

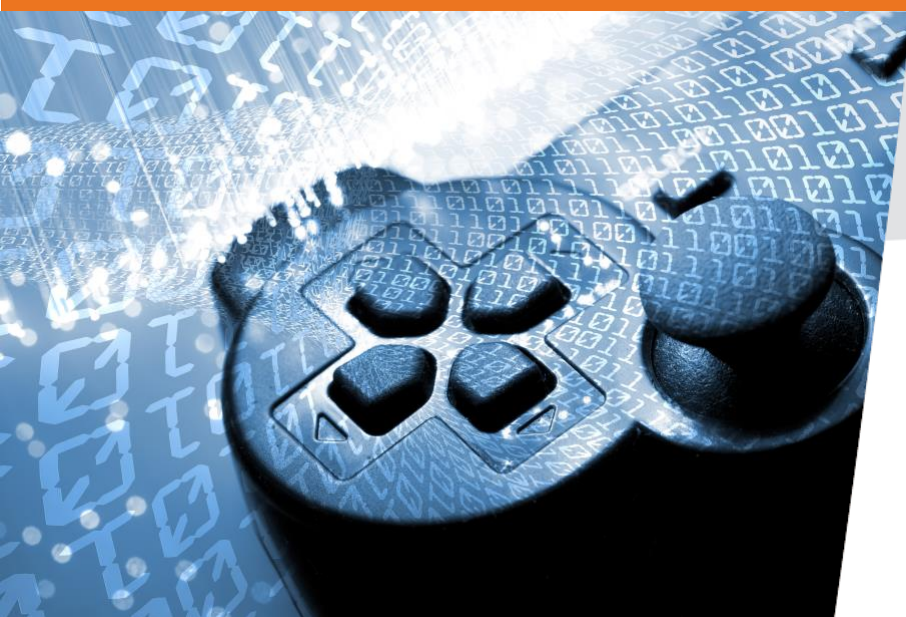


Culture, Technology, Business: Financing Strategies for Game Development in Europe

Appraisal of European public support schemes for the Game Industry with a focus on cultural funding

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This report has been commissioned by BGZ Berliner Gesellschaft für internationale Zusammenarbeit mbH in the framework of the Baltic Game Industry project. Prof. Dr. Malte Behrmann has a far-reaching expertise in audiovisual communication management. He has been supporting the game community for many years now, as advisor to and strong advocate in his many roles: s an attorney, as professor at the BBW Hochschule in Berlin, as start-up coach, as co-founder of the initial German Association of Game Developers (GAME e.V.) and former General Secretary of the EGDF.

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List of Abbreviations

Abbreviation	Meaning
MDM	Central German Media Promotion
EEA	Europe Economic Area
SME	Small and medium-sized enterprises
CNC	Centre national du cinéma et de l'image animée

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Reading Fluency

Due to the simple flow of reading, we will refrain from using both the female and the male designation for all personal designations that refer to both women and men and will instead use the male plural.

1. Development of Game Business Support in Germany

1.1. History and Economic Foundations of Computer Game Support

The **history of computer game funding** in Germany goes back about 20 years. The demand was first raised in 2003 in a document (the so-called “Förderantrag”); later it was published in the book *Kino und Spiele*.¹ In this document it was stated for the first time, that computer game production, similar to film production, cannot be competitive when production volumes grow due to the particular market size of Germany. Until the year 2000, computer games had been cheaper to produce because computing capacities were limited, and teams therefore did not exceed a certain size. Until this time, Germany also had a comparatively flourishing computer game development scene.² Already then, the *Centre Nationale Cinématographie* in France was supporting computer game development.³

By 2010, Germany had gradually begun to establish funding schemes for the development of computer games at the level of the federal states – usually in cooperation with film and media funding agencies in those states. This first happened in the regions of Hamburg, in Central Germany ([MDM Film Fund](#)) and Lower Saxony ([Nordmedia Film Fund](#)). Later, Berlin-Brandenburg and Bavaria were followed suit. Finally, North Rhine-Westphalia and Baden-Wuerttemberg also opened their film funds for game development. The budgets for prototypes were initially very moderate but have been increased steadily in recent years. The advantage of these subsidies is that they are based on a selective approach.⁴ However, as the debate evolved it became increasingly clear that the crisis in game development in Germany would have to be responded to on a national level.

Sadly, the resistance was initially particularly strong. Modernisation issues take a longer time in Germany. There were concerns regarding protection of minors and media policy. On the other hand, the cultural argument speaks in favour of funding for the development of computer games. In an increasingly digitised world of communication, only those countries that can produce their own computer games on a significant scale will be able to hold on to their own cultural identity in the long term.⁶

The **economic basis for funding schemes** in Europe is public investment. Considering cultural heritage, it is important to support audiovisual productions such as films, television, and computer games as both the smaller European countries and the larger ones, such as Germany, Poland or France, cannot sustainably assert themselves on the world market due to economic principles governing the media economy, such as economies of scale and network effects. Domestic markets are available, but not large enough. Therefore, for both cultural and economic reasons, it is necessary to support media production in these countries on a long-term basis.⁷

The first step is to minimise risk in a hit-driven economy, because every project is to be understood as a new business: Given the problem of fixed cost degression and network effects and the quasi free reproducibility of goods⁸ in the digital environment, the size of the home market and the potential market is not ideal. According to the Pareto principle, about 20 % of the projects make a disproportionately high profit in a portfolio, while 80 % perform below this level.⁹ In this context, we speak of the “the winner takes it all” phenomenon. The development of computer games is subject to special risks, which are, for example, higher than those in film production, because fixed salaries must be paid between project cycles, especially as they need to build their own technology. Otherwise, the distribution and production risks are similar to the film industry. From the entrepreneurs' point of view, subsidies are always a part

of the market. The inclusion of public funding for the development of computer games is therefore ultimately a risk minimisation strategy. While countries such as China or the USA have large domestic markets in which network and economies of scale can spread unhindered, this is not the case in Europe, as the domestic markets are comparatively small.¹⁰

The modern approach to the development of computer games has a lot to do with the change in the perception of computer games as cultural assets. For example, Chancellor Angela Merkel has for the first time opened the largest German games fair “gamescom” in 2017, where she clearly acknowledged the “cultural asset of computer games”.¹¹ Already in 2008, the Bundestag had unanimously passed a resolution to this effect.¹² Today, it is undisputed that computer games do not only influence the imaginations of entire generations, but they also affect how we perceive values, how we structure our thoughts and how we express ourselves. And they also shape how we learn and how we organise our communication – therefore they are part of our cultural communication structure and as such important for our national cultural constitution. At the same time, computer games are an important economic driver. They are the spearhead of digitisation: When digitisation becomes playful in itself, digitisation has reached the top. This is due in particular to the fact that the core of games is entertainment, and computer games additionally provide the fun of using computers.¹³

In **computer game support programmes**, we usually differentiate between selective and automatic schemes. In the case of selective funding schemes, selection committees decide on the approval. Federal funding is an automatic system; certain conditions must be met, then the support is unlocked automatically. Typical examples are tax breaks, direct grants, or tax credits.¹⁴ In Germany, however, tax-based models are not legally conceivable, so a subsidy fund is the only option.

Support systems require approval by the EU Commission, by Art. 107 of the EU Treaty. The background to the complicated approval structures within the EU is the state-aid control regime.¹⁵ The EU wants to prevent the member states from entering into a subsidy race with each other. This subsidy race has occurred in the past in the steel industry, for example. In Europe, the aim is to avoid such a race and they, therefore, have adopted a regulation according to which subsidy schemes within Europe are only permitted under certain exemption rules or up to a specific limit (de minimis limits allowing subsidy up to €200,000 within three years). This means that all member states, such as France, the UK or the Federal Republic of Germany cannot simply launch a computer game funding programme. Instead, Germany had to undergo an EU approval procedure and present an exceptional case to go beyond the de minimis limits. In 2019, when the German government launched its funding programme for the development of computer games, the so-called Pilot Test Programme, it still hadn’t received the notification from the EU for the exception status which is why only funding up to a maximum of €200,000 was available.¹⁶

In **2020**, the German government had meanwhile obtained approval from the EU Commission for the so-called **cultural exception**. Under this, it is possible to support higher amounts of funding if they actually serve the cultural advancement of a country. This is proven in detail through a so-called *cultural test*. This means that a list of questions must be answered in the funding application, which ensures that the funded project can be, or at least promises to be, culturally valuable in terms of content and production technology.¹⁷

So far, there exists no European-level block exemption yet for game development support programmes, too few member countries have applied for the EU to see a basis for adopting game production into the GDER. As this appears to be possible in the future (and should be considered), there are simply too few cases yet to draw more general rules (as existing in other sectors as in the film industry). When the block exception rules are revised in a couple of years, this should be envisaged.

1.2. Call 2019

In 2019, the federal government of Germany implemented for the first time, a federal support system for the development of computer games.¹⁸ In order to meet the special framework conditions for the development of computer games from Germany, the federal government decided in the coalition agreement of February 2018 to introduce a federal funding scheme. The federal budget for 2019 provided the corresponding funds. In this respect, the de minimis aid for computer games and game development was intended to support the development of high-quality computer games of cultural or educational value. This requirement was aimed specifically at small and medium-sized enterprises (SMEs) in the computer games industry. The aim was to strengthen the innovative power, but also the competitiveness of these companies. In particular, funded projects were to contribute to increase the home market share of games published in Germany and to position those games on the German and international market. In the long term, the goal was to boost the number of employees within the cultural and creative industries.¹⁹ The object of the funding included the development of a prototype as well as a complete game. Qualified for application were companies that develop digital games or interactive content and have a registered office, business premises or branch office in Germany for the entire project period. In this respect, companies had also to be eligible for de minimis aid, i.e. they were not allowed to have had received any other prior funding and must not have had already exceeded the €200,000 de minimis limit. In this first funding phase, applications by small and medium-sized enterprises were explicitly welcomed. The responsible Federal Ministry of Transport and Digital Infrastructure also saw this pilot programme as an opportunity to familiarise themselves with this new subject matter of games and to create a broad base of potential funding recipients.²⁰

Specific rules have been established in the context of special funding requirements. For example, to check the appropriateness and necessity of the funding, recipients were required to explain whether or to what extent other funding had also been applied for. The calculation of the costs and expenses of the project, as customary in the industry, were to be carried out according to the principles of cost effectiveness. Projects that have already started were excluded from funding.²¹ Also excluded were game projects that had anti-constitutional or illegal content in selected areas, pornographic or violence-glorifying content, or projects which obviously hurt religious feelings or had a tendency to do so. In this respect, only those computer games which could be expected to have an age rating of up to USK 18 or comparable ratings were eligible for funding. Excluded from this were companies that were expecting a recovery order from the EU Commission, had other defective claims or companies where insolvency proceedings had occurred. Furthermore, the applicants had to be willing to participate in networking and event activities, i.e. annual meetings, alumni meetings, and evaluating measures.²²

Overall, the total financing of the project had to be secured. Regarding the type and scope of the funding, the grant for project funding was limited to the de minimis amount of €200,000, as mentioned above. Furthermore, an own contribution was required. Thereby – and this is unusual for a public funding programme on federal level – the subsidy was increased from 50 % up to 70 % for small and medium-sized enterprises (especially 70 % for small companies). Since this is based on EU definitions, the upper limits for qualifying as an SME were relatively high, i.e. up to 250 employees and/or an annual turnover of €50 million.²³ The eligibility for subcontracting subsidies allowed for a maximum of 50 % of the company's own personnel costs, which means that, as a rule, large parts of production could be outsourced. Costs for production-related marketing, including tests prior to brand management, could be included for up to 15 % of the total costs. This fact is also relatively unusual. However, costs that were within a publisher's area of expenditure, in particular costs of changing the company's name and founding or relocating the company, as well as costs incurred before and during the application process, were excluded.²⁴ The

standard portal of the federal government for the application, “[easy-Online](#)” was used for the procedure. Overall, the funding was designed in such a way that it was an automatic claim, i.e. there was no objective exclusion criterion. However, a two-stage procedure was chosen for the first call. In the first stage, a technical review of the project outline was required as a preliminary examination. This preliminary examination then entitled the applicant to submit an actual proposal. Only then did the second stage of the procedure begin. In this procedure, the formal application for funding was then created based on the positively evaluated project outline.^{25 26}

There were several problems in **implementing the 2019 funding guidelines**. First, the application process was far too long and took several months to process. In some cases, the project outlines, which had to be submitted by 31.08.2019, were not approved until the end of 2019. According to the original rules, the project had to be completed by 30.11.2020, but that criterion was abandoned later. In addition, the applications were subject to further provisions. For example, public collective bargaining agreement structures were required for personnel cost expenditures. The relevant provisions for services were also made necessary when awarding contracts. The “General Auxiliary Conditions for Grants Provided for Projects” (AN Best-P in German), which is generally applicable in the Federal Ministry of Transport and Digital Infrastructure, was the most discussed issue.

Three main problems emerged: The **first problem** was the issue of own contribution (equity ratio), which was examined particularly in the context of the credit assessment. According to the “General Auxiliary Conditions for Grants Provided for Projects” (ANBest-P), it was simply determined that the own contribution had to be available. In the initial phase, this regulation meant that proof of the own contribution was only possible by presenting a corresponding account statement or a bank guarantee. This meant that the companies had to prove that they had the own contribution in their accounts. This regulation may have been created by the Federal Ministry of Transport and Digital Infrastructure to prevent fraud in connection with road construction (as this is a big part of the Ministry’s portfolio). For the small computer games industry, however, this regulation was fatal, because now these small companies, which often operate without their own cash flow line, had to prove that they had their own funds. They had to prove that they had these funds in their accounts and wanted to use them for production.²⁷ This led to big problems, as this was not possible for most small studios (indie developers). They often do not work independently yet but collaborate with publishers who usually do not transfer the production money to the developers’ accounts from the beginning, because they prefer to pay according to performance and milestones in order to keep control over development.²⁸ In the first half of 2020, when a large number of applications could still not be completed because the proof of own contribution could not be submitted correctly, the requirements were relaxed under lobby pressure from the [game e.V.](#) association. After that, by submitting a publisher contract or other suitable means of security, proof of the own contribution could be provided somewhat similar to the situation of the film industry.²⁹ This simplification of the funding programme led to a great improvement of the overall situation. As a result, numerous funding notices could be received by gamescom in August 2020.

The **second implementation problem** was the issue of subcontracting. According to the ANBest-P cost regulation³⁰, the following applies:

“The recipient of the grant is only to award contracts to competent and efficient providers on the basis of competitive criteria and economic conditions. As far as possible, at least three offers are to be obtained for this purpose.”

