International Study Tour to Gothia Science Park in Sweden

Lessons for the video games sector in the Honeycomb eligible areas

INTERREG IVA Region
Northern Ireland (excluding Belfast and Greater Belfast), western seaboard of Scotland and the six Republic of Ireland border counties
© 2015 Honeycomb partnership comprised of Ulster University, Creative Skillset, Dundalk Institute of Technology and University of the West of Scotland.

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Cover image: Kill to Collect is a procedurally generated dungeon brawler with rogue like elements that aims to offer short bursts of adrenaline and a level playing fields to all the hunters. While it features an action packed single player mode, Kill to Collect is best played with friends. © Pieces Interactive AB 2015.

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Disclaimer

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1. INTRODUCTION

Honeycomb - Creative Works is a £3.58 million programme targeted at the digital content sector across the INTERREG IVA region of Northern Ireland, the six border counties of the Republic of Ireland and the western seaboard of Scotland. The programme is being delivered by a partnership led by the Ulster University and comprising Dundalk Institute of Technology, Creative Skillset and the University of the West of Scotland. Honeycomb works to address the economic, educational, social and cultural needs of the sector by focusing on SMEs, organisations and individuals in five digital content sub sectors: film and broadcast; animation; computer gaming; interactive media and music technologies. The project is part-financed by the European Union’s INTERREG IVA Cross-border Programme managed by the Special EU Programmes Body.

The Honeycomb programme is structured around four themes:

1. Intelligence gathering aims to monitor developments in the digital content industry sub-sectors. Under this theme a range of studies are being produced which can inform future policy and ensure the programme is updated in light of new industry requirements.

2. Developing networks of scale aims to improve industry connectedness through its comprehensive networking programme. This theme will increase the sector’s capacity and establish greater links between digital content SMEs, freelancers and start-ups across the three regions.

3. Skills development aims to improve skill levels, addressing the shortfall in sector specific training for the digital content sector.

4. Enterprise development and project finance develops a seed funding programme and investment fund for early stage digital content projects developed by creative enterprises.

One of intelligence gathering outputs is to write reports on three study visits to best-practice centres within the digital content sector. Honeycomb’s intelligence gathering team have authored industry development reports for the digital content sector, including the video games industry. This research revealed that the video games industry in the region is very young, fragmented and small in size, with several development challenges. The industry at a global level is however experiencing healthy growth.

The future development of the games industry in the eligible regions of Northern Ireland, Scotland and Republic of Ireland can therefore benefit from successful experiences developed elsewhere in aspects such as talent development, business support and infrastructural provision, which have served as the bedrock to propel future growth in global video games. A visit to a centre of best-practice to learn about the development pathway and the associated pitfalls to grow the video games industry in the eligible Honeycomb region is important.

Gothia Science Park (GSP) is a successful European case, with a game-specific business incubator assisting video game developers to start-up and grow. GSP provides a good learning experience to help in developing the video games sector in Northern Ireland (excluding Greater Belfast), the six border counties of the Republic of Ireland and the western seaboard of Scotland. GSP in Skövde has received a lot of interest
as a centre of best practice and has recently attracted international visitors from academia and industry such as University of Montreal, Falmouth University, The Udemba Group (Lagos, Nigeria) and a delegation from South Korea, all looking to learn from the park’s success or its constituent game incubator.¹

The study visit was undertaken by the Republic of Ireland representative of the intelligence gathering team on the 29th of April 2015.² Interviews were conducted with three video game companies at various stages of growth: Mindblown Studios, a new start-up by four students of the University of Skövde; Guru Games, a studio with a team of 11 members about to release its first game to the market and Pieces Interactive, an established studio that has recently accessed external funding from private investors. The manager of Gothia Game Incubator and a representative from research and education from the University of Skövde were also interviewed.

The intelligence gathering team members of Honeycomb - Creative Works wish to extend their appreciation to the staff at GSP and University of Skövde for making the study tour possible, especially the following people:

- Dr. Patric Eriksson, CEO of Gothia Innovation AB who facilitated the trip
- Per-Arne Lundberg, manager of Gothia Game Incubator who gave an overview of GSP and the Gothia Game Incubator
- Sebastian Badylak, producer at Gothia Game Incubator who was the guide for the day and contributed to the interviews
- Dr. Per Backlund, Associate Professor in Informatics at the School of Informatics for research and developments within the University of Skövde in relation to GSP
- David Rosén, CEO of Pieces Interactive AB
- Daniel Ström, CEO of Guru Games AB, and
- Jiro Yoshida, CEO of Mindblown Studios.

1.1 Structure of the report

The report begins with an overview of the games industry in Sweden. This is followed by a background on the Municipality of Skövde, University of Skövde, the Gothia Science Park and Gothia Game Incubator. Lessons learned from the study area by way of the science park’s structure, and the Skövde game arena in particular, and issues concerning funding, collaborations, skills and sub-contracting within the Science Park are detailed. These, together with the developments within University of Skövde’s computer games programme offer useful suggestions for policy decisions on developing the video games sector in the eligible Honeycomb region.

2. PROFILE OF THE STUDY AREA

2.1 The Video Games Industry in Sweden

The country has a very high density of game developers due in part to a concentration in gaming research. The average game developer in Sweden employs 14 people and primarily develops mobile and online games. Innovation and education in computer games has contributed to 215 per cent growth between 2010 and 2012 (Sweden.se, 2014). Other factors contributing to the success of the industry are government policies, cold weather and management culture (Swedish Startup Space, 2013).

**Government policies:** The Swedish government subsidised the cost of personal computers for every family in the 1990s leading to a computer revolution in coding and technology improvements. The government’s next immediate focus was to provide household access to high quality broadband and by the year 2000, almost every home and all schools had access to a quality network.

