energy efficiency. Advice is also provided on how to involve other staff in the energy-efficiency exercise through the implementation of a staff awareness-raising campaign.

This serious game is designed to introduce players to the means by which an organisation can reduce its energy consumption by recommending some fundamental energy-saving techniques. The game is built around a realistic scenario in which the player plays a premises manager. Based on PIXELearning's LearningBeansWorlds engine, we have created a compelling and thought-provoking gameplay, combining realistic business challenges and mini-games to communicate the desired outcomes.

The game is set in the town of 'Ecoville', which has recently been awarded funding for a regeneration programme aimed at encouraging businesses to reduce their energy consumption.

You take on the role of Premises Manager Sam Tristan; you are challenged to manage and monitor the implementation of technologies, campaigns and awareness-raising for the energy reduction plans of two SME organisations; one active in the food and drink industry, and the other in the construction industry.

You will meet with the Manager of '2up Construction' to discuss staff awareness-raising campaigns as well as what can be done to reduce the company's external energy consumption. At Go Green you will meet with their Facilities and Process manager to address internal energy consumption.

Your mentor, Marco Hidalgo, an experienced Premises Manager offered you this position; with his knowledge of best practices, he will provide you valuable insight into the areas to focus on.

Players work towards improving their 'energy score', which represents how energy-efficient the SME has become based upon their recommendations. The game complements the overall Energy-wise course and the Energy-wise Knowledge Base by helping trainees identify areas where they may need to improve their understanding and by orienting them towards further course material.

Technology

Technical information	
Platform	Cross Platform, Multi Browser compatibility
Special accessories	n.a.
Technological characteristic	
Language	Flash 9
Engine	PIXELearning's LearningBeans authoring tool



Feedback

Initial partner feedback has been encouraging, and the project partners firmly believe the ENERGY-WISE serious game will have a significant impact on how SMEs relate to energy saving in the future. The release candidate is due for further stakeholder testing in early June 2011.

Economics of the project

Development	
Total development costs of the project	EUR 30,000
Industry-related contribution to development costs	Unknown due to contribution by multiple project partners, approx. EUR 20,000
Sponsors (if any) and degree of involvement	n.a.
Reliance on a specific source of financing and amount received	Leonardo da Vinci – Lifelong Learning Program

Business model	
Pricing strategy	Freely available to SMEs for 3 years after project launch
Revenues and revenue-sharing	n.a.
Sales target	n.a.
Target break-even point	n.a.

Marketing	
Marketing strategy	Dissemination events across partner countries, website
Project's sales and marketing budget	n.a.
Sales force	Partners
Geographical scope	English, Swedish, Spanish, Italian, Romanian and Bulgarian-speaking countries

8.4.2 Jeu Serai (I Will Be)

Wizarbox	
Legal status	LLC
Year of creation	2003
Activity	Development of video games and technological solutions
Number of employees	35
Geographic location	Sèvres (France)
Web	http://www.wizarbox.com/
Turnover	EUR 1,059,694

Jeu Serai	
ftp://JeuSeraiExternes:JSEXWIZ2011@89.251.49.194	
Release date	Development from September 2010 thru June 2011 Deployment scheduled for early 2012.
Client	"Jeu Serai" is a winning project of the 2009 Serious Games call for proposals
Project objectives	"Jeu Serai" is a SG whose objective is to facilitate the vocational guidance process for both adults and students. The idea is to use the basic mechanisms of video games (exploration, challenges, rewards, learning) to assess the user's interests and motivations, as well as the criteria underlying his decisions in order to help him in his individual orientation process.
Developer/Publisher	Wizarbox: Project leader and developer (programming and graphic design)

Partnerships	
Technology partnerships	-
Trade partnerships	Seaside Agency: creation (gameplay and game mechanics) Cnam (Inetop): Definition of the guiding principles to be included in the application Paris-Ouest Nanterre La Défense University and ArCnam: Evaluation and testing
Sales partnerships	-

Game description

Synopsis

"Jeu Serai" (a pun meaning "*I will be*") is a winning project of the 2009 Serious Gaming call for projects bringing together video game industry players such as Wizarbox and Seaside Agency and training and research institutions in counselling psychology such as the Cnam (Inetop, Cedric, Arcnam) and Paris-Ouest Nanterre La Défense University.

