

# **Innovation through a Crowdfunding Platform for Independent Video Games**

by

**Alberto del Moral Vargas**

A dissertation submitted to the  
University of Dublin, Trinity College  
in partial fulfilment  
of the requirements  
for the degree of  
Master of Science in Computer Science

August 2014

Dissertation supervisor: Siobhán Clarke

# Declaration

I, the undersigned, declare that this work has not previously been submitted as an exercise for a degree at this, or any other University, and that unless otherwise stated, is my own work.

I also agree that Trinity College Library may lend or copy this dissertation upon request.

Signed: .....

Alberto del Moral Vargas

August 29, 2014

## **Permission to lend and/or copy**

I also agree that Trinity College Library may lend or copy this  
dissertation upon request.

Signed: .....

Alberto del Moral Vargas

August 29, 2014

# Acknowledgments

Firstly, I would like to sincerely thank my supervisor, Siobhán Clarke, for all her support and guidance during the course and especially during this dissertation. I'm also thankful to Padraic Moran for his invaluable help.

Additionally, I would like to thank John Whelan, Joseph Harkins and all the people from Launchbox for creating such a great environment for entrepreneurship and letting me participate of such an amazing experience.

I am also grateful to Christoph, Mark, Yang and Zheng for their contributions to this idea, and also to all the participants who took part on the evaluation of this project.

Finally, my sincere gratitude to Jorge, Sohrab and Lauriane, because without them this dissertation would not have been possible.

# **Innovation through a crowdfunding platform for independent video games**

Alberto del Moral Vargas

MSc. Computer Science (Networks and Distributed Systems)

University of Dublin, Trinity College

2014

Supervisor: Dr. Siobhán Clarke

Over the last few years, many independent video game development teams have seen in crowdfunding a viable alternative for funding their projects. Unfortunately, as this method has gained popularity it has also increased competition amongst projects, which has also led to a reduction in project visibility compared to previous years when the market was not so crowded. However, most of the activity in this sector is currently focused around a few generalist platforms, which do not offer specific features suited to independent game developers that could increase the quality and impact of their fundraising campaigns.

After identifying this business opportunity, this dissertation investigates the issues that currently affect these independent video game companies and how a new funding model may help to mitigate them. This new model aims at allowing independent developers to exploit the potential of crowdsourced fundraising in an environment favourable to social interaction such as video games, and introduces additional funding methods to address those needs. However, as this is a new concept which cannot be compared to any existing product, this new funding model for independent video game studios implies that development occurs in an environment of extreme uncertainty, which makes managing and assessing business progress very difficult by using traditional techniques.

The research was conducted inside an innovation incubator organised by Trinity College, called Launchbox, which provided a real environment for business start-ups. In order to first identify concerns, a set of initial hypotheses outlining independent developers' concerns were formulated. Those assumptions were either validated or rejected with the help of actual developers and industry experts, resulting in a core set of goals that drove the inception of a new solution. The solution proposed is composed of several elements that work together within the framework of a single platform generating a synergy aimed to tackle the aforementioned issues. Finally, the concept of this new platform was tested with potential customers in order to evaluate the actual impact the solution may have on the success of future independent video games.

# Contents

<b>Chapter 1: Introduction.....</b>	<b>1</b>
1.1 Background.....	1
1.2 Motivation.....	2
1.3 Research question.....	4
1.4 Research goals.....	4
1.5 Structure of the dissertation.....	5
<b>Chapter 2: State of the Art .....</b>	<b>6</b>
2.1 Independent video games.....	6
2.2 Independent video game development communities.....	7
2.2.1 TIGSource.....	8
2.2.2 GameJolt.....	9
2.2.3 IndieDB, ModDB, SlideDB & Desura.....	10
2.2.4 Steam Greenlight.....	11
2.3 Crowdfunding.....	12
2.3.1 Crowdfunding for video games.....	14
2.3.2 Kickstarter.....	16
2.3.3 Indiegogo.....	17
2.3.4 Gambitious.....	18
2.3.5 GameLaunched.....	18
2.4 Summary.....	19
<b>Chapter 3: Inception and development of the idea .....</b>	<b>20</b>
3.1 Initial hypotheses.....	20
3.2 Launchbox: Trinity College’s Student Start-up Accelerator.....	22
3.2.1 Research method.....	23
3.2.1.1 Get out of the building.....	24
3.2.1.2 Address the customers’ needs: the lean canvas.....	25
3.2.1.3 Build-Measure-Learn.....	28
3.3 Customer Acquisition.....	29
<b>Chapter 4: Technical Architecture .....</b>	<b>32</b>
4.1 Architecture diagram.....	32
4.2 Technical Architecture Components.....	34

4.2.1	Virtual Private Network and Router .....	34
4.2.2	Load Balancer .....	34
4.2.3	Web Servers.....	35
4.2.3.1	Components.....	35
4.2.4	Workers .....	37
4.2.5	Database Servers.....	37
4.2.5.1	Master and Slave Database Servers .....	38
4.2.6	Search Server.....	38
4.2.7	Content Delivery Network.....	39
4.2.8	Payment Gateway .....	39
<b>Chapter 5: Evaluation .....</b>		<b>41</b>
5.1	Exploratory industry validation .....	41
5.1.1	Exposure and networking .....	43
5.1.2	Community .....	44
5.1.3	Crowdfunding platforms .....	46
5.1.4	Summary.....	48
5.2	Developer questionnaire .....	49
5.2.1	Main challenges for independent teams .....	50
5.2.2	Crowdfunding benefits for indie games .....	51
5.2.3	Lack of skills .....	55
5.2.4	Gamification .....	56
5.2.5	Summary.....	56
5.3	Value proposition.....	58
5.3.1	Builds community .....	59
5.3.2	Fundraising package for indie developers .....	60
5.3.3	Professional networking .....	63
5.3.4	Promotion and exposure .....	64
5.3.5	Subscriptions and notifications.....	66
5.3.6	Reputation system .....	67
5.3.7	Gamification .....	68
5.3.8	Game jams .....	69
5.3.9	Summary.....	70
5.4	Prototype testing .....	71
5.4.1	Funding methods .....	72
5.4.2	Additional funding features .....	74
5.4.3	Pre-sales.....	78



5.4.4	Internal exposure and game discovery .....	79
5.4.5	Notifications and updates .....	80
5.4.6	Gamification and reputation .....	82
5.5	Summary .....	84
<b>Chapter 6: Conclusions .....</b>		<b>86</b>
6.1	Future Work .....	87
<b>Bibliography .....</b>		<b>89</b>
<b>Appendix A: Developer questionnaire.....</b>		<b>94</b>
<b>Appendix B: Web prototype questionnaire .....</b>		<b>97</b>

# List of figures

Figure 1 - Build-Measure-Learn Feedback Loop .....	28
Figure 2 - Technical Architecture Diagram.....	33
Figure 3 - Main challenges for developers during the development process of a game (Q1).....	50
Figure 4 - Benefits of crowdfunding for indie teams (Q2).....	51
Figure 5 - Knowledge of the market and marketing skills of indie teams (Q3, Q4).....	52
Figure 6 - Audience on the Games category of crowdfunding platforms as perceived by indie developers (Q5, Q6, Q7) .....	53
Figure 7 - Effects of funding models on project reputation (Q8).....	54
Figure 8 - Tools offered by major crowdfunding platforms are appropriate to follow the projects (Q9).....	54
Figure 9 - Lack of skills (Q10, Q11) .....	55
Figure 10 - Gamification (Q12).....	56
Figure 11 - Pledges to flexible and fixed projects (Q1) .....	72
Figure 12 - Overall money raised by each funding method (Q1).....	73
Figure 13 - Suitability of funding methods for indie video games (Q2, Q3) .....	73
Figure 14 - Suitability of complementary funding methods to raise funds for indie games (Q4, Q12, Q19).....	74
Figure 15 - Types of rewards offered in promotions and auctions (Q5, Q18) .....	75
Figure 16 - Suitability of promotions regarding the crowdfunding campaign of a project (Q7, Q8, Q9, Q10).....	75
Figure 17 - Suitability of auctions regarding the crowdfunding campaign of a project (Q13, Q14, Q15, Q16).....	76

Figure 18 - Suitability of promotions and auctions regarding the project phase in which they are launched (Q11, Q17) .....	77
Figure 19 - Overall relevance of promotions, auctions and donations to fund indie video games (Q20) .....	77
Figure 20 - Suitability of pre-sales (Q21, Q22, Q23).....	78
Figure 21 - Suitability of traditional and new methods for discovering games (Q24, Q25, Q26, Q27) .....	80
Figure 22 - Suitability of methods for following a project (Q28, Q29, Q30) .....	81
Figure 23 - Effect of gamification badges on project credibility (Q31, Q32).....	82
Figure 24 - Effect of gamification badges on feedback credibility (Q33, Q34).....	83
Figure 25 - Gamification badges encourage users to give more constructive feedback (Q35).....	84

# Abbreviations

## **FCGI**

Fast Common Gateway Interface

## **HTTP**

HyperText Transfer Protocol

## **LAMP**

Linux, Apache, MySQL, PHP/Pearl/Python

## **MySQL**

My Structured Query Language

## **PHP**

PHP: Hypertext Preprocessor

## **VPN**

Virtual Private Network

# Chapter 1: Introduction

## 1.1 Background

The development of independent video games has experienced in recent years an unprecedented growth due to the emergence of new technologies and development tools and, above all, to the arrival of alternative digital distribution platforms [1]. This new wave of digital distribution platforms has changed the landscape of the video game market by enabling developers to reach a much wider audience without having to yield creative independence to third parties in exchange for the distribution of its products. However, independent video game development teams are usually small businesses, which continue to face numerous constraints on many aspects of the management and development of their games, with funding being one of their main concerns [2].

Parallel to the rise of digital distribution platforms, new financing alternatives have emerged. Through these platforms, independent creators can raise funds through donations from their supporters, what has become known as *crowdfunding* [3, 4]. These alternative financing methods allow independent teams to obtain funding without losing equity in the company or incurring legal obligations to donors, since no investments are made. Nevertheless, in certain cases donations are rewarded with certain physical or digital goods.

## 1.2 Motivation

Independent video game developers have seen in crowdfunding a great opportunity to finance their projects through their followers, giving them the opportunity to increase their fan base in the process. In the last two years, many games have been funded through this system, and some of them have had a significant impact on both the phenomenon of popularization of crowdfunding and the growth of the independent games scene [5, 6]. The success of these projects has helped greatly to establish crowdfunding as a viable funding option for independent video game creators, but in reality only a few studios have the ability to cause that much impact to make their games a straight success.

A great part of the crowdfunding platforms' success as a funding model for independent video games lies in their ability to leverage their rising popularity to promote and publicise their projects to new users. The chance to get a significant exposure boost leads most creators to focus on the major platforms, as they are the ones with the potential to cause greater media and public impact. However, this trend is taking these platforms to a situation where their video games sections are getting overcrowded with projects, which along with the fact that previous successful projects are reducing the impact of new campaigns with similar themes indicates that this market is starting to get saturated [7]. Although crowdfunding has doubtlessly shown great potential on funding independent video games, the current situation is leading to growing competitiveness and decreasing project visibility, which especially affects the studios with fewer resources.

However, the major crowdfunding platforms used by most independent video games have a generic approach, and neither their rules nor the services they offer to their customers are particularly geared to any of the many fields they cover. Until now, video games have thrived in the system using the same tools than projects in every other category, but the world of video games has certain characteristics that can be exploited for the benefit of creators to enhance the visibility and impact of their creations.

Concepts like community, gamification and categorisation may be leveraged to provide a brand new system that increases the projects' discoverability, exposure and credibility. The concept of community is widespread at all levels throughout the world of video games, and if the right tools for interaction are provided, a game-focused community can be exploited towards significantly improving the games' quality and market reach. Gamification may help in keeping the community actively engaged and potentially increasing the reputation and credibility of both projects and users who are taking part in the community. And finally, the categorisation in genres, the use of labelling elements and the use of promotion tools may help improve the discoverability and marketability of the games. All this features together with new complementary crowd-sourced funding methods may bring new opportunities to many independent studios looking to crowdfund their games.

