# D7.2 –Summary report of Value Chain analysis

**RAGE –WP7-D7.2**

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<thead>
<tr>
<th>Grant Agreement/Project Number</th>
<th>644187</th>
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<tbody>
<tr>
<td>Due Date</td>
<td>31.01. 2016</td>
</tr>
<tr>
<td>Actual Date</td>
<td>3.03.2016</td>
</tr>
<tr>
<td>Document Author/s</td>
<td>INMARK, UOB, FTK, INESC ID</td>
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<tr>
<td>Version</td>
<td>Final</td>
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<tr>
<td>Dissemination level</td>
<td>PU</td>
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<tr>
<td>Status</td>
<td>Final</td>
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<td>Document approved by</td>
<td>RR</td>
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This project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement 644187.
## Document Version Control

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<td>0.1</td>
<td>1.09.2015</td>
<td>Outline – First inputs</td>
<td>MH/RR</td>
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<tr>
<td>0.2</td>
<td>1.10.2015</td>
<td>Population of content-Executive Summary</td>
<td>RR</td>
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<tr>
<td>0.3</td>
<td>28.12.2015</td>
<td>First complete draft</td>
<td>RR</td>
</tr>
<tr>
<td>1.0</td>
<td>30.01.2016</td>
<td>Final version</td>
<td>RR/JB/PS/PH</td>
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## Document Change Commentator or Author

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<td>1</td>
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<td>Providing more info on context of use of results</td>
<td>Jeremy Cooke</td>
</tr>
<tr>
<td>2</td>
<td>02.03.2016</td>
<td>Improve references, formal aspects and formatting</td>
<td>Mihai Dascalu</td>
</tr>
<tr>
<td>3</td>
<td>08.03.2016</td>
<td>Methodology and format</td>
<td>Wim Westera</td>
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EXECUTIVE SUMMARY

The results presented in this deliverable depict relevant aspects of the EU based Applied Game industry and its competitive landscape.

This preliminary overview of the primary target market for the RAGE ecosystem identifies some of the key issues to be further investigated by the RAGE WP7 team through stakeholders/market consultations commencing in year 2 of the project. These findings will form as an integral part of the baseline needed to formulate a sustainable exploitation strategy for the RAGE assets and ecosystem.

More specifically, this document complements the results provided in Deliverable D7.1, providing consortium partners with a strategic marketing analysis of the Applied Game industry, as prerequisite for:

a. The identification and assessment of market segments to be targeted to optimise exploitation of the RAGE outputs.
b. The definition of the Value Propositions for each of these targeted groups of potential customers.
c. The formulation of the Business Model(s) for the deployment, operation and long term sustainability of the RAGE Ecosystem.

The main findings of this analyses indicate:

- Overall favourable landscape conditions for the future development of an Applied Game industry. This is due to the evolution of the Information Society and the accelerated digitisation of the productive economic systems, the public administration sector and society as a whole.
- The potential for growth in the Applied Game industry is heterogeneous across demand sectors, as highlighted in market and industry reports and D7.1. This diversity has been has been exacerbated by recent austerity measures in the public sector, a critical source of business for EU based Applied Game vendors. There is a real need for private sector businesses to have a differentiated digital presence this should increase sector requirements for creative solutions such as those offered by Applied Games. The Applied Game industry is part of the larger and dynamic Creative industries cluster. The Creative industries have experienced significant growth over the last decade in terms of political support, due in part to their potential to generate highly skilled jobs in the European Union.
- Theoretically Applied Games offer the opportunity to effectively engage users in a digital interaction that is derivative and equally a driver for innovation of the more mature Leisure games industry. The accompanying report D7.1 reveals potential areas of convergence across the two industries. Despite similarities, the distinctive nature of target markets the Business to Consumer (B2C) in Leisure games and the Business to Business (B2B) in Applied Game-, distinct value propositions, demand patterns, supply structures and respective levels of profitability in the two industries limits effective collaboration between them.
• The Applied Game development studios, digital marketing agencies and educational content publishers are the predominant Applied Game vendors/suppliers. Each of these adopts different approaches to market development however this variety could become a source of future opportunities.