However, it was often specified in the application who was to be the subcontractor. In particular, research institutions that wanted to subcontract game developers had also applied. All of a sudden, three offers had to be obtained, which was unusual for many game developers and led to a number of discussions.³¹

The **third problem** was the credit check, according to which the game developers from Germany had to disclose their liquidity, which required a surprisingly large administrative effort, despite simplified procedures. Various documents were required, including an excerpt from the commercial register with documentation and valid signature regulations, as well as proof of recognition of the SME status. In addition, the last two annual financial statements, certified by a public accountant or financial auditor, including the annual report and the audit, as well as a preliminary annual financial statement for 2018 were required. Also, the current business evaluation for the year 2019, as well as a long-term and sound business plan with a forecast for the next two to three years were requested. This created high bureaucratic hurdles for small companies. Those hurdles were subsequently criticised in the political process.³² In other application cases the credit assessment was not problematic.³³

1.3. Call 2020

The so-called **“large subsidy programme”** was finally launched in 2020. The EU Commission approved the procedure in May 2020 and the funding directive was published at gamescom in August 2020. Since September 28th, applications can be submitted. A one-step application procedure was chosen, the two-step procedure of the 2019 call was abandoned. Now applicants had to have all elements ready at the moment of application. In order to be able to award higher grants, the so-called culture test was introduced.³⁴ The culture test contains a list of questions that cover various issues. According to this catalog of questions, the computer game must be culturally located in Germany or at least be based on it.

The **first set of questions** deals with the cultural context and cultural content of the computer game project. At least two criteria must be fulfilled:

1. The game setting is located either in Germany or in the European Economic Area (EEA) or has historical or storytelling references to one of these areas.
2. Alternatively, the main character in the game can represent a personality of German or European era or world history or is a fictional character of German or European cultural history.
3. The game should be at least be released in German.
4. The underlying theme of the game, its motives or ideas can have a reference to Germany or the EEA. Examples: game design, story of the game, or graphics of the game refer to German culture³⁵, society, identity, history, or aspects of life in Germany or the EEA. The story of the game is based on literary, cinematic, television or other aspects of the German language or other European languages, also permitted are fairy tales, sagas, and science fiction. The game references to German game tradition or develops it further. The game highlights regional diversity in Germany or the EEA. The game reflects the German cultural heritage under certain aspects.
5. Exceptionally, the cultural context and content can also be non-European, e.g. if it is very clearly substantiated and particularly creative or innovative, and if a particularly large number of criteria are met in the second and third complex of questions.

The **second complex** deals with the cultural and creative backdrop. At least two of the following categories must be fulfilled:

1. A significant proportion of the creative work will take place in Germany. This includes concept

development, programming, and music recordings. This is expected to have a significant effect on local cultural and creative industries.

2. At least 50 % of the team members have their first residence in Germany, are taxed there or are otherwise familiar with German culture, for example due to their qualifications acquired in Germany or by a corresponding stay in Germany. In any case, team members must meet one of the following criteria: Producer, Leading Texter / Author / Concept Developer, Leading Composer / Sound Designer, Art Director, Technical Director, Leading Game Designer.
3. Promotion of young talent: The team includes graduates from universities or colleges whose graduation dates back up to 2 years if the university / college is located in Germany or from foreign universities / colleges if the graduate is currently resident in Germany.

The **third complex** deals with design, creative and technological innovation. At least one of the following criteria must be met: innovative narrative structure or game structure, innovative characters, setting, story and environment, innovative game music, interactivity, multiplayer, user interface, or user-generated content, innovative application of artificial intelligence, use of new technologies for the development, implementation or application of the game.³⁶

Furthermore, a **number of additional clauses** were introduced. A reference project was required, i.e. an already published title of the team. Bloody start-up (beginners) studios are therefore excluded from funding. As a rule, the subsidy can contribute to a maximum 50 % of the budget. However, a Länder-subsidy (i.e. funding by one of Germany's federal states) can be accepted as a "by third parties" contribution.

The directive must now prove itself in practice. However, from a German policy viewpoint the conditions are not necessarily sufficiently taking care of the interests of the German game development community. To a certain degree, relatively high sums of support are awarded without making sure that they are spent in Germany or in Europe. One **particularly problematic** question is how to deal with subcontracting. The directive does not stipulate, that the funds that could be given to subcontractors must be 50 % of the production costs and that those subcontractors have to be located in Germany.³⁷ Since this can involve large-volume funding in the high-digit million range, it is very problematic. Because it is now possible to spend large parts of the public-funded budget outside of Germany. Nevertheless, the German taxpayer must participate in this.

The culture test and the requirements for the employees (complex 2) that were set up seem to put a stop to this. However, this **can be circumvented** by opening clauses in several ways: One possibility is that the "graduate clause" (Nr. 3) is activated. In this case it would suffice that two team members were graduates of an educational facility in Germany. Furthermore, it is not necessary to have the first tax residence in Germany, but one can be otherwise familiar with German culture, for example due to their qualifications acquired in Germany or by a corresponding stay in Germany.

The German government had initially tried to draw a line here. However, the EU Commission, according to informal reports, insisted that the money could be spent at least in other European countries. But instead of limiting this to only other European countries, any localisation criterion was dropped entirely by the German government, and the money can now be spent in all countries of the world. In this respect, this programme supports the computer games industry worldwide to the same extent as supports the German industry. There is a danger, that German taxpayer money ends up elsewhere and not in Germany. This open regulation might be abused and needs to be monitored closely, especially in comparison to

other European countries. In the following chapter we will try to understand the approach of neighbouring European countries in this respect.

It would have to be shown that the tax revenues generated by the subsidy would accrue again in Germany. In my view, this is a technical error. This constitutes a false incentive that plays into the hands of international corporations, which supply 97 % of the very large German games market anyway. A sustainable support for the German games industry is therefore at risk. Nevertheless, it is to be hoped that the large amount of funding (€50 m are already planned for 2021) will effectively boost investment into the German games industry. These and other effects will occur mostly unchecked, due to the fact that there is no technical and content supervision or steering body, and that automatic funding is provided. The question of whether and to what extent decisions in cases of deficiency must be made by a commission has not yet been conclusively clarified.

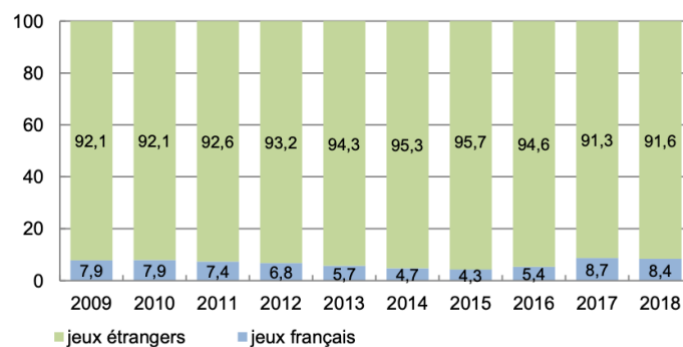
2. Game Development Subsidy in Neighbouring Countries

2.1. France

France has the oldest computer game support scheme in Europe.³⁸ The French understanding of computer games as part of the audiovisual sector³⁹, or at least the cultural sector⁴⁰, has a long tradition. Computer games have long been an economic factor⁴¹ in France. This is also due to the fact that computer games are culturally more recognised than in other countries and that issues of the protection of minors are less present. Infogrames (later Atari) from Lyon was already able to build up a strong global position on the PC market in the 1990s. Companies such as Ubisoft were also present at an early stage, and although the first major online game in Europe, World of Warcraft, was developed by the US company Blizzard, the publishers were French (Vivendi) and had special network expertise.⁴²

Early on, France began to systematically provide prototype funding of around €200,000.⁴³ In the early years of the 2000s, the funding volume was increased. This was the first time that France came into conflict with French state-aid law, as the *de minimis* limit was exceeded. For this purpose, France set up a large *tax credit model* for computer game development, which was based on the cultural exception. However, it took four to five years until the EU Commission agreed to this, because the topic was controversially discussed in Brussels. The resistance came mainly from large software companies from overseas, who feared that a cultural view of games would entail additional regulatory obligations.

Répartition des volumes de vente selon la nationalité des jeux vidéo (%)



Source : CNC – GfK.

Figure 1: Volume of games sold by nationality; Source CNC⁴⁴

In 2018, the video games market in France generated⁴⁵ €3619.1 million in input tax, an increase of 6.1 % compared to 2017 (€3412.5 million). The market share of PC video games remained stable at 20.5 % (19.9 % in 2017). Other types of usage (smartphones, tablets, online TV) contributed 27.8 % to the market (27.9 % in 2017). While the share of French end devices in the domestic market has fallen to 1.5 %, the share of digital games has stabilised overall at around 8 %.⁴⁶ This share is about twice as high as in Germany. In 2018, the French games industry was supported with a total of around €45 million in production.

Three different programmes should be mentioned here:

The **Video Game Assistance Fund (FAJV)**⁴⁷ is a selective support system. It aims to support video game projects on the basis of their artistic quality and their economic potential. The *Fonds d'aide au jeu vidéo (FAJV)* is⁴⁸ jointly financed by Centre National du Cinéma (CNC) and the Ministry of Economy and Finance. This fund provides support for the development and production of prototypes and in the production phase.

Since June 2019 there is now also a **subsidy for video game authors**. This helps to develop a *game design document* (game mechanics, script elements, programming principles, graphics). The aim is to support the originality of young authors and the creation of intellectual property before the project is born, to achieve greater cultural diversity in the field of video games. French nationality or that of another EU member state is required. 10 times €10.000 / year will be awarded, for a total of €100.000.⁴⁹

The **aid for prototype development** consists of 50 % repayable advance on the sales revenue and 50 % subsidy. The selective aid is intended to support the development of games in the production phase, especially new creations. Companies are thus encouraged to create their own content and obtain the rights to it. Grant recipients must retain the intellectual property rights. In 2018, 42 projects were supported with an amount of €3.5 million. In principle, the *Fonds Images de la diversité*⁵⁰ is also open to projects in the video game sector. However, it has not yet been possible to realise any projects, so that this fund particularly supports linear audiovisual productions.

The **RIAM** aims to finance research and development (technological R&D) programmes for SMEs' in fields such as cinema, audiovisual, video games and multimedia. It supports feasibility studies, research and development projects and marketing. In 2018, €1.2 million has been allocated to support seven projects.⁵¹

The **tax credit** for video games (CJIV)⁵² is a tax incentive scheme for established video game companies in France. The measure was introduced in 2008 and allows companies in the creative sector to deduct 30 % of eligible expenses from their taxes⁵³ – this is the total cost of production. The 40 projects approved in 2018 will receive an equivalent of €40 million financial support. The special feature of this tax credit is that it will be paid even if the company does not make a profit, i.e. is not subject to tax at all.⁵⁴ The *Direction generale des entreprises* is thus trying to attract more game development studios to France. The subsidy is technically provided by offsetting certain costs against the corporate tax liability: 30 % of the core expenditure in game development in a fiscal year is credited against the corporate tax liability (capped at €6 million per year)⁵⁵. If the amount exceeds the corporate tax liability, the company can have the excess amount paid out.⁵⁶ However, the game project must contribute to the cultural diversity and originality of French and European games.

For this reason, there is a **culture test** for obtaining a certificate from the respective authority, the CNC. The issuing of this certificate is subject to the rules of EU subsidy law. The conditions of the CJIV are of particular interest here, as laid down in *Article 220 terdecies of the Code général des impôts* and its subordinate decrees⁵⁷: To qualify for the tax credit, the development costs must be at least €100,000, be intended for marketing to end consumers and be created mainly with the support of authors and creative collaborators. These should either have French nationality⁵⁸, be nationals of another Member State of the European Union or another State party to the EEA and have concluded an administrative assistance agreement with France to combat tax fraud and tax evasion.

Please note: For the calculation of the tax credit, expenses for the award of European subcontracts are capped at €3 million.⁵⁹ At least two thirds of the corresponding salary expenditure must be incurred in

France or on the territory of the European Union. To effectively focus the support on French and European creations, aspects such as diversity, quality, originality, or innovation are considered. **At least 14 points** must be obtained from the criteria:⁶⁰

The group of **“authors and creative collaborators”**⁶¹ includes a creative director (3 points), person responsible for the design of video game mechanisms (3 points), scriptwriter (2 points), artistic director (2 points), music composer or creator of the sound environment (1 point), as well as members of the creative team, including in particular concept, computer graphics and level designers, sound collaborators, designers of video game mechanisms and programmers (9 points). At the same time, the authors, and creative collaborators must⁶² be either French nationals or nationals of an EU or EEA country or of another State party to the Agreement. The contract concluded with the authors and creative collaborators must also be based on French law.

For the group **“Creation”**, points will be awarded in such a way that the subgroup “culture heritage based creation” will be assigned between 2 and 4 points, depending on whether the video game is inspired by the historical, artistic and scientific heritage of Europe (4 points) or adapted from a cinematographic, audiovisual, literary or artistic work or a comic strip (2 points). A total of 2 points will be awarded for the subgroup, in particular for the originality of the game design document and the creativity of the graphic and sound universe.

The subgroup **“Cultural Content”** is assigned a total of 8 points, which are distributed as follows: The video game is based on a narrative (3 points) The artistic costs represent more than 50 % of the development costs (2 points). The original version of the game design document is written in French (1 point) The video game is published in its original version in at least three languages valid in the European Union, including French (1 point). Video games that deal with political, social, or cultural issues in Europe or reflect values specific to European societies (1 point).

A maximum of 5 points is assigned to the subgroup **“Location of expenditure and nationality of authors and creative collaborators”**, which is distributed as follows: At least 80 % of the development expenditure will take place within the territory of the European Union (1 point).⁶³ The video game involves European authors and creative collaborators (3 points).

The subgroup **“Technological and editorial innovations”** will be awarded a maximum of 3 points for innovations in the following areas: human-machine interface, user-generated content, artificial intelligence, rendering, multiplayer interactivity and functionality, narrative structure. The points will be awarded as follows: If the video game contains a single innovation (1 point), if the video game contains two innovations (2 points) and if the video game contains at least three innovations (3 points).

When it comes to **violence**, the French have also opted for a more flexible system⁶⁴: In principle, video games containing pornographic or very violent sequences which could seriously impair the physical, mental, or moral development of users are not eligible for the tax credit. However, there is an exception for sequences containing pornographic or very violent sequences if they are intended specifically for an adult audience and are marketed as such as soon as they contribute to development or represent a particularly significant level of diversity in French and European creation in the field of video games. For the group “Contextualisation of Violence”⁶⁵, the points are awarded for each of the sequences of the game as follows: The violence is disproportionate and gratuitous (1 point). The violence is rough and detailed in a visually realistic environment (1 point). If the violence shows sequences that meet the two previous criteria, the violence is quantitatively accentuated in that order (1 point). Violence cannot be avoided in the game (1 point) or is encouraged (1 point).