## 1.3 Research question

The research question that this dissertation aims to answer is as follows:

*Which of the several particularities of video games can be exploited to reduce the issues that independent video game developers are currently facing when trying to fund their games through crowdfunding?*

## 1.4 Research goals

The research goal of this dissertation is:

- Propose a set of features that address the current needs of independent video game developers in terms of funding and exposure in such a way that they are also welcomed by gamers.

A set of features are proposed in order to be used as guidelines to develop applications that focus on solving the particular problems of funding within the independent video game scene. This involves a market research and a joint effort with developers and gamers in order to elicit their actual needs and provide services that suit both of them.

Therefore, the steps followed towards achieving this goal are as follows:

- Conduct a study of the current situation of the independent video game development market to identify problems and possible solutions, and investigate the use of crowdfunding as a solution to the funding issues of this collective.



- Conduct a study with independent game developers to discover first-hand their concerns, problems and interests.
- Propose a set of features to address the problems identified in the previous study with developers and investigate their feasibility in the current market.
- Conduct a study to find how players react to the proposal and draw conclusions.

## 1.5 Structure of the dissertation

This dissertation is organised as follows:

**Chapter 1** introduces the topic and sets the question and goals that will drive the research of this dissertation.

**Chapter 2** explores the state of the art in independent video game development and crowdfunding platforms.

**Chapter 3** presents the development of the idea that drives this dissertation, from an early inception stage to its evolution into a value proposition. The process followed through those stages is also explained in this chapter.

**Chapter 4** proposes an architecture that would allow a system that features the proposed services to be implemented and deployed.

**Chapter 5** details the methodology followed to conduct the studies with developers and gamers and outlines the outcomes of those studies.

**Chapter 6** concludes this dissertation and discusses the future work and improvements.

## Chapter 2: State of the Art

This chapter's purpose is to outline and review the current state of the art in the areas of independent video games, video game development communities and crowdfunding platforms suitable for independent video games.

### 2.1 Independent video games

The term *independent video game*, or *indie game* for short, is a relatively new concept, even though these games have always existed since the early days of video games. In the beginning, the lack of an established industry made all video games fall into this category, since there was no framework they could depend on and they were therefore, in one way or another, independent. However, the current conception of indie video games has only gained recognition in the last ten years, in the wake of the mainstream video game industry they allegedly were an alternative to [8]. Nevertheless, although the term has started to become widespread, there is not a widely accepted definition of what constitutes an indie game yet, becoming in recent years blurrier than ever [2]. In any case, if we were to give a definition, a very generic and broad approach would be that indie games are the alternative to mainstream video games, which are mostly the ones produced by large companies with big budgets.

According to Bart Simon, being indie “appears simultaneously as a legal-economic category (developer controlled IP), a social identity for a group or groups of game developers, a set of ideas or an ideology about developer freedom, creativity and autonomy (the idea of ‘being indie’) and a cultural style or set of styles.” [9]. However,

there seems to be a general consensus on the core indie values, which are opposed to those of mainstream game development: the small size of the development teams, their strong focus on innovation, their funding independence from larger video game publishers and their use of digital distribution methods [2].

The arrival of digital distribution platforms during the second half of the 2000s revolutionised the way people got access to video games, enabling smaller indie studios to reach millions of potential gamers over the internet. With this new distribution method available to indie developers, indie games were able to achieve an unprecedented level of success for such small scale projects, becoming a global phenomenon [10].

## **2.2 Independent video game development communities**

The love for video games is something shared by millions of people all over the world, who tend to be constantly looking for new games and other people with the same passion to talk and exchange their experiences and ideas with them [11]. Meanwhile, the video game development teams are in the need of reaching people potentially interested in their games in order to build a fan base that supports their game and helps them improve their products through feedback, testing and suggestions. Therefore, there is a natural need for video games enthusiasts, both gamers and developers, to gather somewhere to talk and exchange ideas about what they love. These common places are known as gaming communities and have existed for ages, but they started to grow bigger and stronger with the internet.

Independent video game development teams are generally composed of few people with limited resources and knowledge, who nevertheless have to cover all the areas of design, development and marketing of their products themselves. Therefore, it is very important for these teams to network with other game creators and share their knowledge in order to overcome the small or one-man team constraints. This situation generally crystallises on the creation of more specific groups: the video game development communities [12].

Nowadays, several video game development communities exist on the internet, some of them specifically targeted to indie games. A variety of video game development communities will be examined in this section.

### **2.2.1 TIGSource**

TIGSource<sup>1</sup> is a news site and a development community for independent games. The community section features traditional yet effective methods of interaction amongst its members, such as forums and messages between users, but has a large active user base. In essence, TIGSource is simply a forum for gamers and independent developers where they can discuss about creative, technical and business topics relating to the world of indie games. In these forums, developers can post their work and seek feedback from other users, create a rudimentary thread-based developer log, and publish tutorials and news about game jams, crowdfunding campaigns or game competitions. In this sense, it

---

<sup>1</sup> <http://www.tigsource.com/>

is a forum-based traditional development community as many others, such as GameDev<sup>2</sup> or IndieGamer<sup>3</sup>.

TIGSource's forums are helpful for indie game development, but this community does not provide any method to finance games.

## **2.2.2 GameJolt**

GameJolt<sup>4</sup> is an online game development community aimed at casual independent computer games, usually small and freely downloadable from the page or playable directly in a web browser. The page works as a development community for game creators and as a library of free games for players. It incorporates social elements like forums and real-time chats to encourage the social interaction between its members and provides gamification tools to motivate them to get involved. Gamification features include achievements, badges and levels that can be displayed by the users on their profiles. Developers can also integrate elements of gamification in their games by using an API, so players can unlock achievements when they perform certain tasks while playing. Additionally, the platform organises game jam calls (i.e. game contests with a common theme) regularly to favour the creation of new content.

This community incorporates some relatively innovative features that positively affect the involvement and participation of members in the community, such as gamification and game jams, though is not geared to independent games with commercial aspirations. The platform acts as a meeting place for developers and as a showcase for

---

<sup>2</sup> <http://www.gamedev.net>

<sup>3</sup> <http://forums.indiegamer.com/>

<sup>4</sup> <http://gamejolt.com/>

their in-development or complete games, as long as they are not meant to be sold. The only revenue model for developers provided by the platform is a share of the advertising revenue generated by their games and blogs on the website. Therefore, funding games on this platform, either through fundraising, direct sales or any monetization method other than advertising is not possible, making it unfeasible for commercial indie games.

### **2.2.3 IndieDB, ModDB, SlideDB & Desura**

IndieDB<sup>5</sup>, ModDB<sup>6</sup> and SlideDB<sup>7</sup> are a network of websites that encompass a wide range of segments of independent video game development and whose functions are complemented by the distribution platform Desura to provide coverage to the entire development process, from conception to sale.

These communities share many common features in terms of developer functionalities, methods of promotion, tracking tools and social elements. They all are independent video game development communities that seek to connect developers with players. On these sites developers can share all the details about their games through news, photos, videos and downloads, while giving players access to the game development process and allowing them to provide feedback and support the game creators. All of them provide popularity leaderboards for their games and provide a news tracking system so their users can follow the latest news from their favourite games and developers. They all have social features such as thematic groups, general and game-specific forums, blogs and polls, and allow users to comment on developers' updates and establish direct contact with them.

---

<sup>5</sup> <http://www.indiedb.com/>

<sup>6</sup> <http://www.moddb.com/>

<sup>7</sup> <http://www.slidedb.com/>

The main difference between IndieDB, ModDB and SlideDB is the market segment to which they are directed. IndieDB is mainly focused on independent video games for computers and consoles; ModDB is oriented to 'mods' (i.e. modifications of existing games that result in new games or improved versions thereof) and SlideDB is exclusive for mobile platforms games. Meanwhile, Desura acts as the point of distribution and sale of the products developed in the aforementioned communities. Desura offers a marketplace for games released or in an advanced non-final stage of development (i.e. alpha or beta phase), and also provides a client to download, update and launch the games acquired on the platform.

This network of websites provides a complete development experience for developers and players, and provides methods to exploit games commercially. However, they lack funding methods that developers can use during the creation process to cover the expenses of the development. The games that use this platform are usually self-funded or hobbyist projects, and therefore they do not require to raise funding through their fans during development. However, in certain cases some projects do require funding, but they have to turn to other platforms in order to get it.

## **2.2.4 Steam Greenlight**

Steam Greenlight<sup>8</sup> is not a community or a development platform as such, but the side effect of the manoeuvre of the distribution platform Steam to leave in the hands of the players the decision of which games become part of their catalogue. As the current largest platform for digital distribution of computer video games [13], Steam receives a large number of candidate titles to be distributed in their marketplace, so they recently

---

<sup>8</sup> <http://steamcommunity.com/greenlight/>

chose to democratise the submission process creating Steam Greenlight. On Greenlight, developers can publish information, images and videos of their games in order to create a group of fans around the game big enough to ensure the publication of their game in Steam.

Steam Greenlight enables video game creators to reach an audience of potential customers and grow their fan base. Although it accepts video games that are not yet complete they must be playable and at an advanced stage of development (alpha and beta versions). Greenlight might be considered as a way to achieve pre-sales, but it does not offer actual financing methods to fund the prior stages of development.

## **2.3 Crowdfunding**

The independent video game studios, like many other small companies, have problems in obtaining financing for their projects. The lack of liquidity to finance their projects usually involves giving away their creative freedom, to a greater or lesser extent, to another company in exchange for funds, which significantly affects their ability to effectively operate as an independent studio [14]. Until recently, the most common way to address the lack of funding was to associate with a larger publisher that had at its disposal the means of financing and distribution necessary to make the games of these studios economically viable. However, in recent years the funding landscape for these companies has changed dramatically thanks to the rise in popularity of crowdfunding.

Crowdfunding is a method of financing projects by raising capital from contributions made by a large number of people, typically done through the internet. This method is rooted in a broader concept, crowdsourcing, which consists in outsourcing tasks to a



general audience in order to create a commercial product [4]. According to Frank Kleeman, crowdsourcing “takes place when a profit oriented firm outsources specific tasks essential for the making or sale of its product to the general public (the crowd) in the form of an open call over the internet, with the intention of animating individuals to make a contribution to the firm's production process for free or for significantly less than that contribution is worth to the firm.” [3]. In the particular case of crowdfunding, the process in which the crowd is involved consists in raising money to fund a project through small donations, circumventing the traditional circuits of specialized investors entirely.

Due to the open nature of crowdfunding, there is no established methodology on how to apply the principles of crowdsourced fundraising. Depending on the conditions imposed on a particular crowdfunding campaign, people may be able to contribute to a project in several different ways. Nowadays, contributions are most commonly made in the form of donations, loans, equity purchase or pre-orders. Although the reach and scope of crowdsourced fundraising is very broad, there are currently two methods of crowdfunding that have become predominant [4]:

- Equity crowdfunding: this method is used by entrepreneurs to ask individuals for investment in exchange for equity in their businesses. These open calls for investment usually take place on an online platform, such as Crowdcube<sup>9</sup> and EquityNet<sup>10</sup>, which provides the means for the transactions. In recent years, this crowdfunding method has become increasingly important for start-ups, but due to the loss of control over the shares of the company that it may involve, is not usually the preferred funding option among indie developers.

---

<sup>9</sup> <http://www.crowdcube.com/>

<sup>10</sup> <https://www.equitynet.com/>

- Reward-based crowdfunding: when using this method, the entrepreneurs set a funding goal and the investors are offered a reward for contributing. The rewards may vary according to the amount of money pledged, ranging from pre-orders to very exclusive items or experiences related to the product. Within this category of crowdfunding we can find two prevalent approaches [15]:
  - All-Or-Nothing: once the funding goal is set, the company does not get any money unless the project reaches the goal by its deadline. It is the method of choice for platforms like Kickstarter<sup>11</sup>.
  - Keep-It-All: the company keeps all the money raised during the crowdfunding campaign even if they do not reach the goal. This method is supported by platforms like Indiegogo<sup>12</sup>.

Although each method may be useful for different purposes, the choice of one or the other for a particular project may imply several considerations that notably affect the outcome of the campaign. This topic will be further discussed and its implications will be extensively addressed in the Evaluation chapter.