• The increasing demand for commercial digital marketing opens new opportunities for Applied Game deployment in other segments, most notably in the private sector presenting opportunities and potential Return On Investment (ROI) levels.

• The majority of EU based Applied Game vendors are small to medium enterprises (SME) employing mainly technical staff, with the owners often combining multiple roles productive, managerial and commercial duties. They usually operate under low profile/weak branding and suffer from a lack of funding of the scale required to address market categories/segments, of their own "natural"/national markets. Most Applied Game vendors aim to develop small customer portfolios as their priority.

• The vast majority of EU based Applied Game vendors focus on local markets and do not operate internationally. Consequently, marketing and commercialisation strategies are weak, and based to a large extent on "word of mouth". As an aggregated consequence, there is slow growth in awareness about the value proposition offered by Applied Games across potential customer markets. The value chain is short consistent with other B2B markets, the value added intermediary steps have not emerged. The classic 'Film industry model' is the norm among Applied Game producers, who integrate most processes in-house with a small core teams, supplemented by freelance developers for project delivery as and when required.

This analysis indicates a buoyant creative market populated by numerous small companies. Advertising and marketing companies are participating as an adjunct to purpose. Large brands want to engage, but the Applied Game industry has not found significant traction in satisfying this demand.

• The shortcomings of the Applied Game industry do however present an opportunity for the future design of the RAGE offering. In order to seize these opportunities it is critical that the RAGE assets are fit for purpose and equally that the case studies fully inform and stimulate interest from potential commercial prospects.

Ultimately, we must ensure that the RAGE ecosystem is delivered effectively to an audience that has an unmet need, in a language they understand and with solutions fit for their purpose.
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1. INTRODUCTION

1.1 Nature and content of the Deliverable

This deliverable is part of the preliminary work aimed at defining the sustainable exploitation of the RAGE results. Underpinned and informed by, and complementing the findings presented in D7.1 on business models, this document summarises the findings of the Value Chain analysis of the Applied Game industry in Europe. Our initial plans to include the Leisure games industry in scope was rejected in order to ensure a clear focus on the RAGE ecosystem within the distinct Applied Game domain. An analysis of the leisure game market becomes largely not relevant for needs of the RAGE project. Despite the obvious similarities, there are structural differences between these two industries in terms of the distinctive nature of target markets -B2C in Leisure games as opposed to B2B in the Applied Games domain-; their respective value propositions, demand patterns, supply structure and levels of profitability, making it difficult for synergies to arise.

The view of the operational landscape presented by the findings in this report will be used to inform forthcoming tasks and work packages to identify the needs and expectations of the Applied Game industry stakeholders, their decision making processes and their potential to engage and embrace the RAGE outputs.

The content of this report includes the socio-economic and market modelling of the Applied Game market providing profiles of both the Supply and Demand sides of the production and commercialisation of Applied Games. The report identifies the roles of the market stakeholders, their interdependencies and economic behaviour. This modelling has been framed within the context of the overall macro-environment, i.e. the external factors beyond the direct control of the Applied Game stakeholders that have shaped the structure and evolution of their industry.

The identification of critical issues for the RAGE ecosystem will be explored further through future research tasks. In this respect, the results presented in this report will inform the stakeholders consultation rounds which commence in 2016, aimed at providing richer and deeper “real world” insights and engagement around RAGE proposals. A clear picture of the demand within this competitive market place will emerge identifying existing tools and the middleware used by industry and how to best engage the industry with the RAGE outputs. Conversely we must ensure that the RAGE outputs are both fit for purpose and presented as such. The consultation process will capture examples of current leading edge development processes – in the use of middleware, in design, in technology requirements, and in skills requirements. This consultation will help ensure the RAGE technology tools and processes will impact positively and in the Applied Games domain and position the RAGE platform where it will be most effective.
1.2 Methodology

The preliminary industry diagnosis presented in this report comprises analysis both “inside the consortium” (internal) and in the competitive landscape (external), and incorporates the use of established business modelling tools including Political Economic Social Technological (PEST analysis), Strengths Weaknesses Opportunities Threats (SWOT), as well as gap analysis and Porter’s 5 Forces.

