

Bachelor's thesis

GRAFIT.GAMES - COMMERCIALIZATION OF STUDENT GAME PROJECTS

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Studijní program: **Informatika**
Specializace: **Manažerská informatika**

II. ÚDAJE K BAKALÁŘSKÉ PRÁCI

Název bakalářské práce:

Grafit.games - Komercializace projektů studentských her

Název bakalářské práce anglicky:

Grafit.games - Commercialization of Student Game Projects

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III. PŘEVZETÍ ZADÁNÍ

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Pokyny pro vypracování:

Goal:

To design and test a mechanism of advancing student projects from semester or final project phase to commercial distribution with profit shared among team members.

Instructions:

1. Analyze needs of student videogame projects from potential commercialization point of view
2. Analyze faculty environment regarding advancing student projects to the business sphere. Additionally research similar mechanisms on other faculties/universities both in Czech Republic and abroad.
3. Identify exemplary project candidates for a pilot run.
4. Design mechanism of student videogame projects commercialization that will be financially sustainable without faculty's resources.
5. Choose a pilot game project and test designed mechanisms on it.
6. Document steps to make a methodology so it can be replicable.

Seznam doporučené literatury:

Czech Technical University in Prague

Faculty of Information Technology

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Declaration

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In Praze on April 20, 2025

Abstract

In the thesis we explore why student-created games at our faculty are often abandoned after completion. We design a support system that encourages further development and potential commercialization of these projects. Although private investment is rising in Prague, student entrepreneurship remains low. Our faculty lacks a mechanism to support game commercialization. We examine the game development process, existing institutional support elsewhere, and possible commercialization models, ultimately proposing a lightweight cooperative-based system tailored to students' needs. As part of the thesis, we launched a recruitment website, collected over a dozen contacts from interested participants, created association rules, and prepared a testing mechanism. While no legal entity was established, this thesis lays the groundwork for a sustainable support structure that can empower students to pursue the entrepreneurial potential of their creative projects.

Keywords game, game development, game launch, student support, student led, start-up, intellectual property, university incubator

Abstrakt

V této práci zkoumáme, proč jsou studentské herní projekty na naší fakultě po dokončení často opuštěny a navrhujeme podpůrný systém, který podporuje jejich další rozvoj a možnou komercializaci. Přestože v Praze roste soukromé investování, studentské podnikání zůstává na nízké úrovni. Na naší fakultě chybí mechanismus, který by komercializaci her systematicky podporoval. Zaznamenáváme se na proces vývoje her, existující podporu v jiných prostředích a možné modely komercializace. Na základě této analýzy jsme navrhli systém s družstvem, přizpůsobený potřebám studentů. V rámci práce jsme spustili náborový web, získali více než tucet kontaktů od zájemců o zapojení, vytvořili stanovy družstva a připravili testovací mechanismus. Přestože nebyla založena žádná právnická osoba, práce pokládá základy pro udržitelnou podpůrnou

strukturu, která může studenty motivovat a podpořit při využití podnikatelského potenciálu jejich kreativních projektů.

Klíčová slova hra, vývoj her, uvedení hry na trh, podpora studentů, vedené studenty, start-up, duševní vlastnictví, univerzitní inkubátor

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List of abbreviations

CCPA	California Consumer Privacy Act
CZK	Czech koruna (Crown)
Dev	Development
EULA	End-User License Agreement
FIT CTU	Faculty of Information Technology at the Czech Technical University (in Prague)
GDPR	General Data Protection Regulation
IP	Intellectual Property
UI	User Interface
USA	United States of America

Introduction

Each year, students pour creativity, effort, and technical skill into developing original games as part of their studies. Yet once these projects are handed in and graded, they are often left unused - despite their potential to grow into successful products. This thesis explores why that happens and what can be done to change it. Our focus is on student-created games at FIT CTU in Prague, Czechia. While the local environment shows promising signs - especially through strong private sector investment - many student projects fail to progress beyond the classroom. We believe this is largely due to a lack of entrepreneurial confidence and know-how among students, as well as the complexity and effort involved in commercializing a game. This thesis aims to investigate how a simple, accessible support system could help bridge that gap.

We will examine the support currently available for game developers at different stages of the creative process. Our goal is to consider the possible mechanisms for commercialization, select and design a system tailored to our students' needs. To validate our approach, we will conduct user sentiment testing and then describe a test run, including how we will evaluate its success or failure and plan subsequent steps.

Rather than going deep into the technical development of games, the selection and financing required to sustainably run an incubator, or creating a functioning university spin-out company, this thesis will instead focus on preparing the conceptual foundation for future implementation. Our goal is to design a system - its processes, rules, and intended outcomes - to prepare the project for implementation. This approach allows us to test interest, gather feedback, and refine the model before any formal or financial commitments are made.

The thesis is divided into sections - each made up of several multiple chapters. The research part explores the game development process, academic entrepreneurship, and commercialization models - both locally at FIT CTU and internationally. In the design part we compare options and select a model suited for our needs. Then we move to practical steps: we prepare association

rules, launch a recruitment website, collect interest and prepare a validation mechanism. The thesis concludes by reviewing the results, assessing whether the goals were met, and outlining future steps. We invite you to explore with us how student creativity can be supported and transformed into real-world success.

Game Development Processes

The game development process is a series of interconnected stages taking creatives from an idea to a commercial product. Understanding of the process allows a developer to make informed decisions, a supportive body to provide targeted assistance and an investor to assess the state and outlook of a project. The chapter breaks down each component of the process - from planning, pre-production and production to testing, launch and post-launch activities. It especially focuses on the launch phase - requiring a distinct set of competencies from marketing and distribution to niche legal and financial expertise, often underrepresented in the technically and creatively oriented developer teams.

Game development is not a single, linear task but a series of interconnected stages, each with its own distinct goals and requirements. A thorough understanding of the entire process is essential for any student team aiming to successfully bring their game to the release stage - allowing them to anticipate challenges, allocate resources effectively, and make informed decisions at every step, from concept to completion.