The prototype combines a self-generating game similar to interactive books with mini-games whose results are used to determine the player's psychological profile. This introspective and simulation exercise is part of a coaching service performed by a professional counsellor.

Gameplay

The “Jeu Serai” team has identified and selected major guiding principles that can be transposed to gaming mechanics. By immersing the player in real life and entertaining scenarios (mini-games, quizzes, activities, etc.), "Jeu Serai" allows to perform a behavioural analysis independently from the traditional paper surveys, thus avoiding self-assessment.

Various data on the player's behaviour are analysed to establish his profile. This approach is based on two validated scientific models and frequently used in the orientation process:

- The Holland model measures professional interests, corresponding to different personality profiles (see diagram below);
- The Harren model measures career decision-making styles (rational, intuitive, dependent, etc.).



Technology

Technical information	
Platform	Web browser
Special accessories	
Technological characteristics	Real-time 3D
Language	C#
Engine	Unity

Feedback

The first tests carried out on a sample of students at Paris-Ouest La Défense University validated the concept, and the simulation results correlated well with the Holland and Harren models.

Counselling psychologists developed the official testing protocol, and large-scale testing is to begin in late 2011 with students from the CNAM and Paris-Ouest Nanterre La Défense University. This project seeks the attention of numerous organisations, which contacted the development studio in order to take part in the experiment or to acquire the product once it is operational.

Economics of the project

Development	
Total development costs of the project	Between EUR 500,000 and 700,000
Industry-related contribution to development costs	20%
Sponsors (if any) and degree of involvement	
Reliance on a specific source of financing and amount received	Winner of the NKM call for projects launched in 2009 (total grant for all partners: EUR 390,000)

Economic Model	
Pricing strategy	n.a.
Revenues and revenue-sharing	n.a.
Sales target	n.a.
Target break-even point	n.a.

Marketing	
Marketing strategy	n.a.
Project's marketing and communications budget	n.a.
Sales force	n.a.
Geographical scope	French and English-speaking countries in a first phase

8.4.3 Largo Winch

Entropic Synergies	
Legal status	Simplified Joint Stock Company
Year of creation	2005
Activity	Design and development of social networks and SG
Number of employees	7 in-house and 8 free-lance
Geographic location	France, Spain, Italy, United States
Web	http://www.entropic-synergies.com
Turnover	EUR 360,000

Largo Winch		www.jeu-largo-winch.com et http://apps.facebook.com/jeu-largo-winch/?ref=ts
Release date	2009	
Client	The comic books publisher Dupuis. The authors of Largo Winch issued Entropic Synergies an exclusive global license for the creation of online games based on their characters.	
Project objectives	<p>Largo Winch" game was created to meet three objectives specific to Entropic Synergies:</p> <ul style="list-style-type: none"> demonstrate the skills of Entropic Synergies in the creation of social games (for other firms) demonstrate the power of viral marketing and hence the ability to bring in new players via other players introduce the public to the major socio-economic forces (which apply in a large population, for example) <p>Largo Winch is the first game based on the SEG (Social Enterprise Games) concept. Its main objective is to promote to potential clients the added values of SEG, particularly in terms of generated audience, in order to develop other games based on this principle. In parallel, the objective of the game is also to educate players to the values of the Largo Winch character, but above all to help them embrace various concepts, such as production and human resources management, economic and financial laws, etc.</p>	
Developer/Publisher	Entropic Synergies	

Partnerships	
Technology partnerships	Entropic Synergies
Trade partnerships	Largo Winch Design Licensing and Éditions Dupuis
Sales partnerships	Le Figaro

Game description

Histoire

Entropic Synergies bases its approach on the belief that a SG related to career paths is the best vehicle for conveying the social and professional values that permeate the Largo Winch universe. Through fictitious scenarios, a serious role play can indeed help players embrace new values and share them through multiplayer collaboration.