**Cold winters:** The weather is also thought to play a part in the popularity of video games with the population, particularly during the winter months when it is cold and dark. Annual consumption of games in Sweden is around €168 million (Swedenabroad.com, 2013).

**Management culture:** A consensus-driven management style that works best for creative artists is also argued to be a factor driving the growth of the Swedish video games industry.

**Collaborations:** The games industry closely collaborates with higher and further education as well as higher vocational training institutions to provide courses and programmes. Reputable higher vocational education providers for game development include: Playground Squad (Falun), The Game Assembly (Malmö) and Futuregames Academy (Stockholm). Other institutions with an interest in fostering collaborative efforts between the gaming industry and education include: Gothia Science Park (Skövde), Teknikdalen Foundation (Falun), Swedish National Defence College (Stockholm) and DreamHack.

**Battlefield** and **Minecraft,** two globally successful video games, are made in Sweden. King Digital Entertainment, the maker of **Candy Crush Saga** was set up in Sweden before relocating to London. **Need for Speed: Rivals** was also developed by Ghost Games, an Electronic Arts studio, based in Sweden. Similarly, Sweden-based Massive Entertainment collaborated on Ubisoft’s **Assassin’s Creed Revelations: Desmond’s Journey** and is involved in developing **Tom Clancy’s The Division. Mad Max,** the upcoming post-apocalyptic vehicular combat is being developed by Sweden-based Avalanche Studios. Minecraft’s maker, Mojang AB made 2.05 billion SEK (approximately €230 million) in net sales in 2013 with a net profit of 40% per cent (Allabolag.se, 2015).

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DreamHack is the world’s largest digital festival and largest LAN party in the world with over 26,000 visitors, 22,483 unique devices in the network and close to 10,000 visitors who enjoy DreamHack with their own computer. DreamHack is also a world class esports event, DreamExpo, cosplay and a celebration of the Internet of Things. The event happens several times a year around the world. Source: DreamHack (2015).
The Game Developer Index 2014, based on 2013 annual reports, prepared by the Swedish Games Industry (2014, p. 2) summarises the following data about the industry:

**Table 1: The Swedish Games Industry in 2013**

- Revenues of Swedish game developers increased by 76% to €752 million in 2013.
- The majority of these companies are profitable and the industry has reported a total profit for the past five years.
- Employment increased by 29% to a total of 2,534 employees.
- The proportion of women increased by 38%, compared with 27% for men.
- The compound annual growth rate (CAGR) for the 2006-2013 periods was 39%.
- There was an increase of 17% in company numbers to 170.
- More than half of the companies were registered after the year 2010. Games are often launched directly in an international marketplace, which also results in a global labour market. The largest companies are multicultural with employees of over 30 different nationalities.
- Swedish game developers are characterised by diversity and quality. Sweden has world-leading developers within AAA, digital distribution, social games, mobile games and specialised subcontractors.

*Source: Swedish Games Industry, 2014*

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4 Swedish Games Industry works to aid internship placement management. As part of several activities undertaken by the industry association, it offers students a lecture on the gaming landscape and how best to apply for a job or internship.
Stugan: A new game accelerator created by industry professionals

According to the organisation’s website (www.stugan.com), Stugan is a non-profit organisation, created by seasoned game developers, with the intention to build a platform where new talent can bloom. The name is reminiscent of the first commercial computer text-based adventure game developed in Sweden in 1978. This project aims to give back to the grass roots of the industry and enable more people to discover the joy of game development. Twenty indie developers (individuals or small teams) spend eight weeks in the woods, far removed from cities, to build their dream games. Stugan has the following four distinct characteristics:

1. The team (up to three people) make a pitch via video format on the goal of participating in the competition and a description of the team,
2. Build a fan base early on and throughout the development through weekly posted videos as viewers can also vote on the winning game,
3. Build the game in eight weeks to the goal stated in the pitching video,
4. Build a network with the other teams for potential collaborations on future projects.

Top Swedish game leaders visit the cabin and hold lectures and workshops around their respective areas of focus with an aim to inspire excellence. All participating teams keep the rights to the games they work on.

Despite the explosive industry growth, Swedish Games Industry (2014) reports on some threats that have to be acknowledged such as competitive rivalry, limited bids to make Sweden competitive, limited access to finance, digital competition issues and access to competence. The key competitors are in the US, Canada, the UK and Finland with access to subsidies in the form of some of the following: tax breaks, start-up soft loans and others. Subsidies help to strengthen domestic companies against international competition. Swedish companies are limited in their access to such subsidies. There is also less foreign venture capital with a consequence also limited access to higher investment amounts. Digital competition issues and legal rights in digital marketplaces also require some improvements to protect domestic companies. The 2014 game developer index also mentions the threat of access to competence and recommends further focus on investments in research and education in programming and arts, as well as short term measures such as shorter processing times for work permits of foreign professionals.
2.2 Background History and Context

The municipality of Skövde is located in the west of Sweden with a population in 2012 of 52,212.\(^5\) The town has a strong agricultural and industrial heritage. It can be accessed within an hour from Göteborg and two hours from Stockholm by the high speed train. Its location within Sweden is shown in Figure 1.

Figure 1: Location of Skövde within Sweden

Skövde is the functional node of the former county of Skaraborg and is now part of the new county of Västra Götaland, formed in 1998. Volvo has a dominant presence, providing employment in two engine plants

located in the town. Additionally, the military, regional hospital and local university collectively provide substantial employment in the town. The percentage of the regional population with higher education is significantly lower than the average in Sweden.