### **2.3.1 Crowdfunding for video games**

In recent years, crowdfunding has revolutionized the way in which the small independent studios get access to funding. The benefits of crowdfunding fit nicely with the pretensions of independent game studios, as this allows developers to obtain funding for their games through players' donations while providing them with the economic independence they crave for. As they can count on this funding upfront, game studios do not have the need to partner with major publishers anymore, avoiding this way the

---

<sup>11</sup> <https://www.kickstarter.com/>

<sup>12</sup> <https://www.indiegogo.com/>

possible loss of creative control this could involve. Additionally, the creators can build through the funding process a valuable community of fans around the project who will support the product in the stages to come [2].

However, despite its benefits for independent game development, crowdfunding as a viable alternative funding went almost unnoticed until the Double Fine Adventure phenomenon on Kickstarter in March 2012 [5]. The great success of this campaign attracted the attention of developers and public to crowdfunding as a viable funding alternative, and give rise to a promising age for independent video games. Since then, numerous video games like Star Citizen, Elite: Dangerous, Torment: Tides of Numenera or Project Eternity have raised significant amounts of funds through crowdfunding. Parallel to this, the success in recent years of games like Braid, Fez, Castle Crashers, Super Meat Boy and Minecraft has catapulted the popularity of indie games among the general audience, favouring the people's participation in new crowdfunding campaigns for games [16].

Currently, most video game crowdfunding activity revolves around platforms like Kickstarter and Indiegogo, but the rise of crowdfunding for video games has caused the recent apparition of platforms targeted specifically to this sector. In this section the alternatives currently available to fund games via crowdfunding will be analysed and the similarities and differences they have with the proposal of this dissertation will be discussed.

### **2.3.2 Kickstarter**

Kickstarter was launched in April 2009, and recently surpassed \$1 billion in money pledges for projects. Over the years, it has become the most popular reward-based crowdfunding platform and its name has almost turned into a synonym for crowdfunding [17]. Their funding model is restricted to the all-or-nothing method and among its 15 categories there are creative projects of all kinds. However, due to Kickstarter's status as a reward-based crowdfunding platform, projects are not allowed to raise funds for charity or equity. Kickstarter is currently available for projects whose creators are based in the United States, Canada, United Kingdom, Netherlands, Australia and New Zealand, and supports the currencies of those countries for the projects.

Kickstarter is largely responsible for the current rise of crowdfunding for video games and the success of many projects, large and small, that have been funded through crowdfunding. After the success of Double Fine Adventure, Kickstarter has seen a significant increase in the arrival of games to the platform, to a point where Games (which includes video games and board games) has become the category that raised more money in 2013 [18] and overall since the creation of the platform [19].

Despite its success and its very positive impact in the world of video games, Kickstarter is just a crowdsourced funding platform whose purpose is to allow creators to showcase their products and obtain funding from their fans. Also, its generic audience does not favour the service specialisation around a particular category, so it does not try to provide specific tools for game developers to help them exploit the potential of their creations during the funding process. In the Evaluation section, the developer's

perspective on the pros and cons of Kickstarter for video games will be discussed in more detail.

### **2.3.3 Indiegogo**

Launched in 2008, Indiegogo is the second largest reward-based crowdfunding platform worldwide after Kickstarter. It is a generalist crowdfunding platform whose projects are not limited to a specific topic, and unlike Kickstarter, besides creative and innovative projects Indiegogo also supports charitable and social projects. Projects in the platform are classified into 24 categories and the creation of campaigns is available for projects throughout the world, not limiting its accessibility according to the location of the creators as Kickstarter does. It is currently available in English, French, German and Spanish and accepts USD, EUR, GBP, CAD or AUD as currency for the projects.

However, the main difference with its main competitor is certainly the possibility of using the keep-it-all funding model. Originally Indiegogo only allowed publishing projects using the keep-it-all system, but in December 2011 it enabled the all-or-nothing model, which has been available since. Among the 24 categories, video games also have a place, but as with the other sections, the platform does not provide game creators with tools that cover their specific needs. Furthermore, Indiegogo is a traditional crowdfunding platform regarding the continuity of the projects, since it only provides coverage to a project during their funding campaign, and does not allow for prior or subsequent phases of development.

### **2.3.4 Gambitious**

Gambitious<sup>13</sup> was created in 2012 as the first hybrid crowdfunding platform for video games, and its funding model was based on a mix of donations from fans and equity crowdfunding. Originally Gambitious offered investors the opportunity to acquire equity and participate in the dividends generated by a game, while fans could still make donations. However, in 2013 the platform announced a restructuring of the investment system, since only being dedicated to equity crowdfunding. Today, the platform continues at an early stage and has only successfully funded one project, Fever Train, from the Swiss studio Urban Games.

As a company dedicated to equity crowdfunding, the approach and model of Gambitious differ from the scope of this study, which together with being at an early stage is not sufficient to obtain conclusive data on the extent to which its future services will resemble or overlap the ones proposed by this dissertation.

### **2.3.5 GameLaunched**

Released in March 2013, GameLaunched<sup>14</sup> is a reward-based crowdfunding platform exclusive for video games which only offers the all-or-nothing funding method. It is a vertical platform that seeks to provide a wide range of services for game developers, including a system of mentors who are selected among a pool of industry professionals to help developers in their work of creating their game and guide them in the next steps to take in the process of crowdfunding. The campaign creation system for a video game goes through a period of two or more weeks in which the project is held up before

---

<sup>13</sup> <https://gambitious.com/>

<sup>14</sup> <https://gamelaunched.com/>

release, whose purpose is to give the creators some time to form a campaign plan and to begin to raise project awareness to increase the impact of the campaign when it is finally open to the public. The platform also features a marketplace where the games funded successfully on the platform are distributed.

Of all crowdfunding platforms presented in this section, this is the most similar in purpose and services offered to the proposition of this dissertation, but it is still at a very early stage (no games have been funded through the platform yet). Besides the slightly different process to put campaigns up on the platform, it does not implement any video game-specific change over the traditional all-or-nothing crowdfunding method to improve the results of their campaigns.

## **2.4 Summary**

After analysing the state of the art in the areas of independent video game development communities and crowdfunding and analysing key competitors and similar products currently on the market, the proposal presented in this dissertation is outlined as unique in the current context. As has been demonstrated, there are communities of development and crowdfunding platforms that offer a wide range of services and enjoy high reputation and public success, but yet there is none that combines both concepts or that adds new additional funding methods to crowdfunding's classic formula. In the next section, the process of development of the idea and the methodology used to conduct research and analysis in this study will be shown.

# Chapter 3: Inception and development of the idea

## 3.1 Initial hypotheses

The idea of a social crowdfunding platform for independent video games originated as part of the business innovation programme of the MSc Computer Science (Network and Distributed Systems) course at Trinity College Dublin, culminating in a presentation to investors and IT industry personalities at the Citi Upstart Challenge. The original idea emerged from personal research in a field of great interest to me, as is the world of independent video games. As a result of this research, I identified certain problems which, judging by the testimonies of the developers themselves, were currently affecting the independent game development scene, with the section on financing being one of the main concerns.

Throughout the academic year preliminary market research was performed, in order to further develop the concept and refine the value proposition. Finally, the concept was presented at the Citi Upstart Challenge, being very well received and praised with favourable reviews by the panel. Such a positive response from industry figures indicated that the idea had potential to be developed further, leading to pose a more thorough investigation of the necessity and feasibility of the concept.

The Citi Upstart Challenge's proposal's main value propositions were the starting hypotheses for this dissertation, being its main points:

- Community: the concept of social interaction and collaboration in a community environment is ubiquitous in the world of video games, between both players



and developers. A funding platform that counted with an active and participative community would be a great added value particularly for developers, since by means of the interaction with the players developers could create a loyal fan base that help them raise funds and improve their products . In return, players would have the opportunity to participate in the development of projects, get early access to games and obtain exclusive rewards.

- Crowdfunding: traditionally independent video games studios have chosen different methods to fund their games (e.g., bank loans, equity investment, etc.), but in recent years, those funding options have lost ground in favour of crowdfunding. This alternative allows developers to obtain the funds they need from their supporters without compromising their control over the project or their creative freedom. Crowdfunding has been proven in recent years as a viable alternative for funding independent video games, although currently there are no crowdfunding platforms dedicated specifically to video games. Today, generalist crowdfunding platforms have proven to be an effective method to fund video games, but they lack specific tools for video game creators to enable them to exploit the many peculiarities of their market and display their full potential. A platform that offered crowdfunding methods which have proven successful for video games, such as fixed (all-or-nothing) and flexible (keep-it-all), together with additional features specifically aimed at independent video game developers would be a welcome sight in the industry.
- Market analytics: the major crowdfunding platforms are general purpose sites, and the knowledge they gain from their projects is purely statistical, concerning global categories. As this platform would have a unique focus on independent video games, further analysis could be performed on the implications of several

aspects of the projects (e.g. funding goal, crowdfunding method, rewards offered, etc.) on their eventual degree of success. Additionally, the platform could analyse the current state and trends of the market and gather very valuable information for developers.

- Exposure: another major concern of developers is making their games known. Many teams lack the knowledge and/or the contacts to publicise their products and need in many cases additional help to manage the marketing and advertising campaign of their game. The platform could analyse the decisive factors of marketing strategies behind successful independent video games and also promote its projects by leveraging the network of professional contacts its staff would develop within the independent video game industry.

### **3.2 Launchbox: Trinity College's Student Start-up Accelerator**

From the academic point, it would be wrong to suggest a solution to a problem without delving into the particulars of it, since the proposed solution would be too general and most likely would not cover the needs of the target audience.

With the hypotheses clearly stated, it was time to conduct a detailed investigation to confirm or refute those points and, if necessary, add new ones. In this case, the purpose went beyond the theoretical formulation of hypotheses and, in addition to academic research, it required identifying the customers to which the platform would be targeted so that their specific problems could be properly discovered and consequently addressed.

In order to carry out the analysis of the customer segments, it was necessary not only to perform academic research, but also to interact with industry professionals and potential users to discover first-hand the state of the industry. This research largely shared traits of the market studies conducted to analyse the feasibility of a start-up proposal, and therefore it was reasonable to proceed following the same principles thereof.

To this purpose I joined *Launchbox*, the Trinity College's student start-up accelerator. Launchbox is an environment in which several start-ups composed of students from Trinity College develop their projects and collaborate with each other to improve their proposals and gain business knowledge. Furthermore, Launchbox features a calendar of workshops and visits from angel investors and experts in various fields of business, which are aimed to help teams to evaluate critically their proposals and set their objectives in the right direction.

Launchbox was a very favourable setting for the realization of this study, and proved to be especially useful for two points in particular: discovering the best methods for performing market research for this particular proposal and getting advice and validation from members of the industry.

### **3.2.1 Research method**

Launchbox's guests generally had a business background, and many were experts on topics concerning start-ups and technology, which gave them a common sight in certain respects. With regard to this viability research, most of them agreed on the guidelines to follow in this environment, characterized by high uncertainty and permanent evolution. These guidelines are mostly based on the *lean start-up* methodology [20], a business

development model meant to be applied in this dynamic and ever-changing field. As this methodology features a model that covers the entire process of creating and developing a start-up, many of its business-focused principles do not apply to this particular scenario. However, the lean start-up methodology follows a hypothesis-driven approach, aiming to gather knowledge through tests from actual customers to validate the business hypotheses, [21] which is perfectly applicable to this case. Regarding this research, the hypothesis-driven approach translates into three main points:

- Get out of the building
- Address the customers' needs: the lean canvas
- Build-Measure-Learn

### **3.2.1.1 Get out of the building**

Launchbox's guests agreed that customer discovery can only be done by real world experimentation. In order to achieve a realistic view of the customer segments, it is necessary to embrace critical thinking and avoid deluding ourselves believing that reality is the way we want to see it. In order to identify who the real customers are and what are the segments they are distributed in, it is necessary to "*get out of the building*".

"Get out of the building", a common phrase in the lean start-up methodology [22], essentially means that the first step in the customer discovery process is to confirm that the hypotheses are based in reality, or in other words, that the customer has a significant problem worth solving. The only way to achieve this arguably is "getting out of the building", since the facts that need to be gathered are only obtained by extensive contact with customers [22, 23].

Therefore, the first key point of the customer discovery research was that it was necessary to reach customers, engage with them and elicit the information that is needed to corroborate the hypothesis. The knowledge gathered during this process is not only used for validating the first set of hypotheses but also for discovering new customer needs. Those recently unearthed needs translate into new hypotheses which also need to be tested, giving as a result an iterative process of validation and discovery.