The concept attracted Éditions Dupuis, which did not have any expertise in the field of games based on Digital Social Networks (DSN), and which was seeking a distinctive presence on the Web. Together with Entropic Synergies, they pioneered the Social Game with the aim of broadening the comics' target readership (currently primarily executives) and gaining easier access to international audiences via the Web and Facebook. The SEG technology is multilingual and thus facilitates the targeting of new countries.

Gameplay

One of the strengths of Entropic Synergies' game engine is that it is text-based, meaning that it can be adapted at a much lower cost than a 2D/3D game requiring a significant investment for each adaptation.



The player has a profile with characteristics (skills, resources, etc.) specific to his universe. Along the way, he must choose the skills he wishes to develop, and his profile will evolve according to his choices. His objective is to pass levels by accumulating a number of experience points in several fields. In the Largo Winch game, there are two such fields: economic and social. Just like the Largo Winch character, the player's objective is to achieve material success while also making social progress in order to thrive in his group (Group W).

In order to gain experience points and move to the next level, the player must perform actions. An action is a text explaining the background and the stakes at play. The probability of succeeding and the number of acquired experience points vary according to the player's skills.

The engine's multiplayer mode allows a player to team up with collaborators with complementary skills, considering that the probability of winning is greater for a well-established team than for an isolated individual.

In all virtual communities forming around the game, a *virtual currency*, and more generally a virtual economy serve to value the activities of each community member. The latter have access to this money for additional services, special equipments provided by the game or some visibility at the top of multiple rankings. A good ranking can stimulate groups, subgroups and individuals. Some criteria and their weight in the final ranking can be defined in order to highlight behaviours, the assimilation of certain values, etc.

Technology

Technical information	
Platform	Available on all Web browsers and on Facebook
Special accessories	No
Technological characteristics	Multiplayer/ Cooperative game / Competitive game / Text-based game
Language	Entropic Synergies Proprietary Engine (JEI) / HTML5 / CSS3 / Facebook and
Engine	Zend PHP Framework + jQuery

Feedback

Largo Winch relies on a base of 200,000 ultra-skilled registered players in the higher occupational categories, primarily from the finance industry. The craze around the comics' universe has been preserved or even enhanced by the players' assimilation of their hero's values.

Economics of the project

Development	
Total development costs of the project	EUR 180,000
Industry-related contribution to development costs	30%
Sponsors (if any) and degree of involvement	Éditions Dupuis
Reliance on a specific source of financing and amount received	Research Tax Credit and Young Innovative Company Subsidy

Economic Model	
Pricing strategy	EUR 10 by player and monthly subscriptions
Revenues and revenue-sharing	20% for media partners and 20% for business developers. Dupuis received no income, but was a client/partner. The revenues generated by the site are shared directly with the authors of Largo Winch (advertising, partnerships, etc.).
Sales target	EUR 150,000 in the first 12 months
Target break-even point	

Marketing	
Marketing strategy	Media partnerships and social marketing campaigns
Project's marketing and communications budget	EUR 120,000
Sales force	2 people
Geographical scope	France, Belgium and Germany

8.4.4 My Cyber Auto-Entreprise

Succubus Interactive	
Legal status	LLC
Year of creation	2002
Activity	Development of serious and social games
Number of employees	12
Geographic location	Nantes (France)
Web	www.succubus.f
Turnover	EUR 400,000 in 2010

My Cyber Auto-Entreprise	www.macyberautoentreprise.pme.gouv.fr
Release date	The first episode of the "Ma Cyber Auto-Entreprise" game was released in May 2010, and three more modules were added in the four following months.
Client	The Ministry of Industry, led by the DGCIS (Directorate General for Industrial Competitiveness and Services) and the DUI (Delegation to Uses of the Internet)
Project objectives	"Ma Cyber Auto-Entreprise" a SG combining entertainment with information, and whose purpose is to teach players how to "produce, manage and sell." By explaining each rule associated with the auto-entrepreneur status in a simple way, the game aims to reduce the number of questions addressed by email to its various social partners (CCI, APCE, BDPME, management agencies, Pôle Emploi, etc.). It should also help minimise the number of self-contractors without any real activity while encouraging those whose activities are in good shape to move to other legal forms (LLC, LC, Simplified Joint Stock Company) and thus enable them to hire and develop.
Developer/Publisher	Succubus Interactive

Partnerships	
Technology partnerships	Development of the website by Key Consulting
Trade partnerships	Project management and assistance by Key Consulting
Sales partnerships	None

Game description

Histoire

With the creation of 500,000 new self-contractors (*auto-entrepreneurs*) in just over a year, the balance of the new statute created by the government is positive. But this observation comes along with serious difficulties faced by new entrepreneurs, often unaware of the realities involved by managing a business. Many of them are thus totally unaware of business development, communications or management techniques. Succubus felt the need to respond to this situation by finding a way to raise awareness about the activities and fields of expertise required to successfully develop a business.