1.1 Game Development Stages

Game development is the process of designing, creating, and releasing video games. It includes writing, sound design, project management, programming and more. The process can be divided into distinct stages that focus on different aspects of the final product. [1, 2]

Planning Stage In the initial stage, game developers choose the genre that fits their vision the best, select viable art styles and gameplay mechanics, plan the game's structure, content, and more. Changing, cutting or replacing later on can be straightforward in some aspects of the game and very challenging

in others. Such aspects must be decided early on. [1, 2]

Pre-Production Stage The pre-production stage of game development requires artists, writers and designers to finalise important decisions. Feasibility, practicality and the worth of different design aspects is considered. Will the game be fun to play and appealing to look at? Will it work properly, or do some technical limitations need to be taken into account? [1, 2]

Production Stage After the decision-making, production of the game can start. It is at this stage when most of the code is written, levels are designed, game mechanics are tested, models, textures and visual elements start to appear. [1, 2]

Testing Stages Some form of internal testing is done throughout the entire process. Before the game is finalised however, developers tend to release test versions. This practice can be roughly divided into alpha and beta.

The **alpha** version of the game already has the key mechanics and allows developers to assess playability. It might have placeholders for characters, surroundings or lack music. It is used for internal¹ testing between staff members but can in some cases be available² to selected, passionate fans willing to help developers with playtesting.

The **beta** version follows alpha. The game still requires a lot of work at this point but elements such as the environment and characters are approaching their final form. There still might be bugs present, glitches and exploits that need fixing, performance optimization required, and details missing. The game mechanics may still need to be balanced and server stability tested.³ [1, 2, 3]

Launch Stage During the launch stage the game is made available for the public to play. This stage requires understanding the target market, audience, selecting a distribution channel, creating a strategy and advertising. Additional support for players might be provided and feedback gathered. [1, 2, 3]

Post-Launch Stage After the initial publication, developers might want to release updates, patch bugs or even add new content, either as a free update or in the form of a purchasable extension. Continuation of a successful product allows it to extend its lifespan and provides a long-term fanbase. [1, 2]

¹referred to as closed

²referred to as open

³Betas can be open or closed too.

1.2 Launch Process In Detail

While the students at the Faculty of Information Technology at the Czech Technical University (FIT CTU) often excel at designing and programming games, the launch phase is where many projects struggle. Unlike development, which follows a structured technical process, launching a game involves a complex and often unfamiliar set of tasks, from marketing and distribution to niche legal and financial specialties, budget planning, fundraising, assessing copyright protection, trademarks, creating contracts and more. A successful launch requires careful planning, strategic timing, and an understanding of distribution platforms and promoting. Many of these steps are not immediately obvious but can determine whether a game finds an audience or gets lost in an oversaturated market.

1.2.1 Structural Requirements

Ensuring a smooth and successful launch requires meeting critical structural requirements that impact a game's performance, security, and compliance. Overlooking these factors can lead to negative user experiences, security vulnerabilities, and even regulatory consequences.

Before being released to the public, games need to be assessed and extensively tested to ensure stability and playability. The first thing a player interacts with is the UI - a launch screen or app - which therefore needs to be optimized. Settings such as the resolution, window size, language, subtitles and key bindings need to work properly. Accessibility and support options need to be tested and credits/end game screens polished.[4]

For games with online components, a reliable server infrastructure is crucial. Poor server performance can lead to lag or disconnects during traffic surges. Optimizing configuration, considering scalability and running stress tests before launch helps identify potential bottlenecks.[5]

Major gaming platforms, from Steam to PlayStation, Xbox and mobile app stores, have specific technical requirements. Failing to meet performance specifications or file size limitations can lead to rejection, or post-launch repercussions.[6]

Collecting and storing personal player data is best avoided in the case of small student-led projects. If collecting data is necessary, developers must comply with regional regulations such as the General Data Protection Regulation (GDPR)[7] in Europe and the California Consumer Privacy Act (CCPA)[8] in the USA. These regulations require data to be anonymized, encrypted, safely stored and access to it minimized. Non-compliance can lead to severe penalties.[4]

1.2.2 Operational Requirements

A successful game launch relies on careful coordination of tasks and resources. While technical readiness is crucial, the operational aspects of the launch determine how smoothly the transition from development to release unfolds.

Best practices include creating a detailed timeline for launch-related activities and setting a realistic launch date. Mapping critical milestones helps teams avoid last-minute chaos.[9]

Effective launch coordination requires collaboration between developers, marketers, community managers, and support staff. Clearly defining individual responsibilities and establishing a contingency plan can help prevent miscommunication or overlooking tasks. A pre-launch meeting can align all team-members and prepare them for launch day chaos.[10, 9]

Preparing announcements for player communication channels (e.g., Discord, Reddit) to address potential issues or provide updates can promptly address player inquiries and provide updates.[10, 9]

1.2.3 Legal Requirements

From a legal standpoint, publishing a game entails compliance with intellectual property laws, consumer rights regulations, and distribution agreements. Intellectual Property (IP) protection, including copy rights, trademarks, and patents, safeguards creators' work. IP applies to a finished game, but might also restrict use of assets such as code, art, music and branding.[11]

Ownership of IP varies depending on how a creation has been produced. If, for example, a developer creates a game independently, they generally retain full rights. In collaborative projects, or when work is commissioned, ownership can become complicated and must be defined in written contracts.[4, 11]

When incorporating third-party source material such as characters, settings, or themes from movies, TV shows, or other media, licensing agreements must be secured. Even small references to copyrighted works can lead to legal action if not authorized.[4, 11]

Beyond copyright, trademark protection can apply to titles, logos, and other branding elements. A trademark prevents competitors from using similar names or logos hence firstly ensuring that a game title and branding do not infringe on existing trademarks is crucial.[12]

To legally include music in a game, two types of licenses can be obtained. A synchronization license grants the right to use the underlying composition whereas a master license grants the right to use a particular recording.[13]

After the use of all assets has been approved an End-User License Agreement (EULA) needs to be drafted.[4] It is used to set clear expectations and legally protects the interests of both the game developer and the player. It ensures that the creator retains ownership of its software, provides a framework for handling disagreements, limits the creator's liability and ensures compliance

with data privacy laws (like GDPR and CCPA). The agreement also allows users to understand what they're legally allowed to do with the software and provides specifications such as features and the functionality. Publishing platforms such as Steam provide a general EULA that usually covers the needs of a small game.[14, 15]

Developers must also ensure compliance with data privacy laws in the targeted market - the GDPR[7] in Europe and the CCPA[8] in the U.S. Data can generally only be collected if there is a lawful basis for it, a necessity for gameplay or user management and a clear explanation why and how it will be processed - usually in the EULA.[16, 17]

Traditionally, publishers required creators to obtain appropriate age ratings (e.g., PEGI, ESRB) based on the game's content. On distribution platforms like Steam however, filling out a content survey suffices.[15]

1.2.4 Marketing Requirements

Marketing is the process of bringing a product to market. Successfully launching a game requires a strong marketing strategy to generate interest, attract customers, and maximize visibility.