In this study, the target customers were independent video game developers. The sort of knowledge that needed to be elicited required meeting developers in person, so they could fully understand the concept and freely express their concerns about the independent video game scene. Hence, given this requirement, the customers interviewed were mostly from the Republic of Ireland and the United Kingdom. The methods and results of this customer discovery research are presented in the Evaluation chapter of this dissertation.

### **3.2.1.2 Address the customers' needs: the lean canvas**

Once the first contact with customers has been made and the first round of information has been gathered, it is necessary to analyse and draw conclusions from it, to later document what has been found. In the start-up environment, there is a tool that allows visually documenting and developing a business model: the business model canvas [24]. The business model canvas is a visual chart that represents the value proposition, infrastructure, customers, and finances of a business, which can be particularly useful in this context to illustrate the hypotheses and how the customer segments map to their corresponding needs.

However, as it was stated before, the three key points followed to perform this research have a strong link to the lean start-up movement's principles, so arguably a business model canvas version for the lean start-up method would be even a better fit for this purpose. The lean canvas is an adaptation of the business model canvas for the lean start-up approach [25], which is better suited to dealing with uncertainty and risk in a business model. The lean canvas has been used during this study to identify the risks and blanks in the model, to prioritise the validation of assumptions and to document the discoveries made through the research process concerning the customers and their needs.

As a visual tool, the lean canvas makes the state of the research easier to understand for external evaluators, and therefore it can be used to obtain feedback from industry experts who do not have previous knowledge of the concept. The lean canvas has also been used during the research for this purpose, and it has allowed Launchbox's guests to assess and evaluate the state of the study and provide insightful feedback on the matter.

The lean canvas has been used to document the process followed during this research, which went through five stages:

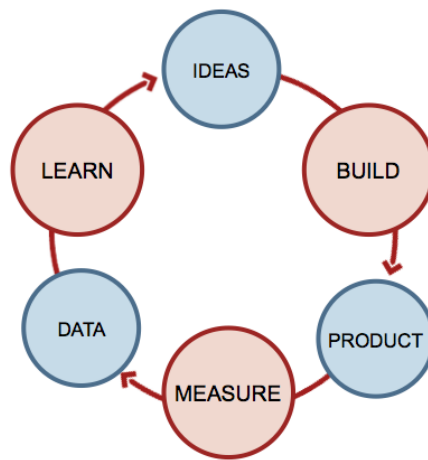
- Identification of customers: the first step was reaching actual customers to interview them and identify their different profiles. Each customer segment is usually characterised by a set of common features and share the same needs.
- Identification of customer needs: after analysing the information gathered in the first stage, the needs of each customer segment are identified. These needs have to be matched with the existing hypothesis to see if they prove any of them right or wrong. If a hypothesis seems to be wrong, it should be discarded; if it is right,

this should be considered as an initial validation; and if there is no evidence in favour or against, it should be kept to be validated in the next iteration.

- **Prioritisation of needs:** once the different needs are identified, they are sorted by relevance. The relevance is obviously a relative term, though it should be drawn from how frequently customers acknowledged something to be an issue and the emphasis they put on it. Sometimes, a need may fall out of the scope of the project, and consequently it should be either discarded or postponed. When the needs have been prioritised, the core needs are selected and the rest are discarded or postponed.
- **Creation of features to tackle those needs:** with the list of primary needs identified, a set of features to address those issues have to be proposed. Before they are incorporated into a final product, they should be tested in any sort of prototype in order to see if they actually solve the issue they were meant to address.
- **Validation of those features/needs:** the features are tested in experiments involving real users (via presentations, wireframes, prototypes, etc.). The data gathered at those experiments is used to confirm or reject the features, and provides a starting point for the next iteration.

This process of hypothesis validation through customer discovery is known in the lean start-up model as the *Build-Measure-Learn* feedback loop [26] and will be explained in the next section.

### 3.2.1.3 Build-Measure-Learn



**Figure 1 - Build-Measure-Learn Feedback Loop**

The Build-Measure-Learn feedback loop is a construct that applies the scientific method to start-ups in order to test hypotheses through experiments and validate knowledge [26]. As in any other scientific research, this method focus primarily on identifying what hypotheses to test, then building an appropriate experiment and finally drawing conclusions from the results. There are some particularities of the Build-Measure-Learn process as it was conceived that are mostly aimed at business research, such as the creation of a minimum viable product (i.e. a version of the final product that enables a full turn of the feedback loop with the minimum amount of effort and development time) as soon as possible, but the core proposition is entirely applicable to a study like this one.

First of all, before jumping into the Build phase, the first step is to identify what hypotheses to test. Once the hypotheses have been chosen, the next step is thinking of an experiment through which those hypotheses can be tested, and now jump into the Build phase to create a prototype that enables to test that experiment. In the Measure



phase, the experiment with real customers has to be conducted in order to gather information to determine whether the hypotheses are leading to real progress at the Learn phase. The main goal of this process is to minimise the overall time and effort put into the loop, so that conclusions are obtained quickly, giving room for a new iteration of the loop.

Regarding this study, the build-measure-learn feedback loop was used to drive the research into achieving an innovative set of features that tackle the current needs of independent video game developers. Experiments were performed with developers to test the initial hypotheses and, later on, with gamers to evaluate the applicability of the features proposed.

Nevertheless, as this study does not intend to build an actual product, the specifics of the Build-Measure-Learn regarding the quick creation of a minimum viable product and its implications in the business strategy have been omitted.

### **3.3 Customer Acquisition**

All the features previously presented are meant to work together as part of the same platform, in such a way that the combination creates a unique product which entails enough value for developers to be considered a feasible alternative to the major crowd-sourced fundraising platforms.

The effectiveness of the measures proposed depends directly on the size and involvement of the community of users, which transforms the community arguably into the most important asset of the platform. However, it is also the only one that cannot be

directly implemented. A community needs to be built and maintained, and it requires creating compelling content regularly in order to encourage users to come back and remain active on the site [27]. In this particular case, most of the content that attracts users is generated by developers, and therefore they should be the primary target of such a platform.

If the goal was to attract developers first, the customer discovery process should be used to seed the new-born platform. The developers reached as part of the customer discovery process should be encouraged to collaborate and actively participate in the project. During the customer discovery process and the following prototyping and implementation phases of the platform, a close partnership with these customers should be developed. The team should work with them, listen to them and address their needs, so that they feel part of the project and participate on it as testers and first customers.

Besides these first customers, the platform needs to attract early adopters to make the community grow in numbers and increase its contents. As it was previously mentioned at the Added Value section, game jams may be a key element to initial growth.

Kick starting and growing an online community is a great challenge on itself, since unlike real world groups, members can abandon an online community easily. Therefore, investing in social management is essential to keep the community healthy and growing [27].

After all, the primary goal is to obtain a sustainable growth, which is the result of a growth engine that encompasses several mechanisms that drive the customer growth in the long term. All those mechanisms can be summarised in one rule: new customers come from the actions of past customers [28]. Then, if the objective is to make the

community thrive in numbers and quality, it is therefore very important to keep clients satisfied by providing a unique value for developers and high quality content and entertainment for gamers.

Also, an important factor to consider is the effect competitors may have in the level of growth of the platform. Entering in a market that is already dominated by larger companies with plenty of resources may make harder the acquisition of customers, even for a company with a unique value proposition. However, competing head-to-head with the market leaders is not the only option. Even though some of the features provided by the platform may overlap with those of the big brands, letting them step into the platform's grounds with their products to make the platform known among their customer base may be an option as well [29]. Integrating the major labels' products into the platform while offering a set of additional features that extend those products' functionality may be a customer acquisition method worth exploring. For example, allowing customers to launch a crowdfunding campaign on Kickstarter while they have a project up on the platform may leverage the exposure and customer base Kickstarter offers while the customers and their fans take advantage of our platform's extended functionality.

## Chapter 4: Technical Architecture

In order to complement the goal of this dissertation, this chapter will propose a technical architecture that could be used to design, develop and deploy a system based on this proposal. The architecture will be aligned with the requirements previously presented and will cover the main elements presented above. This chapter begins with a graphic description of the architecture design and then proceeds to explore the components and technologies suggested for the implementation and deployment.

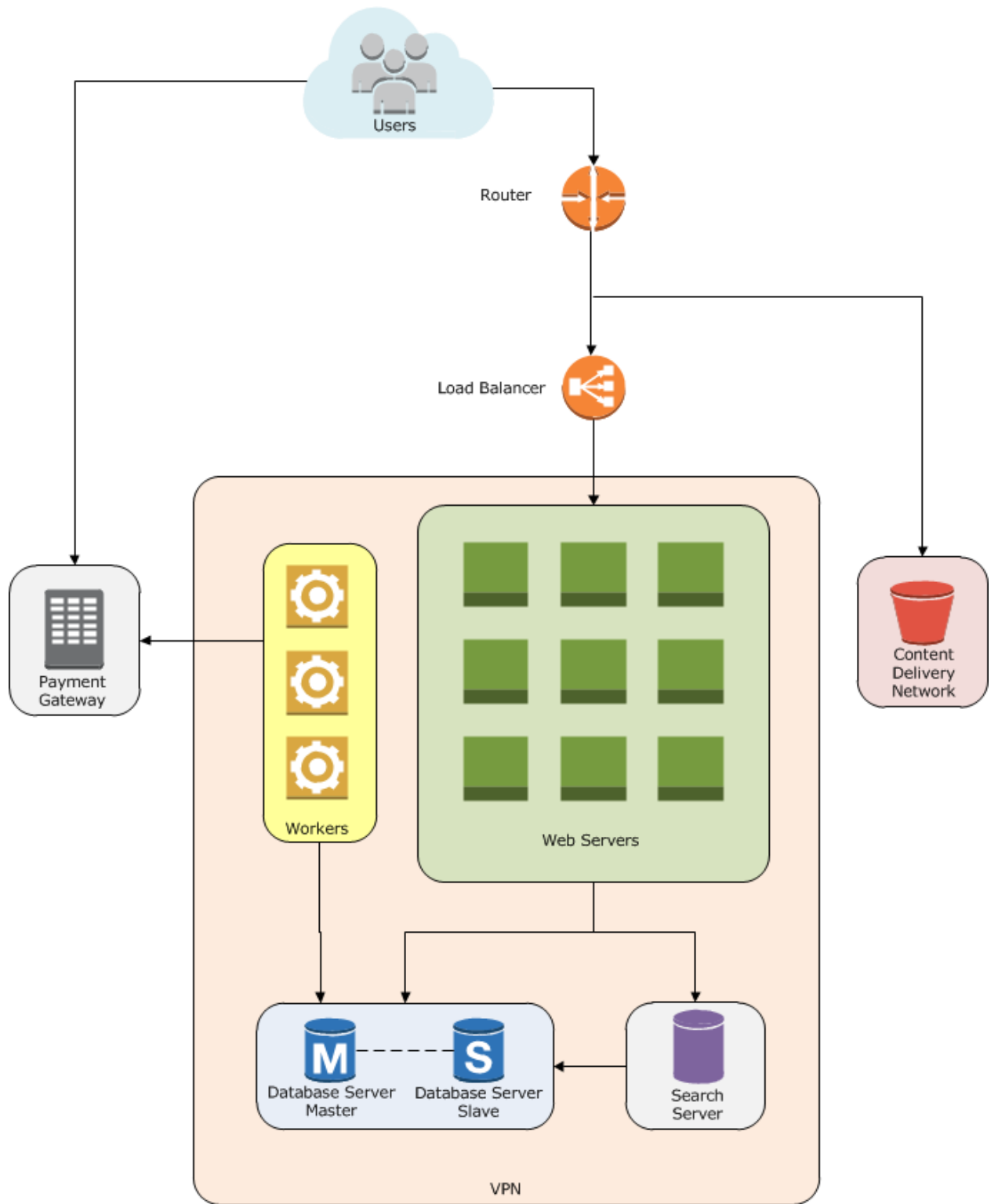
### 4.1 Architecture diagram

The following architecture diagram is oriented to a solution based on a cloud platform, extensively using virtualisation. Such a platform is currently available through providers such as Microsoft Azure<sup>15</sup> or Amazon Cloud<sup>16</sup>, but the components used to develop the architecture will be free software and open source-based, so that the implementation is not locked to a provider and switching to another provider does not pose a problem.