For the creation of a specific video game, the tax credit calculated for each year is 30 % of the total amount of expenditure performed in France or in another Member State of the European Union or in

another State party to the EEA Agreement. The following expenses are included in the calculation of taxable income: allocations for the depreciation of fixed assets, authors' remuneration, personnel costs (and related social costs), and other operating expenses for their part in the creation of video games (e.g. purchase of materials, building costs, travel expenses, etc.). In addition, subcontracting expenditure for the creation of a video game is also included if it complies with the conditions set out above (EU or EEA). These expenses form the basis for the calculation of the tax credit up to a maximum amount of €2 million per fiscal year.⁶⁶

Conclusion: Unlike in Germany, more space is given to creative production in France. The tax credit point system features projects, where expenditures (subcontracted or not) are spent to 80 % in France or Europe. Subcontracts are capped at €3 million and may only be spent in the EU. At least 2 / 3 of the spending on salaries needs to be made in France or Europe. Care is taken to ensure that the developers retain intellectual property during production and public support will vanish, when developers are forced to give up their IP (a strong argument in developer-publisher negotiations). As a result, France is looking better after its expenditures than Germany.

1.2. United Kingdom

The United Kingdom was traditionally the largest country in Europe in terms of computer game production, with the first computer games being imported from overseas. Because of this, the country had a head start in Europe. Especially the production of console games has a long tradition here. The UK was also the first country in Europe to develop and export computer games at world market level. According to the publisher association Ukie, the *UK Games Market Total 2019* amounted to €5,994,176.⁶⁷ Here, however, the support of computer game development is younger than in France. As the second country following France in the EU, the UK has attempted to establish a national funding scheme for computer game development based on cultural means. The first funding models still failed due to resistance from the EU Commission, as the cultural test was not met. The British government then modified the funding model, so that it became legally permissible and the funding began to be awarded in 2014.⁶⁸ The certificate of the culture test is issued by the *British Film Institute*.

Two rules of interpretation have been established, which are very remarkable:

The **“Undetermined Location Rule”**⁶⁹ applies when a video game is played in an indeterminate place or a character comes from a such a place. However, points can only be awarded for such a video game if the video game receives at least one point in a specific section. The **“Indefinite Points Rule”** must be applied.⁷⁰ The **‘golden points rule’**⁷¹ ensures that creative content is always given sufficient consideration in the certification of British video games. It applies if a video game scores all 15 points in the first sections. If this is the case, the additional points from section A3 (see below) are no longer required to pass the test.

In **section A, “Cultural Content”** a total of 16 points⁷² can be scored. **Section A1** assesses the cultural content – i.e. whether the video game is set in the United Kingdom, another EEA State, or in a place that cannot be determined. Up to 4 points can be awarded here: 4 points are awarded if at least 75 % of the video game is located in the UK or another EEA country; 3 points will be awarded if at least 66 %, 2 points if at least 50 %, 1 point if at least 25 % of the video game is located in the United Kingdom or in another EEA country, or the location cannot be determined. It does not matter where the video game is produced. The percentage score for where the video game is set is measured by the script pages.⁷³

Section A2 is devoted to the question of whether the main characters are British citizens, EEA residents

or their nationality cannot be determined. Here too, up to 4 points can be achieved: 4 points are awarded if two or more of the three main characters depicted are from the United Kingdom, another EEA state or whose nationality cannot be determined. 2 points are assigned, if one of two main figures originate from Great Britain, another EEA State, or cannot be determined. Only 1 point is assigned, if one of three main figures originates from the United Kingdom or another EEA state or whose nationality cannot be determined. A character is British (or EEA) if it is a resident. This also includes characters from a former colonial area. An anthropomorphic character (i.e. with human characteristics) can be classified as a speaking character for the purposes of the test.

If this is not immediately apparent from the video game, applicants are asked to explain why the character should be considered British or another EEA State character. If it is not sufficient for a character to be technically an EEA national character (e.g. through dual nationality or tricks), then there must be other evidence in the game, i.e. that the character can actually be associated with the state in question, such as the background story, the accent, or anything else that can be seen or heard on screen that can be attributed to the UK.⁷⁴

In **section A3**, points are awarded if the video game is based on UK or EEA themes or the underlying material. Up to 4 points may be awarded if the video game is based on a British story or a story related to another EEA country. A video game shows a British or European story as soon as the subject of the video game is British or relates to another EEA country. It counts even if the underlying material (e.g. a novel) on which the video game is based is from a British citizen, EEA citizen or resident. The subject matter of the video game is British or refers to another EEA State, for example, if the video game is a non-fictional event in a British or EEA State, even though it is not playing in the United Kingdom (e.g. Battle of Waterloo). Applicants should justify the extent to which their video game is a British story or a story that refers to another EEA State. With regards to the underlying material (e.g. book, story, film, game, an original screenplay, etc.), consideration will be given to whether the material was written by a British citizen, an EEA citizen or similar.

Section A4 awards up to 4 points if the original dialogue or voice-over is recorded, mainly in English, which are awarded as follows: Up to 4 points at 75 %, 3 points at 66 % minimum, 2 points at 50 % minimum, and 1 point at 25 % minimum. According to the Council of Europe Charter for Minority or Regional Languages Great Britain has six indigenous minority languages, including Scottish Gaelic, Welsh, Irish, Scottish, Ulster-Scottish and Cornish. The initial dialogue is measured by the number of words spoken against the total number of dialogue words in the script. Unlike the spoken dialogue, the text-based dialogue is also measured.⁷⁵

Section B “Cultural Contribution”⁷⁷ awards points based on the cultural contribution of the game. In the view of the British Film Institute (BFI), video games play an important role in the promotion, development, and improvement of British culture. This section therefore attempts in particular to identify those video games, that make a significant cultural contribution beyond the cultural content assessed in Section A, by evaluating three key categories: cultural creativity, cultural heritage, and cultural diversity.

In terms of **cultural creativity**, video games can convey both the culture of the country of origin and the point of view of an individual. The impact of a video game and its success in conveying British culture is determined by its creative approach. The developer's approach and the reference to groups or parts of society are assessed. For example, young people may respond more positively to a novel representation of British culture than an older generation. The developer's ability to tailor their creative approach to their target audience can have a profound impact on the cultural contribution of the video game and thus

provides a clear indication of a culturally British video game. Points are awarded, among other things, when the presentation of British culture through the video game is the result of the developer's creative approach. The content then not only reflects an existing work but is a creative new interpretation of British culture. Other factors relating to creativity that can be shown to have an impact on the final content are e.g. British technical or creative innovations in gameplay, graphics, artificial intelligence, etc.⁷⁸

British cultural heritage is another important determinant of Britain's national identity. It is considered important to preserve the British cultural heritage in video games for audiences of the present and the future. British heritage shapes a common understanding of the British people and their contemporary and historical culture. Points are awarded for the presentation of British heritage. For example, a video game that tells the story of a British historical event but may not necessarily be set in Britain (such as the war against Napoleon) will be scored. The issues these video games address, are an important part of the unique British cultural heritage and can play an important role in ensuring that it remains relevant to modern society, for example, by reaching new younger audiences. The presentation of cultural heritage in video games is a key factor in a culturally British video game and also has the potential to be a catalyst for creativity by enabling unique interpretations of stories from the British cultural heritage. Preserving cultural heritage creates the nation's collective memory, a sense of citizenship and the place of the individual in the community.⁷⁹

Also, **cultural diversity** is important. The diversity of Great Britain is a characteristic of British culture. A key factor for a culturally "British" video game is the communication about it in society. When we speak of "diversity", we recognise and value these aspects or dimensions of self- and / or community identity in terms of gender, ethnicity, national origin, religion or belief, age, sexuality, disability, social and economic background. An approach that values diversity therefore appreciates, values, and supports differences in attitudes, cultural perspectives, beliefs, ethnic, abilities, skills, knowledge, and life experiences of people from different backgrounds living in the UK. Therefore, addressing this diversity is an important determinant of a culturally British video game.

Diversity also has the potential to be a catalyst for creativity and the promotion of cultural value. This requires improving the range of stories to be told, the way they are told on screen, and the level of access and engagement with video game culture for audiences. Cultural diversity can directly influence the content and sound, as well as the sensitivity and authenticity of a video game. For example, much has been written about the lack of female video game developers and the different perspectives and sensitivities that women bring to video game productions. It goes beyond simple equality of opportunity and recognition of differences and emphasises the potentially creative connections that can be made through access, inclusion, and collaboration from different – perspectives and their direct impact on the video game as a cultural product. Lack of diversity, on the other hand, may have a negative impact on content and reduce the possibility of bringing cultural sensitivity or authenticity to the game through local or diverse content. It therefore seems necessary that different communities have the opportunity to get involved and actively contribute to reflect the position of a culturally diverse nation.⁸⁰

The "**cultural hubs**" to be identified in **section C** can also contribute to the evaluation. Here a maximum of 3 points can be achieved, which are calculated based on the amount of work in the country. In order to calculate the proportion of expenditure on a video game development activity within the United Kingdom, production costs must be analysed on the basis of where a person works on a video game, where it is supplied from and where the services are provided. Where expenditure on a video game activity is divided between activities inside and outside the United Kingdom, the division of expenditure must be fair and reasonable; the time base is calculated on the basis of calendar days. For example, a graphics programmer supervisor is hired (i.e. as part of the programming expenditure) to work with the video

game inside the UK for one third of his time and outside the UK for two thirds of his time. One third of his labor costs are for work inside the UK and two thirds for work outside the UK. All living expenses of persons directly involved in the work of a cultural centre and incurred for production purposes (e.g. stay in a hotel in the UK) must be related to activities within the UK. A stay in a hotel abroad can only be credited for activities outside the UK. All travel / transport costs are UK expenses if the trip started in the UK.

Section C1 is dedicated to topics such as concept development, story boarding, programming, design, by achieving a maximum of 2 points. These two points are awarded if at least 50 % of the work on one of the following activities is done in the UK: Concept Development, Story Boarding, Programming, Design. In C2 there is a point for music recording, voice recording or audio production. A point is awarded if at least 50 % of the work on one of the following activities is done in the UK. This includes the origin of the music.⁸¹

Section D “Cultural Practitioners”⁸² is dedicated to the actors of cultural creation. For the purposes of this test person with at least one residence in the United Kingdom (including citizens of the Isle of Man or the Channel Islands) or any other EU or EEA country is counted. To qualify for a point, a person must be a citizen or resident of one of these countries at the time of creation of the video game. In the case of dual citizenship, both can be indicated. Ordinary residence means the normal way of living in a certain place (lawful, voluntarily accepted, for a specified purpose), in continuity of which it is maintained despite temporary absence. However, it can be of long or short duration. Possession of a contract of employment for the video game does not in itself mean that someone has his or her ordinary residence in the United Kingdom. Neither do the contractual conditions count into the duration of employment in the United Kingdom, nor ownership of a house in the United Kingdom or marriage to a British spouse constitute evidence of ordinary residence in the United Kingdom. It is accepted that, especially in smaller studios, a qualified person may perform more than one of the roles listed below.

In **section D1**, a point is awarded if at least one of the project managers (or, if there are more than three, one of the three main project managers) is an appropriately qualified person. The project manager is determined by considering factors including the person receiving the video game tax credit, the creative input and the time spent working on the video game. The same applies to script writer, composer, lead artist, programmer, and designer (sections D2 through D6). In D7, a point is awarded if at least one of the department heads is a qualified person. Department heads include the main gameplay programmer, the main level designer, the main character artist, the main sound designer, the main graphics programmer, the main level artist, and the main gameplay designer.

In section D8, a point is awarded if at least 50 % of the development team are qualified persons. The development team includes all persons directly involved in the development of the video game. That is, people who are directly involved in the design, production and testing of the video game. Persons involved in the provision of additional services, such as caterers, are not included. Whether a person is on the development team is determined by considering factors including whether they have been contracted by the development company to provide services for the video game and whether they have industry standard on-screen credits.⁸³

In conclusion, it can be said that the comprehensive cultural examination by the BFI is obviously taken very seriously, but it also contains some of its own contemporary approaches. The BFI is not aiming at traditional British culture but is embracing the contemporary. Subcontracting is capped at £1 million. While residents are fine, it is clearly not allowed to circumvent the rules. According to sources, it is not likely, that with Brexit this will change considerably on the short run.

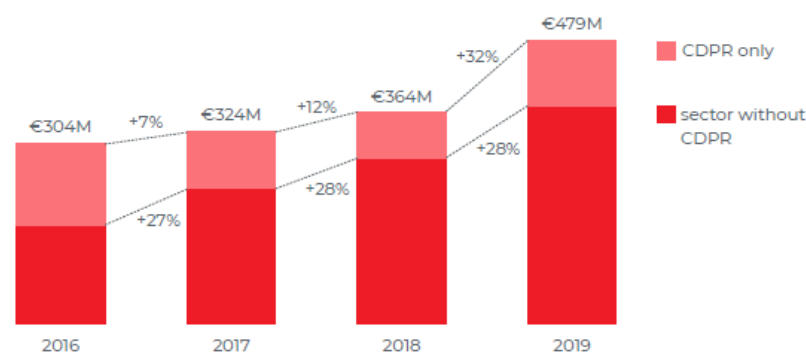
1.3. Poland

In Poland, the history of the development of computer games is much shorter. However, the computer games industry in Poland has grown very strongly in recent years.⁸⁴ The Polish game industry had its breakthrough in 2007 with the computer game “The Witcher”, of which more than 50 million copies were sold and which was produced by the Warsaw-based company CD Projekt Red.⁸⁵ The Poles were so proud of the game's success that Polish President Donald Tusk presented a copy of the successful Polish role-playing game “The Witcher” as a guest gift to then US President Barack Obama during an official visit. In his speech, he mentioned the game again, saying it was “a good example of Poland's position in the world economy”.⁸⁶

The annual income of the Polish games industry exceeds today €500 million⁸⁷. About one sixth of the size of the German market, it makes about one per thousand of the Polish GDP; 96 % of this is generated on the world market. At the same time 97 % of the computer games sold are imported from abroad.⁸⁸ All in all, the use of computer games in Poland is particularly strong in addition to mobile games, but console games are also being increasingly consumed. As almost everywhere, the mobile segment is experiencing the greatest growth. It is remarkable that 47 % of all female computer players in Poland are female.

Since 2016, Polish game developers have been able to increase their revenues by almost 30 % annually, if you ignore the market leader.⁸⁹ Poland is home to just over 400 game developers, a country with comparatively low labor costs and a well-trained workforce. However, the industrial structure of the Polish games industry is volatile: Although more than 120 computer game development studios have had to close within a year, 160 have been newly opened. A surprisingly large number, 43 companies are listed on the Warsaw Stock Exchange. The market leader CD Projekt Red had a market capitalisation of over €8 billion in 2020⁹⁰. However, the share price development of the companies is unstable. Of the approximately 10,000 employees in the Polish games industry, 80 % work in SMEs and 20 % in the largest companies. Poland has about 60 different computer game-related training programmes, all together there are programmes. Early on, there was also close cooperation with German companies, in both directions: German publishers published Polish titles and Polish publishers published German titles.