During audience research, developers identify and attempt to understand the target audience. Different genres appeal to different player demographics, and marketing strategies should be tailored accordingly. Analyzing similar games, engaging with gaming communities or conducting surveys helps determine what resonates most.[18]

Creating a well-organized press kit is crucial for both media outreach and promotions. It should include high-quality trailers, screenshots, game descriptions, developer quotes, and release details.[19]

Building an online presence is a common strategy indie developers employ to stand out, generate excitement and cultivate a dedicated community before launch. It is usually done through active participation - posting behind-the-scenes content, development updates, and engaging with fans - on social media platforms such as Reddit, Twitter, Instagram or TikTok. A website can serve as a central hub to direct an audience to. Its landing page should showcase press kit assets, include a newsletter signup option and other essential info.[20]

Influencer Partnerships - particularly with streamers and content creators aligned with the game's genre - can significantly boost visibility.[21]

Finally, choosing the right distribution channel is key to a game's launch and long-term success. Different platforms cater to different audiences, offer unique visibility opportunities, and have varying revenue-sharing models. Developers must evaluate their goals and pick the best fit:

- Steam⁴ is the largest digital distribution platform for PC games, accounting for 50-70% of global PC game downloads.[22] It offers powerful tools for

⁴accessible through <https://store.steampowered.com/>

developers, including community forums, game analytics, and built-in marketing features such as Steam Wishlists. Listing a game on Steam involves submitting it through Steamworks, paying a \$100 fee (refundable after \$1000 in sales), and adhering to the platform's content guidelines. Steam has a fixed 30% revenue split. The Steam Discovery Queue and algorithm-driven recommendations can boost sales provided the game gains enough initial traction through wishlists, reviews, and engagement.[23, 24, 25]

- Itch.io⁵ is a flexible, developer-friendly platform known for its supportive indie community and experimental games. Unlike Steam, Itch.io allows the developer full control over the revenue split, offering a pay-what-you-want pricing model. Itch.io however lacks the built-in discovery mechanisms and massive audience of Steam, requiring developers to rely on external marketing.[26]

- Game Jolt⁶ emphasizes community-driven engagement with social-media-like features. Developers can post updates, interact with followers, and grow an audience over time. Game Jolt offers flexible monetization options, such as one-time purchases, donations, or ad-supported releases. While good for building a player base, Game Jolt too lacks the commercial reach of Steam.[27]

For many indie developers, the best approach is releasing on multiple platforms - launch a free demo on Itch.io or Game Jolt before transitioning to a release on Steam.

1.2.5 Financial Requirements

Understanding the financial requirements and strategies of game development determines the feasibility and success of a project. From budget planning, securing initial funding to monetization strategies, developers must navigate several financial challenges.

Budget-Planning A well-structured budget - commonly created through a task breakdown[28] - allocates funds across three primary areas:

- Development** includes salaries, outsourcing (e.g., music, voice acting) and tools (software/hardware).[29]

- Marketing** covers promotional campaigns, ads, influencer partnerships, and events.[29]

- Post-Launch Support** includes updates, fixes, server maintenance, and customer support.[29]

Monetization Strategy Choosing the right monetization strategy ensures sustainable business operations, allows investment into high-quality contributors and assets and incentivises innovation:

- Freemium** offers free access to the base game with revenue generated through ads or in-app purchases (e.g., skins).[30]

⁵accessible through <https://itch.io/>

⁶accessible through <https://gamejolt.com/>

- **Premium** involves an upfront fee for the game and is sometimes supplemented by paid expansions.[30]

- **Subscription** provides access to the product throughout recurring payments (less common for indie games).[30]

Fundraising Larger projects often require funding, which may come from several sources:

- **Self-Funding** is commonly used by indie game developers until external funding is secured.[31]

- **Publishers** traditionally provide financial support and marketing expertise but may require revenue-sharing agreements.[31]

- **External investors** can financially back a project in exchange for equity or profit-sharing.[31]

- **Crowdfunding platforms** such as Gamefound⁷ or Kickstarter⁸ allow developers to raise funds directly from potential players but rely on strong promotional efforts.[31]

- **Organizations** in the gaming (eg. Unreal Engine) or education space may offer competitive grants to support prospective indie developers.[31, 32]

Lastly, when monetizing a game, the benefits of operating as a company should be considered. Starting a company is not strictly required and might entail upfront fees but provides legal protection, simplifies tax compliance, and can improve credibility when negotiating contracts with investors or publishers.[33]

⁷accessible through <https://gamefound.com/en>

⁸accessible through <https://www.kickstarter.com/>

Academic Entrepreneurial Ventures

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2.1 Start-Ups and Spin-Outs

A start-up is a business newly established by an entrepreneur that aims to develop a unique product or service to meet market needs. Startups are characterized by innovation, high growth potential and often low revenue. They typically operate in uncertain environments, relying on venture capital, angel investors, or other funding sources to support their development.

A spin-out is a new company created from an existing organization, such as a university or a corporation, formed to commercialize developed research, intellectual property, or technology. Spin-outs benefit from the resources and expertise of their parent organizations while functioning as independent entities.

In academia, startups and spin-offs translate ideas and research into marketable products and services. Universities and research institutions support these ventures through incubators, technology transfer offices, and funding programs. Academic spin-outs, in particular, utilize faculty expertise, patents, and support to drive innovation and economic impact.