Predominantly focussed upon the collection of qualitative data by means of soliciting and analysis of industry narratives our research was undertaken via dedicated unstructured interviews consisting of open unstructured questions with relevant Applied Game industry representatives.

The interviews consisted of between 30 minutes and 90 minutes duration selected from a sample of six Applied Game developers vendors, four development partners directly involved in the RAGE project and two randomly selected Applied Games developers external to the project:

- Gameware Europe from the United Kingdom,
- BIP Media (France),
- Nurogames (Germany),
- Playgen (United Kingdom),
- Desq (United Kingdom)
- Serious Games International (Denmark).

A sample of two randomly selected Leisure game developers:

- Sony Europe (United Kingdom)
- Rockstar Games North (United Kingdom)

Notes were taken of the discussions and Qualitative data for further analysis was gathered from the transcripts. This Data was supplemented through unmediated internal group discussions between the RAGE development partners within the context of WP 9 (Impact and Dissemination) in meetings Lisbon and Madrid.

Additional, supplementary data was provided by the results of desk research undertaken by Inmark. This research was undertaken from a strategic marketing perspective and focussed on identifying macro market influences relevant to the Applied Games Industry landscape and wider domain of technology uptake more generally.
2. THE APPLIED GAMES COMPETITIVE LANDSCAPE

This section highlights the influences on the Applied Games market framed within a Political, Economic, Socio-cultural, and Technological factors (PEST) analysis that provides the context for the Applied Game industry stakeholders when establishing the contextual framework for the analysis of the Applied Games market and industry development. The value of this analysis rests on the notion that future evolution of these trends will help shape the context for the consolidation of the Applied Games value proposition as a whole, thereby ensuring its long term competitive sustainability.

As a general comment, the analysis of the landscape conditions for the development of an Applied Games industry indicates a favourable balance of forces. Optimism is high, a position endorsed by the accompanying report D7.1.

2.1 Political Factors

Political conditions and governmental policy do not only influence macroeconomic conditions, regulations and the political realm, but also impact on organisations both directly and indirectly. Economic conditions affect the ease or difficulty in being successful and profitable. The political environment affects the availability of capital, cost and demand. As Friedman (2008) indicated “Increasing globalisation presents a real challenge in competing with products with world-class qualities and from a position of financial strength, in addition to nurturing markets in developing economies through joint ventures or partnerships”.

- Government Policy: EU policies foster the use of connected ICT and infrastructures, looking beyond the recent economic crisis to the need for preventing and overcoming similar conditions in the future through improved regulation and visibility. EU wide political initiatives such as Europe 2020 Vision, The Digital Agenda and the multidimensional efforts in creating and consolidating the Digital Single Market (DSM) aim to accelerate the de-fragmentation of the EU space for trade, lowering barriers for digitally enabled cross-border trade and services delivery.

- Political conditions and governmental policies influence the context for Applied Game technology/solutions and adoption: The DSM efforts address the issue that many EU markets for services are still strongly divided along national borders. This situation seriously impairs the operation of the EU as a single 500+ million customer digital market, it limits the creation of economies of scope and scale. Conversely, the EU Digital Market is characterised as a fragmented collection of isolated silos, none any larger than 80/90 million customers in the best case (the German speaking environment). Cross-border trade and services provision has been hampered by legal barriers, and different rules regulations applied by each of the 28 EU Member States.
Currently, there are distinct rules that influence the provision of cross-border digital products and services. On the one hand, there are the national rules adopted by each EU Member State (e.g. the ones related to consumer protection, protection of intellectual property rights, etc.); on the other, EU rules which aim to facilitate the free movement of goods and removing barriers to the online provisions of cross-border services, such as national rules on the quality of services or the qualifications of the service providers (essential for participating in public procurement of services). The same applies to the national regulations applicable for the establishment of subsidiaries or branches of Applied Game vendors in other EU States. The DSM calls for the removal of legal barriers in order to assess and harmonise through regulatory frameworks and thereby establish an internal EU market. This will be favourable for the internationalisation of Applied Game sales within Europe.