2.3 The University of Skövde

The University of Skövde was established in 1977 and elevated to university status in 1983. It is located alongside the Göteborg – Stockholm railway near the centre of Skövde and within 300 metres walking distance of the train station and regional bus connections. It has 10,905 students and over 400 staff (234 teaching staff) working across five schools: Bioscience, Business, Health and Education, Engineering Science, and Informatics. One of the university’s objectives is to increase the regional population with higher education qualification and therefore has an emphasis on entrepreneurship. During the late 1990s, the university started developing large groups involved in information technology and engineering research. But the local companies lacked in-house R&D and qualified employment positions (except the automotive industry) leading to an exodus of the graduates from the region. The setting up of the Gothia Science Park (GSP) at the University of Skövde was to create job opportunities for the local graduates and attract investments into the region. Both the university and the science park have developed world-class competencies to develop talent and business competitiveness for the video games industry.

2.3.1 Computer games programmes at University of Skövde

In the 1990s, Skövde University had one of the biggest Information Technology departments in Sweden. The first Bachelor study programme in Computer Game Development started in 2002 in a reaction to the dot-com crisis when the university had to re-invent study programmes with specialisations in information technology-related programmes. One of the programmes that turned out very successful was Computer Game Development, starting with game programming and game design. The rationale for introducing this programme was to get Information Technology students to return and this has worked remarkably. In recent times around 150 to 200 students are admitted every year.

After the initial focus on programming and game design, these were complemented with graphics (2D and 3D modelling, animation, different aspects of artwork), game writing, further game design, and finally, music, audio and sound. There are now five pathways on the undergraduate level programmes. The graphics pathway attracts the biggest number of students because of the diversity involved. Game Writing is currently the fastest growing area due to its uniqueness within the Swedish higher education system.

Every year, at least one new game studio starts within the game business incubator. These studios will normally have a team already in place. The most common is for students who work on team projects as part of the computer game development programme of the university. The project is constituted with interdisciplinary team members developing a game that should be commercially viable. They pitch together after graduation, or in the third and final year of the programme, to the management of the game incubator to start and

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progress a studio with business support. The practical projects equip students with the experience of working in real development teams.

### 2.3.2 Research into games and impact on local industry

With the growth of students, the university strategised to increase its active research into computer games development. Funding was provided by the university to build utilisable research laboratories. There was a focus on serious games rather than entertainment as more funding was available for this type of research. The research centre has undertaken projects in games for traffic education, games for training in rescue services and learning games. This has led to a strong competence in serious games research and currently research is also ongoing in entertainment games.

The impact of research has been more direct through the provision of education that provides the skills for industry. The research raises the quality of education programmes. For example, it has led to the provision of master and doctoral level programmes in serious games and has been extended to entertainment games with a programme called Media, Aesthetics and Narration. This looks at game design or interactive media in general to identify which areas serious games can feed into entertainment games.

The vast majority of the research projects in game-related areas are connected to other public organisations. A lot of work has been done with the regional health care centre involving the rehabilitation training of ambulance personnel. Work has been done with a museum in designing new visitor experiences such as an interactive game-based guided tour and some digital parts of the tour. Another area is in working with rescue services to train fire fighters specifically. The research centre also works with the regional schools on how to use games in education.

### 2.4 Gothia Science Park

Gothia Science Park (GSP) was established during 1998/1999, in close proximity to the University of Skövde, to cover virtual engineering and interactive media, e-business and IT for care and home. It became operational in 2000 with a threefold mission of: (a) stimulating business development from the university’s research and development (R&D), (b) creating an environment for business development in R&D intensive operations, and (c) creating local job opportunities for university graduates. Its primary objectives are provided in Table 2.
Table 2: Objectives for creating Gothia Science Park

<table>
<thead>
<tr>
<th>Objective</th>
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<tbody>
<tr>
<td>To create a Science Park that exploits the potential of the university in</td>
</tr>
<tr>
<td>order to create new jobs and renew the industrial structure</td>
</tr>
<tr>
<td>Enhance innovation mechanisms and increase start-up volumes through a</td>
</tr>
<tr>
<td>strong incubation process to enable organic growth of the Science Park</td>
</tr>
<tr>
<td>Increase volume of industry-related research and funding</td>
</tr>
<tr>
<td>Create an environment and methods that support collaboration</td>
</tr>
<tr>
<td>Enable demand-driven education and research for the Science Park to</td>
</tr>
<tr>
<td>become an attractive research partner</td>
</tr>
<tr>
<td>Attract companies with in-house R&amp;D to the region.</td>
</tr>
</tbody>
</table>

Source: Eriksson and Karlsson (2014: 4)

The objectives are being achieved through the implementation of seven strategies listed in Table 3.

Table 3: Strategies implemented to meet the objectives of the Gothia Science Park