2.2 The Impact of Academia-Driven Innovation

Student spin-outs transfer theoretical early-stage research from universities to the market. They are seen as an attractive alternative to patent licensing as they are more likely to impact the local economy. Spin-outs create jobs for highly skilled workers and provide valuable knowledge spillover for other companies.

Students taking part in spin-outs can gain experience in entrepreneurship, practice business planning, market analysis, technology commercialization and more. Even failed ventures provide valuable learning opportunities. Moreover, spin-outs offer an additional career path for students (particularly those facing limited academic job opportunities).

Spin-outs foster collaboration between students, faculty, and external actors such as industry partners. This strengthens the university's ecosystem for innovation and entrepreneurship. Successful spin-outs improve the university's reputation and potentially attract more funding for research and other programmes.

Academic spin-outs have demonstrated the ability to adapt quickly to societal challenges. For example, during the COVID-19 pandemic, some quickly developed solutions to address urgent problems. Many of them also focus on solving pressing global problems, such as sustainability or healthcare challenges, contributing to broader societal benefits.

Spin-outs offer many benefits, from driving local economic growth to fostering innovation and creating new career opportunities for students. Supporting these ventures is a logical step, as is encouraging the commercialization of student-developed games. Allowing finished games and projects to be forgotten is a wasted opportunity. By supporting these creations, universities can increase their impact, accelerate students' careers and strengthen the entrepreneurial ecosystem.

2.3 Academia-Driven Innovation in the Czech Republic and the World

The commercialization and success rates of student ventures vary significantly across the world, reflecting differences in ecosystems, funding structures, and cultural attitudes toward entrepreneurship.

In a study conducted by the Research, Development and Innovation Council in 2021, the Czech Republic demonstrated strong economic potential and a well-established industrial and research base. Investment in research and development reached a record CZK 121.9 billion (2% of GDP). The country showed a high publication output, with over 80% of research results published in indexed journals. Increasing international collaboration has driven excellence in specific scientific fields.

The study however concluded that challenges remain. The PhD completion rates are declining, reflecting low development of researchers' skills and professional capacities. Cooperation between the private and public sectors in research, development and innovation is limited. Innovation faces hurdles such as funding shortages and administrative burdens.

The Czech students perceive entrepreneurship as an attractive option for their future career paths. Addressing the systematic weaknesses while capitalising on the existing strengths can improve the Czech Republic's competitiveness in research, development, and innovation on the global stage.

The gaming industry produces the Czech Republic's most significant cultural export according to infiniteczechgames.com. Data by the Czech Game Developers Association from 2023 attributed the industry a turnover of CZK 7.52 billion with more than 98% of it from abroad.

Mostly comprised of small studios, the industry employed over 2600 workers in 2023 - doubling since 2007. 71% of those workers were under the age of 35 but only 48% university-educated and only 21.4% stated formal education as a source of their know-how. Nearly 90% of all Czech game production is distributed and promoted without the support of publishers and distributors. These numbers suggest that the field is vibrant and growing, but that the impact of universities and university-provided support is limited.

Our Games and Commercialization Support Options

Objective: This chapter provides an overview of game development education, opportunities, and support at the Faculty of Information Technology, Czech Technical University in Prague (FIT CTU), highlighting how the faculty fosters student creativity and prepares aspiring developers for both technical excellence and entrepreneurial success. Context: FIT CTU offers a robust Informatics program with a specialization in computer graphics, combining theoretical foundations with hands-on coursework in areas such as programming, visualization, and user interface design. The faculty regularly organizes events like Game Jams and supports a range of student-driven game projects, resulting in a diverse portfolio of innovative games. While entrepreneurial support is not directly embedded within FIT CTU, students benefit from university-wide initiatives, incubators, and career development programs that help translate creative projects into viable ventures. Action: The chapter details the educational pathways available at FIT CTU for game development, showcases notable student projects, and outlines the ecosystem of events and support services that nurture both technical and entrepreneurial skills. It also examines the evolving landscape, including the upcoming Applied Informatics program with a dedicated Game Development specialization, and the role of external resources such as the InQbay incubator and the CTU Career Centre. Results: Readers will gain insight into how FIT CTU equips students with the knowledge, practical experience, and support necessary to create original games and potentially launch them as commercial products. The chapter underscores the importance of integrating technical education with entrepreneurial guidance to maximize the impact of student innovation in the game industry.

Game development at FIT CTU is a dynamic and integral part of the faculty's academic and extracurricular offerings. The Informatics program, with its computer graphics specialization, provides students with a rigorous foundation in both the theory and practice of game creation. Courses range from computer graphics programming and modern visualization technologies to multimedia applications and user interface design, ensuring that students acquire a comprehensive skill set relevant to today's game industry. The faculty actively encourages hands-on learning through events such as the FIT CTU Game Jam, where students collaborate under time constraints to produce innovative games, often with guidance from industry experts. These events, alongside coursework, research groups, and independent projects, create a vibrant environment where aspiring developers can experiment, learn, and showcase their talents. Over the years, FIT CTU students have produced a variety of original and technically impressive games, many of which have gained recognition for their creativity, storytelling, and innovative mechanics. Examples like *Encore!*, *Liminal!*, *Escape from Brno*, and *Subject 42* demonstrate the breadth of student achievement and the faculty's commitment to nurturing both individual and team-based projects. While FIT CTU itself does not provide direct entrepreneurial support, students have access to university-level resources such as the InQbay incubator and the Career Centre, which offer coaching, workshops, and connections to industry professionals. These initiatives help bridge the gap between academic achievement and real-world application, supporting students who wish to commercialize their games or pursue entrepreneurial careers. The Importance of Understanding the Full Game Development Pipeline To fully leverage the opportunities at FIT CTU, students must grasp the entire game development process—from initial concept and design through production, testing, launch, and beyond. Each stage presents unique challenges and requirements, from technical polish and teamwork to legal, financial, and marketing considerations¹². For student projects to transition successfully from classroom or competition to commercial release, a holistic understanding of this pipeline is essential. By integrating technical education with entrepreneurial support, FIT CTU empowers students not only to create compelling games but also to navigate the complexities of bringing their creations to a broader market.