Chart 1. Revenues of game developers in Poland



Source: Game Industry Conference⁵

Figure 2: Revenues of game developers in Poland

Polish game developers were also able to benefit from state subsidies. In addition to direct financial support, public recognition came with the granting of subsidies. However, the funding landscape is fragmented and confusing. Various government agencies try to outdo each other with each awarding small amounts of money.

Between 2016 and 2020, the state development agency *ARP Games* (today anotherroad.games) initially became involved in the topic. This organisation, dedicated to general industrial development, implemented **specific assistance for inexperienced developers** through ARP Games. Within four rounds, 30 candidates were selected from 200 in a competition.⁹² In the beginning, ARP Games saw itself as an accelerator for start-ups with a special focus on the computer games sector.⁹³ The ARP model worked in such a way that young companies were given €10,000 - 12,000⁹⁴ for the development of a prototype, in total about €402,924.⁹⁵ In addition, there was also consulting and professional support. In return, however, the young companies had to give up company shares, even though it was a state agency. However, only few projects found a market, so ARP decided to start its own publishing activities. In this respect, there was even a state-owned publisher in Poland at that time. At present, however, the project has been discontinued, but is expected to return to the market in 2021.⁹⁶

Recently, support has been pursued⁹⁷ through the *GamelINN project*. GamelINN is a national project, which is **financed by EU funds**. Therefore, from the perspective of EU state aid control, this programme must be classified in a different way, since it is supported by the EU itself. The focus here is on technological research and development. In contrast to comparable countries, it is not cultural-economic support, but is kept under a **technological-innovation policy exception**, e.g. as it was realised in the last decades mainly by the Finnish technology agency Business Finland (TEKES). Flexible implementation is particularly important here. However, the industry reports a rather bureaucratic procedure in which specific research projects must be submitted and only the technological part is funded.⁹⁸ Applications are made under complicated conditions and are based on specific technological calls, such as 3D engines, VR technology or AI.⁹⁹ Especially smaller and younger studios find it difficult to participate. In the first competition in 2016, 38 projects were implemented as part of the GamelINN project and a total of €25,966,252 was made available for this.¹⁰⁰

The *e-Pioneer pilot project*¹⁰¹ of the state agency National Centre for Research and Development (NCBR) works in a similar way.¹⁰² Here, the focus is on **public procurement** and works in the environment of serious games and gamification. The project supports solutions that use ICT tools to respond to challenges, which in turn face up to social or economic considerations. In this context, the rules deviate from standard public procurement procedures: The product or service may exceptionally have been manufactured before project start.

Various national and regional authorities continue to support game developers with¹⁰³ **export promotion**, especially with trade fair presentations. The Polish Agency for Enterprise Development (PARP) is particularly active in this area. Since the beginning of the project implementation, i.e. since 2017, PARP has organised information and advertising stands at 19 trade and conference events in 10 countries: In the *USA, Israel, the United Arab Emirates, Japan, South Korea, Brazil, Germany, Spain, Portugal, and Austria*. The Go to Brand programme is also located here.¹⁰⁴ Each year, about six companies are supported with €100-200,000 to attend international trade fairs.¹⁰⁵ At least four regions have also set up smaller export promotion programmes.

A **small tax subsidy**¹⁰⁶ is hidden in the *IP-Box system*, which has been a legal requirement in Poland since 2019. According to it, the tax rate for income earned by a taxpayer from intellectual property rights is reduced by 5 % in relation to the tax base.

Since 2018, politicians in Poland have been discussing a large **content-based fund** based on the model of France, UK, and Germany. For this purpose, the Ministry of Culture had reserved PLN €5,596,175 (converted about €6 million) in its budget for game developers who use elements of Polish culture and tradition in their projects. The fund is based on French and British solutions.¹⁰⁷ However, this political

project was put on hold in 2020 and it is unclear whether it will ever continue. “In this respect, the Polish attempts to set up a content-based *soft innovation programme* for game development have failed for the time being.”¹⁰⁸ After all, the Ministry of Culture supports the development of the creative sector and export with about €15,000 for about five games companies per year. The Ministry of Culture continues to support prototype development with €20,000 or less, but the number of companies supported is limited, probably to 10-12 per year.¹⁰⁹

The Polish funding system is still fragmented and a large national funding system, such as the one recently established in Germany based on the cultural exception, does not yet seem to have been implemented. There has been an attempt to replicate the TEKES approach to technology funding in recent years but this attempt is apparently facing problems. At present, the greatest dynamic in Poland’s video game industry is generated by the capital market on the stock exchange. Whether this is sustainable, however, remains to be seen. While the stock market is very dynamic and maybe even overheated, the public funding measures are still multifold and emerging, a work in progress.

3. Entrepreneurial Perspective

The third part of this study deals with questions of the definition of different developer typologies and the perspective of graduates regarding entrepreneurship.

3.1. Definitions

Hobby Developers are non-professional video game developers. Games made and played by friends (developing a hobby game) have a long tradition and are often closely related to the modding community. Today people all over the world are making personal games with classmates, neighbours, family, etc. Concretely, it includes those private endeavours that were never made with profit as the driving goal. They have a focus energy that we rarely see with major release games which reflects this other motivation, being not about the money but about personal growth. The big emotional investment is meaningful to the people doing it and to the people who care about the developer.

Although the ambitions of all hobby developers are high, not all make it into the “professional level”. This is because with the large number of non-professional game makers, not everyone manages to become a professional, e.g. as we know it from sports. Nevertheless, it is enriching because it can expand the developer's world, build their confidence and discipline, give them the opportunity to network or to enlarge their network.¹¹⁰

“Others may start performing contract work for other game companies or may start doing non-games work. Some of these teams may eventually build a second or third game, and one of these may eventually become a hit. But for many of these start-ups, the profits from their company will be too low, and they need additional income from elsewhere. These kinds of companies are what I consider ‘hobby companies’.”¹¹¹

Indie developers (derived from the word “independence”) are independent game developers, often consisting of smaller teams not owned by (i.e. independent from) any major publisher.¹¹² They are more likely to finance themselves through a colourful mix of financing sources such as start-up financing via crowd sourcing platforms like Kickstarter and / or public funding. If the game has reached a certain market size, publishers are also involved.¹¹³ Here, pitching is usually done with the help of a prototype. In an “advance-against-royalties-deal” the publisher finances the production to completion and takes over responsibility for marketing.

Indie developers often create innovative, inspiring games that do not yet exist in this form and fit perfectly into a niche but could pose a risk in terms of marketability. But this does not mean less success at the same time, because the market and demand are very diverse – in other words, the needs of the players are very different. Indie developers are constantly changing the market, because innovation is one of the main characteristics of indie developers.¹¹⁴

Another special characteristic of indie developers is that they are often producer and creator in one, they are not just game developers and not just game publishers – they are often both and very often refuse to be pigeonholed.¹¹⁵ The advantage is that indie developers have and keep creative control over their game. They can produce their game exactly the way they want it (i.e. they can choose the themes they are interested in, choose characters, design their own worlds, etc.). With a publisher you often get specifications, which are mostly linked to making the game marketable, which could limit an indie developer's creativity and change the game.¹¹⁶ One challenge is commonly a lack of entrepreneurial

expertise in an indie team: these are often students who have come together as a team during their studies to develop game projects (like hobby developers) and then decide to start their own business in the industry. Furthermore, it is not enough for an indie team to have only one specialisation, everyone in the team must be able to cover a wide range of activities / knowledge.¹¹⁷

On the other hand, almost all commercial game developers have emerged from indie developers and especially in the last years indie companies like Supercell and Rovio have been able to outshine the profits of all major game companies. Despite the risks that an indie developer takes, the number of currently released indie games is increasing year by year (has increased sixfold in three years¹¹⁸) and is reaching its historic peak at the moment.

*“Indie games have been experiencing a steep upswing for about a decade, resulting in many high-profile, artistically daring and experimental games. Really new interpretations of the medium are indeed often created in this field, partly because large mainstream productions with dozens or hundreds of millions of production budgets simply cannot afford the risk of failure”.*¹¹⁹

Commercial game developers are developers who take a commercial approach and place it at the centre of their activities. The opinion, which is partly represented in the literature, that this is only about big developer studios is not enough.¹²⁰ The pure number of employees is a subordinate category. For example, the Finnish company Supercell (Clash of Clans) was sold to Softbank for €1.2 billion when it only had 38 employees.¹²¹ This was also a commercial approach.

The largest companies include Nintendo, Sony, Ubisoft, NC-Soft, Tencent Games (this Chinese manufacturer is considered the largest in the world).¹²² Very large teams are known to publish “core” games (i.e. hardcore games) such as the Nintendo titles from the Mario series. Formerly these companies operated as pure publishers, but in times of platform economies they are reaching to broaden the depth of added value, so they organise themselves more as a value creation ecosystem which includes its own development. In contrast to small indie teams, these large teams have the advantage of being specialised in a certain activity rather than covering many activities as a single person. Since this often revolves around the development of large mainstream productions with AAA titles, the prospect of success is apparently easier to calculate.¹²³ However, in view of the enormous costs involved, this cannot always be reconciled with reality. In content business, smaller units can be much more profitable.

3.2. Graduates and Entrepreneurship

Within the framework of this study, experts were interviewed throughout Europe on these different categories of developers. It was investigated which perspective graduates have in this context.

I. Perspective of Graduates in Europe (in Terms of Creative Games and Entrepreneurial Efforts)

Altogether it can be stated from the interviews, that in some countries half of the graduates aim at independence, in other countries this is the case only to a substantially smaller portion. Many of them do so for both: creative-artistic and economic motives. Graduates often first try to realise their life's dream and often fail on the way there. Apparently, only to then – often with the support of an incubator – slowly prove themselves commercially.

E1: *“Most graduates I work with do not look to the grander European scene. They focus on what they want to achieve (either entrepreneurially or on the job market). I do believe that most of the*

graduates I work with through the incubation-process do consider themselves as qualified game developers. But they are also aware of the fact that they still have a lot to learn after graduation (both as potential employees and as potential business owners). Today, young graduates need to prove their skills more than 10-15 years ago, because the industry has matured, and there exists a growing population of experienced game developers that set the bar higher. This is good for the industry. This is how all industries mature. But for the individual graduate or for a newly formed game start-up company, it means that they need to prove that they can deliver at least on par with what veterans can. For the average game start-up, you will need Programming (technical talent), Graphics (creative talent), Game design (creative talent), production management (entrepreneurial talent), business development (entrepreneurial talent). One person can hold several of these talents, or they can be split between individuals on a larger team."

E2: *"Game industry is growing fast globally and certainly in Europe, where many universities have developed programmes dedicated to game development studies during the past decade. This enables students to get involved and pursue a career in games even before graduating. Game development requires a vast spectre of expertise not just in engineering but in art and humanities, therefore the career opportunities to pursue for students are huge."*

E5: *"I can speak about France, maybe Germany and Spain; Most of the game (game Design, Graphic and sound Design) students does not have any entrepreneurial endeavour. They are two main reasons when they create an independent studio:*

- They want to create or finish and publish their game, so they need to establish a company but they are not really instructed in how to do so.*
- They do not find a job or an interesting job in the existing industry. This is probably not true for the students coming from a school having a producer track."*

II. Own Company Vs. Employee – Tendency of the Graduates

There is relative agreement in the interviews that students in the game industry are encouraged to start their own start-ups / companies after graduation. Many, especially artists, decide to start a non-self-employed business first. The number of founders in training with incubator programmes is higher. Otherwise, only few dare to take the step into self-employment directly after graduation, some do so later.

E1: *“In Game Hub Denmark, we see on average three new game company start-ups per class per year. On average each start-up is founded by 2-3 people. Depending on the class-size of a year, this is between 5 %-10 % of the students. We have of course had outlier years, where we had 15 % of students or 3 % of students start a company.”*

E2: *“I think this depends on the country-to-country basis and what protocols there are to establish a company. In Finland students are encouraged to go through start-up accelerator programmes and experience entrepreneurship before graduating, therefore in Finland we have quite many student-teams that start their companies after they graduate and some develop a sustainable business with b2b services working on own titles and some do not, so they seek employment. As they have game development and production experience from a startup, it is not hard to get employed’. ‘I do not have any researched statistics, but based on the students' affiliations, I would say this: about 50-70 % of 3D animation and visualisation students will be employed in the game industry after graduation (i.e. in the class of 10 people / year). They only start their own businesses after working in the industry for several years - if at all.”*

E3: *“[...] Anecdotaly, I've been told by the former rector at The Game Assembly (TGA)[...] that when a local bank came to speak to the students, half of them raised their hand when asked if they wanted to set up their own studio. But none of them actually did, at least not directly after school. The Game Assembly students are extremely attractive for employers, and recently they had their ‘Meet and Greet’ open house, where prospective employers can meet the students to offer them internships. There were actually more companies present than the total number of students that were up for internship then. When it eventually comes to employment, Massive Entertainment in Malmö hires many of them. In other words, they must really want to start a studio, and manage to convince a few classmates, or not need a job themselves, when it comes to TGA students. Or they will go work for Massive or the studio they were interns at, all over Europe.”*

E4: *“I have the impression that most graduates who do artistic work e.g. 3D artists go to companies first. The professors recommend that they first gain experience as an employee and only then become entrepreneurs. Programmers are trained more quantitatively which is why many start a business as soon as they have completed their studies.”*

E5: *“At Enjin less than 5 % create their own studio.”*

III. Choice of Studio – Tendency of Graduates

There is also relative agreement among the experts surveyed on the choice or design of the studio. Although the students are beginning to realise their life's dream, they also want to earn money. Most experts do not see a contradiction between entrepreneurial aspirations and artistic self-realisation. Some succeed better than others in bringing these seemingly contradictory poles together. The experience is positive for some teams, but others have to give up.

E1: *“Most start-up teams start with the intention of building a game studio that makes money. Very few have the intention of running a studio as a hobby. What happens though is that some student-startups are founded based on a dream of making games and ‘living the life’ of a game developer. This dream is not always rooted in reality, as most students have no realistic chance of understanding what it takes to run a company. [...] Then, during the course of the incubation process, where they experience the process of constructing a game product, and get introduced to some of the challenges of building a business, some teams realise that their initial dream was based on a ‘false mirage’ of what they thought it would be like. [...] Some teams give up and close down their company. [...] I see roughly 50 % of those teams that give up on the start-up dream, that will still benefit from having gone through the incubation process. [...] Some will publish their game, but the profits will be too low to finance continued operation. Others may start performing contract work for other game companies or may start doing non-games work. Some of these teams may eventually build a second or third game, and one of these may eventually become a hit. But for many of these start-ups, the profits from their company will be too low, and they need additional income from elsewhere. These kinds of companies are what I consider ‘hobby companies’. Finally, we have those that succeed. These companies may not initially make a ‘hit game’. But they do manage to make enough money to sustain continued operation, and work in their company full time.”*

E2: *“As a very first idea by students, definitely they start with a passion-driven-approach of making own dream studio and games they enjoy playing but once they get familiar with the market and the practices of running a studio there is in most cases need to pivot the vision and mission of the company. This is one of the turning points for the team to continue or break down.”*

E3: *“If you get a day job in another sector, then a ‘hobby’ game studio might be what you start. Or if it should be allowed by your game studio employer that you also make non-competing games in your own time. If we interpret ‘indie’ as no-growth ambitions [...] and ‘entrepreneurial’ as the opposite, this is a problematic question, because it is about intent, not measurable results. [...] But if you want my guess, as I see no clear tendency either way, I would say 50 / 50 indie versus growth oriented. Not per person, but per start-up.”*

E4: *“Many start out on an indie and hobby basis, but then start a business that they try to get along with. Some do succeed.”*

E5: “Neither hobby nor an entrepreneurial studio, a creative studio: they do not want to be an entrepreneur but an artist. It exactly the same in movie schools [...] Game is the production of contents not technology. [...] The main problem is to map the model of a technology driven start-up to game production. Game is the production of contents not technology. So, both from the point of view of production (process, stability of the teams,), the accounting (value of intangible assets), and the financing of this confusion is counter-productive.”