Evidence based policy formulation (EBPF): initially fostered by UK government in the 1980’s, has been adopted widely across the EU, in particular in the post 2007 financial crisis and public sector deficit cutting era; “KPI for everything” has become the mantra for managing shrinking budgets in sectors such as the health, education and Public Administration sectors at large, all critical to the development of the Applied Game industry.

2.2 Economic Factors

Economic conditions and government policy both influence a number of other macro environmental factors, such as how capital markets determine the conditions for alternative types of funding for organisations. They tend to be subject to government controls, and guided by the prevailing economic conditions. The labour market reflects the availability of specific skills at local, national and regional levels. In this context, economic trends affecting the Applied Game industry development and consolidation include:

- Regional Competitiveness: Europe’s knowledge creation and cultural heritage are globally strong but need both strategic focus and innovation to be transformed into a competitive advantage. This affects all the Creative Industries in the EU due largely to the increasing global competition.

- Internationalisation, Mergers & Acquisitions: Mergers and acquisitions are strategies that enable enterprises to thrive and ultimately excel within a competitive landscape, to meet market demands and position industries in other geographical markets for future growth and sustainability. The degree to which we experience these corporate movements across the EU scene is lower than in other more dynamic economies, such as the USA and in the Far East. On the contrary, one specific negatively acute aspect of the internationalisation of the EU industry is de-localisation. The needs to reduce costs and “optimise” productive processes and workflows in order to remain commercially competitive, have fostered outbound de-localisation of production towards lower labour costs areas, both within and outside European borders.
The Data driven economy and society: The so- data-driven economy will lead to more focused and effective business opportunities, productivity growth, and increased competitiveness in data across the whole economy. It requires speed in the acquisition of new skills and in changing behaviour and culture across the productive system, thus providing opportunities for Applied Games solutions.

The Service-based economy: The growing trend towards a service-based economy is providing the path for knowledge-based business development as technological advances transform services; high growth has been experienced in the high-value-added “knowledge” sectors, such as biotech, software, and ICT in general, again providing grounds for growth in the demand of the Applied Game solutions.

Price driven services and competition for budgets: Organisations and Governments are under a new normal: EBPF requirements, budget austerity and a general “do-more-with-less” mood, while delivering their corporate mandate in a hypercompetitive and hyper-connected market context.

The economic impact on Applied Games will promote a positive environment based upon a real social need: The Knowledge Economy permeates all industries; it is at the base of innovation, effectiveness and therefore of the competitive advantage that all economic organisations seek. But this impact will only materialise if the Applied Game industry manages to build up a competitive position in key market segments.

2.3 Social Factors

The Socio-cultural environment comprises, as made explicit by Alvermann (2004), “the demand, its attitudes and tastes, which depend on social dynamics and new cultural models”. Socio-cultural, behavioural transformation has been influenced by the shift from pre-digital to a digital world, and the development of the new social dynamics and cultural models of the Information Society. Social Disruption and widespread changes in societal cultural behaviours such as the Cultural Globalisation and the the “Born digital”(sic) generations are trends supported and fostered by the web, as the internet is changing everyday life, with their socio-economic standing influencing how they use the web. Some of the new personality traits, values, attitudes, interests, or lifestyles include:

- The trend to create active communities: The dynamic growth of digital content includes user-created content generated by the rapid growth of Web 2.0 social networks, which have become commonplace, and the related phenomenon of collaborative creation (co-creation) of content
  - A gravitation toward social media sites where users participate in discussions, share experiences and engage in cultural conversations
  - A common desire for individuals to be in control of their own lives, and an awareness of the complex nature of everything.
  - A perceived desire for individuals to embrace creativity in everyday life and aspire to engage directly in more creative industries and be less restricted by rigid social structures.
• **Social media as a primary method of communication and creative expression** ("self-casting", pervasive user created content,…): Users are becoming active participants as well as information providers. These phenomena are changing the way organisations must compete in delivering services, thereby triggering requirements (engagement, dissemination, training and re-skilling) where Applied Games can provide a pathway toward the solution.