3.1 Game Development at FIT CTU

The Faculty of Information Technology at the Czech Technical University in Prague (FIT CTU) offers multiple courses and events dedicated to game development.

There is currently one study programme at the Faculty of Information Technology - Informatics. It offers multiple specializations, one of which is the computer graphics specialization, which provides a combination of theoretical foundations (with courses such as Computer graphics programming, Modern

Visualisation Technologies, Machine vision and image processing) and hands-on experience (with courses such as Multimedia and Graphics Applications, Programming of Graphic Applications, User Interface Design).

A new study programme is being prepared at FIT CTU that will be called Applied Informatics and have three brand new specializations - Game Development, Graphics and Computer Vision. It will provide a higher focus on hands-on experience and more study places in the game development domain. A broad spectrum of games is expected to be created that could benefit from entrepreneurial support.

Some of the other CTU courses provide the option to develop games as well (notably Team Software Project).

The FIT CTU Game Jam challenges students to create a computer game during a 48 hour period over a prolonged weekend. The students are given an assignment at the beginning of the event, compete either individually or in a team and are advised by industry experts.

Several study paths at FIT CTU lead to the creation of games. Whether through specialized courses, events, research groups, or student-driven projects, the faculty provides an environment for aspiring game developers to develop their skills and bring their visions to life.

3.2 Games Created at FIT CTU

Over the years, students at the FIT CTU have created a wide range of original, comical and technically impressive games. These projects often combine creative storytelling and original game mechanics and are developed as part of coursework, bachelor's or master's theses, Game Jams or independent student initiatives.

Encore! developed during the 2024 Game Jam by Belonzik and TheMultiplxxx is a dueling card game with an outstanding attention to detail following the theme of death. It has excellent graphics, audio, story and even narration.

Liminal! by HyperCubic Studio was developed during the 2024 Game Jam too. It is a short platform puzzle game, where the player is captured in a maniac's TV show - becoming laughing stock for the viewers. The game's colourful visuals are beautiful, cohesive and extensively polished. It has original mechanics and is full of details in the sounds, menu items and dialogue.

Escape from Brno was created during the 2022 Game Jam by Trampod, SharpFoxDev, benjaminhejl, leia12321 and VAHAnima. The game has won the popular vote among the competing developers. It is a classic side-scroller and dodger, has cohesive graphics, humorous sound design, and the gameplay itself is easy to grasp and feels natural.

Subject 42 was created by LukyDrum during the 2023 GameHack. The player takes on the role of a robot's AI, solving puzzles and guiding it through three intriguing levels. Accompanying are a fitting sound-track and a voice narrating the story and sarcastically commenting on the player's performance.

3.3 Local Student Entrepreneurship Support

FIT CTU does not directly provide entrepreneurial support. It manages co-operation with industry partners and gathers grants for research labs. The university takes over the responsibility of arranging access to dedicated incubators and coaching centers. These initiatives help students refine their business ideas and develop their skills.

A key programme supporting student, phd and faculty entrepreneurs at CTU is InQbay. It offers individual coaching, workshops, tutorials, networking events and connects members to legal, tax and marketing consultants.

The career centre of CTU offers an 8 weeks long course on entrepreneurship. It goes over ideation, finding a target group, working with a lean canvas, creating a business plan, pitching a project, gathering feedback and gaining a mentor or an investor.

■ ■

Commercialization Support Options

Objective: This chapter analyzes the role and structure of university incubators and accelerators in supporting the commercialization of student-led game development projects, with a focus on the Czech Republic's academic context. **Context:** While student game developers often excel at the creative and technical aspects of game creation, the transition from prototype to commercial product presents a host of challenges—ranging from legal and financial complexities to marketing and operational hurdles. Traditional commercialization support structures, such as general university incubators and accelerators, provide valuable resources but may not fully address the unique needs of game startups, which face distinct product life cycles, monetization models, and market dynamics. The chapter also explores legal, organizational, and partnership formats for supporting student ventures, highlighting both current limitations and emerging best practices. **Action:** Drawing on case studies, research, and practical examples, the chapter evaluates the effectiveness of existing support mechanisms, including incubator and accelerator programs, and proposes specialized approaches tailored to the game industry. It details the legal structures available for student ventures, partnership and employment options, and the potential benefits of dedicated game incubators. The chapter also reviews how incubator models can be adapted to foster entrepreneurship, protect intellectual property, and facilitate sustainable business growth for student-led teams. **Results:** Readers will gain a comprehensive understanding of the commercialization landscape for student-developed games, the advantages and constraints of various support models, and actionable insights into structuring effective incubator programs. The chapter provides a roadmap for universities and policymakers to enhance support for student entrepreneurship in game development, ultimately increasing the likelihood of successful market entry and long-term impact.

The journey from developing a promising game prototype to achieving commercial success is fraught with challenges, especially for student-led teams. While universities increasingly recognize the value of supporting entrepreneurship, the unique demands of the game industry—rapid product cycles, specialized monetization strategies, and highly competitive markets—require more targeted support than what is typically offered by general incubator or accelerator programs³⁶⁷. University incubators and accelerators have become vital tools for bridging the gap between academic innovation and market readiness. These programs provide student entrepreneurs with access to mentorship, legal and business guidance, co-working spaces, and sometimes financial resources, all aimed at nurturing early-stage ventures³⁴⁵. However, the traditional models often struggle to accommodate the specific needs of game startups, which must navigate complex issues such as intellectual property rights, platform-specific requirements, and the nuances of digital distribution⁶. In the Czech Republic, as in many countries, the commercialization of student-developed games is further complicated by legal, financial, and organizational considerations. Students must choose appropriate business structures, secure funding, and comply with labor and tax regulations, all while maintaining creative momentum and technical excellence³. University incubators can play a critical role in this process, offering not only logistical and legal support but also pathways for shared ownership, profit distribution, and collaboration with industry partners. This chapter explores the current landscape of commercialization support for student game developers, critically assessing the limitations of existing models and making the case for specialized incubators tailored to the game industry. By understanding the full spectrum of support options—from legal structures and partnership formats to employment and cooperative models—students, educators, and policymakers can better equip aspiring game developers to bring their creations to market. Ultimately, fostering a more robust and targeted support ecosystem will not only benefit individual ventures but also strengthen the broader innovation landscape within academia and beyond.