<table>
<thead>
<tr>
<th>Strategy</th>
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<tbody>
<tr>
<td>Establishing a strong commitment through the Triple Helix model</td>
</tr>
<tr>
<td>Creating strong and profiled research centres with defined core competen-</td>
</tr>
<tr>
<td>ces beginning with three centres (which is evolving into five) to create</td>
</tr>
<tr>
<td>a competitive research environment</td>
</tr>
<tr>
<td>Aligning the focus areas and profiles of GSP with the university to build</td>
</tr>
<tr>
<td>knowledge and structural capital, maintain industrial relations and</td>
</tr>
<tr>
<td>attract new businesses</td>
</tr>
<tr>
<td>Establishing a strong incubation process to enable organic growth of GSP</td>
</tr>
<tr>
<td>Exploiting without draining the university of students and staff by get-</td>
</tr>
<tr>
<td>ting, as much as is practicable, students to graduate before becoming</td>
</tr>
<tr>
<td>fully engrossed in start-up activities as well as continuous dialogue</td>
</tr>
<tr>
<td>with academic researchers regarding exploitation of research results</td>
</tr>
<tr>
<td>Creating a physical innovation environment shared by the university and</td>
</tr>
<tr>
<td>GSP and avoiding facilities and resource duplication with organisations.</td>
</tr>
<tr>
<td>Creating a constant flow of interaction points for spontaneous interac-</td>
</tr>
<tr>
<td>tions between academia and industry</td>
</tr>
<tr>
<td>Integrating the research and innovation process through the GSP Open</td>
</tr>
<tr>
<td>Arena network where academics and industry professionals collaborate on</td>
</tr>
<tr>
<td>research projects and developments in the form of new knowledge, technol-</td>
</tr>
<tr>
<td>ogy, products and services for commercialisation.</td>
</tr>
</tbody>
</table>
The primary activities of the park are university start-ups, company development and spin-offs from existing companies. The park is managed by Gothia Innovation AB which provides assistance in establishing new companies, incubation support, and business and management support. GSP is one of six functional nodes in the regional innovation system of Västra Götaland in western Sweden. Lorentzon (2006) uses a Triple Helix model to describe the process of the creation of GSP and analyses the circumstances explaining its establishment.

The Triple Helix is a collaborative and triadic concept of university-government-industry relations. Higher education institutions have a prominent role and there is support from government for producing, transferring and applying knowledge to industry to facilitate innovation and economic development in a knowledge society (Etzkowitz, 1993 and Etzkowitz & Leydesdorff, 1995 building on Lowe, 1982). According to Lorentzon (2006), the park’s owners represent industry (Electrolux, Volvo Car, Volvo Powertrain and Länsförsäkringar), public organisations (ALMI, Skövde and Skara municipalities, Association of municipalities of the former county of Skaraborg7, West Sweden Region, Association of activities supporting business development and innovation, Association of activities supporting the development of industries in Skövde, Federation of trade unions) and higher education and research (University of Skövde).

Cooperation through networks of representatives from many fields of activities, based on trust relations of driving spirits, has been a successful concept (Lorentzon, 2006: 54). Eriksson and Karlsson (2014: 3) add there is strong commitment, courage to select, openness and trust, organic growth and enthusiasm.

**Key achievements of the Science Park**

- In under 15 years the GSP has grown from zero to over 70 companies and organisations with a focus on IT and technology employing over 700 people
- Over 25,000 visitors participate in workshops, events and meetings every year
- GSP was awarded European champions in Enterprise Development at the European Enterprise Awards in 2009
- In less than five years, operations have expanded to include more than two dozen studios and projects developing games for fun as well as games for training
- The park is home to 3 research centres from the University of Skövde with 200 research staff
- 12 new companies are created each year
- The park has attracted €45 million in external research funding with industry partners
- A new successful industry, Computer and Video Games, has been established in the region.

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7 Skaraborg was a county of Sweden until 1997. It was subsequently merged with the counties of Göteborg and Bohus, and Älvsborg to form Västra Götaland County.
3. LESSONS LEARNED FROM THE STUDY AREA

3.1 Structure of the Science Park

Gothia Science Park started out in 1998/1999 with an incubator to create organic growth in Skövde and to provide the science park with new companies. In 2002 the university introduced computer game development and the incubator received its first video game companies as tenants in 2004. From this point, there was a strategic focus on trying to set up a centre for video game start-ups. Ten years later there are around 30 companies (21 within the game incubator that stay an average of twenty four months) and almost 300 people employed in the game development industry in Skövde.

Geographical proximity of studios involved in games to the games incubator enhances strong collaborations and sub-contracting opportunities. Moreover, the research centres and academic staff offices of the University of Skövde are very closely located to the Gothia Innovation AB/Game Incubator/established Game studios for conscious and frequent physical interaction. The Game Incubator is Sweden’s leading incubator in games and Sweden Game Arena is a project for positioning a node of collaboration for international competitiveness in the gaming industry. Sweden Game Arena is financed by Västra Götaland Region, as well as Skövde Municipality, University of Skövde and gaming companies at Gothia Science Park.

The biggest companies are Coffee Stain Studios, Ludosity Interactive, Pieces Interactive and Stunlock Studios. Other current companies in residence include: A Creative Endeavor, Cavelight Entertainment, Deedly Games, Grebba, Guru Games, Sector3 Studios, Mindblown Studios and Paradox South.

There is a strong urbanisation trend in Sweden but with the growth of the game incubator, with regards to the number of teams that are involved in games and with the growth of alumni of the incubator, it has served to attract more studios to set up. In general, although there have been alumni that have moved out to other locations in Sweden and elsewhere, many of the companies have remained loyal and some existing studios from outside the region have also made GSP their home. The companies that have moved out still have a great relationship with the science park. There are two companies in the city centre and some associated companies in the adjacent areas to Skövde. The majority of companies are based at GSP due to the availability of facilities, infrastructure, business and production support. GSP has been successful in keeping alumni from the game incubator by making the park attractive to them to keep existing companies. It has become the number one place in Sweden to start a new game development business.

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8 Sweden Game Arena is a platform and ecosystem for the acceleration of the game industry in Game City Skövde and the West Sweden Region. Sweden Game Arena is in the unique position to encompass the entire value chain, from education and business to research and development. In the Arena, there are more than 500 talents at the Game Development Degree Programs at the University of Skövde, more than 40 researchers and lecturers, about 300 employees in more than 50 game companies in Skövde and Göteborg as well as a number of business developers.
Very few companies will actually move or relocate their entire studio to another place. Companies will typically register another legal entity and then recruit local staff while existing staff can relocate for a short period to give the necessary support. However, Sector3 moved the entire company to GSP. The most common occurrence has been for established companies to start new subsidiaries in Skövde and GSP assists in recruiting for the first CEO and also with launching the subsidiary. Paradox Interactive is headquartered in Stockholm and opened a subsidiary, Paradox South, at GSP.