• **Globalisation and Openness of knowledge for tackling social challenges**: Globalisation also has impact in science, where the sharing of scientific outputs is growing rapidly, deconstructing boundaries and disciplines. Additionally increasing conditions for complying with open access policies to make content and data easily discoverable and accessible to communities is focused towards solving major societal challenges such as climate change, resource scarcity, and demographic shifts.

There is an overwhelming need to transform all avenues of life and enable digital citizens deeper fulfillment via digital knowledge and understanding as new workers, better students, etc. These challenges are not currently being successfully addressed via the traditional approaches in education and training, nor by the formal educational and vocational training systems, working with the conventional (i.e. out dated ) educational, training, engagement and methodologies, technologies, tools and processes.

Arguably, Europe is losing ground in the global context, both regarding established competitors such as the USA as well as from the new competitors countries such as Korea. This problem is recognised and innovation is being strongly promoted; though this has complex socio-cultural implications: the results of EC and Member States’ innovation promotion policies will not emerge in the short term. In this context, developing opportunities for Applied Games is a complex challenge.

### 2.4 Technological Factors

Technological innovation is pervasive across industry and the economy at large. As recognised by the European Commission in the H2020 programme, it “underpins competitiveness across private and public sectors and enable scientific progress in all disciplines”; thus it has become a key component to enable strategic competitive advantage.

Rapid technological changes are reflected in constant and continuous production and introduction to the market of new software, new hardware as well as new file types, new semantics and so on. A direct consequence of this is the fast obsolescence of hardware, software and media.

A less obvious consequence is the evolution of terminology and tacit knowledge. Effective knowledge management is crucial for the enterprise and institutions within the new digitally pervasive landscape, enabling them to identify, classify and preserve corporate memory and “intelligence” and to protect their corporate assets and assure sustainability.
In multiple prediction reports since 2007 IDC consistently identifies four trends currently affecting ICT and driving its current growth: mobile communications, cloud computing, social, and Big Data and Analytics technologies. General technological trends include decreasing prices and the improved performance of ICT products and services, the improved ability to store at lower costs and share information, the vastly increased number of people online, and businesses routinely using the web in increasingly knowledge-driven, customer-centric organisations. Under this umbrella, we should include other areas such as the Internet of Things, Cybersecurity and personalised learning.

All in all, these changes have a high impact on the need to upskill workforces. This is a key concern for both the public and private sector and presents an opportunity for the deployment and commercialisation of innovative solutions, such as Applied Games, for educating, training and empowerment. This highlights the direct ROI of using Applied Games and the indirect and multiplier effects of compensating additional training costs against the opportunities for a more efficient process of the creation of new industries whose products or services might be provided. These changes affect all industries and facilitate improvements in manufacturing and service industries.
3. THE EU APPLIED GAME INDUSTRY VALUE CHAIN

This section comprises the factors shaping the characteristics of the industry and the description of the Applied Game industry as a market for RAGE outputs. The former provides the conceptual framework for forecasting the future potential of the demand for RAGE offering, whilst the latter provides a plausible scenario for business opportunities in the short and medium terms.

3.1 Applied Game industry shaping factors

This section supplements the previous chapter (2) in expanding on the PEST analysis provided and further in highlighting the business conditions impacting on the industry and identifying barriers preventing stimulation of a buoyant market. Strong market conditions are essential to facilitate the development of the Applied Games Industry in the EU. The analysis of the context for the creation and further development of the Applied Game industry is framed by a general positive trend: In Applied Games demand terms, digitisation of all aspects of the economy should help foster continuous growth of demand for Applied Game solutions.

There are new patterns of knowledge acquisition and this is coupled with rising demand from new industries and from the transformation of traditional services and manufacturing sectors into the digital economy. This scenario is expected to accelerate as part of the Information Society revolution and as a response to the challenges of the last decade’s financial crisis.