IV. Figures

It is not easy to break down these assumptions into concrete figures. In most cases, no reliable data is available. The Finnish association Neogames is an exception. According to its survey, 54 % of the graduates were employed by existing game studios and 8% become self-employed and set up studio of their own. In addition to these global figures, we were also provided with figures from the Grenaa Start-up Incubator. These suggest that such centres can increase the proportion of self-employment. However, the number of failed attempts is very large.

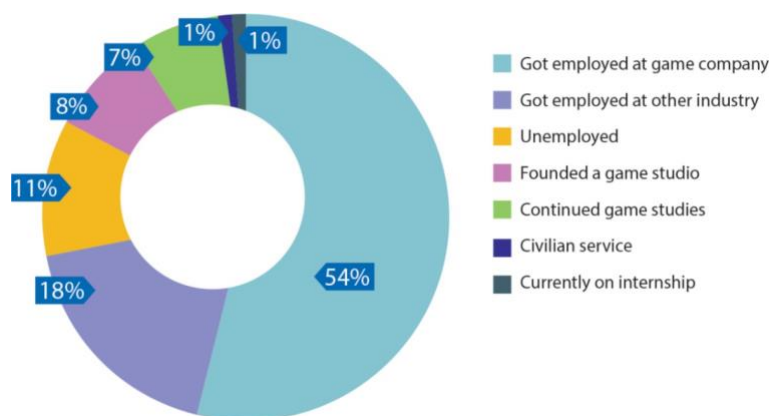


Figure 3: Employment of game graduates in Finland¹²⁵

In addition to these global figures, we were also provided with figures from the Grenaa Start-up Incubator. These suggest that such centres can increase the proportion of self-employment. However, the number of failed attempts is very large.

E1: “Out of the 46 companies that were created in Grenaa and were part of the incubator, 6 are ‘Pro’, 6 are ‘Hobby’, 13 are ‘Students’ and 21 have closed down.”

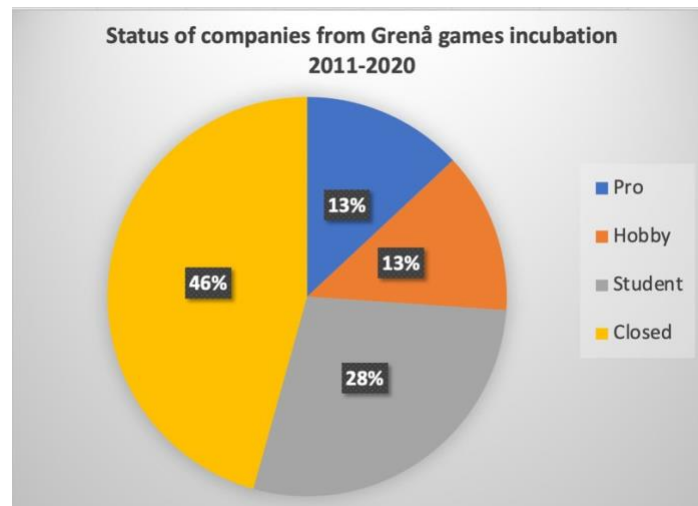


Figure 4: Status of companies from Grena games incubations 2011-2020¹²⁶

There could be a connection between a functioning incubator in the local ecosystem and the ability of companies to survive the start-up phase.

E3: “If you compare Malmö, the recognised games hub in Sweden (apart from Stockholm), with Skövde, something striking appears. I looked at the raw data for the latest Swedish Games Industry report for how many companies (limited companies, not partnerships or sole proprietorships) that were still active in 2019 that had been founded in the 10 preceding years:

Founded	Malmö	Skövde
2009	0	1
2010	5	1
2011	4	2
2012	3	0
2013	1	0
2014	2	4
2015	2	2
2016.	7	7
2017	3	4
2018	5	2
Total	32	23

Yes, there is not only the education, but also a games incubator in Skövde (<https://www.thegameincubator.se/>). I do think most companies there are started by students. Malmö did have some modest games incubator thing for a year or two. But where the population of Malmö city is 317,000, urban Skövde has 34,500.”

V.A Common European Approach to Support Entrepreneurship in the European Games Industry as an Opportunity

Most of the experts share the idea of a common European approach to support entrepreneurship in Europe. However, some have a more skeptical view.

E1: *“Overall, I think that incubation and teaching young people an entrepreneurial mindset is important - but also very difficult. With the conception, design and production of games being one of the most complicated processes for product development, this makes the task even more difficult for game start-ups. With production times of 2-3 years on average for the first game from a start-up company, it means that many traditional models to support entrepreneurship are not a good fit. The idea that you can run a 3-6 month ‘incubation’ process, and then expect to see results after this is unrealistic in the game industry.*

A successful games incubator, that supports, teaches, and supports entrepreneurial mindsets in start-ups, needs to be a long-term endeavour. The incubator should also build up a network, and there should be support from both the educational system that provides initial candidates for entrepreneurs, but also from the industry, investors, and alumni entrepreneurs. Furthermore, you can gain a lot of benefits from operating an incubator that reaches beyond the student start-ups, and also supports start-ups as they mature into building their second product and beyond.

A joint European network can have the following benefits and activities:

- *Sharing of knowledge and experience between the fulltime mentors and coaches.*
 - *This is for multiple purposes:*
 - *To continually improve. The experienced incubation mentors / coaches grow in skill and evolve the models for incubation to be even better. Also, for those who build the programmes and generate the funding.*
 - *To teach best practices for incubation to new cities, schools, and locations. To help others to establish better incubators. To explain the benefits of an incubator.*
- *Create a large mass of game companies and products and presenting a large annual pan-European portfolio of new game pitches to investors and publishers.*
- *Creating an “elite” programme where the best teams from around Europe will get access to specialised training programmes, acceleration packages and pitch-competitions with contracts as prizes.*
 - *Why are we not doing that already - well because each of the individual incubators around Europe do not produce enough volume of quality start-ups annually. This means*

it is difficult to get funding and enough interest. Each incubator will roughly generate 3-4 new teams per year, where only 1 could be considered to have “rock star” status. You cannot create an event with just 1. However, if 20 incubators from 20 different countries in Europe, each provided 1 elite team each year, you could have a solid 20 elite start-ups.

- *Being rooted locally is important - especially for the early stage student-entrepreneurs, who are still maturing. However, the value of a large international network, is a big part of what an incubator can provide to a student.”*

E2: *“I think it would be important to share the experiences and best practices among developers. In Finland we have a strong community with IGDA Finland, and the culture of sharing is the core of it. I believe this approach would benefit many studios and individuals across Europe.”*

E3: *“Even if the Skövde case above shows that incubators attached to educational institutions might really be the way to go, it is in this case a specialised games incubator. Going through normal incubators and accelerators will not work, for lack of field expertise. The EU matching angel investors model will not work either, because of the low available expertise in many countries.*

Instead, I would look at a parallel to EIC Accelerator equity investments. Take a fund manager, well experienced in early seed investing (€50,000 scale), and with their expert network nurturing, start-up studios. So, invest €20-50 million into a European Games Fund, to seed-fund 200-500 studios with cost-adjusted (cost of living in Germany is not the same as in Romania) €100,000. The fund manager should invest the venture capital customary 2 % themselves, and also recruit other investors, but the latter should not be a requirement, other than at some modest level. If you try to make this an equal EU / nations / private matching-funds deal, it will probably not work. There are only two candidates that I know of: Nordic Game Ventures and Sisu Game Ventures. However, Sisu is a private partnership, not an AIFM EuVECA manager under financial supervisory oversight.

E4: *“It could work because all contacts are important for start-up entrepreneurs. In particular, knowledge of business, distributors, and publishers is important to them, as is knowledge of the business side and international agreement.”*

3.3. The Financing Path

In the last chapter, which deals with the topic of studios, we will conclude with some thoughts and try to apply the above information from the perspective of a game developer.

This study has shown that a clear separation between the entrepreneurial approach, the content-driven “indie” approach and the hobby approach does not necessarily help. After all, the dual nature of computer games means that they are both cultural and economic – and that is precisely what makes them so fascinating.¹²⁴ But it is also true that the failure of many young companies is pre-programmed. In incubated environments, however, the risk of failure is lower.

But the specific risk structure of the media business has certain special rules that apply to risks and to

profits in equal measure. It is therefore important to think carefully about the financing path of game projects. Public funding is primarily market-driven risk minimisation. With counter-balanced media specific production risks (high fix and low reproductions costs according to pareto law), this approach has long proven its worth in other sectors within the cultural and creative industries with even lower risk structures. The path character is intended to make it clear that this is a standard case, but exceptions may exist in individual cases. Let us take the perspective of a developer.

In general, companies should follow their financing path in a logical order, which should be as follows: Customers, partners (who are not customers), public funding, and finally investment. Difficulties often arise when companies try to find investors too early or at the wrong time. Our considerations here concentrate on the question in which order the financing supported by public funding might take place, i.e. what has to be done first – especially in the interaction between the federal and state governments and the question to what extent the rules of the new federal funding systems will be affected. Different starting constellations can play a role in the application of the funding.

The **first case** is the case of a graduate in Germany. They want to implement a computer game with a budget of about €200,000, for example for a mobile application. In order to raise the 30 % own funds, they must in any case show 10 %, i.e. €20,000, in cash. They have to get this money somehow – be it from personal savings, from their family or something similar. If the developer has the 10 % together, they have to prove further 20 % of own funds at least in a publisher contract or an investment contract. This means that – unlike it was initially the case in the first round in 2019 – the money does not have to be in their account, but they can guarantee it within the framework of a third-party financial commitment. In this case, the commitment of a minimum guarantee (or similar) from a publisher in the amount of €40,000 would have to be available. For another €40,000 (that would be another 20 %) they could apply for a regional state grant (Medienboard, FFF Bayern or similar). This application for state funding is, however, in contrast to the nationwide requirement, selective. A condition is here that they already made a name for themselves in the local network and is therefore noticed by the local Länder agencies as promising actor. The state funding agencies also act in a specific rhythm, so that the deadlines for submission and decisions determined in the context of selective funding must be monitored closely. Apparently, however, it is sufficient to have submitted an application; the decision does not have to be made yet to apply for federal funding. With these three elements, the developer would have the first €100,000 together, with which they can apply for federal funding and would then receive 50 % of the total budget (i.e. another €100,000) for the development of their computer game.

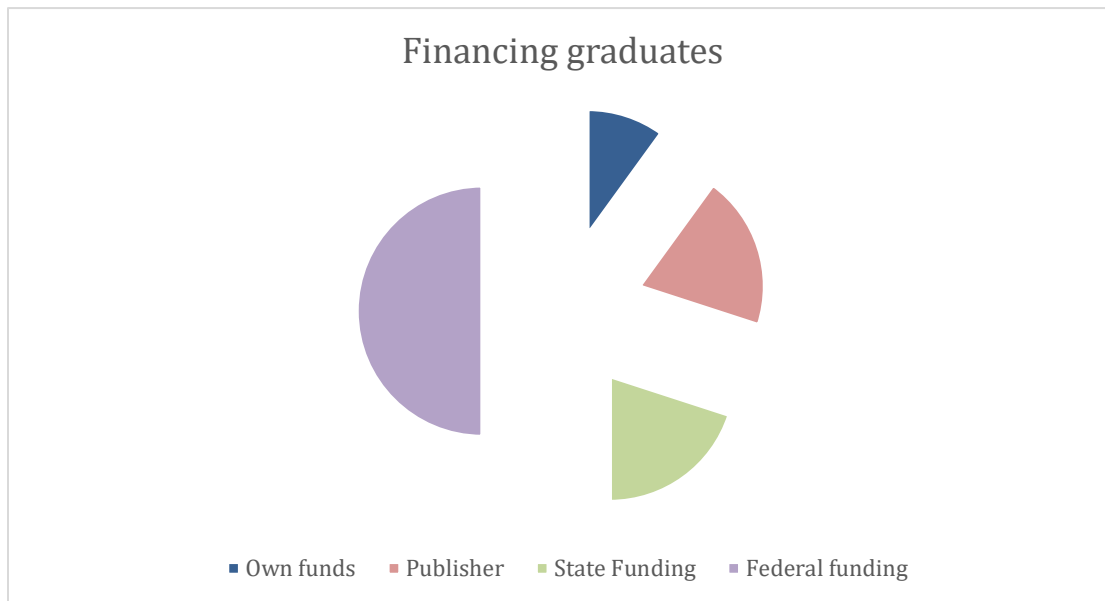


Figure 5: Financing graduates; Own representation

The **second case** (to the other extreme), that may occur is that of an international publisher, who operates outside of Europe. They have the intention to implement a project in Germany with the help of federal funding and to invest €1 million for this. At the same time, they want to withdraw as much of the funds as possible from Germany after the operation. In this respect, the foundation of a company in Germany, or the takeover of a small developer studio that already exists, comes into consideration. This studio will then receive a project order in the amount of €2 million. Of this, €1 million will be provided from abroad and proven on a bank account. The application for federal funding will be submitted and approved, provided that the culture test is met: The game needs to be German or European, the team needs to be to 50 % in Germany, or some of the staff have to have a degree from a German game developer educational facility. The application specifies that subcontracts amounting to about €1 million are to be awarded. For these subcontracts, two comparable companies and the client's company – i.e. the development studio of the foreign publisher – are shortlisted, whereupon the company is selected. In this way, the money of about €1 million can be returned to the original investor and can be used for the production of the subcontracted elements. In this case only about 50 % of the production costs are then implemented and realised in Germany but the total project of €2 million is the sole property of the foreign investor. With higher amounts the ration of 50 % does not apply any more but is reduced up to 25 % at €8 million. However: Long-term rents are paid to the foreign investor when the project is successful – so they are the one who makes the biggest profit.

The comparison with other neighbouring subsidy systems has clearly shown, that those countries, which have a comparable support scheme based on the cultural exception do actively cap subcontracts to other countries. The “German way” of even allowing non-European players to participate is quite unique and probably not helpful. At least this needs to be monitored closely.