---

<sup>15</sup> <https://azure.microsoft.com/>

<sup>16</sup> <http://aws.amazon.com/>



**Figure 2 - Technical Architecture Diagram**

## 4.2 Technical Architecture Components

In this section, the modules and components of the architecture diagram will be explained in more detail.

### 4.2.1 Virtual Private Network and Router

The Load Balancer, Web Servers, Workers, Databases and Search Server they all should be on the same Virtual Private Network (VPN) in order to communicate between them securely. The only exposed interface would be HTTP interface for the web servers, routed by the Router and the Load Balancer.

### 4.2.2 Load Balancer

The Load Balancer distributes the workload across the multiple Web Server instances. Load balancing aims to optimise resource use, maximize throughput, minimize response time, and avoid overload of any one of the resources [30].

There are multiple widely used and free software load balancers that can be employed for this task, such as the proxy balancer module of Apache or HAProxy<sup>17</sup>. However, cloud platform providers generally offer their own load balancers that can be used to simplify. All these load balancers are essentially similar and work at the HTTP level.

To discover the availability of the instances, the Load Balancer should periodically perform “health checks” by sending them HTTP requests, to which each registered instance should respond to be considered healthy. The Load Balancer ensures that

---

<sup>17</sup> [http://httpd.apache.org/docs/2.2/mod/mod\\_proxy\\_balancer.html](http://httpd.apache.org/docs/2.2/mod/mod_proxy_balancer.html)

traffic is routed only to the healthy instances, so when the Load Balancer notices that an instance is not responding, it stops routing traffic to that instance. Traffic is resumed when the Load Balancer perceives again that the instance has been restored to a healthy state.

## **4.2.3 Web Servers**

Web Servers would serve the web page to the users using the HTTP interface. Both users and administrators will interact with the web portal through the pages they host.

In order to achieve an adequate scalability, the architecture should have multiple web server instances, managed in such a way that their load capacity is able to adapt dynamically to the demand. Cloud platform providers generally include on-demand instance adaptation systems that cover a wide range of scalability needs depending on the plan contracted by the user.

### **4.2.3.1 Components**

As it was stated before in this chapter, free software open-source based solutions will be given priority over proprietary ones in this architecture design. Therefore, as a means to maintain this philosophy throughout the entire design, the open source enterprise software stack LAMP (Linux, Apache, MySQL, PHP/Pearl/Python) will be used to provide most of the functionality required by the Web Servers.

### **Operating System**

As part of LAMP, Linux servers seem to be a good fit for this task, since they are stable, secure and widely used free software components. By using Linux servers the system would incur in minimum costs while avoiding vendor lock-in. Moreover, it performs well regardless of processor or machine architecture, which gives the freedom to migrate the architecture easily.

### **Web Application**

As to the programming language, a good free software choice may be PHP<sup>18</sup> which is extensively used in the industry, with well-known examples such as are Facebook, Wordpress or Digg. PHP enables fast implementation of complex cross-platform solutions, since it runs seamlessly on Linux and Windows platforms. Other equally valid options that are also part of the LAMP package would be Python and Pearl.

### **HTTP Server**

Chosen by default as HTTP Server for any LAMP deployment, Apache<sup>19</sup> is the most commonly used HTTP server that supports the PHP's programming language interface. Moreover, its Fast CGI (FCGI) module enhances PHP's interface by allowing scripts to be executed by an interpreter outside of the web server, reducing significantly the overhead.

---

<sup>18</sup> <http://www.php.net/>

<sup>19</sup> <http://httpd.apache.org/>



## 4.2.4 Workers

Workers are in charge of running parallel processes in order to execute periodic tasks or ease the burden of Web Servers. They should also be scalable in such a way that the number of instances changes depending on the load.

The real-time notifications that users receive are sent by the Workers. Connecting with the devices that are online at that time and sending them messages are usually heavy processes that fairly rely on latency. When any of the producers of notifications performs an action that needs to be notified, it should be queued for delivery on the list of pending notifications, waiting for the Workers to consume the list.

Also, when a crowdfunding campaign finishes successfully the money pledged by the supporters must be transferred to the creators, which is a periodic task triggered by the system. The Workers would be also responsible for conducting the verification and payment steps.

## 4.2.5 Database Servers

MySQL<sup>20</sup> is the fourth element of the LAMP package and is proposed here as Database Server. MySQL is one of the most popular relational database management systems in the world and is used by some of the world's largest organizations such as Yahoo!, Alcatel-Lucent, Google, Nokia, YouTube, Wikipedia, and Booking.com. As the rest of the LAMP package, MySQL is free open source-based software that lowers the overall cost of the system and prevents from platform lock-in.

---

<sup>20</sup> <http://www.mysql.com/>

#### **4.2.5.1 Master and Slave Database Servers**

The Master Database Server logs the updates, which then propagates to the Slaves. The Slave outputs a message acknowledging the update, thus allowing the sending of subsequent updates. In order to maintain the workload balanced, queries should be performed on the Slave instance, while executions like insert, update or delete should be run on the Master instance. In the case that the system experienced performance problems it would be worth considering expanding the database architecture to a cluster, gaining on higher redundancy, scalability and load balance.

#### **4.2.6 Search Server**

The Search Server can index and search data stored in the database. It is a critical element of this architecture because it is the component that enables the users to find the projects they are looking for on the webpage. When a user sends a search request from the website, it is sent from the Web Servers to the Search Server in order to resolve it.

The component proposed to carry out this task would be an open source search server such as Sphinx<sup>21</sup>. Sphinx is a cross-platform free software (works on Linux, Windows, MacOS and Solaris among others) designed to provide full-text search functionality, that can be used as a stand-alone server or together with other database management systems such as MySQL. As with the Master/Slave Database Servers, in case of finding performance issues the Search Server should be expanded to a cluster.

---

<sup>21</sup> <http://sphinxsearch.com/>

## 4.2.7 Content Delivery Network

A Content Delivery Network is a system of interconnected cache servers hosted in multiple data centres across the internet that distributes web content to end-users based on their geographic location. The content is replicated in several servers strategically dispersed around the globe with the objective of providing high performance and availability even when there are bandwidth limitations.

The Content Delivery Network would be critical to store the games resources (e.g. images, music, binaries, videos, etc.) and also to deliver the web application static resources rapidly and reliably. Generally, cloud platform provider such as Amazon<sup>22</sup> and Microsoft<sup>23</sup> offer their own Content Delivery Networks to be used as an additional service.

## 4.2.8 Payment Gateway

A Payment Gateway is a service from a provider of e-commerce services that authorizes credit card payments for online business. The Payment Gateway looks after credit card transactions to ensure that the sensitive information is passed securely between the customer and the vendor.

Since pledges to projects cannot be executed right away, it is recommendable to choose a Payment Gateway that allows *preapproved payments* (i.e. nothing is charged until the

---

<sup>22</sup> <http://aws.amazon.com/cloudfront/>

<sup>23</sup> <http://msdn.microsoft.com/en-us/library/azure/ee795176.aspx>

project reaches its goal). The most popular Payment Gateways that implement this feature currently are PayPal<sup>24</sup> and Amazon Payments<sup>25</sup>.

---

<sup>24</sup> <https://www.paypal.com>

<sup>25</sup> <https://payments.amazon.com>

## **Chapter 5: Evaluation**

This chapter presents the evaluation of the initial hypotheses and its evolution into a value proposition that is the main proposal of this dissertation. The proposal is made following the results of two studies: an exploratory study of the independent video game scene of Ireland and Northern Ireland and a subsequent survey of independent development studios in Ireland and United Kingdom. The former present a general view of the industry and the market from the point of view of independent game creators, and the latter analyses their perspective on the matter and identifies problems and possible solutions that currently exist in independent video game development and, especially, in the financing of independent video games through crowdfunding. The results of these studies along with a research of the current market of crowdfunding and independent video games crystallises on the points of the proposal. These points are then labelled as “proposed” or “desirable” depending of their relevance and “testable” or “not testable” according to the feasibility to test them experimentally in a prototype. The set of “proposed” and “testable” features are implemented in a web prototype, which is later presented to potential users through an online form with screenshots of the essential elements of the prototype. Finally, the results of this form are used to validate or discard the points of the proposal.

### **5.1 Exploratory industry validation**

The Q-ED talks took place at Belfast’s Q-Con during Saturday 21<sup>st</sup> June, and featured professional from several fields within the industry of video games: animators, programmers, designers and artists. It was a great opportunity to listen to first-hand

testimonies about video game development, experiences with crowdfunding and many other topics fairly relevant to this dissertation. The Q-ED schedule was as follows:

- *Will Barr - Billygoat Entertainment*  
*Ambitious Animation: Rigging and animating in 3D games*
- *Aisling Lindsay - BlackNorth*  
*From Film to Games and back again*
- *Kevin Logue - Uproar Comics*  
*Frak "the Man"! The Rise of the Independents!*
- *Matt Clifton - Polypusher Studios*  
*Montagues Mount: A post-mortem*
- *Elaine Reynolds - Simteractive*  
*Designing Old-School Sim Games in a New-School World*
- *Mads Haahr - Haunted Planet*  
*Vampires can be real: Bram Stoker's Alternative Reality Game*
- *Paul Conway - BitSmith Games*  
*Game development and level design*
- *Gathering of Lightning - Farset Labs*  
*Building an authentic proton pack! | Getting your Game Jammed*
- *Sofa-Panel: What's your path?*  
*Set up a start-up or get experience somewhere else first? Go abroad and return to a heroes/heroines welcome?*
- *Sofa-Panel: Diminishing returns: when do you stop?*  
*How do we achieve greatness in games, as frail humans with real-world limitations?*
- *Sofa-Panel: Worth you weight in games!*  
*How is your game going to pay for itself? Risk micropayments in Bitcoins? Will a kickstarter kick-off, and is Steam the only game in town?*

These talks addressed several topics related to video game development from the point of view of the creators, and were highly valuable as an exploratory analysis of the industry in order to check the validity of the hypotheses of this dissertation. The most important conclusions drawn from this event and their possible consequences will be outlined in this section.

### **5.1.1 Exposure and networking**

Every team should ideally have a marketing person in its core. The team should not rely exclusively on technical aspects to achieve success, since it is also very important to have someone able to come up with ideas that affect the potential marketability of the product. Moreover, it is critical for a game's success to connect with its audience; to that end indie teams should have extrovert people as community managers and/or salespeople to bring customers into the project.

Marketing is a key issue in the success of a game. Indie teams need public relations/sales people working closely with them to help them establish strong links with the press, publishers and social media. Especially for indie games, it is also important to develop a network of contacts with personalities from multimedia entertainment sites (e.g. Youtube, Twitch, etc.) who want to feature their games and showcase them.

Raising awareness of a game is very hard, and according to many developers, one of the best and most effective ways to make a game known is by attending to video game events, conventions and festivals. They are also great opportunities to network with other developers and receive their feedback (which according to developers is the most

valuable and sought-after feedback there is). A development platform should work closely with video game festivals and conventions in order to provide its users with exclusive opportunities to attend those events.

Additionally, networking with press, distribution platform representatives (e.g. Steam/Xbox Live/PlayStation Store public relations) and other developers is strictly necessary. Essentially, marketing can be extensively achieved through contacts. A development platform should encourage and promote the interaction and collaboration among its customers and partners as part of its professional networking effort.

In summary, the developers agreed that marketing and exposure are major problems for the teams in the independent video game scene and have to be overcome in order for a project to succeed. Hence, they supported the initial hypothesis of this dissertation that stated that exposure was currently one of the biggest issues for indie developers. There are several things a development platform can do to improve the performance of their developers, such as promoting industry networking events and building a network of contacts and public relations/salespeople to support the projects hosted on it. Although these services may doubtlessly be of great value for developers, they are not feasible to be built and measured in a prototype, and therefore will be left out of this dissertation's core proposal.

### **5.1.2 Community**

The community was widely acknowledged to be something absolutely necessary for a game. Some projects may be more open to community interaction than others, but in the end they all need it. The interaction with the community may come in several and



diverse ways and with many different purposes, but something all the speakers agreed on is that building community is definitely key for the success of a game.