This will occur if Applied Games suppliers collectively succeed in demonstrating value. Thus far, this has not occurred as Applied Games demand traction is still relatively low, compared to the most direct benchmark reference: the USA, but as highlighted in the accompanying RAGE report D7.1 the dynamics in the Asia-Pacific (APAC) region.

Despite the espoused potential for growth, the immediate context for deploying Applied Games business is challenging. Europe has proven to be slow - or at least less dynamic - than other leading regions of the world in the adoption of innovation. This weakness has been repeatedly highlighted by industry experts and recognised by the European Commission in the establishment of the foundations of the Digital Agenda, and the Horizon 2020 programme.

Applied Games demand is too heterogeneous given its current size. This is influenced by two major elements, the fragmentation of the EU market and the diversity in the nature, needs and behaviour of main Applied Game demand side stakeholders:

- A fragmented EU market: The theoretical 500 million consumers market is simply not established. The legal barriers mentioned in the previous chapter are not the only barriers for cross border trade (including Applied Games). Non-legal trade barriers related to the marketing and sales strategies for supporting the new market entrance are noteworthy. 28 national legal systems and 24 official EU languages
create significant and costly barriers for SMEs to transgress their own borders and sell across Europe. Language barriers remain and the lack of economies of scale generate a negative attractiveness factor for investors, as expansion across the EU still requires working on a single country-by-country basis.

- An unfavourable diversity across core demand segments: Different needs (Requirements in terms of domain expertise, maturity of deployment cycles, etc) expectations (changes in behaviour patterns vs. quick results, vs. ROI) and decision making across the initial demand sectors for Applied Game solutions hampers consolidation and growth of the largely SME Applied Game vendors in Europe. Demand is thinly distributed across diverse sectors: from the military to health; from branding/customer engagement to basic and vocational training. And none generates enough traction in order to generate by itself an attractive and structured market. This impares Applied Game vendors´ specialisation strategies, limits economies of scale and medium term planning, and forces reactive marketing and 1-by-1 customers´ acquisition (instead of segmented business development).

Large Customers coming from core demand segments have stronger negotiation power than Applied Game players. Moreover, considering the strong presence of the public sector in Applied Game demand, including their lack of systematic pull (changing priorities and budgets, timing, etc.) and their peculiar procurement procedures. Ultimately consequences result in high entry barriers and low profitability.

Market barriers: The “Lack of evidence” challenge: As highlighted above, there is an increasing deployment of evidence-based policy, coupled with a mounting demand on the public sector to provide “more for less”. Evidence-based policy making practices demand the measurability of results, impact assessments and return on investment. Such evidence seems not to be there yet for Technology Enhanced Learning (TEL) in general and for Applied Games in particular, with the aggregated problem of an unfavourable branding: According to the GALA (2014) project results, the main barriers to the use of Applied Games are:

- Lack of facts to be convinced of the business case for the application of game-based solutions to address their specific challenges
- Lack of information about game practical application
- Not easy or practical to use it in business
- Need to rely on external consultants to help addressing the challenges

In general, the most significant reasons why organisations have been reluctant to use games or gamification are the lack of awareness, lack of information and lack of conviction that the business case for the application of game-based solutions will solve their specific challenges, and secondarily the practicality of use, costs and difficulty to estimate the Return on Investment. The data indicates that technical aspects do not represent the main obstacle.
Digital engagement as a new driver creator for demand traction. Drivers behind this emerging trend are the need to boost a) brand awareness and/or, brand loyalty and b) corporate team building, represent opportunities for Applied Game vendors:

- New customers/trend setters: big brands, innovative marketing department in retail brands, innovative Human Resources departments in multinational corporations
- It seems that demand identifies a competitive advantage of Applied Games with respect to other TEL alternatives, e.g. e-learning in fulfilling the “promise” of being cheaper, faster and easier to implement educational/training solutions. The main advantage of Applied Games is a purported higher degree of engagement and an improved user experience.
- The definition and branding of the Applied Games domain is still a source of constraint for the consolidation of a competitive Applied Game industry: the lack of consensus about what is comprised in terms of products and services, on the one hand, and problems of acceptance by the demand due to the presence of the “games” concept in aiming to solve “serious” problems, on the other.