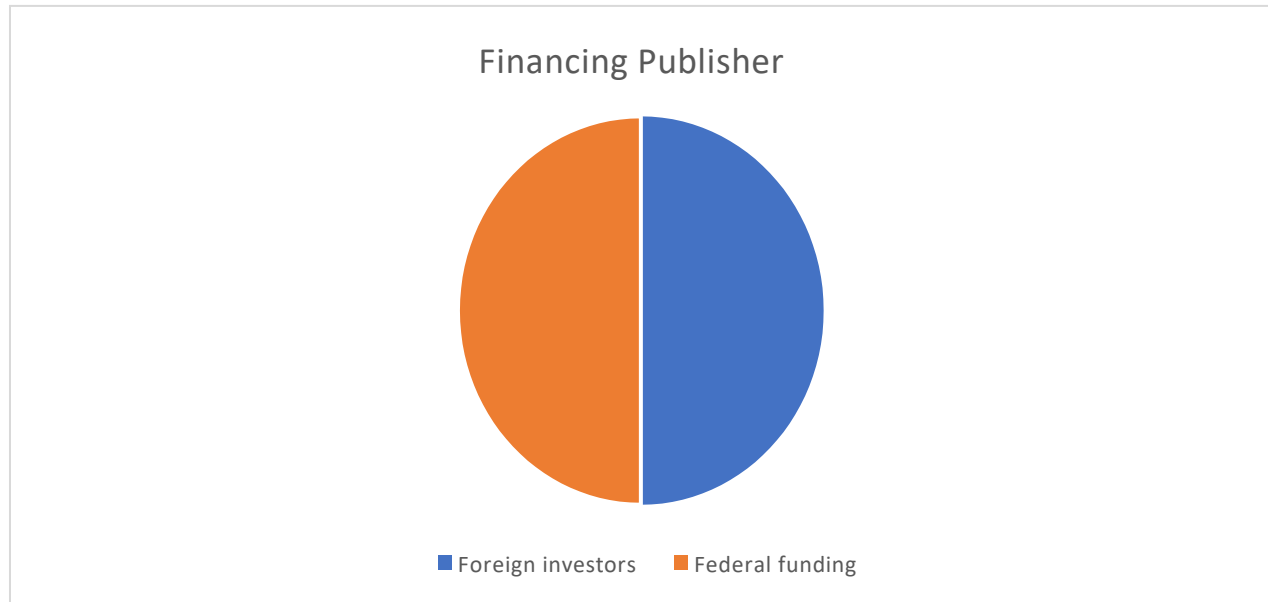


Figure 6: Financing Publisher; Own representation

Public funding for game development – it appears now – has been the way Europe will go. Besides Germany, France, the UK, Poland, Denmark, Italy, Belgium, Spain, and other EU members have made considerable efforts. Based on cultural, but also economic considerations, this pathway is a specifically European one. It will allow Europe to implement the digital catch-up as a dual phenomenon – economic and culturally. Besides, the spill-over effects are considerable. A block exemption might be a step in the near future.

For the success of the game developers themselves, quality is more important than quantity. Game studios need not to be large to be successful, especially in times of platform economies and digital distribution. A clear separation between commercial and cultural content has proven to be not only helpful. Games are usually successful when they create a tight relationship with the player. The human-machine relation is crucial: gameplay must be smooth. The game itself must be immersive and fascinating. Linking frequently used, unusual or surprising patterns with intuitively existing and refreshing new ones is challenging and playful at the same time. The vast cultural heritage of Europe can as well be an asset as the size of the European market. Visibility of European content and the firm belief in home-made productions is an area where we still need to improve.

For us this means that we have still some open questions for research. The impact of incubators is one element, but this might reach to more than just spin-offs of universities. Many successful developers come from nowhere (or anywhere) and maybe inter-European exchange could be a very fruitful pattern, especially – but not only - across the former iron curtain.

The new federal funding in Germany is a huge and significant step forward. Many have fought for years for it and it is very important that the funding for computer games has been enforced. Now it is important to adjust it and make sure, that the German taxpayers' money, at least for the most part, actually reaches the German game developers. The aim is to support companies that contribute to the German game industry beyond the digital divide and ultimately pay back to the state in the form of taxes. The digital catch-up is vital for Germany. Examples from the Nordic

countries trigger hopes, that tax returns up to a factor of 15 of the amounts invested by the government are not unrealistic. However, to achieve this, we must ensure in particular that subcontracting can no longer take place worldwide in the future and we must monitor the results closely. Let's get to work!

Endnotes

1 Cf. Behrmann, M.: Kino und Spiele: Medien in Frankreich und Deutschland: öffentliche Förderung der Entwicklung von Computerspielen: der Erfolg von Good Bye Lenin! in Frankreich. Hannover: Ibidem-Verlag, 2005, S. 25 ff.

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https://www.hamburgmediaschool.com/assets/documents/Forschung/Abschlussbericht_Games-Studie.pdf, S. 152/153.

5 Cf. Deutscher Computerspielpreis, under: <https://deutscher-computerspielpreis.de>, access 06.11.2020.

6 Cf. Behrmann, M.: Kino und Spiele: Medien in Frankreich und Deutschland: öffentliche Förderung der Entwicklung von Computerspielen: der Erfolg von Good Bye Lenin! in Frankreich. Hannover: Ibidem-Verlag, 2005, S. 28 - 29.

7 Cf. Behrmann, M.: Fördern statt Verbieten – Eine falsche Diskussion: Thesen zur Killerspieldebatte. In: Zimmermann, O.; Geißler, T. (Hg.): Streitfall Computerspiele: Computerspiele zwischen kultureller Bildung, Kunstfreiheit und Jugendschutz; Deutscher Kulturrat, Berlin, 2008, p. 115f, under: <http://www.deutscher-kulturrat.net/wp-content/uploads/2016/05/PK-1-Streitfall-Computerspiele.pdf>, access 22.10.2020.

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11 Cf. Tagesschau: under: http://www.youtube.com/watch?v=rfPisTi_EJ4, access 22.10.2020.

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13 Cf. Behrmann, M.: Fördern statt Verbieten – Eine falsche Diskussion: Thesen zur Killerspieldebatte. In: Zimmermann, O.; Geißler, T. (Hg.): Streitfall Computerspiele: Computerspiele zwischen kultureller Bildung, Kunstfreiheit und Jugendschutz; Deutscher Kulturrat, Berlin, 2008, p. 115.

14 Cf. Castendyk, O./Mueller-Lietzow, J.: Final Report on the Study: Die Computer- und Videospielindustrie in Deutschland, unter:

https://www.hamburgmediaschool.com/assets/documents/Forschung/Abschlussbericht_Gamesstudy.pdf, p.150, access 31.10.2020.

15 Cf. BMWI: Beihilfenkontrollpolitik, at:

<https://www.bmwi.de/Redaktion/DE/Artikel/Europa/beihilfenkontrollpolitik.html>, access 22.10.2002.

16 Cf. Behrmann, M. in: Bernhardt, A.: De-minimis-Beihilfe zur Computerspielförderung erklärt von Prof. Dr. M. Behrmann und IndieAdvisor (28.05.2019); 03:20 - 05:43, at

<https://www.youtube.com/watch?v=zIR9itBIdlg>, access 22.10.2020.

17 The culture test is explained in detail below. Cf. BMVI: Kulturtest. Under:

https://www.bmvi.de/SharedDocs/DE/Anlage/DG/games/computerspielefoerderung-kulturtest.pdf?__blob=publicationFile, access 22.10.2020.

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<https://www.bmvi.de/DE/Themen/Digitales/Computerspielefoerderung/computerspielefoerderung.html>, access 24.10.2020.

19 BMVI: Förderrichtlinie „De-minimis-Beihilfe zur Computerspieleentwicklung des Bundes“, 08.04.2019; Förderziel und Zweck, Rechtsgrundlagen, p. 1 under:

https://www.bmvi.de/SharedDocs/DE/Anlage/DG/computerspielefoerderung-foerderrichtlinie-de-minimis.pdf?__blob=publicationFile, access 24.10.2020.

20 BMVI: Förderrichtlinie „De-minimis-Beihilfe zur Computerspieleentwicklung des Bundes“, 08.04.2019; Gegenstand der Förderung; Zuwendungsempfänger, p. 1, under:

https://www.bmvi.de/SharedDocs/DE/Anlage/DG/computerspielefoerderung-foerderrichtlinie-de-minimis.pdf?__blob=publicationFile, access 24.10.2020.

21 This criterion was softened somewhat during the corona pandemic.

22 BMVI: Förderrichtlinie „De-minimis-Beihilfe zur Computerspieleentwicklung des Bundes“, 08.04.2019; Besondere Zuwendungsvoraussetzungen, p. 2, under:

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23 Cf. European Commission: User guide to the SME Definition, p. 11, under:

<https://op.europa.eu/en/publication-detail/-/publication/756d9260-ee54-11ea-991b-01aa75ed71a1>.

24 BMVI: Förderrichtlinie „De-minimis-Beihilfe zur Computerspieleentwicklung des Bundes“, 08.04.2019; Art und Umfang, Höhe der Finanzierung, p. 3, under: 2

https://www.bmvi.de/SharedDocs/DE/Anlage/DG/computerspielefoerderung-foerderrichtlinie-de-minimis.pdf?__blob=publicationFile, access 24.10.2020

25 BMVI: Förderrichtlinie „De-minimis-Beihilfe zur Computerspieleentwicklung des Bundes“, 08.04.2019; Verfahren, p. 4, under:

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26 Cf. BMVI: De-minimis-Beihilfe zur Computerspieleentwicklung des Bundes, 11.05.2020:

https://www.bmvi.de/SharedDocs/DE/Anlage/DG/games/faq-de-minimis.pdf?__blob=publicationFile, access 23.10.2020.

27 Cf. Behrmann, M. in Bernhardt, A.: Aktuelle Entwicklung zur Förderung von Computerspiele - Update Juli 2020, (15.07.2020); 09:05 - 10:05, at: <https://www.youtube.com/watch?v=rns-P4wvxlo>, access 24.10.2020.

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30 Item 3 ANBest-P-costs.

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32 BMVI: De-minimis-Beihilfe zur Computerspieleentwicklung des Bundes vom 11.05.2020, p. 4, under: https://www.bmvi.de/SharedDocs/DE/Anlage/DG/games/faq-de-minimis.pdf?__blob=publicationFile, access 23.10.2020.

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34 Cf. BMVI: Computerspielförderung des Bundes, under: <https://www.bmvi.de/DE/Themen/Digitales/Computerspielefoerderung/computerspielefoerderung.html>, access 24.10.2020.

35 Everyday culture, pop culture, play culture, young culture, high culture, learning culture, media culture, etc.

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40 Cf. *ibid.* p.44

41 Cf. *ibid.* p. 44

42 Cf. *ibid.* p. 42, p. 45f.

43 Cf. *ibid.* p. 47.

44 Cf. CNC: Les étude du CNC octobre 2019. Le maché du jeu vidéo en 2018, p. 16, under: <https://www.cnc.fr/documents/36995/927212/Le+marché+du+jeu+vidéo+en+2018.pdf/77dc960f-b1bb-dd1a-d3c5-0cd4a1b760a9>, access 01.11.2020.

45 Cf. CNC: Les étude du CNC octobre 2019. Le maché du jeu vidéo en 2018, p. 16, under: <https://www.cnc.fr/documents/36995/927212/Le+marché+du+jeu+vidéo+en+2018.pdf/77dc960f-b1bb-dd1a-d3c5-0cd4a1b760a9>, access 01.11.2020.

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47 Cf. CNC: Fonds d'aide au jeu vidéo (FAJV), under: <https://www.cnc.fr/professionnels/aides-et-financements/jeu-video/fonds-d-aide-au-jeu-video-fajv-191468#writing>, access, 01.11.2020

48 This funding type is the oldest for video games, formerly FAEM; source: Behrmann, M.: Kino und Spiele: Medien in Frankreich und Deutschland : öffentliche Förderung der Entwicklung von Computerspielen : der Erfolg von Good Bye Lenin! in Frankreich. Hannover: Ibidem-Verlag, 2005, p. 46.

49 Cf. CNC: Les étude du CNC octobre 2019. Le maché du jeu vidéo en 2018, p. 17 ff. under – Interview: <https://www.cnc.fr/documents/36995/927212/Le+marché+du+jeu+vidéo+en+2018.pdf/77dc960f-b1bb-dd1a-d3c5-0cd4a1b760a9>, access 01.11.2020.

50 Cf. CNC: Images de la diversité, under: <https://www.cnc.fr/professionnels/aides-et-financements/multi-sectoriel/ecriture-et-developpement/fonds-images-de-la-diversite-191484>, access 01.11.2020.

51 Cf. CNC: Réseau Recherche et Innovation en Audiovisuel et Multimedia (RIAM), under: <https://www.cnc.fr/professionnels/aides-et-financements/industries-techniques-innovation-et-relief/reseau-recherche-et-innovation-en-audiovisuel-et-multimedia-riam-191500>, access 02.11.2020.

52 Cf. CNC: Credit d'impôt jeu vidéo, under: <https://www.cnc.fr/professionnels/aides-et-financements/jeu-video/credit-dimpot-jeu-video-121078>, access 02.11.2020.

53 Eligible expenditure includes the production of video games that contribute to the diversity of the French and European markets.

54 Cf. Behrmann, M.: Kino und Spiele: Medien in Frankreich und Deutschland: öffentliche Förderung der Entwicklung von Computerspielen: Der Erfolg von Good Bye Lenin! in Frankreich. Hannover: Ibidem-Verlag, 2005, pp. 51 - 54.

55 Cf. CNC: Credit d'impôt jeu video, under: <https://www.cnc.fr/professionnels/aides-et-financements/jeu-, video/credit-dimpot-jeu-video-121078>.

56 This circumstance is not conceivable under German tax law, which is why a genuine tax credit model is not conceivable in this country.

57 Cf. Légifrance: Code général des impôts, under: <https://www.legifrance.gouv.fr/codes/id/LEGIARTI000037991299/2018-12-31/>, access 02.11.2020

58 In this process, foreigners who have a permanent residence permit will be treated equally to French citizens.

59 Cf. CNC: Credit d'impôt jeu video, under: https://www.cnc.fr/professionnels/aides-et-financements/jeu-, video/credit-dimpot-jeu-video_121078.

60 Cf. Légifrance: Code général des impôts, under: <https://www.legifrance.gouv.fr/codes/id/LEGISCTA000029232356/2020-09-03> .

61 Modified by DÉCRET n°2015-722 du 23 juin 2015 - art. 2.

62 Creation DÉCRET n°2014-794 du 9 juillet 2014 - art.

63 Development costs are all costs incurred by the company in creating video games for the production of the first version of the video game, which can be reproduced or made available to the public with a view to its commercialisation.

64 In the case of video games intended specifically for an adult audience and marketed as such, the player referred to in Article 220 (2) shall ensure that points can be scored.