4.1 Start-Up Incubators and Accelerators

Start-up incubators help develop and refine high-potential startup ideas. They usually operate locally and provide resources over a span of one to five years. Incubators tend to offer guidance on developing a product from an idea, on-demand co-working space, legal consultation, networking opportunities and mentorship.

Start-up accelerators are short, intensive programmes for early- or mid-stage founders. Accelerators are more structured than incubators and outline specific steps to create a scalable business. They often have an alumni and investor network and offer funding in return for stake in the company. Par-

ticipants usually go through intensive mentorship from industry leaders on fundraising, product development, and growth marketing

Both start-up incubators and accelerators are typically selective in who they allow into their programme. While incubators provide the learning environment and physical resources to help an idea succeed, accelerators compress years worth of learning and growth into the span of a few months.

4.2 Incubator Structure Options

► Note 4.1. explain why focus on incubators

University incubators play a critical role in fostering student-led innovation, particularly in game development, where access to funding, mentorship, and infrastructure can make or break a startup.

Most university incubator programmes operate under the non-profit umbrella of their institutions. This framework limits their ability to make profit, but allows them to provide services such as mentorship, business guidance, co-working spaces, and financial assistance often free of charge. Their primary goal is not immediate profitability but rather fostering entrepreneurship. This makes them ideal support structures for student-led game development initiatives.

Additionally, university incubators can provide a legal structure, shielding students from personal liability and protecting themselves using agreements - defining acceptable use of facilities, university branding, and termination clauses for noncompliance. Incubators might also provide licensing to intellectual property created on university grounds - since it is common that educational institutions reserve such rights.

University incubator programmes sometimes do attempt to make returns through royalty agreements, equity ownership, or loans, however even big universities tend to struggle to reach a self-sustaining model. The majority of such programmes are therefore funded by their host institutions or through mixed sources including corporate sponsorship, public funds, economic, alumni donors and more.

4.2.1 Student Partnership Formats

One of the most common ways for universities to support student-led ventures is through structured partnerships. These partnerships might allow students to establish independent legal entities while receiving guidance and support from the incubator.

4.2.1.1 Supporting a Student-Led Venture

The incubator can support a student-led venture in multiple ways. The most common include:

■**Loans** - financing provided by lending money to the venture with agreed-upon repayment terms and interest rates.

■**Equity Investment** - the incubator can invest capital in exchange for equity ownership, gaining partial control or stake in the supported business. Some non-profit structures cannot operate business as a primary purpose, cannot engage in unlimited liability partnerships and need to have their business activity aligned with their defined purpose.

■**Grants** - non-repayable financial assistance, commonly done by non-profits. Can lower a supporting company's tax burden.

Students looking to commercialize their games often register as a business-conducting entity. The most common legal structures include:

OSVČ (Sole Proprietary) - for ventures conducted individually. It requires no initial capital, can be created by filing a unified registration form and paying an administration fee of CZK 1000. Downside is that the individual is fully liable for all the debts and losses.

S.R.O. (Limited Liability Company) - commonly used for small teams. A s.r.o. is legally more structured, provides liability protection but requires structured book-keeping. An s.r.o. can be created with an initial capital of at least 1 CZK by concluding a memorandum of association (notary approval usually costs under CZK 10000) and by paying the administrative fees (around CZK 2700 when done by a notary) to list the company in the commercial register.

Other - A.S. (Joint-Stock Company) or Komanditní Společnost (Limited Partnership) are less common but viable for large projects seeking investment. Setting them up and adhering to the tax code is complex.

4.2.1.2 Employing Students

Some university incubators employ students, either directly or through subsidiary game development firms. Students are compensated for their contributions. This approach simplifies the process of providing resources and can be structured in different ways:

Standard employment contracts - student developers are paid a stable salary. The employer is generally required to contribute 33.8% of an employee's salary (2.1% towards sickness insurance, 21.5% towards pension insurance, 1.2% towards state employment policy and 9% towards health insurance) and the employee an additional 6.5% to social-security, 4.5% towards health insurance and pay a basic income tax of 15

Freelance/contractor agreements - students work as independent contractors. They are required to register as OSVČ and pay a 15% income tax, social-security - 29.2% of their income after expenses if their yearly profits exceed CZK 111736 (current for 2025) - and health insurance contributions - 13.5% of their income after expenses.

Internship programmes - students gain hands-on experience while benefiting from university-funded or industry-sponsored scholarships. Such programmes need to be part of the curriculum to comply with Czech labour laws.

4.2.1.3 Allowing a Form of Ownership in the Incubator

In some cases, student developers can have a stake in the incubator or its affiliated entities. This approach can minimize tax-burden and incentivize effort. It is most commonly done through:

Paying out dividends - profits generated by the incubator or its spin-off companies are distributed among the owners through dividends. Such an approach requires the correct legal structure (commonly an a.s., but can also be done through an s.r.o.) and has to be contractually defined. Transferring shares involves a CZK 2000 administrative fee. Corporate profits are taxed 21% and the dividends an additional 15%.

Profit distribution - a cooperative (družstvo in the Czech Republic) allows students to participate in the decisions of the incubator and share in the financial success. 10% of the profits need to be kept in a fund, the rest is taxed 21% and can then be distributed among the members (15% income tax applies). Drafting the cooperative's statutes and certifying the founding meeting by a notarial deed usually costs around CZK 3000 CZK and CZK 10000 respectively. To list the company in the commercial register an administrative fee of CZK 2700 needs to be paid.

4.2.2 Incubator Legal Structure

University incubators in the Czech Republic can take on various legal structures, each offering unique advantages and constraints.

4.2.2.1 Non-Profit Integration

Many university incubators are structured as non-profit entities and integrated into the University's body. They are allowed to receive funding from public and private sources but focus on student development rather than profit-making. Common non-profit structures include:

Student Clubs or Organizations - informal collectives within universities usually offering peer-to-peer support and networking. The operations of these collectives must strictly adhere to university policies and governance.