The traits of the demand have largely shaped today’s status quo of the European based Applied Game industry:

- Long term vision on sustainability should be grounded in a progressive expansion of the institutional and industrial users’ basis, something which is not yet occurring!
- Given the nature of Applied Games primary market segments, today’s industries are reliant on a combination of grants based funding from the public sector and income from services to public sector.
- Demand has, until recently (refer to convergence in D7.1) not generated enough traction and ROI potential to systematically attract the leading ICT industry players or players from the entertainment games industry.
- Consequently, the stage of development of Applied Games as a business practice is still some way from being consolidated as an industry. Even in the most advanced economies of Europe the Applied Game business is still concentrated in the activities of SME, implemented through short-term, tactical measures: grants/projects, proofs of concept, pilot deployments, etc., and coming from a fragmented demand “pull”.

3.2 The Applied Game community and stakeholders

The group of stakeholders concerned with the creation and development of the Applied Game industry is diverse in nature, objectives and functionality.

According to Alvarez et al. (2010), there are four generic dimensions to the Applied Games arena. These are a) software companies, b) intermediate players, c) investors and d) actors from target demand/user sectors. Software companies include developers, publishers, distributors and retailers; intermediate players represent media companies, marketing agencies, telecom operators and/or internet service providers.
and consumer electronics. Investors are composed of bodies from diverse backgrounds, namely R&D units of universities, public authorities, the education sector and other enterprises.

Within this context, it appears there are more influencers than speculators, which is a weak basis for an industry to evolve, especially an innovative one. As with other cases of EU based high tech enabled businesses, the technology “push” actors exceed the professional entrepreneurs (e.g. risk managers, sales driven, marketing savvy), making it challenging to bootstrap a commercially successful sector of economic activity.

Furthermore, potential synergies / leverage boosters do not seem to be fully exploited. As a recent EC-PwC (Dervojeda, 2013) report states “The Creative industries are becoming increasingly important components of modern post-industrial knowledge based economies. They are thought to account for higher than average growth and job creation. They are also vehicles of cultural identity that play an important role in fostering acceptance and understanding of cultural diversity”. As a consequence, over the last decade, governments around the world and especially in the EU have recognised this and have developed specific policies to promote these industries. These industries are faced with a rapidly changing environment driven by new technologies (digital shift) and globalization. This brings new challenges and opportunities and this is the case for Applied Games and games in general. Moreover, powerful dynamics occur at the convergence of sectors (for instance, through increased linkages between gaming, film and music) and with other industries (such as fashion or tourism). However, sectors and policies are still often organized in sectoral silos, limiting the scope for synergies and the emergence of new solutions and businesses.

Furthermore, as highlighted by the EC-PwC (Dervojeda, 2013) report on Creative industries, access to finance remains a major difficulty. Arguably the banking sector does not have the necessary expertise to analyse business models in these sectors and does not adequately value their intangible assets. These sectors are also characterised by a high fragmentation along national and linguistic lines. While the resulting cultural diversity can be considered a clear European asset/source of competitive advantage, this also leads to limited and suboptimal transnational circulation of cultural and creative works and operators within and outside the EU, geographical imbalances and - subsequently - a limited choice for consumers.

3.3 Basic traits of the EU based Applied Game industry

As it stands, it is a challenge to accurately describe the European based Applied Game industry:

- The level of fragmentation at EU level is so acute that it can be described as a series of small local concentrations of diverse types of companies which can be considered Applied Game vendors. We see regional clusters (Coventry, London, Utrecht, Hamburg, Berlin, etc.) being even more evident than national hubs and no
signs of a truly European industry in formation. Therefore, the critical mass required to generate competitiveness in global market has not yet emerged.

- These difficulties are recognised in a recent study by the EU Joint Research Centre (Dervojeda, 2013) in asserting “There is considerable debate over whether a ‘serious games industry’ exists at all, since the label ‘serious' game covers a heterogeneous set of practices and products, from the use of generic devices and tools of the videogame industry to replace specialist technologies, through to the application of play and motivation techniques from videogame techniques to non-game scenarios (gamification)”.