It is also very important for developers to compete internationally, look at the international game scene and get inspiration from there. In the end, using digital distribution platforms makes indie games to compete globally, and therefore they should be prepared for the international market they are going to end up in. The scope of a development and crowdfunding platform for indie games should be international, aiming to provide an inspiring and competitive catalogue of projects from all over the world.

However, small indie teams are rarely prepared to face all the challenges that struggling in the competitive international scene involves. Often, they need to hire people or outsource some tasks, which they usually do based on recommendations of other people they know or by browsing candidates' previous works. Therefore, it would make sense to create a professional network where developers can show their previous projects and refer other people they have worked with. Apparently many indie teams tend to outsource the art of their productions, and they usually select the candidates by their portfolios. This would be worth exploring, since it might open an opportunity to extend the community professional network to sound and graphic artists.

The points described above go along the lines of the initial hypothesis that stated the importance of the community, and they support the fact that it is an actual issue for indie developers. The professional network however lies beyond the reach of this dissertation, and although it might be useful, will be dismissed as part of the core proposal.

### 5.1.3 Crowdfunding platforms

The speakers and the audience generally advocated crowdfunding as a means to cover the development expenses of an independent video game, but also mentioned some of its drawbacks. In general, the attendants considered that the crowdfunding market is getting crowded and it is becoming increasingly difficult for independent teams to stand out and exploit its benefits. Additionally, the speakers with previous experience in crowdfunding agreed on the importance of choosing the right crowdfunding method for a video game, since models such as keep-it-all are usually seen as untrustworthy and can affect the reputation of both the game and the creators.

Many games are launched on a major crowdfunding platform with the only goal of building community and get noticed but, as it was mentioned above, these platforms are getting increasingly overcrowded with projects and it is very hard for new developers to compete and stand out. Creating a new campaign on these platforms is very tough and time consuming, and chances are that the project will not reach the goal making it very risky. Moreover, the community tools currently offered by these platforms are insufficient for indie developers, since they lack features that properly enable creators to track and engage with their specific audience. Additionally, these platforms do not offer proper methods for the people who did not donate during the crowdfunding campaign to follow the development once the campaign is over, or even to contribute or pre-order the product past the campaign's deadline.

Bringing celebrities into a project that is undergoing a crowdfunding campaign usually makes it more likely to succeed, but that phenomenon also happens at a smaller scale: the more people know you for your previous work, the more likely you are to succeed in future projects. When developers have built a fan base over the years with their previous

works, they are more likely to receive community and press support in their next projects. Therefore, development platforms should work as a tool for the developers to get known in the first place, what can be achieved to some extent in this dissertation proposal by allowing also in-development projects not looking for crowdfunding at the moment. In doing so the platform would be giving the developers the opportunity to build a reputation before they venture to do bigger projects that will require a higher level of community engagement, such as a crowdfunding campaign.

Nevertheless, building reputation and getting known heavily depend on the developers' ability to promote their game. Developers often find difficult to pitch their games at investors, colleagues, journalists or even their own audience, and this also affects their attempts to crowdfund their projects, since the success of a crowdfunding campaign essentially depends on pitching the project adequately to its audience. If the goal of a crowdfunding platform is to maximise the success of its projects, it should leverage its knowledge to help the creators to improve their pitching skills.

Once an indie team has thrown themselves into a crowdfunding campaign for one of their games, just pitching is not enough. If they want to draw conclusions of their performance and learn for current and future campaigns they need to know what they are doing wrong, so they can tweak things accordingly. Developers need detailed stats of their projects to track their audience and the impact of their content updates, and that is apparently something major crowdfunding platforms are not currently offering in enough detail.

Some speakers also pointed out that crowdfunding laws are different in every country because of the specifics of money laundering legislation, so it might be difficult to get a

crowdfunding system that works across all nations. This point should go straight to the top of a crowdfunding platform's priorities and it should be sorted out in order to be able to operate globally.

### **5.1.4 Summary**

The points outlined above suggest several aspects that should be taken into account while developing a platform based on the principles of this dissertation, probably the most significant ones being the growing presence of crowdfunding as a viable funding alternative for video games and the dubious reputation of the keep-it-all funding model. The crowdfunding market is starting to get crowded with projects, and anything a platform can do to help its customers to get noticed and engage with their audience would be of great value for them. For instance, this could be addressed by providing proper community engagement tools and by making easier for the audience to follow the progress throughout the development process. Topics such as building reputation and improving their pitching skills in order to increase the chance of success of their campaigns seem to be also constant concerns among indie developers. Allowing projects that are not looking for funding might be a way to let upcoming developers to start building reputation among the community and might be worth exploring, though digging deeper into the creators' skills development is out of scope for this dissertation. Detailed campaign stats are also out of the reach of this proposal, but should be seriously considered by any commercial platform based on this proposal. Finally, the legal implications of crowdfunding should also be kept in mind if a real platform was to be brought to the market.

## 5.2 Developer questionnaire

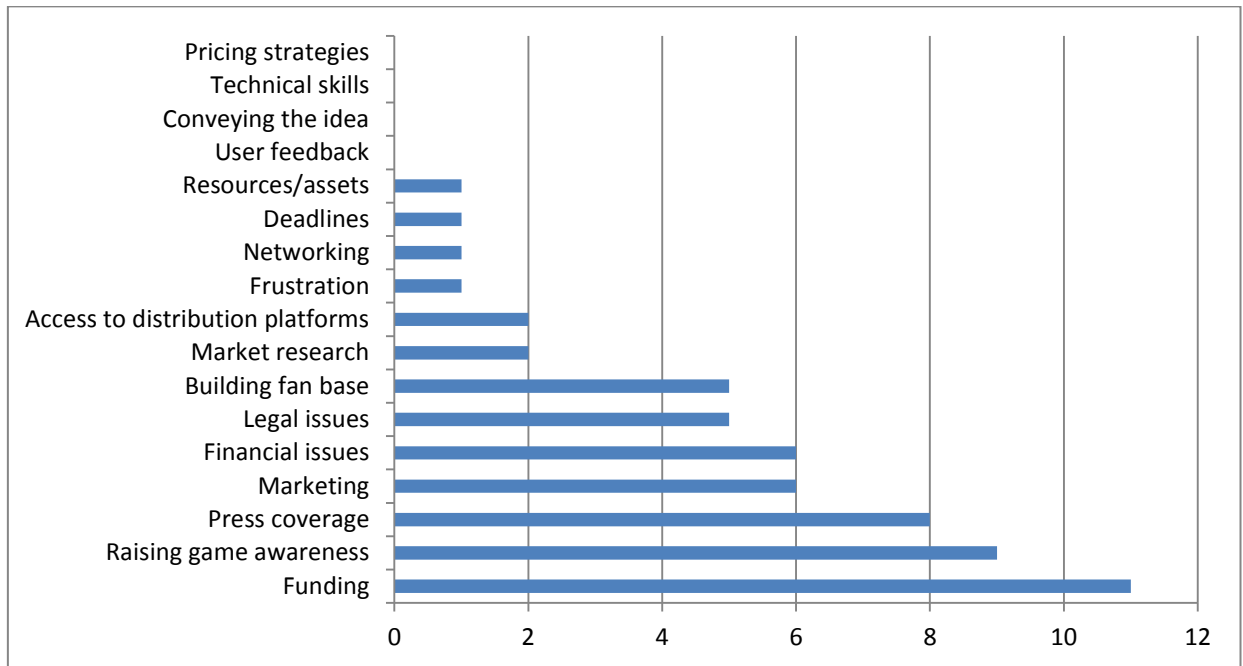
After this exploratory study, it was necessary to clarify the perspective of crowdfunding and video game development indie studios have to identify and address their main concerns. The *lean startup*, methodology that has been followed to perform this analysis, establishes that the steps to be carried out in order to proceed with such a study are the following:

- Identification of customers
- Identification of customer needs
- Prioritisation of needs
- Creation of features to tackle those needs
- Validation of those features/needs

Therefore once we have identified the customers, which in this case are independent video game developers, it is required to discover and prioritise their actual needs regarding the development of their projects. In order to do so, 11 independent video game studios from the Republic of Ireland and the United Kingdom were asked to fill out a questionnaire about video game development (Appendix A). Due to the terms of this research, the studios who participated in this questionnaire will remain anonymous, although it is worth pointing out that all of the participants are currently active video game development professional teams. Also note that some teams decided not to answer some of the questions, resulting in the total number of responses in some questions to be below 11. The outcome of this questionnaire will be explained in this section.

## 5.2.1 Main challenges for independent teams

The teams were asked to choose from a list the 5 main challenges the indie teams face throughout the development process of a game. The result was as follows:



**Figure 3 - Main challenges for developers during the development process of a game (Q1)**

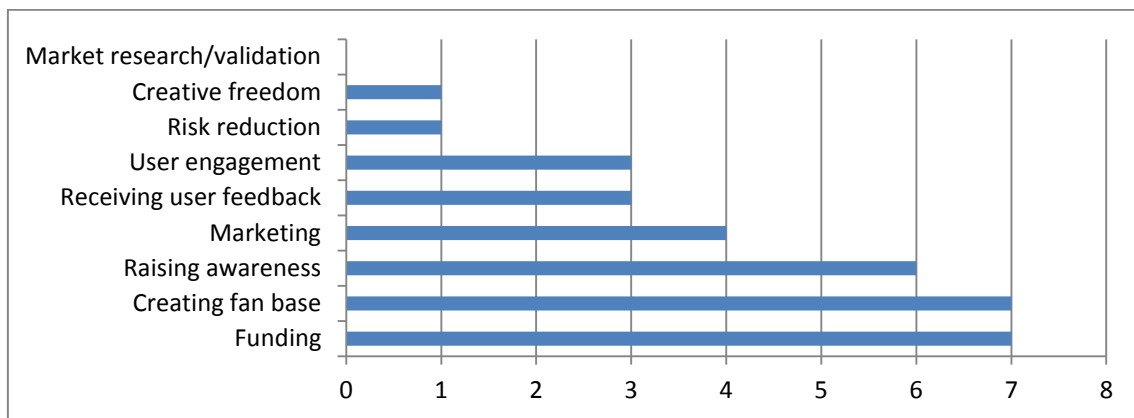
“Funding” seems to be by far the biggest concern among indie developers, since all the participants marked it as a challenge. “Marketing”, “press coverage” and “raising game awareness” are the next three, and all can be classified into the same category: exposure and promotion. Next there is “financial issues”, with “legal issues” right after. And finally, closing up the group of main challenges there is “building fan base”. From this chart we can infer that the list of most important concerns of indie developers is as follows:

1. Funding
2. Exposure and promotion

3. Financial and legal issues
4. Building fan base

From these four points, three of them were also mentioned in the conclusions of the exploratory study and confirm once again three of the initial hypotheses of this study: funding, exposure and community are major concerns for indie developers. Financial and legal issues however, require of expertise and qualified personnel in order to be addressed. Although financial and legal issues are among the top 4 concerns of indie developers nowadays, they are out of scope for most crowdfunding platforms and/or development communities since they require highly specialised and high-profile staff.