65 Creation DÉCRET n°2015-722 du 23 juin 2015 - art. 4.

66 Cf. Legifrance: Code général des impôts, number 5: "Expenses incurred for the creation of a video game meeting the conditions set out in III entrusted to other companies or organisations. These expenses are included in the calculation of the tax credit within the limit of 2 million euros per fiscal year." Under: <https://www.legifrance.gouv.fr/codes/id/LEGIARTI000037991299/2018-12-31/>, access 03.11.2020.

67 Cf. O.V.: 2019 UK Consumer Games Market Valuation (21.04.2020) under: https://ukiepedia.ukie.org.uk/index.php/2019_UK_Consumer_Games_Market_Valuation, access 03.11.2020

68 Cf. Tiga: A guide to video games tax relief. UK Unreleased: How video businesses can get the most out of games taxes relief, p. 5-6.

69 BFI: British Video Game Certification (11 / 2020), p. 11.

70 BFI: op. cit. p. 11.

71 BFI: op. cit. p. 11.

72 BFI: op. cit. p. 11.

73 Cf. BFI: op. cit., p. 11-12.

74 Cf. BFI: op. cit., p. 12.

75 Cf. BFI: op. cit., p. 13

76 Cf. BFI: op. cit., p. 13.

77 Cf. BFI: op. cit. p., 14.

78 Cf. BFI: op. cit., p. 14.

79 Cf. BFI: op. cit., p. 14-15.

80 Cf. BFI: op. cit., p. 15-16.

81 Cf. BFI: op. cit., p. 17.

82 Cf. BFI: op. cit., p. 17.

83 Cf. BFI: op. cit., p. 17-20.

84 Cf. Rutkowski, E., Maszałkowski, J., Sławomir, S.: The Game industry of Poland - Report 2020: Overview of the Gaming Sector p.7 ff., under:

https://gic.gd/d/The_Game_Industry_of_Poland_report_2020.pdf, access 04.11.2020.

85 Cf. Wójcik, K. in Rutkowski, E., Maszałkowski, J., Sławomir, S.: The Game industry of Poland - Report 2020, p.6 at: https://gic.gd/d/The_Game_Industry_of_Poland_report_2020.pdf, access 04.11.2020.

86 Obama, B. in Münster, T.: The Witcher – Laut Barack Obama ein Voreizebeispiel für Polens Wirtschaft (04.06.2014), at: <https://www.gamestar.de/artikel/the-witcher-laut-barack-obama-ein-vorzeigebeispiel-fuer-polens-wirtschaft,3056495.html>, access 04.11.2020.

87 (Total GDP 524.9 billion \$ (nominal) (2017) -(https://de.wikipedia.org/wiki/Wirtschaft_Polens). To compare (https://de.wikipedia.org/wiki/Wirtschaft_Deutschlands).

88 Cf. Rutkowski, E., Maszałkowski, J., Sławomir, S.: The Game industry of Poland - Report 2020: Overview of the Gaming Sector p.7 ff., under:

https://gic.gd/d/The_Game_Industry_of_Poland_report_2020.pdf, access 04.11.2020.

89 Cf. The Game industry of Poland - Report 2020: Overview of the Gaming Sector p.9., under: https://gic.gd/d/The_Game_Industry_of_Poland_report_2020.pdf, access 04.11.2020.

90 GPW: CDPROJECT (PLOPTTCOO11), at: <https://www.gpw.pl/company-factsheet?isin=PLOPTTC00011#indicatorsTab>, access 04.11.2020.

91 The Game industry of Poland - Report 2020: Overview of the Gaming Sector p.9., under: https://gic.gd/d/The_Game_Industry_of_Poland_report_2020.pdf, access 04.11.2020.

92 See ARP Games, under: <https://arpgames.pl/pl/strona-glowna>, access 04.11.2020.

93 Cf. ARP Support programmes, under: <https://www.arp.pl/en/supporting-innovation/support->, access 05.11.2020.

94 Cf. Marszałkowski, J: Expert Interview on the Polish Game Market, Appendix I.

95 Cf. O.V.: ARP Games prezentuje gry na Gamescom, in: OX.PL - Portal Śląska Cieszyńskiego, 22.08.2019, under: <https://wiadomosci.ox.pl/arp-games-prezentuje-gry-na-gamescom,59253>, access 04.11.2020.

96 Cf. Marszałkowski, J: Expert Interview on the Polish Game Market, Appendix I.

97 Cf. O.V.: GameINN – dotacje na produkcję gier, under: <https://gameinn.pl/>, access 04.11.2020.

98 Cf. Marszałkowski, J: Expert Interview on the Polish Game Market, Appendix I.

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100 Cf.: O.V.: 100 mln zł dla twórców gier, 04.04.2017, under: <https://businessjournal.pl/100-mln-zl-dla-tworcow-gier/>, access 05.11.2020.

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https://www.ncbr.gov.pl/fileadmin//gfx/ncbir/userfiles/_public/fundusze_europejskie/epionier/e-pionier_in_a_nutshell.pdf, access 05.11.2020.

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104 See: PARP, under: <https://www.parp.gov.pl/component/grants/grants/go-to-brand>, access 05.11.2020.

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Articles

- Modifié par DÉCRET n°2015-722 du 23 juin 2015 - art. 2
- Création DÉCRET n°2014-794 du 9 juillet 2014 - art.
- Création DÉCRET n°2014-794 du 9 juillet 2014 - art

Enclosure I - Interview About the Polish Games Market

About the person: Jakub Marszalkowski, Poland

Interview conducted via Skype on November 30, 2020

“Game INN is a national project and does not give any money itself but only research projects that take place under relatively complicated conditions. In the past there was only funding for engines, later they supported VR. Currently, artificial intelligence projects are supported, the preparation for this is relatively complicated.

Besides GameINN there was ARP. Developers were paid about €10-12.000, but in return they had to give up shares of their company. ARP is a government agency. There were problems in the distribution, so there is now even a state publisher who tries to accommodate the projects. All in all, the IP project has now been abandoned. Other funding agencies are IP Box, which has recently started and gives a tax cut of 5 %.

In the Ministry of Culture, a large content fund for games was supposed to be created in 2018, but this project has been stopped and it is unclear whether it will ever continue. In this respect the Polish attempts to establish a Soft Innovation Content Fund for game development have failed for the time being.

What there is, is a promotion for exports. Here it is that the agency basically supports IT projects and every year it supports about six companies with €100-200,000 to visit international fairs. The Ministry of Culture supports the cultural export with about €15,000 for five developers per year. At least four regions have also set up smaller export programmes. The Ministry of Culture continues to support with a prototype grant of €20,000 or less. The number of companies supported is limited, I think it is probably 10-12 per year.

Basically, there are neither numbers. But we have made the following observation: Of the 120 companies that had to give up their activities last year, over 60 % are former student projects that wanted to realise their life's dream, which they did not get away with. In this respect, the professionalisation of the Polish game industry is an important issue. On the one hand, the current development on the stock market is worrying, because there are over 100 companies that want to go public at the moment. And there are some very high investments, but most of them are also collapsing again. One has the impression that the communication on the stock exchange is mainly about the future and existing shareholder and that computer games are actually no longer being produced. Nevertheless, the activity on the stock exchange has led to developers acting more professionally overall.”

Enclosure II – Expert Analysis of Entrepreneurial Perspectives

About the persons:

E1 – Allan Kirkeby – Denmark Interview via E-Mail, 26.10.2020 – 02.11.2020
E2 – Natasha Skult – Finland Interview via E-Mail, 26.10.2020 – 02.11.2020
E3 – Erik Robertson – Schweden Interview via E-Mail, 26.10.2020 – 02.11.2020
E4 – Annita Pankon – Finland Interview via E-Mail, 26.10.2020 – 02.11.2020
E5 – Stephan Natkin – France Interview via E-Mail, 10.2020 – 02.11.2020

A. How would you describe from your perspective and the perspective of your graduates the situation concerning game industry with regards to creative talent and entrepreneurial endeavour in Europe:

E1: *“My perspective and deeper knowledge is limited mainly to Denmark and specifically to our incubation in the central region of Denmark. So, my comments will be from that point of view.*

I cannot comment on the European-wide perspective that graduates could have. Most graduates I work with do not look to the grander European scene. They focus on what they want to achieve (either entrepreneurially or on the job market). I do believe that most of the graduates I work with through the incubation-process do consider themselves qualified game developers. But they are also aware of the fact that they still have a lot to learn after graduation (both as potential employees or as potential business owners). Young graduates need to prove their skills more today than 10-15 years ago, because the industry has matured, and there exists a growing population of experienced game developers that set the bar higher. This is good for the industry. It is how all industries mature. But for the individual graduate or for a newly formed game start-up company, it means that they need to prove that they can deliver at least on par with what veterans can.

From my perspective: I want to separate the terms “Creative talent”, “Technical talent” and “Entrepreneurial talent”. Each of these are individual components that must be present in a young game start-up company. If one of these talent traits are lacking from a team or company, it will severely reduce the chance of that team/company to succeed.

Technical talent: I think there is a good amount of technically capable graduates available to the game industry (typically labelled as “programmer”). Some of them have been educated specifically in game industry technologies, while most have simply been taught all-round programming skills. But for newly started game companies, simply having any average programmer is not the same as having the required ‘Technical talent’.

An average and capable junior programmer may fit well into a large established team, where the senior programmers can allocate suitable tasks, and where there is time to learn. Such a programmer may be able to work on smaller isolated components for the game under direction from the senior programmers. A junior programmer in a large established game company will not be required to consider the full game product. For a game start-up company founded by students or graduates, there will typically be 1-3 programmers, and none of them will have prior industry experience. This means that at least one of these must be able to look at the full game product and understand how to create code for a game and not just for individual components. To me “Technical talent” in start-ups means programmers are capable of understanding, designing, and programming code to build an original game. There are very few such people with this combined skillset. My best guess is 3 %-5 % of graduates from game programming B.Sc. or M.Sc. level education have this skillset that makes them suitable to join a start-up as the lead programmer.

There is a much higher percentage of alumni with programming skills that are capable of joining a start-up, but only if that team already has that key person. It may be as high as 50 % of the alumni who are talented enough to join a start-up, as long as the start-up team already has that rare key lead programmer.

Creative talent: This category could again be broken down further because it covers a broad spectrum of skillsets and traits. Including concept artists, 3D artists, technical artists, some types of programmers, writers, game designers, level designers, world builders and so forth.

Each creative sub-discipline has established educational programmes that cover the generically applicable skillsets (i.e. not specific to the games industry). However, there are very few courses dedicated to digital games specifically. For this reason, we often see game industry creatives with mixed backgrounds, and some coming from industrial design, others from architecture and others again from film or art schools. But for these people they have had to educate themselves in the specific skills needed for games. The two disciplines that have most courses specifically targeting digital games are “game design” and “3D graphics”. Just like with programmers, a start-up company needs people with special skills, specifically in game design and game graphics. For a game start-up these key people need to have the ability to build a game product that stands out and that presents a coherent and attractive package to the game customer (or to the investor). My guess is that the percentages are similar to those I mentioned under “Technical Talent”, meaning 3 %-5 % of alumni from dedicated game educations can take the essential lead role, and about 50 % have the skills to fill out the team.

Entrepreneurial Talent: For me this covers a broad range of skills, but at the core it deals with the ability to build a business and earn money on the products / services sold by that business. Beneath that lies the drive to take on any challenge necessary to make that happen. In the game industry this often means tasks such as production planning, project management, administrative tasks, business development, team management, sales, and pitching, fundraising and so on.

Very few education institutions teach this with the game industry in mind. Business schools teach some of these topics, but we rarely see business school graduates join game industry start-ups. Furthermore, business schools rarely teach game industry specific business methods and metrics.

The various support systems for game start-ups (such as incubators and student startup camps), often put a lot of their effort into helping with entrepreneurial skill development. As a result, the entrepreneurial talent in alumni start-ups is rarely developed through established educational

programmes. Rather it is often developed through instinct, necessity and through part-time guidance from mentors.

One of the founding members of the start-up team often picks up the task of learning the entrepreneurial skills and adapting the mindset. This could for example be one of the programmers or artists who take an interest in business development, and gradually builds up knowledge through practical trial and error. A start-up team needs to have at least one member with an entrepreneurial talent and focus. Very few teams are formed with this talent already existing. In my experience less than 1 % of student start-ups that are formed at game educations have a team member with a honed entrepreneurial skillset.

For the average game startup, you will need:

- *Programming (technical talent)*
- *Graphics (creative talent)*
- *Game design (creative talent)*
- *production management (entrepreneurial talent)*
- *business development (entrepreneurial talent)*

One person can hold several of these talents, or they can be split between individuals on a larger team.

In my experience very few student start-ups (less than 1 %), are started by a team that comprise enough of these areas, and furthermore have enough key people with the “lead role” capability. The good news is that I have also seen several teams that will grow and learn to identify their weaknesses. The team that succeed are able to adapt and learn the needed skillsets, or they realise that they need to find additional talent to join their team.”

E2: *“The game industry is growing fast globally and certainly in Europe, where many universities have developed programmes during the past decade dedicated to game development studies. This enables students to get involved and pursue career in games even before graduating. Game development requires vast spectre of expertise not just in engineering but art and humanities, therefore the career opportunities to pursue for students are huge.”*

E5: *“I can speak about France, maybe Germany and Spain; Most of the game (Game Design, Graphic and Sound Design) students does not have any entrepreneurial endeavour. They are two main reasons when they create an independent studio:*

- *They want to create or finish and publish their game, they need to establish a company but they are not really instructed in how to do so.*
- *They do not find a job or an interesting job in the existing industry- This is probably not true for the students coming from a school having a producer track.*

B. How common is the tendency for game students (design, programmers, artists, producers) to open their own business after their studies rather than go into the industry as employee?

E1: *"In Game Hub Denmark we see on average 3 new game company start-ups per class per year. On average each start-up is founded by 2-3 people. Depending on the class-size of a year, this is between 5 %-10 % of the students. We have of course had outlier years, where we had 15 % of students or 3 % of students start a company.*

We have a close collaboration between the incubator staff that teaches and encourages entrepreneurial efforts, and the school staff and university programmes. This also means that students are introduced to the concepts of starting companies and are encouraged to join co-curricular courses that teach topics such as game design, business development and project management."

E2: *"I think this depends on the country-to-country basis and what protocols there are to establish a company. In Finland students are encouraged to go through start-up accelerator programmes and experience the entrepreneurship before graduating, therefore in Finland we have quite many student-teams that start their companies after they graduate and some develop a sustainable business with b2b services + working on own titles and some do not, so they seek employment. As they have game development and production experience from a startup, it is not hard to get employed."*

E3: *"I'm not aware of any any percentages or relative numbers. I think it is fairly unique, and much influenced by circumstances for each school.*

Anecdotally, I've been told by the former rector at The Game Assembly (consistently voted among the very top game educations in the world) that when a local bank came to speak to the students, half of them raised their hand when asked if they wanted to set up their own studio. But none of them actually did, at least not directly after school.