Gameplay

In "Ma Cyber Auto Entreprise", the player has the option to play two characters with representative activities: Emma the costume jewellery creator and Sami the computer services professional. He can then create his self-contracting business and develop it from A to Z. To do this, he must contact the relevant agencies, obtain their assistance, and develop his network and activities without forgetting his numerous customers. Exploration, dialogues, prospection and business management: this game combines both adventure and management. In order to improve his score throughout the game, the player must also make wise choices and accommodate an ever-busier schedule. Thanks to its map, its

sophisticated management interface and multiple exploration phases, "My Cyber Auto Company" is a comprehensive educational tool that according to Succubus seeks to really challenge its players and teach them useful concepts. A backup system allows the player to follow his progress through four chronological stages of growing complexity and educational content.

Technology

Technical information	
Platform	Web browser
Special accessories	Extremely simplified, the game interface only requires a mouse
Technological characteristics	Real-time 3D / Persistent universe / AI / Multiplayer / Massively Multiplayer / Cooperative game / Competitive game
Language	Flash
Engine	Happy Tech proprietary engine (Flash isometric 3D specialty)

Feedback

The results have not yet been published.



Economics of the project

Development	
Total development costs of the project	EUR 180,000
Industry-related contribution to development costs	EUR 101,000
Sponsors (if any) and degree of involvement	None, this SG was commissioned by the French government
Reliance on a specific source of financing and amount received	None, this SG was commissioned by the French government

Economic Model	
Pricing strategy	Free
Revenues and revenue-sharing	-
Sales target	-
Target break-even point	-

Marketing	
Marketing strategy	Promotion via government websites, press releases, and a presentation of the game during the online creation process of a self-contracting business
Project's marketing and communications budget	Less than EUR 50,000
Sales force	-
Geographical scope	France only

8.4.5 SUEZ ENVIRONNEMENT AMBASSADOR

KTM Advance	
Legal status	LC
Year of creation	1995
Activity	Service provider: Distance learning (E-learning & Serious Games)
Number of employees	54
Geographic location	France
Web	www.ktm-advance.com
Turnover	EUR 2.6 millions

Suez Environnement Ambassador	Usage interne
Release date	May 2011
Client	Suez Environnement
Project objectives	By developing an interactive integration module, Suez Environment aims to familiarise all its employees, and in particular new recruits, with the group's core competences, structure, values and ambitions.
Developer/Publisher	KTM Advance

Partnerships	
Technology partnerships	KTM Advance developed the SG in its entirety. Its partner Cblue handles user requests and manages the LMS Chamillo platform
Trade partnerships	Business expertise was provided from Suez Environnement and qualified by the KTM Advance teams
Sales partnerships	No other partnerships

Game description

Background

The project has been the subject of a tender based on terms of reference drafted by Suez Environnement in 2010.

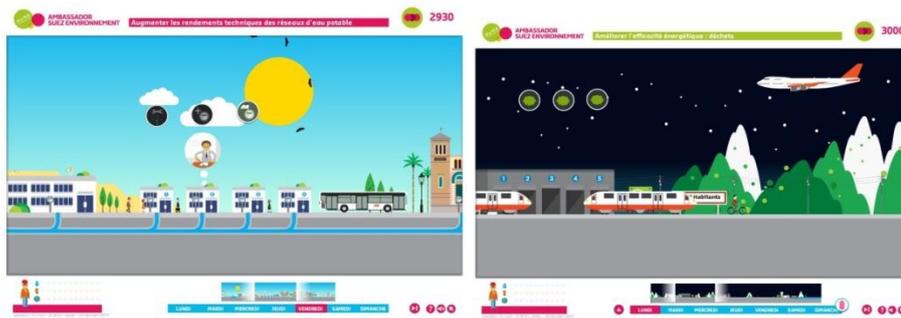
Gameplay

This 'builder'-type SG is based on the development of cities all around the world: the group's exploration activities are carried out through various missions drawing on both building and management skills. The player must meet environmental standards and sustainable development rules in all the actions he undertakes, while acquiring knowledge on the group's activities. He thus gradually discovers Suez Environnement's activities and the services provided to its customers.