Other factors attributing to the success of the park are listed as follows:

- The park has a high density of video game developers – approximately 900 people are involved in games including the university education and research centres.
- The park caters to the social needs of the gaming community by using the venue for after-work board games at night, carrying out game jams, catering with food, dinner drinks, music, etc.
- The park hosts seminars, workshops, fairs and conferences in games and game-related issues to provide new competences.
- There exists infrastructure and facilities with content.
3.2 Key sectors

There are 88 companies located at GSP. Some of the 88 companies are involved in multiple business activities. 26 companies are involved in Systems Development, 25 in Activity Development and 20 in Business Development. The entire activity breakdown and list of all 88 companies is available from GSP as follows:

<table>
<thead>
<tr>
<th>Business development</th>
<th>Application development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Databases</td>
<td>Design</td>
</tr>
<tr>
<td>Funding</td>
<td>Financial systems</td>
</tr>
<tr>
<td>Industrial design</td>
<td>Information security</td>
</tr>
<tr>
<td>Debt collection systems</td>
<td>IT infrastructure</td>
</tr>
<tr>
<td>IT support</td>
<td>Marketing</td>
</tr>
<tr>
<td>Project planning</td>
<td>Risk capital</td>
</tr>
<tr>
<td>Game development</td>
<td>System administration</td>
</tr>
<tr>
<td>System integration</td>
<td>Systems development</td>
</tr>
<tr>
<td>Activity development</td>
<td>Web development</td>
</tr>
</tbody>
</table>

The 25 companies involved in video game development are listed as follows:

<table>
<thead>
<tr>
<th>A Creative Endeavor</th>
<th>Animax Media</th>
<th>Cavelight Entertainment</th>
<th>Coffee Stain Studios</th>
<th>Coilworks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deedly Games</td>
<td>Double Zero one Zero</td>
<td>Guru Games</td>
<td>ICYOU</td>
<td>IUS Innovation</td>
</tr>
<tr>
<td>Ludosity</td>
<td>Ludosity Learning</td>
<td>Mindblown Studios</td>
<td>Mobile Storytelling</td>
<td>Paradox South</td>
</tr>
<tr>
<td>Pieces Interactive</td>
<td>Piktiv AB</td>
<td>PocApp Studios</td>
<td>Sector3 Studios</td>
<td>Silverspin</td>
</tr>
<tr>
<td>Stunlock Studios</td>
<td>Tarhead Studio</td>
<td>Wanted Mutant Games</td>
<td>Weesteer</td>
<td>Yek Media</td>
</tr>
</tbody>
</table>

All 88 companies, represented by their logos (where available) are provided on the next two pages:

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9 http://www.gsp.se/en/companies
<table>
<thead>
<tr>
<th>2CORE</th>
<th>ecc</th>
<th>AF</th>
<th>ALMI Foretagspartner</th>
</tr>
</thead>
<tbody>
<tr>
<td>AniMAX media</td>
<td>as it is</td>
<td>Bollmeiden Film</td>
<td>Brick Node</td>
</tr>
<tr>
<td>Candidator</td>
<td>Captis AB</td>
<td>Corelight</td>
<td>Coffee Stain</td>
</tr>
<tr>
<td>Coilworks</td>
<td>COMBITECH</td>
<td>CONNECT VAST</td>
<td>Crepido</td>
</tr>
<tr>
<td>Datsmin</td>
<td>deedly</td>
<td>DOUBLE ONE ZERO™</td>
<td>Epicor</td>
</tr>
<tr>
<td>E.D.C.S</td>
<td>EVOMATE</td>
<td>FORSWAY</td>
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3.3 Gothia Game Incubator

The general business incubator got engaged with start-ups and the industry and gathered knowledge through the learning of pioneering companies to create a very successful game incubator that is now receiving global attention. The game incubator has a team equivalent to seven full-time staff serving around 118 people. The average number on a team in the game incubator is around five per company. Within the more established companies there are between 10 to 25 people per company. The game incubator provides the studios with a lot of business match-making by connecting them to other companies within the industry that require their services as work-for-hire.

3.3.1 Finance and funding

The Community of Skövde and the Region of West Sweden, complemented by the Government of Sweden, provide GSP with funding to pay staff, run the facility and facilitate the attendance of its constituent studios at both local and international events. GSP applies and competes for funding from the government every three years to fund their operational and strategic activities as no equity is staked in the constituting studios. The objective is to create local jobs that sell on the global market.

**Funding for incubated studios**

There are different phases of funding. The first equity that the shareholder puts in can be matched with traditional loans but these are often connected with constraints that make it difficult for the computer game students to access, as a guarantee in the form of collateral is required. It is therefore a lot more difficult for the game start-up than other traditional companies as there is no business track record, no commercial game, no assets and they do no attract a salary. Any number of persons within a team can apply for a place in the game incubator but each studio must have the right set-up in order to develop the game on its own. Because of the lack of external funding for start-ups, the teams must use social funding or sweat equity for funding the first round. Salaries are not paid and studios are part-funded through work-for-hire. Business competence is provided by GSP’s team of skilled business developers, senior experts from industry.