Joint Ventures with Private Companies - often referred to as Public-Private Partnerships are not a legally described structure in the Czech Republic. Universities may partner with established game studios or tech firms to provide the required services.

Non-Profit Organizations - more formalized structures capable of applying for public grants and private donations not allowed to be run for the sole purpose of generating profit.

- **Foundation (Nadace)** manages assets (exempt from tax) for charitable, religious, or public benefit goals. It is established by a notarial deed with an initial endowment (no minimal amount is specified) and by being listed in the foundations register. The endowment is usually protected and only earnings generated by its activities are expended. A foundation has to disclose annual financial reports and undergo audits. It is also restricted from participating in unlimited liability partnerships.

- **Fund (Nadační fond)** is similar to a foundation but provides access to the entire endowment. Focuses on fundraising for specific causes or a time-bound project. A fund is registered by a notarial deed and by formulating governing statutes. No minimum capital is required. A fund undergoes lighter oversight than a foundation but is still required to disclose its activity.

- **Registered Institute (Ústav)** conducts educational, scientific, or cultural activities. It is established by concluding a memorandum of association and registered in the commercial register and has to undergo annual audits if revenue exceeds CZK 40 million. Entrepreneurial activities must only be supportive in pursuing the institute's purpose.

4.2.2.2 University-Owned Spin-Off Companies

Some universities establish legally separate entities capable of generating financial gains. These gains need to be distributed among the students to maintain the university's nonprofit status. Common formats include:

S.R.O. (Limited Liability Company) - a university-owned company that partners with student teams created following the points mentioned in section 4.2.1.1.

A.S. (Joint-Stock Company) - requires initial capital of at least CZK 2 million. This model is suitable for larger ventures seeking external investment.

Cooperative Structure - a collective ownership model where students, faculty, and external partners share decision-making and profits. The association (spolek in the Czech Republic) is a non-commercial corporate entity - it is permitted to engage in both mutual benefit and public benefit activities, but must not be established for entrepreneurial activities. A cooperative (družstvo in the Czech Republic) is a corporate entity requiring a minimum of 3 members. It is founded by concluding a memorandum of association (notary approval usually costs under CZK 10000) and by paying the administrative fees (usually around CZK 2700 when done by a notary) to list the company in the commercial register. Profit distribution rules are outlined in the cooperative's memorandum and can include criteria beyond capital contributions (such as performance of specific segments). Distributed profits are subject to a 21% corporate tax and a 15% personal income tax.

[illegible]

Foreign Solutions

Objective: This chapter examines the core functions, structures, and impact of university-based incubators—both general and game-focused—in supporting student and graduate entrepreneurship, with a particular focus on how these incubators facilitate the transition from idea to viable business in the context of game development. Context: University incubators have become essential engines of innovation, offering mentorship, funding, workspace, and industry connections to early-stage startups. They serve as bridges between academia and industry, helping students and researchers overcome barriers to commercialization. Specialized game incubators have recently emerged to address the unique needs of game development teams, offering targeted support in design, production, and market entry. Pre-incubation programs and sector-specific initiatives further expand the landscape of support, allowing students to test ideas before formal company formation. Action: The chapter surveys prominent incubator models and their offerings, from mentorship and funding to networking and access to facilities. It highlights international and Czech examples—including Gamebase in Brno, Sweden Game Arena, and NYU Game Center Incubator—while also exploring pre-incubation and specialized support for game startups. The analysis covers how these incubators structure their programs, select participants, and foster multidisciplinary collaboration, as well as the challenges and best practices in supporting student ventures from ideation through launch. Results: Readers will gain a comprehensive understanding of the functions and benefits of academic incubators, the distinctive features of game-focused programs, and the value of pre-incubation. This knowledge equips students, educators, and policymakers to better leverage incubator resources, adapt support structures to the needs of game startups, and strengthen the entrepreneurial ecosystem within universities and beyond.

University-based incubators play a pivotal role in transforming innovative ideas into successful businesses, particularly for students and recent graduates nav-

igating the early stages of entrepreneurship. These incubators offer a suite of essential services—mentorship from industry veterans, structured training programs, access to funding, networking opportunities, and subsidized facilities—that collectively lower the barriers to entry for aspiring founders. By connecting participants with investors, corporate partners, and alumni networks, incubators accelerate business development and enhance the prospects for long-term success. As the landscape of student entrepreneurship evolves, so too have the models of incubation. Many universities now offer pre-incubation programs that allow students to test and refine their ideas in a supportive environment before committing to formal company formation. These programs emphasize multidisciplinary teamwork, entrepreneurial mindset development, and practical business skills, making them especially valuable for students from diverse academic backgrounds. The emergence of specialized game incubators marks a significant development in this space. Game development ventures face unique challenges—such as rapid product cycles, complex production pipelines, and fierce market competition—that require tailored support. Initiatives like Gamebaze in Brno, Sweden Game Arena, and the NYU Game Center Incubator provide targeted mentorship, industry connections, and training specifically designed for game startups. These programs foster collaboration between students, faculty, and industry professionals, helping teams navigate the journey from prototype to market-ready product. Despite their many advantages, incubators also encounter challenges, including funding sustainability, scaling support as demand grows, and ensuring access to mentors with relevant expertise. Nevertheless, their impact is evident in the growing number of student-led ventures, successful alumni, and strengthened academic-industry ties. This chapter explores the multifaceted functions of traditional and game-focused incubators, the role of pre-incubation in nurturing early-stage ideas, and the evolving best practices that underpin effective support for student entrepreneurship. By understanding these mechanisms, universities and stakeholders can better position themselves to foster innovation, support commercialization, and drive economic and social impact through student-led ventures.

5.1 Prominent Traditional Incubator Functions

Major university-based incubators offer a variety of functions and services to support startups.

Incubators provide mentorship from industry experts, successful entrepreneurs, and alumni and run workshops or other structured programmes to develop entrepreneurial skills. The Macquarie University (in Sydney) Incubator’s mentor programme directly matches founders with experts to share insights, help them navigate the journey and accelerate their success.