- The lack of an industrial identity: Players active in the Applied Games market do not necessarily identify themselves as applied games or serious games suppliers. Furthermore: The lack of official recognition of Applied Games as an economic activity in the national industrial classification systems (e.g. NICE/NAICS) results in difficulties in assessing the true size of the Applied Games “sector”. As it stands, the European statistics only recognise "Publishing of computer games” as economic sector.

- The Applied Game industry comprises mostly of SME’s, with a mix of long-established players and a significant number of new entrants. The so-called “hit driven” growth driver (no systematic path to success, no succesful product ranges) and consequent short term market leaderships that affect conventional games also currently applies to the Applied Games vendors.

- The value chain is quite short. As in most B2B markets, the intermediary steps do not exist (there are no publishers as in entertainment video games), and upstream integration seems to be the norm among Applied Game producers, who undertake most of the productive processes in-house, supplemented by freelance developers when required.

- Applied Game development studios and digital marketing agencies represent the predominant profiles of Applied Games supply. These represent two colliding approaches to market share: controlling the technology vs. controlling the customer.

- Most of the Applied Game vendors are SME’s with a mainly technical staff on their payroll, with owners undertaking productive, managerial and commercial duties, leading to a low profile, weak branding and lack of finance and resources to address entire market categories/segments within their own “natural” national markets. Most Applied Game studies only aim to develop small customer portfolios as business development strategy.

- The emerging requirement of digital marketing into the Applied Games domain could open new opportunities for Applied Games deployment in other market segments in the private sector.

- The vast majority of European-based Applied Game vendors do not operate internationally. The Applied Games marketing and commercialisation policies seem to be quite weak, based mainly on “word of mouth” communication. Consequently there is a slow effectiveness growth in disseminating the value proposition of Applied Games across potential customer markets.
3.4 Applied Game industry competitive pressures

According to Michael Porter (1979), the relationship between the competitive pressure and the profitability of an industry, and thus its growth potential, is related to the interaction of five (5) forces: a) the intensity of rivalry, b) the availability of substitutes, c) the bargaining power of customers, d) the bargaining power of suppliers and e) the threats of new entries.

In the case of the European based Applied Game industry, two forces are to be highlighted: a) the power of customers, given their nature (defenders of public interests) and their substantially bigger size compared to the Applied Game vendors and b) the threat of new entries, which cannibalised the still small size of the demand, facilitated by the low entry barriers to this market, at least under suboptimal conditions.

The intensity of rivalry is low given the fragmentation and the scarce commercialisation muscle of Applied Game vendors, and the bargaining power of suppliers (except for the high-end techno platforms) is low, as most are freelancers or SME, whilst the availability of substitutes is centred in already mature, more conventional and even obsolete solutions. The competitive challenges, i.e. combination of threats and opportunities, for the development of the Applied Game industry summarised below, could generate in turn windows of opportunity for RAGE offerings:

Opportunities
- Digital becoming pervasive across economies and society as a whole
- The increased need for user engagement across enterprises and consumer brands
- Growth of mobile-based EduGames

Threats
- A lack of awareness about serious games
- A lack of assessment tools to measure AG effectiveness (Though an opportunity in terms of RAGE asset development)
- Applied Games are not widely accepted by demand, in part due to a lack of commercial strength, in part due to the supply/research topic driven branding, and to difficulties in providing evidence of differential value with respect to other alternatives

These challenges relate to how the Applied Game industry, and by extension the RAGE ecosystem should create fit-to-purpose products and promote their future take-up by customers to:
- Reshaping the gameplay for non-leisure applications
- Automating the production process at least partially
- Building multi-skilled teams and organizations to create Applied Games
- Innovating business models
- Structuring serious game production and expertise by target sector
- Investing in all connected platforms
Implementing and exploiting new technologies

Therefore, it is of utmost importance to address these challenges in the future design of the RAGE ecosystem offering to the industry, both in terms of the language that industry understands and delivered in the way which fits their strategic and operational needs.
ANNEX 1: BIBLIOGRAPHIC REFERENCES