GSP awards some grants. This involves setting up a standard agreement to provide any company that is willing to offload 10 per cent of equity in return for getting around €11,000. It also runs a bridge fund which basically reinforces the start-ups situation of not drawing salaries. It identifies which areas of the studios require support and fill these gaps without any cost to the teams. For example, if there is a need for doing sales, investment or human resource activities, the GSP business team fill these gaps. If there is a need for learning for the CEO role, or a producer’s role, the incubator team provides these social funding without taking any equity in the companies.

GSP operates a small scholarship fund that studios can apply, from £1,000 to £4,000 at the most, which has to be equally matched by the company. There are also soft loans and other forms of grants that are available throughout the Swedish innovation system. The Science Park also organises pitch forums and events.
in the science park where private investors (business angels and venture capitalists) are invited. It has also formed a venture capital company which is owned in three parts by the Science Park, a local insurance company and 15 of the extremely wealthy local citizens. The venture capital company invests in early stage start-ups in order to make the region more attractive for game companies.

The CEO of Pieces Interactive (founded in 2007) was involved in the setting up and serving as the CEO of the first video game studio in Skövde. The other team members comprised colleagues on the newly introduced computer game programme from the University of Skövde. His motive for relocating to Skövde in 2004, to be part of a risky business with no funds, was the triple helix structure of Gothia Science Park, Skövde University and the municipality of Skövde. With an information technology (IT) management background, he was knowledgeable in all the software processes and managing young creatives. The company received general support from business advisors from Gothia Innovation, the management body of the Science Park. At this time, GSP operated a general IT incubator and the business advisors had little knowledge, connections and access to funds. The game incubator and Sweden Game Arena followed later at GSP. The game incubator grew from the first couple of studios that were founded.

Pieces Interactive is part of Sweden Game Arena and currently employs full-time equivalent staff of 18, working on all aspects of making the game including testing and QA. The studio has released over ten games on all major platforms including titles such as Magicka 2, various Magicka DLCs, Leviathan: Warships, Robo Surf, Puzzlegeddon and its fully self-funded title called Kill to Collect. Pieces Interactive are always actively looking for partners and exciting work for hire projects.
Some incubated studios are already experiencing commercial success

On average, more than 30 per cent of companies, including the ones in the incubator, are commercially successful in terms of providing positive cash flow. There are some really good game companies coming out that generate a lot of revenue. One outstanding performer is Coffee Stain Studios (that left the incubator last year) with an annual turnover in their third year of €10 to €11 million. Paradox Interactive (with its subsidiary Paradox South located at GSP) has an annual turnover of more than €25 million.

The general funding situation for video games in Sweden

The bottom-line is that funding for video games in Sweden is not easy to access, as there is no specific government assistance towards this industry, such as games tax breaks or the Tekes’ Skene Game Refueled programme in Finland. Pieces Interactive has been doing business for a number of years and has built trust and a reputation that allows the company to access private venture investment and funding from the governmentally-funded ALMI organisation. ALMI is not industry-specific and its funds can be accessed by businesses in the larger industrial economy. The continued growth of the games industry has made it an interesting area to invest funds. Value-added tax in the video game industry is 25 per cent whereas it is only six per cent for the film industry.

3.3.2 Collaboration and networking

There is a lot of collaboration and networking between the senior and junior CEOs of the various studios in the game arena. The CEOs have weekly breakfast meetings. The open community of shared ideas has contributed to the stability and sustainability of the games hub with the junior CEOs learning a lot on how to run their businesses from their senior colleagues. This is also premised on the fact that the individual companies are much too small to have a relevant impact on their own and the global success of one studio will impact directly on all the other studios in the local community of game developers.

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Collaborations outside the hub’s ecosystem are typically with publishers and engagement in work-for-hire. The CEOs of the game arena are members of the Association of Swedish Game Developers (ASGD) and meet with other members a couple of times a year. These are open meetings where various concerns are shared, especially as some are quite open to sharing various concerns. For actual business collaborations outside the Skövde gaming community, there are occasional hiring arrangements and sharing of information about publishers to other studios that require such services.

Attendance at events

This is one of GSP’s core activities and one of the most expensive, besides staffing to provide skills to start-ups. Gothia Science Park is host to the annual Sweden Game Conference. Outside of the Science Park, the game incubation management team accompany the studios’ teams to three to four international trade fairs each year and pay for exhibition booths. Some of the incubating studios are fully funded by GSP to attend these events, such as Game Developer Conference, Gamescom, Tokyo Games Show and Casual Connect. For example at the Game Developer Conference in San Francisco earlier this year, exhibition space to hold 46 different studios was bought. A similar arrangement for space in the entertainment area is expected for the upcoming Gamescom in Cologne. The entire industry moves from one place to another each month or even twice a month and GSP has chosen a few of these spots to make a touchdown and display what their studios has been doing.

GSP makes the effort to access speed meetings or speed dating company events where they co-finance up to 50 per cent of the costs. These depend on the importance of the company to be at an event such as
the timing for the impending release of a game and the preparedness of CEOs to pitch and present their companies.


http://swedengamearena.com/events/pitch-my-game-winners-will-attend-gamescom
3.3.3 **Skills issues**

Master classes and workshops with strategic partners such as Microsoft take place to improve the skills of local studios. Microsoft has chosen GSP as its partner in trying to assess open innovation with the local students involved in developments for their platforms.\(^{11}\) The initiative began in 2014 with 230 students developing games for Xbox One. These strategic relationships are possible when a video games hub reaches a critical mass to attract the big industry players.

**Skills supply from University of Skövde**

The five Computer Game Development programme pathways with approximately 500 students at the University of Skövde implies that recruiting new but inexperienced game development staff is not an issue for established studios at GSP. The presence of the business development staff at the Game Incubator also means that the business management and marketing skill needs are being developed within professional practice. A lot of the students in the University of Skövde tend to develop mainly for the PC platform. The average development time of the completed game in the game incubator is from eight to 15 months depending on the nature of the game and the size of the team. However, in recent times, there has been a small shift in idea flow. Some of the last games that have been accepted into the incubator are being developed for mobile platforms and in this regard, the development time can take from (less than) five months to seven months.