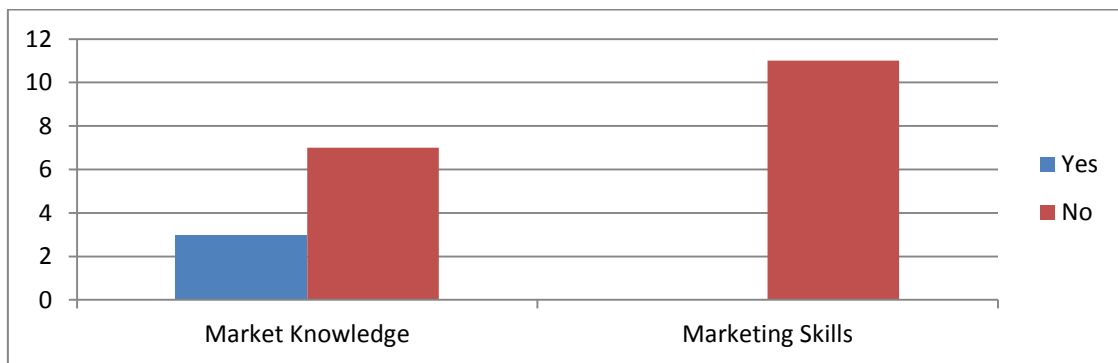
### 5.2.2 Crowdfunding benefits for indie games



**Figure 4 - Benefits of crowdfunding for indie teams (Q2)**

In this figure we can notice that crowdfunding is perceived by indie developers as a means to partially tackle many of the problems that were identified above: e.g. raising funding, creating fan base, getting exposure (marketing and raising awareness) and promoting community (user engagement and user feedback). However, the degree in which those concerns are addressed depends dramatically on the level of success of the

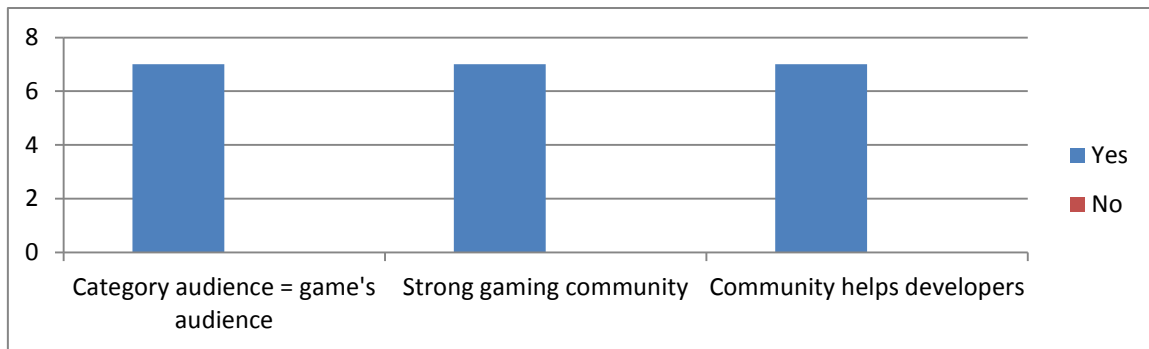
crowdfunding campaign. In any case, indie teams primarily see crowdfunding as a way to obtain funding, create a fan base and gain exposure for their projects. Nevertheless, the eventual success of a project in this increasingly competitive environment depends also on the team's ability to reach the right audience and pitch their game appropriately.



**Figure 5 - Knowledge of the market and marketing skills of indie teams (Q3, Q4)**

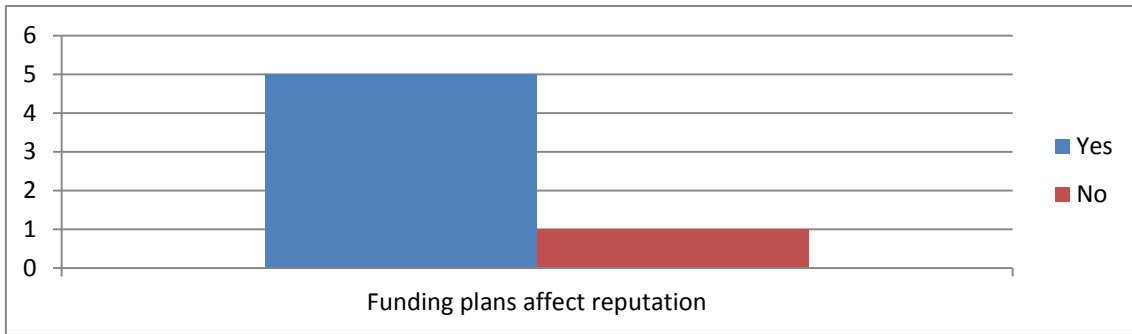
Unfortunately, indie teams generally do not consider themselves skilled enough in marketing and do not think they have the sufficient knowledge of the video games market to accomplish such a task. Obviously this does not necessarily mean that every indie team lacks this experience, but it is an indicator of how spread this issue is amongst developers. All in all, this confirms that providing developers help on this matter would be of great value for them, as it was already pointed out in the initial hypotheses and the exploratory study.





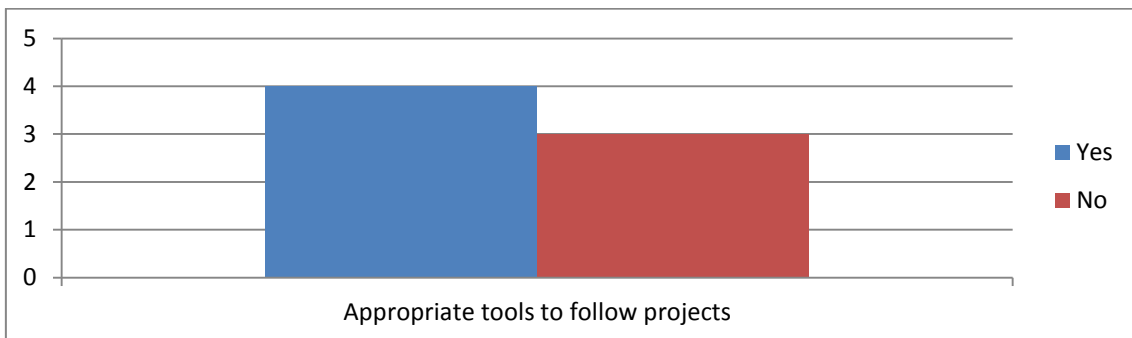
**Figure 6 - Audience on the Games category of crowdfunding platforms as perceived by indie developers (Q5, Q6, Q7)**

Regarding the audience that gathers around the Games category on the major crowdfunding platforms, indie teams have generally a positive opinion about that community. According to these developers, that particular category has a community mostly composed of video game fans, who represent the actual audience of their games and significantly help the creators during the development process. This fact should make easier for developers the task of reaching the right audience that was previously pointed out as one of the key factors to achieve funding success. The existence of such a specific community around video games projects on crowdfunding platforms should be leveraged by the platforms themselves to increase the chances of success of their campaigns by providing good community management tools and investing on improving discoverability. Additionally, these platforms should implement ways to keep the users as part of the community in the long term, since “repeat backers” are the main source of pledges on major crowdfunding platforms and they are below the 30% of the overall number of backers [31].



**Figure 7 - Effects of funding models on project reputation (Q8)**

When the participants were asked about the impact of the funding plans in the reputation and credibility of the projects, 5 of them manifested that the funding choice does matter and agreed on flexible (keep-it-all) plan being something to avoid. According to these developers, flexible funding “suggests the funding is not needed” and “does not show accountability and transparency as the fixed (all-or-nothing) does”. Although these developers were less than half of the total, the fact that all of them agreed on the same point shows again new evidences against the use of flexible funding as a suitable funding plan for video games.



**Figure 8 - Tools offered by major crowdfunding platforms are appropriate to follow the projects (Q9)**

Finally, when asked about how good they considered the tools provided by the major crowdfunding platforms were to follow projects and stay up to date about the progress

and news, the answers were fairly even. However, the 3 teams that answered “No” commented they missed subscriptions to projects, with 1 of them extending the set of features lacking to polls, project timelines and specifying that the subscriptions should allow users to select the types of notifications they want to receive.

### 5.2.3 Lack of skills

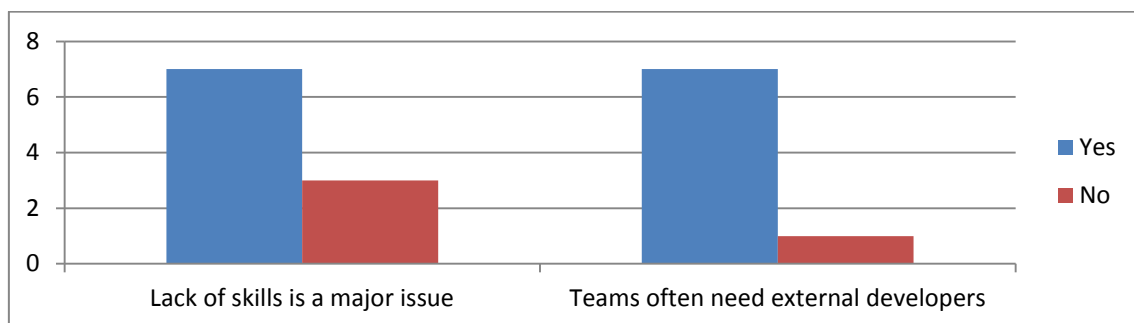


Figure 9 - Lack of skills (Q10, Q11)

Although the participants initially did not recognise the lack of technical skills as one of the main challenges, many of them later acknowledged that the lack of skills from a more general perspective actually is a major issue for indie teams. These studios are normally composed of few people, and the resources and skills constraints are obvious. The technical skills though do not seem to be a problem since they usually have members with technical backgrounds who are generally open to learn whatever comes to make their projects progress. However, certain aspects such as art, 3D modelling and sound are an issue for some teams, who generally look for external developers and artists to occasionally outsource these tasks. From a more general perspective, the lack of skills is seen by some teams as the marketing, business and legal aspects they can hardly manage. In summary, although technical skills do not seem to be a problem, some art-related tasks sometimes are. This, along with the business, financial, legal and

marketing complications previously spotted in this section, makes out a whole lot of points where indie teams may need help from an external source. In this particular case, the platform to be proposed might implement services that cover the lack of technical and artistic skills with community networking tools while the marketing might be partially addressed by an internal and external marketing effort that continuously promoted the most promising projects on the platform.

## 5.2.4 Gamification

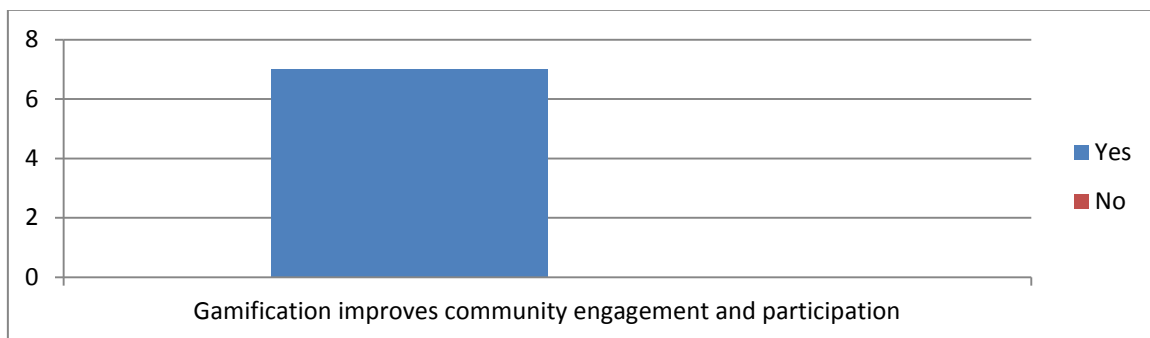


Figure 10 - Gamification (Q12)

As last question, indie teams were asked about gamification as a means to improve community engagement and participation. The response, as can be seen on the figure above, was widely positive. This takes gamification one step forward in this proposal as a solution to drive users' constructive interaction, and might also be considered as an important candidate to reinforce the reputation measures.

## 5.2.5 Summary

The conclusions that can be drawn of this questionnaire with independent developers may be summarised as follows:

- Funding is a major concern for indie developers.
- Exposure and promotion are a major concern for indie developers.
- Financial and legal issues are a major concern for indie developers but are hardly addressable by a platform without highly specialised staff.
- Building fan base is a major concern for indie developers.
- Crowdfunding helps indie developers to raise funding, create fan base, get exposure and achieve user engagement.
- Indie teams usually lack market knowledge and marketing skills.
- The Games section of major crowdfunding platforms generally has a strong gaming community which should be leveraged by the platforms to improve projects' performance.
- The flexible funding plan (keep-it-all) is seen by some developers as something to avoid.
- Some developers miss tracking features that allow the users to follow the projects appropriately.
- Technical skills are not usually a problem among developers, but art, sound and 3D are sometimes outsourced to external developers and artists.
- Gamification is seen as a positive feature among developers to increase the community engagement and participation.

According to the methodology followed so far, it is now time to develop a value proposition that tackles those needs. That value proposition will be later evaluated by users and conclusions will be drawn.

## 5.3 Value proposition

The information obtained in the previous section suggests that the indie developers have particular needs when seeking funding and support that differ from those of other categories with regular presence in major crowdfunding platforms. However, as generalist platforms, major crowdfunding companies do not cover these specific needs and force all projects, regardless of their subject and their development process, to adhere to a set of general rules.