Many incubators provide direct funding or help startups secure grants and investments. The UnternehmerTUM offers €5 000 for prototyping in their

incubator, €25 000 of project budget in their accelerator and up to €250 000 in total funding. Cambridge Enterprise invested £6.47 million in 37 spinout companies (2023-24). SETsquared helped raise £5bn in investments.

Incubators facilitate connections with investors, corporate partners, and other startups. Over 6 500 companies have participated in the SETsquared programmes and Startup Autobahn partners with companies like Porsche and Daimler.

They also tend to provide free or subsidized facilities. Lund University's VentureLab offers free office space, coffee and fruit. RWTH Innovation provides access to research facilities.

Some incubators specialize in specific industries or technologies, support sustainability and social impact. Polihub focuses on deep tech startups, Wyss Zurich emphasizes regenerative medicine and robotics and Tartu University CDL-Estonia specializes in digital government and cybersecurity. EIT Climate-KIC supports climate-related startups.

Incubators also promote global competitions and highlight successful alumni as role models for incoming students and new startups. Cambridge Enterprise supported Raspberry Pi and the alumni of Yes!Delft include Ampelmann, a maritime tech company. EUT+ Incubation Program's participants get to compete in the EUT+ Finals against the best teams from EUT+ campuses.

5.2 Pre-Incubation

Many students seek the opportunity to test and develop their ideas in a supportive environment before establishing a formal business entity.

The EIT Digital Venture programme takes entrepreneurs "from idea to investment in less than a year" and is available across 24 European countries. The programme provides financial support (up to €30 000), MVP and business development assistance from experts and a direct connection to Europe's innovation ecosystem all without requiring immediate legal registration of a company.

The Italian Ministry of Education has financed university laboratories (named CLabs) with the aim of developing an entrepreneurial mindset and competences. CLabs offer a new view on university-based business idea incubators at a national level. The OECD has recently considered them as one of the best ways of supporting student entrepreneurship and innovation. They focus primarily on developing entrepreneurial competencies and ideas. These programmes "[...] act as pre-incubators or pre-accelerators that are designed to help a growing number of university students from different backgrounds interact and develop their entrepreneurial ideas in a safe and creative environment." They emphasize motivation and multidisciplinary teamwork over formal business directing, with a selection process that values student enthusiasm more than their grades or the initial quality of their business ideas.

The Technology Incubation program in the Czech Republic admits young startups, spin-off companies, students and scientific projects with commercial potential - allowing participation without immediate company formation. The program focuses on supporting startups rather than established companies, with eligibility based on the innovation potential of the idea rather than legal status.

Academic Business Incubators (by Business Centre Club) allow young entrepreneurs to save time and effort associated with establishing a company. Students who join the incubators can start their own independent venture that is formally a unit of the organisation. Owners of such companies have no obligation to pay social security contributions however are also not entitled to unemployment aid programmes.

5.3 Prominent Game Incubators

Universities worldwide have established game incubators to support students and graduates in developing their ideas into successful ventures. This is an overview of some of the prominent university-affiliated game incubators in Czechia and beyond.

Gamebaze is a joint initiative in Brno (between Game Cluster, JIC/KUMST and the GameDev Area) supporting gaming-related startup projects. This incubator is part of Czechia's robust gaming education ecosystem that also includes partnerships with local studios like Warhorse Studio.

Sweden Game Arena, located in Skövde, is a world-leading hub for game development. It unites a game development bachelor's and master's programme with a successful incubator under one umbrella. This ecosystem supports students by offering practical collaboration opportunities with a large number of game companies and access to industry events such as the Sweden Game Conference.

Game Hub Denmark operates in three cities - Grenaa, Aalborg, and Viborg. It includes facilities like the BizHub for secondary school students, Aalborg University Game Hub for entrepreneurs, and Roof Creative Industries Incubator in Viborg - part of one of the best animation schools in the world. The initiative also collaborates internationally - in typically EU-funded development projects - to expand opportunities for game startups.

GameBCN in Barcelona, Spain is a 5 months long programme not part of a university. It catered to teams from all over the world on the condition that they relocate to Barcelona. The programme includes 90 hours of general training focused on production, marketing and business. The participating teams can get feedback about their projects and strategy from industry professionals on monthly meetings. No equity is taken in the companies that are selected for the programme.

Carbon Incubator from Bucharest, Romania caters primarily to indie developers from Eastern Europe. The programme (not part of a university) asks

for revenue share of games launched by participating companies. A company that received incubation services is required to give up a revenue share of 10%. The share rises to 20% for companies in their acceleration programme and to 30% for companies receiving funding.

The NYU Game Center Incubator's programme begins with in-person workshops and coworking sessions in Brooklyn, transitioning to remote collaboration for the remainder of the year. Participants receive \$15,000 in funding per team, mentorship from an executive producer, access to industry workshops, and one-on-one guidance from an advisory board of game industry professionals. The program partners with major industry players like Sony and Microsoft while maintaining a commitment to inclusivity and diversity in game development.

Results

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kf afdhklfdh aklfdshdf jafdafdks ajksl kffdshkfdk ahfdklhkl dfssdkfk adhlk hfs-
dlhklf sdakhdsakd hk asfdj kf afdhklfdh aklfdshdf jafdafdks ajksl kffdshkfdk
ahfdklhkl dfssdkfk adhlk hfsdlhklf sdakhdsakd hk asfdj kf afdhklfdh aklfdshdf
jafdafdks ajksl kffdshkfdk ahfdklhkl dfssdkfk adhlk hfsdlhklf sdakhdsakd hk
asfdj kf afdhklfdh aklfdshdf jafdafdks ajksl kffdshkfdk ahfdklhkl dfssdkfk adhlk
hfsdlhklf sdakhdsakd hk asfdj kf afdhklfdh aklfdshdf jafdafdks ajksl kffdshkfdk
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Discussion

Conclusion



Appendix A

Nějaká příloha

Sem přijde to, co nepatří do hlavní části.

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Obsah příloh

/	
└─	readme.txt.....stručný popis obsahu média
└─	exe.....adresář se spustitelnou formou implementace
└─	src
└─	impl.....zdrojové kódy implementace
└─	thesis.....zdrojová forma práce ve formátu \LaTeX
└─	text.....text práce
└─	thesis.pdf.....text práce ve formátu PDF