Throughout the various stages, the player is bombarded with relevant information and key messages, which he collects in a logbook and will provide the material for an "educational assessment" at the end of the game.

Technology

Technical information	
Platform	Web browser via the LMS Chamillo platform
Special accessories	None
Technological characteristics	Builder in iso 2D
Language	Flash
Engine	No graphics engine associated



Feedback

Internal feedback has been positive.

Economics of the project

Development	
Total development costs of the project	EUR 250,000
Industry-related contribution to development costs	The project would not have been possible without the contribution of business experts of the group Suez Environnement group, a prerequisite for the development of a quality gameplay capable of engaging players in real challenges throughout the game's nine missions. About twenty experts participated in the scriptwriting, totalling approximately forty work-days.
Sponsors (if any) and degree of involvement	n.a.
Reliance on a specific source of financing and amount received	n.a.

Economic Model	
Pricing strategy	This is a product specifically tailored for Suez Environnement. Designed for in-house deployment, this SG is not intended for commercial use.
Revenues and revenue-sharing	n.a.
Sales target	n.a.
Target break-even point	n.a.

Marketing	
Marketing strategy	To celebrate the game's launch, KTM Advance produced a teaser, a trailer, and a rolling demo. KTM Advance has also included a training mode providing quick access to the game's key data. Launched in May 2011, the teaser started being loop-played in the group's offices, elevators and cafeterias in January 2011. In the meantime, the trailer was used as a follow-up to this first teasing campaign. Finally, the rolling demo will be used at recruitment fairs.
Project's marketing and communications budget	Suez Environnement does not wish to disclose the figures of this campaign
Sales force	n.a.
Geographical scope	This solution has been translated into the five languages most relevant to the group's global presence (English, Spanish, German, Dutch and French)

- telecom
- internet
- media

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Ref	Continuous Services	Publication	Deliverables	Price in EUR
M12302	World FTTx Market	Continuous	Quantity	
	Database	quali- and quantitative data	June / Nov '11	2
	Monthly Insights	News and analyses	Monthly	10
	Direct access to lead FTTx analysts	hotline, webinar, presentation	5h consultancy	10 000
M12305	World LTE Market	Continuous	Quantity	
	Database	quali- and quantitative data	June / Nov '11	2
	Monthly Insights	News and analyses	Monthly	10
	Direct access to lead LTE analyst	hotline, webinar, presentation	5h consultancy	10 000
M12205	Connected TV Monitoring	Continuous	Quantity	
	Database	quali- and quantitative data	June / Nov '11	2
	Monthly Insights	News and analyses	Monthly	10
	Direct access to lead media analysts	hotline, webinar, presentation	5h consultancy	10 000

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Ref	Themes	Publication	Price in EUR
	Internet Series		
	Market & Data reports - full report, database & slideshow		
M11118	Mobile	June 11	3 500
M11101	Internet Services	July 11/Jan.12	3 500
M11115	Internet Technologies	Nov. 11	3 500
M11117	Internet Services	Dec. 12	3 500
M12122	Internet Technologies	Feb. 12	3 500
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	Innovation reports - full report & slideshow		
M10211	TV & Digital Content	May 10	2 500
M11111	Mobile	May 11	3 500
M11112	Regulation	Nov. 11	3 500
M11114	Internet Services	Dec. 11	3 500
M11410	Networks	Jan. 12	3 500
M12113	Networks	April 12	3 500
M12119	Mobile	May 12	3 500
M12120	Internet Services	Nov. 12	3 500