Programmers are the most difficult to retain in a game development start-up because of options in other areas of software development and general information technology functions. This is the situation pertaining to start-ups as they either get lured to work for the larger game companies or move away to the wider software development and general information technology sector. Within the overall Swedish industry, it is often the skilled artist and skilled game writers that are in short supply.

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\(^{11}\) Microsoft Game Camp is a collaboration between Microsoft and Sweden Game Arena. It is operated by the University of Skövde, Gothia Science Park and the Municipality of Skövde. The idea behind the cooperation is that students will work with experienced mentors from different Swedish game studios to develop games for Microsoft.
Guru Games is a new start-up that recently released their first game for the Steam platform, developed for the Xbox platform. The CEO majored in game design but the whole team of 11 members was formed when they were working on school projects prior to graduation from Skövde University. The studio has benefited from business support from the game incubator and this gives the team the opportunity to do what they are passionate about and get advice whenever the need arises while being able to control the outcome. The company is self-funded with business partners. A publisher manages the marketing aspect of the company. The publisher sponsors the team to attend consumer trade shows. Development costs are handled by the team and no salary is drawn until the success of their first game. The company engages in work-for hire for some of the more established studios in the Gothia Science Park.

Though primarily developing Magnetic: Case Closed, their first commercial game for PC and consoles, the team is also working on smaller projects for mobile platforms. Published by Gambitious Digital Entertainment, Magnetic drops players into the role of a prisoner serving time for past crimes in a vast, ever-changing prison with chambers that shift in random patterns. The experience gathered from the university has mainly been on the high-end platforms, where the students work on projects in large teams, providing good game development training for mobile platforms.

One observation that the CEO makes is that game developers are the ones starting companies and not business people recruiting developers. The developer therefore puts the game first and before thinking of how to monetise content. This leads up to the challenge of developers making games they love but not games that may necessarily generate revenue. This is one area that the game incubator caters for with the provision of business mentors. When a development team comes out with a great game, it is pitched to the management of the game incubator who scrutinise for originality, potential profitability and other commercial aspects. The feedback is then inputted in the refinement of the game.
Business skills support

The game incubator is run by experienced game developers serving as business development advisors and experts that know the industry dynamics. There is also a provision of legal services. The legal counselling in games is essential to relate to publishers, investors and other stakeholders. The business support includes a producer mentoring the teams to produce games in a lean and agile way. Therefore, with this in mind, there are no niche studios in sound or interactive media or animation. The game studios are self-sustainable because they are lean on funding and cannot basically outsource skills from specialised studios. They need to have the capacity to fully develop games with their in-house team or with additional resources within the game arena.

Staff recruitment issues

Recruitment of experienced staff is competitive at GSP games hub but this is achieved through a system where staff is exchanged for a mutually beneficial financial system. If a studio is temporarily short-handed on a project, another studio can offer an experienced game developer for a fair fee. If the studio is pitching for a larger project, other project members are brought in from the other studios within the science park to share the risks and rewards.

Getting new recruits, as has been already mentioned, is very easy because of the continuous supply of quality game development graduates from University of Skövde. However, this gets difficult when experienced talent is sought. It is an issue because most senior talent have to be recruited outside Skövde but most would not like to move from the major cities into Skövde. On the other hand, the Gothia Science Park has been able to retain its senior talent. Other companies within the Sweden Game Arena are on hand to recruit any senior talent that is let go from another company. Also, given the normal phenomenon within technology park businesses whereby a number of junior companies attempt one or two games and then fall over, this develops their availability to become more senior companies as they already have a few years of experience.

The most sought after talent that is difficult to source are those with management skills such as senior art directors, senior creative directors and CTOs. The available talent on offer are those that grew into the area.

Bridging an existing skills gap

A vocational school is in the offing that will improve the existing links between academia and industry by filling an existing educational gap. This is a programme-oriented education working side by side with the university. This is among the first in Sweden and aims to offer as much education possibilities at different levels and paradigms. This post-secondary programme is targeted at school leavers with an interest in video games that do not proceed to the university but can become very good programmers, artists or any of the skilled talent required in making video games.

3.3.4 Cost base

The cost of doing business and staff costs are, on average, lower in Skövde than in other gaming hubs such as Stockholm, Malmö and Göteborg. Rental facilities for established game studios are also available at a discount from GSP. This is a conscious undertaking with the objective of retaining the studios that graduate
from the game incubator. It also serves to attract more established companies to the game arena. This factor, in addition to the fact that there is a density of game developers, has served as a magnet to expand the Sweden Game Arena. In addition, the new studios do not draw a salary as they work to develop their first commercial games.

Mindblown Studios is a self-funded studio comprising a four-person student team from the University of Skövde and is part of the Sweden Game Arena. During the game camp last summer organised by the university in collaboration with Microsoft, the team developed a game which attracted the attention of the game incubator. They pitched their game and were given a place on the incubator to start a company to develop the game while still finalising their studies. The learning in school is applied directly to develop games in the studio. The team is composed of two graphic artists, a designer and a programmer and are involved in developing a graphics-heavy PC game for the Steam platform. The team is sufficient enough to make this game but to develop the company and grow in value, there will be a need for more people.