The Game Assembly students are extremely attractive for employers, and recently they had their 'Meet and Greet' open house, where prospective employers can meet the students to offer them internships. There were actually more companies present than the total number of students that were up for internship then.

When it eventually comes to employment, Massive Entertainment in Malmö hires many of them. In other words, they must really really want to start a studio, and manage to convince a few classmates, or not need a job themselves, when it comes to TGA students. Or they will go work for Massive or the studio they were interns at, all over Europe."

E4: *"I have the impression that most graduates who do artistic work eg. 3D artists go to companies first. The professors recommend that they first gain experience as an employee and only then become entrepreneurs. Programmers are trained more quantitatively which is why many start a business as soon as they have completed their studies"*

E5: *"At Enjmin less than 5 % create their own studios (we have not enough candidates to come into the free and comfortable incubator)."*

C. Do you have surveys or numbers from your end about a and b, you could share easily with us?

E1: “For the purpose of this answer, I’ve done a tally of the companies that have originated from or come through the incubation efforts in the city of Grenaa from 2011 – 2020. These are all companies that were either founded by students as part of the entrepreneurial encouragement efforts, or they have joined the incubator and been helped greatly. The format of incubation in Grenaa has of course changed over the course of those 9 years. But common for all the companies in this analysis is that they were founded and incubated with a dream of building a successful games company, and they were supported by the staff, coaches, mentors, and teachers in Grenaa.

The data for this analysis was collected through the registry of companies in Denmark (<https://virk.dk>), which is publicly available.

I have collected the data in the excel sheet named ‘GHD-Grenaa game startups stats 2011- 2020.xlsx’

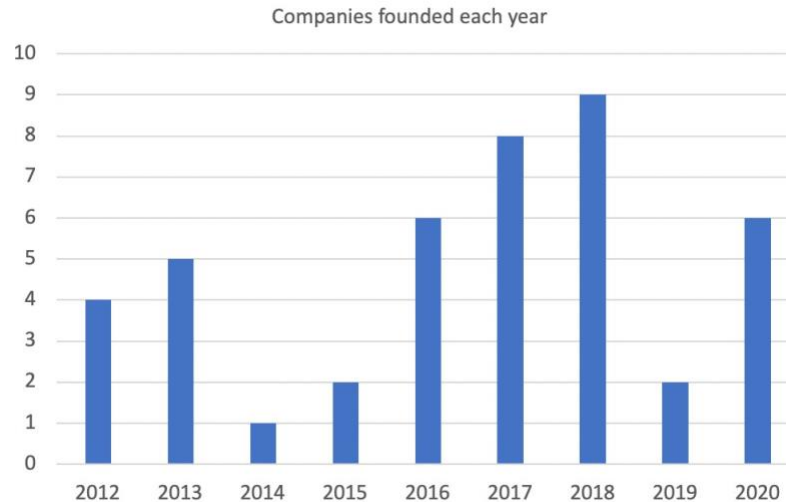
	count	2011	2012	2013	2014	2015	2016 H1	2016 H2	2017 H1	2017 H2	2018 H1	2018 H2	2019 H1	2019 H2	2020 H1	2020 H2	Closed	Lifespan	Founding year
Pixel Leap	1	i/s	ApS	-	-	-	-	-	Closed								1	5,5	2011
Gameloupe	1	i/s	Closed														1	1	2011
Thermal Games	1	i/s	-	Closed													1	2	2011
ClearCut Games	1		ApS	-	-	-	-	-	-	-	-	-	-	-	-	-	0	9	2012
Hectabyte Games	1		i/s	-	-	Closed											1	4	2012
Public Override (senere merge)	1		i/s	Closed													1	2	2012
Galleon Games	1		Closed														1	1	2012
Archon	1		i/s	-	-	-	-	-	IVS	-	-	-	Closed				1	6,5	2013
Campfire Games (Sjælland)	1		i/s	-	-	ApS	-	-	-	-	-	-	-	-	-	-	0	8	2013
Uonfish	1		em	IVS	-	-	-	-	-	-	-	-	-	Closed			1	7	2013
Muton Softworks	1		i/s	IVS	-	Closed											1	3,5	2013
Proper Dog	1		ApS	-	-	-	-	-	-	-	-	-	-	-	Closed		1	7,5	2013
Rare Object, IVS	1			IVS	-	-	-	-	Closed								1	3,5	2014
Ahoot	1					IVS	-	-	-	-	-	-	-	-	ApS	-	0	6	2015
Sirenix	1					IVS	-	-	-	-	-	-	-	-	-	-	0	6	2015
Epic Input	1					i/s	-	-	-	Closed							1	2	2016
Nerve Damage	1					i/s	-	-	IVS	-	-	Closed					1	3	2016
PlayOn - TankWars.io	1					Founded	-	-	-	-	-	-	-	-	-	Closed	1	5	2016
Random Dragon Games	1					i/s	-	-	ApS	-	-	-	-	-	-	-	0	5	2016
Unit Zero Studio	1					p.e.	-	-	-	-	IVS	-	-	-	-	-	0	5	2016
Zoon Entertainment	1							i/s	Closed								1	1	2016
Acrylic	1								i/s	-	IVS	-	-	-	-	-	0	4	2017
Folder Geist	1									IVS	-	-	-	-	-	-	0	3,5	2017
Mynter Entertainment	1									1-man	-	-	-	-	-	-	0	3,5	2017
Northwolf	1								i/s	-	Closed						1	1,5	2017
Pareidolia IVS	1								IVS	-	-	-	-	-	-	-	0	4	2017
Refire Studios	1									i/s	Closed						1	1	2017
Tempest Games	1									IVS	-	-	-	-	-	terminating	0	3,5	2017
Wosylus Studios	1									IVS	-	-	-	-	-	-	0	3,5	2017
404 Interactive IVS	1									IVS	-	-	-	Closed			1	2	2018
4keys studios	1									IVS	-	-	-	-	-	-	0	3	2018
Avian Leviathan	1									i/s	Closed						1	1	2018
Danish Code	1										IVS	-	-	-	-	-	0	2,5	2018
Dare Solutions i/s	1										i/s	-	-	-	-	-	0	2,5	2018
Leafless	1										IVS	-	i/s	-	-	-	0	3	2018
Rumme Games	1										p.e.	IVS	-	-	-	-	0	2,5	2018
Underground Studios	1										IVS	-	Closed				1	1,5	2018
Zero Rare	1										em	-	-	-	-	-	0	3	2018
Florentinus Entertainment	1											IVS	-	-	-	-	0	2	2019
Frost Bandit	1											i/s	-	-	Closed		1	1,5	2019
Creative Hamsters	1														i/s	-	0	1	2020
Demon Punch Studios	1														i/s	-	0	1	2020
Ember Hornet	1														em	-	0	1	2020
Snow Cube	1														i/s	-	0	1	2020
Spirits from the north i/s (tidl. f	1														i/s	-	0	1	2020
Yodum Games	1														i/s	-	0	1	2020
Sum	46	3	7	10	9	11	15	15	18	20	25	26	26	24	28	26	21		

Game starts founded 2011-2020 in this listing: 46

Companies that are closed down: 21

Companies that are in operation: 25

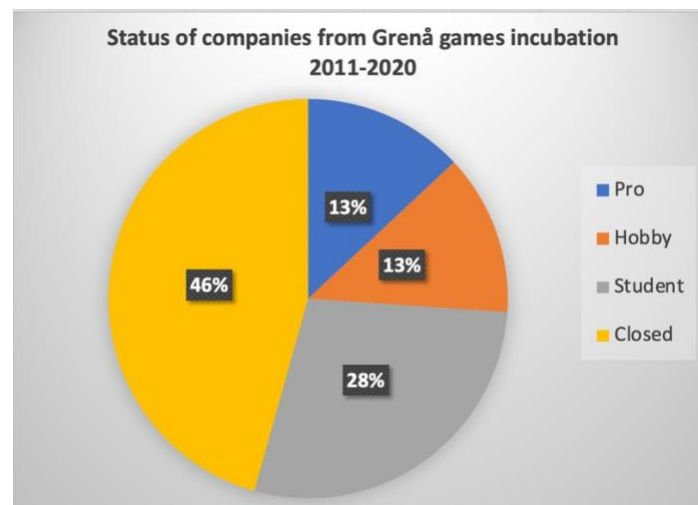
Here is a pillar diagram showing how many companies were created each year:



The data for question b is more difficult to answer. There is not objective data available that clearly defines if a company is operated as a part time “hobby” or whether it serves as the primary income generator for the owners.

However, for all the companies that are operating, I do know which companies are operated by students. Through my work as mentor to the company owners, I also know which companies are now operated as a spare time activity, in parallel to having other paying jobs (these are defined as “hobby” companies). The final category is those I call “Pro” companies. These are companies where the company makes enough money to provide fulltime pay for the owners.

Out of the 46 companies that were created in Grenaa and were part of the incubator, 6 are ‘Pro’, 6 are ‘Hobby’, 13 are ‘Students’ and 21 have closed down.



For purposes of preventing to share my confidential insight about the individual companies, I have removed the specific status entry for each company in the data. Only the overall numbers remain.

It is important to point out that the data and analysis here is not representative for the entire Game Hub Denmark network, which also includes incubators in the cities of Viborg, Aalborg, and Aarhus. The data here only summarises the history of start-ups founded in Grenaa.”

E2: *“I do not have but possibly you can find the annual reports from Finland by Neogames: <https://neoqames.fi/about-the-industry>”*

E3: *“Nothing I’m aware of. Maybe The Game Assembly (TGA) has data (<https://www.thegameassembly.com>). The other important games education institutions in Sweden are at Skövde university and Visby university.*

If you compare Malmö, the recognised games hub in Sweden (apart from Stockholm), with Skövde, something striking appears. I looked at the raw data for the latest Swedish Games Industry report for how many companies (limited companies, not partnerships or sole proprietorships) that were still active in 2019 that had been founded in the 10 preceding years:

<i>Founded</i>	<i>Malmö</i>	<i>Skövde</i>
2009	0	1
2010	5	1
2011	4	2
2012	3	0
2013	1	0
2014	2	4
2015	2	2
2016	7	7
2017	3	4
2018	5	2
<i>Total</i>	<i>32</i>	<i>23</i>

Yes, there is not only the education, but also a games incubator in Skövde (<https://www.thegameincubator.se/>). I do think most companies there are started by students. Malmö did have some modest games incubator thing for a year or two. But where the population of Malmö city is 317,000, urban Skövde has 34,500.”

E4: *"I have asked our university, the person in charge of statistics, but I have not yet received. I just posted a new message."*

D. What thoughts do you have how a joint European approach for stimulation of entrepreneurship within the European Game Industry could work?

E1: *"Overall, I think that incubation and teaching young people an entrepreneurial mindset is important – but also very difficult. With the conception, design and production of games being one of the most complicated processes for product development, this makes the task even more difficult for game startups. With production times of 2-3 years on average for the first game from a start-up company, it means that many traditional models to support entrepreneurship are not a good fit. The idea that you can run a 3-6 month "incubation" process, and then expect to see results after this is unrealistic in the games industry.*

A successful games incubator, that supports, teaches and supports entrepreneurial mindsets in start-ups, needs to be a long-term endeavour. The incubator should also build up a network, and there should be support from both the educational system that provides initial candidates for entrepreneurs, but also from the industry, investors, and alumni entrepreneurs. Furthermore, you can gain a lot of benefits from operating an incubator that reaches beyond the student start-ups, and also supports start-ups as they mature into building their second product and beyond.

A joint European network can have the following benefits and activities:

- *Sharing of knowledge and experience between the fulltime mentors and coaches.*
 - *This is for multiple purposes:*
 - *To continually improve. The experienced incubation mentors / coaches grow in skill and evolve the models for incubation to be even better. Also, for those who build the programmes and generate the funding.*
 - *To teach best practices for incubation to new cities, schools, and locations. To help others to establish better incubators. To explain the benefits of an incubator.*
- *Create a large mass of game companies and products and presenting a large annual pan-European portfolio of new game pitches to investors and publishers.*
- *Creating an "elite" programme where the best teams from around Europe will get access to specialised training programmes, acceleration packages and pitch-competitions with contracts as prizes.*
 - *Why are we not doing that already - well because each of the individual incubators around Europe do not produce enough volume of quality startups annually. This means it is difficult to get funding and enough interest. Each incubator will roughly generate 3-4 new teams per year, where only 1 could be considered to have "rock star" status. You cannot create an event with just 1. However, if 20 incubators from 20 different countries in Europe, each provided 1 elite team each year, you could have a solid 20 elite startups.*
- *Being rooted locally is important - especially for the early stage student-entrepreneurs, who are still maturing. However, the value of a large international network, is a big part of what an incubator can provide to a student."*

E2: *"I think it would be important to share the experiences and best practices among developers. In Finland we have a strong community with IGDA Finland, and the culture of sharing is the core of it. I believe this approach would benefit many studios and individuals across Europe."*

E3: *"Even if the Skövde case above shows that incubators attached to education institutions might really be the way to go, it is in this case a specialised games incubator. Going through normal incubators and accelerators will not work, for lack of field expertise. The EU matching angel investors model will not work either, because of the low available expertise in many countries.*

Instead, I would look at a parallel to EIC Accelerator equity investments. Take a fund manager well experienced in early seed investing (€50,000 scale) in, and with their expert network nurturing, start-up studios. So, invest €20-50 million to a European Games Fund, to seed-fund 200-500 studios with cost-adjusted (cost of living in Germany is not the same as in Romania) €100,000. The fund manager should invest the venture capital customary 2 % themselves, and also recruit other investors, but the latter should not be a requirement, other than at some modest level. If you try to make this an equal EU / nations / private matching-funds deal, it will probably not work.

There are only two candidates that I know of: Nordic Game Ventures and Sisu Game Ventures. However, Sisu is a private partnership, not an AIFM EuVECA manager under financial supervisory oversight."

E4: *"It could work because all contacts are important for start-up entrepreneurs. In particular, knowledge of business, distributors, and publishers is important to them, as is knowledge of the business side and international agreements."*

THE PROJECT

The project 'Baltic Game Industry' (BGI) aims to foster the game industry in the Baltic Sea region - turning an ambitious game developer scene into a competitive and attractive business sector with sound innovation potential and thus making the region a game hotspot with worldwide competitiveness.

The partnership works together on framework condition improvements, on making business support services fit for the special needs of game start-ups and finally on new business opportunities for game developers in other industry sectors, such as health care. The core element is the installation of durable game incubators, programmemes and schemes for game start-ups across the region.

BGI effectively combines policy and business development. Tailor-made game business support fosters a durable economic growth of this innovative industry in the whole region. The introduction of VR technologies in non-game industries contributes to boosting innovation beyond games. The common branding of the Baltic Sea region as game innovation hotspot will attract international clients, investors, creative entrepreneurs and qualified workforce.

Read more at www.baltic-games.eu

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