Ref		Themes	Publication	Price in EUR
Telecom Series				
 Market & Data reports - full report, database & slideshow				
M11310	Ultrafast-Broadband per Satellite	Satellite	June 11	3 500
M11301	World Telecom Services Markets	Telecom Strategies	July 11/Jan.12	3 500
M11318	Femtocells	Mobile	July 11	3 500
M11411	Equipment SME (France)	Survey	Aug. 11	8 500
M11314	Radio Spectrum	Mobile	Sep. 11	3 500
M11312	Capex Trends	Telecom Strategies	Nov. 11	3 500
M11316	Ultrafast-Broadband - understanding residential users' switching patterns	Survey	Nov. 11	8 500
M12315	Satellite M2M	Satellite	Feb. 12	3 500
M12306	Mobile Devices	Mobile	Feb. 12	3 500
M12412	Smartphones & Tablets - business use	Survey	Feb. 12	8 500
M12311	Future Telecom (Scenarios 2020)	Prospective	May 12	4 500
 Innovation reports - full report & slideshow				
M10315	NGA Regulation	Regulation	Nov. 10	3 500
M10304	Services over FTTH/B	Broadband	Jan. 11	3 500
M12313	Green Telecom	Telecom Strategies	Mar. 11	3 500
M10312	Satellite Markets: New Growth Engines	Satellite	July 11	3 500
M11319	Mobile Backhaul Strategies	Netw orks	Aug. 11	3 500
M11303	FTTx Strategies	Broadband	Nov. 11	3 500
M11317	VDSL2 Vectoring	Broadband	Dec. 11	3 500
M11307	LTE Telcos Strategies	Mobile	Dec. 11	3 500
M12304	FTTx Business Models	Broadband	Mar.12	3 500
M11413	Smart Cities	Netw orks	April 12	3 500
M12308	Changes in offers & bundles - fixed & mobile	Telecom Strategies	June 12	3 500
Media Series				
 Market & Data reports - full report, database & slideshow				
M12212	Future Television (Scenarios 2020)	Prospective	July 11	4 500
M11200	World Television Markets	TV observatory	July 11/Jan. 12	3 500
M11201	World Video Game Markets	Video Game observatory	July 11/Jan. 12	3 500
M11217	Next Gen TV	TV & Digital Content	July 11	3 500
M10118	Online Video	TV & Digital Content	Oct. 11	3 500
M11216	Digital Home & Connected Devices	Consumer Electronics	Oct. 11	3 500
M11116	eBooks	Digital Content	Oct. 11	3 500
M12210	African TV Networks	Netw orks	March 12	3 500
M12214	TNT: Switch-off stakes	Netw orks	June 12	3 500
M12206	Uses & Behaviours Online TV	Survey	June 12	8 500
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 Innovation reports - full report & slideshow				
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M10214	TV Groups' Quadruple-Screen Strategies	TV & Digital Content	Oct. 10	3 500
M11211	Satellite TV in Europe	Netw orks	April 11	3 500
M11215	Hybrid TV	Netw orks	Dec. 11	3 500
M11214	Telcos TV Strategies	Telecom Strategies	Dec. 11	3 500
M11213	Serious Games	Digital Entertainment	Dec. 11	3 500
M12215	Cable & IPTV face to cord-cutting	Netw orks	Sep. 12	3 500

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Other Publications

		Frequency	eCopy	Hardcopy
EN11	Executive Notes - Synopsis of published market reports	Annual subscription	Monthly	5 000 -
CS11	Communications & Strategies - Economic Journal	Annual subscription	Quarterly	250 320
DW11	DigiWorld Yearbook	Review of the ICT sector	Yearly	21 29

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Satellite Broadband, Broadcast, HDTV, Internet, LBS, TV	Business ICT Markets eHealth, Enterprise, FMC, On-line Services, SaaS, SMA, SoHo, VoIP
Internet Services Advertising, Architecture, GeoWeb, Monetisation, RFID, Smart Machines, 2.0	Digital Content DRM, Music, Piracy, Press, Radio, Video Games
TV Video Analogue Switch-off, Distribution, DTT, DVB-H, IPTV, IP Video, Mobile, VOD	Digital Home Entertainment Mobile Handset, Digital Living, Personal TV, Podcasting

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