The weekly breakfast meetings among CEOs at the game arena provide a lot of steep learning for Mindblown Studios. As the newest studio, they are assisted on all fronts by the other existing studios, the business mentors and the facilities that they access for free. They are funded to attend major conferences to look for publishers and investors. Mindblown Studios have been helping out Guru Games in whatever way possible as the latter are about to release their first game by promoting the game on social media platforms such as Facebook and Twitter. Mindblown Studios uses the services of an audio/sound/music student for developing their game on the condition that a percentage of profits arising from the game will go to the latter.
3.3.5 Sub-contracting opportunities within the Sweden Game Arena

For companies within the game arena looking to outsource development activities, sub-contracting goes on within the studios at GSP as the businesses are not of a size that would require outsourcing to professionals outside the game arena. However, the lower cost base of the game arena ensures sub-contracting flows into Skövde rather than outwards because of price and a reputation built on trust. Large companies within Sweden sub-contract to the studios within the park. There are a lot of sub-contracting opportunities from all corners of the globe, especially China and South Korea that are trying to see what can be done at Skövde for them. Around 50 per cent of sub-contracting work or work-for-hire is from Swedish companies and the remainder is mainly from the US, UK and Germany.

The management of the game incubator plays an active role in negotiations of its incubated studios with large companies that sub-contract (and also with publishers) because of the uneven power play as these parties are more experienced and hold negotiation power. The management of the incubator ensures the best negotiations in the interest of their clients. Companies in the game arena have strategised to take advantage of these sub-contracting opportunities. For example, Pieces Interactive has a strategy to spend half its resources on its own projects and the other on work for hire as it builds the company’s brand. This is a good learning experience as this brings in income and improves their networks of connections that helps to raise external funds.

4. CONCLUSION

The study visit has revealed that without the intervention from central government or foreign direct investment, certain communities can develop successful video game clusters through the concerted effort and collaboration of educational institutions, industry players and municipal/regional authorities. Cooperation in networks of representatives from many fields of activities based on trust relations of driving spirits, buttressed with strong commitment, courage to select, openness, trust, organic growth and enthusiasm are essential elements contributing to such successes. The study has also revealed that a video games cluster can develop and flourish in the absence of other digital content sectors such as film and broadcast, animation, music technologies and interactive media. However, this requires a concerted effort from key players in education, industry, the public sector and wider community stakeholders.

In order for any games cluster to reach a critical mass to attract growing interest, the building blocks should be consciously created in terms of widened specialisations in educational provision, an emphasis on research, infrastructural provision, specialised business support, access to funding, development of strategic partners, a focus on collaboration and networking, and a growing ‘omnipresence’ at all important global game development conferences and events.

Success factors in creating a local games hub

- One really important success factor is that the university and other post-secondary educational institutions should provide attractive study programmes which make students want to enrol for their studies. The university needs to understand that the industry has a very bright future that will be
sustainable for a games hub and structure their programmes to include the different expertise and skills that go into developing and marketing games. As a minimum the university should be producing programmers, artists and designers for a local industry. The university should endeavour to improve retention rates and attract students from outside the region to increase the student size on the different computer game development pathways.

- Another success factor is that in terms of creating the whole environment, i.e. incubation for games and the wider IT sector, there should be a very good working relationship with the key actors, i.e. the management teams of the university, the incubator and science park.

- There should also be some form of strategic partners with companies that provide the team with cheap or free software that is needed in the industry, such as Autodesk products (Maya, 3ds Max, Mudbox, MotionBuilder, Kynapse, Flame, Flare, Lustre, Smoke), Microsoft Visio Studio, Adobe Photoshop products and Unity or Unreal engines. This should complement funding, housing, facilities and general infrastructure in order for the game incubator to be sustainable and attract people to stay and work. In the case of the GSP, Microsoft has chosen them as a partner in trying to assess open innovation with the local students involved in developments for their platforms. The initiative began in 2014 with 230 students developing games for Xbox One. These strategic relationships are possible when a video games hub reaches a critical mass to attract the big industry players.

- Provision of game industry experts in business development, production, public relations and communications, legal services and marketing in an incubator specifically for games is one way to develop a nascent industry within a peripheral region.

- Funds should be made available to the game incubator to sponsor its constituent companies to attend major international conferences to showcase their works to interested large companies, investors and publishers.

- A business or science park in close proximity to the game incubator is important to continue offering business support to alumni of the incubator to grow a video games hub. The geographical density of video game developers serves as a magnet to attract outside investments, work-for-hire projects and new subsidiaries of the key global players in the video games industry.

- Provision of research centres into computer game development by the universities and other higher education institutions leads to the provision of quality educational programmes and provide innovation support to the local game hub.

- The location of the video games hub, game incubator, research facilities and educational provisions should be in spatial proximity to promote frequent interactions that enhance knowledge transfer and collaborations.

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12 Microsoft Game Camp is a collaboration between Microsoft and Sweden Game Arena. It is operated by the University of Skövde, Gothia Science Park and the Municipality of Skövde. The idea behind the cooperation is that students will work with experienced mentors from different Swedish game studios to develop games for Microsoft.
In order to create a hub like the game arena in the Gothia Science Park, promoters need to be sustainable, with an ability to be persistent for public authorities to include video games development in their strategic goals in order to establish its attractiveness. The public has to understand that it can take between five to ten years for a project of this nature to yield results.
REFERENCES


APPENDIX 1: THE HONEYCOMB CREATIVE WORKS TEAM

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ScreenHI
The Nerve Centre
About Honeycomb

The Honeycomb – Creative Works programme is a collaborative project led by University of Ulster, in partnership with Dundalk Institute of Technology, Creative Skillset and the University of the West of Scotland.

Honeycomb is part-financed by the European Union’s European Regional Development Fund through the INTERREG IVA Cross-border Programme managed by the Special EU Programmes Body.