Crowdfunding goes beyond being a merely financial tool, allowing developers to raise awareness of their product amongst potential customers and create a community around their project [32]. These supporters can actively help with their opinions and suggestions, so that the development team can correct errors, clarify misconceptions or reshape concepts before the product hits the market in order to better adapt it to potential customers and significantly increase its chances of success [33].

If a platform provided developers with the chance to adequately meet both general and particular needs during the development process while obtaining funding for their projects, it would make a disruptive impact on the current landscape of crowdfunding and the way indie game developers work and interact with their audience. This approach would bring significant added value to the platform services, positively affecting the results of the projects and, consequently, increasing customer loyalty to the company.

In order for the proposed platform to be successful, it must be ultimately driven by its customers' needs, its main goal being to become attractive and useful for both developers and gamers. Therefore, as it was stated in the section above, the platform would need to provide a set of features video game developers demand and that the

major crowdfunding platforms currently do not offer. Knowing the specific needs of this niche market will allow the platform to offer a service most suited to the real demands of its members, thus differentiating itself from its general purpose competitors.

### **5.3.1 Builds community**

Given the tendency of gamers to interact with their peers at both virtual and personal [11] levels, the concept of community is inherently part of the world of video games. There are many different types of communities: collaborative developer communities born around programming forums, communities of readers on video games news sites, player communities created around social gaming platforms or out of individual games, and so on. Each community may have different objectives, but they all share one goal: the collaboration between users on a topic of common interest for the sake of enjoying the interaction with peers while generating content for mutual benefit [34].

Developers need to have enthusiastic players who provide them with feedback and ideas to improve the content of their game, who play test versions for reporting errors and improving the overall game experience and, last but not least, who spread the word and share the game (e.g. viral marketing, word of mouth) to make it known [35]. On the other hand, the players deeply appreciate the developers' closeness to the community, their dedication and their willingness to listen. This atmosphere of collaboration and mutual respect is likely to build more loyal fan base around the game, resulting in regular customers for the developers' work in the future. Furthermore, the fact that each project will attract new users to the community means that other projects may potentially benefit from this additional audience, progressively ensuring that the community increases in value for both developers and players.

The community is right at the core of the platform's proposition, as it has been recognised to be a key factor for the success of the projects on a crowdfunding platform [32, 33]. Hence, the platform should provide social features at all levels in order to empower the interaction among gamers and developers, encouraging them to create a great social experience for everyone [36, 37]. These features would go from comments, reviews and friend lists to chat rooms, forums (e.g. game-specific, general, off-topic, etc.) and thematic user groups. However, these features are a complete yet standard set of social features that are already present in many websites nowadays<sup>26 27 28</sup>, where they have proven their effectivity for the task. Therefore, this value proposition will include them as a part of its core features but their effectiveness will not be tested since they are already industry standards.

### **5.3.2 Fundraising package for indie developers**

The way an independent video game studio faces their funding issues is usually an indicator of their philosophy. Some choose to seek investment in exchange for equity in the business, others ask for loans or grants, while others summon the support of followers to raise funds and attract more people to the project [38]. Nowadays, more and more studios are opting for the latter because of the great opportunity the growing crowdfunding phenomenon offers [39].

However, the predominant reward-based crowdfunding method, all-or-nothing [15], requires developers to invest a lot of time and resources, which may turn out to be a waste of effort if the campaign is eventually unsuccessful. Moreover, the growing

---

<sup>26</sup> <http://www.deviantart.com/>

<sup>27</sup> <http://gamejolt.com/>

<sup>28</sup> <http://www.desura.com/community>



number of projects opting for crowdfunding platforms has increased competition, making things even more difficult for modest studios. However, the all-or-nothing method is not the only viable way to raise funds through crowdfunding, just as the current crowdfunding model is not the only way to obtain funds from the players.

Given this scenario and the conclusions obtained in the developer questionnaire (see section 5.2.2 *Crowdfunding benefits for indies*), it seems reasonable to provide an alternative crowdsourced fundraising package with numerous options, so that each team of developers may choose the one that best suits their needs or even combine them. The funding methods the package should contain would be particularly aimed at game developers and would include:

- **Fixed Crowdfunding (or All-Or-Nothing):** The most common method in the current reward-based crowdfunding market. The developers estimate the cost of the project and establish a funding goal, obtaining the money raised only if they have successfully reached their goal when the campaign ends. The donations are usually driven by a set of game-related rewards (i.e. reward-based model) organised in tiers of increasing cost, in such a way that the higher the amount a person pledges to a project, the more exclusive and valuable the rewards are. This method requires great dedication and community involvement from the developers, and often drives players to spread the word and encourage other people to ensure the goal is reached.
- **Flexible Crowdfunding (or Keep-It-All):** This method also exists in the market, but currently does not enjoy the same popularity as the all-or-nothing approach, as it involves a higher risk to the supporters if the goal is not reached. Usually, this funding method is used when developers are determined to create the game

regardless of the success of the campaign, since they will get the funds raised whether or not they reach the goal. However, the fact that the development team keeps the money even if it is not enough to cover the production expenses makes an eventual completion of the project significantly more uncertain.

- Custom Promotions: The custom promotions are special offers on which developers make exclusive game items available to their supporters for a limited time. These promotions may be made before, during and after a crowdfunding campaign, and allow the team to obtain an additional income stream while maintaining their community active around the project. The use of this method as part of a fundraising campaign would be used in this platform for the first time as a means to fund an independent video game.
- Pre-sales: Although crowdfunding can be seen in many cases as a way to generate pre-sales [40], the major crowdfunding platforms currently do not offer the option to pre-purchase products successfully funded on the platform once their crowdfunding campaign has ended. As a consequence, there is a gap in between the fundraising process and the release where people who discover a project after the fundraising campaign is over cannot contribute or purchase it, even though the users who were able to support the project during the campaign could. On this matter, one of the fundraising methods that applies almost exclusively to video games and that has proven very effective in games like Minecraft [35], is the *early access* (or alpha/beta funding). Early access consists in releasing unfinished versions of the product (e.g. alpha, beta) for a reduced price to allow players to test the current state of the game, helping at the same time to fund the next iteration of the development [35]. This method allows developer teams to keep the community involved in the development

of the game, testing and providing feedback, as well as helping the developers to finance the project. Both features, pre-sales and early access, should be included in the platform as a means to cover the aforementioned gap in the continuity of the sales between the funding stage and the final release of the product.

- Auctions: This method would allow developers to provide their followers with exclusive items that are able to generate interest and activity around the project. The platform should offer auctions that would serve both as a fundraising method and as a gamification element to keep the community engaged.
- Donations: The platform should offer its users the possibility to donate to projects they want to collaborate with. These donations would not entail any reward for the user beyond the satisfaction of helping developers carry out their project, and therefore it would not be required for the project to be actively raising funds at that time.

### **5.3.3 Professional networking**

The resources an indie team can count on are usually very limited compared to those of the large companies in the industry, and that also applies to human resources. Sometimes a development team cannot foresee all the skills they will need in order to develop their project, and in many cases, when these needs arise the team members lack the necessary skills in those particular areas and therefore require the participation of external experts in the field (see section 5.2.3 *Lack of skills*) [41]. Unfortunately, lack of knowledge or resources is not the only deficiency these developers suffer, since they

often do not even have the necessary contacts to fill these gaps with the quality they need or at an affordable cost [42].

Therefore, a need exists among indie teams to access other professionals who have the knowledge the team requires to perform specific tasks in their projects. Moreover, there are also users without the required skills or experts in other areas (e.g. music, drawing, design, etc.) who have great ideas for video games but need additional help to carry them out.

This service is meant to foster the creation of a professional and collaborative contact network running according to the social spirit that surrounds the platform. Developers would have access to a network within the platform where they would be able to connect with other developers, ask for advice, offer their help and work with others on new projects. This collaborative network for game developers would be innovative in the current scene, and would complete on the other hand the feeling of community achieved with the rest of the features. This feature would be highly desirable in this proposal, but due to testing limitations it will be left as a suggestion.

### **5.3.4 Promotion and exposure**

Many developers rely on creating a good product to be successful, but unfortunately a great game alone is not enough. Marketing seems to be one the biggest obstacles for indie developers in their attempt to make a successful game (see section 5.2.2 *Crowdfunding benefits for indies*) [43, 44], which along with the increasing number of games in the market, makes visibility for a new game very hard to achieve. As part of its internal promotion program to promote talent and community engagement, the

platform should establish a set of mechanisms to increase the visibility of ongoing projects based on their merits, quality and characteristics.

Video games are categorised into genres which in turn may have many sub-genres, and video game players normally focus their personal interests around a set of those. Therefore, a simple method to improve project discoverability would be to categorise projects into genres so that users find it easy to check the kind of games they are interested in and find new projects easily. This system can be supplemented with a tagging mechanism that allows users or developers themselves designate the characteristics and qualities that particularise a video game to make it easier to find for users looking for certain characteristics. Additionally, as a way to reward the work and commitment of the developers, the projects that are doing particularly well according to the staff criteria would be selected as “Staff Picks” and would be awarded with increased visibility and support from the platform. Additionally, in an effort to improve the gamers’ discovery of projects, the platform should also provide a “Suggestions” list where each user would be notified of similar projects to those he/she liked, backed and/or subscribed to.

In the future, due to its role as an indie game development and fundraising community, the platform would likely have an active role in the indie video game industry, which implies interacting and establishing a network of contacts with other industry actors. Some of those actors may be of particular relevance to developers in terms of marketing and exposure: journalists, bloggers, event organisers, distribution platforms, video game news sites and so on. Taking advantage of this privileged position, the platform should make good use of its marketing potential actively promoting its games and developers, helping them get noticed outside the platform, and consequently increasing their

chances to succeed. For the time being, until the platform is built and the industry network is established, this feature is impossible to test or achieve, and therefore will be left out of the core proposition.

### **5.3.5 Subscriptions and notifications**

Users who support a project usually want to actively follow the development process and want to be notified on the latest news and updates. However, they might not be interested in all the types of notifications but only a few (e.g. blog posts, promotions, auctions, new demos, live streams, information about fundraising campaigns, content updates, etc.).

From the point of view of the developer, having a way to let the supporters know about the events surrounding a project would be a very powerful tool to keep the fan base active and participative. Nevertheless, a continuous stream of notifications about the project may be deemed annoying and might result in the fans unsubscribing and withdrawing their support from the project.

Unfortunately, the major crowdfunding platforms do not offer such a feature. Although it is currently possible to receive updates from a project (only new content updates or developers' posts) [47, 48], that is a feature normally restricted to users who have already pledged money to the crowdfunding campaign. However, it might often be the case that developers lose potential supporters due to the lack of methods to enable users to track projects they are interested in but not willing to pay for (see section 5.2.2 *Crowdfunding benefits for indie games*).

In order to tackle this, the platform should implement a subscription system that would allow the users to subscribe to the projects they are interested in, letting them choose the type of notifications they would like to be notified about. The notifications from all the projects tracked by a user would be sent either to their email address or to a timeline on their personal profile (or both), allowing them to easily see the latest news of their favourite games.

### **5.3.6 Reputation system**

People who pledge money to a project are risking their money to support a product that might never be released even if the funding goal is reached, and therefore they need some guarantee from the creators in order to ensure their capability to undertake and culminate the endeavour [47]. In turn, developers can also benefit substantially from providing such evidence, since they will likely be seen as trustworthy by other users [48], lowering the inherent barrier of uncertainty that surrounds the fundraising process of crowdsourced projects.

The platform should implement a reputation system for developers that would allow them to show their past works and the score obtained from previous projects in the platform. This score would be merit based and would reward their efforts in providing veracious information about their projects, reaching their goals, being true to their commitments and delivering their products.

### **5.3.7 Gamification**

Active participation is an extremely important factor to keep a community alive. Ideally, the common effort of the members should be equally distributed across all members, but it has been largely proven that not everyone contributes at the same level to generate value within a community [49]. Generally, a small percentage of the overall population of the community creates most of the content, whereas the remaining users participate merely by observing what other members generate. Although the percentages of those groups may vary depending on the community environment, the participation inequality remains an issue difficult to overcome [49, 50].

In our particular case, this fact is of special significance for developers. They are fairly interested in the opinion of the community about their games, and rely on the feedback their supporters provide to spot problems and improve the product. Nevertheless, given the fact that a small portion of users generate most of the feedback, the outcome may not be representative of their average supporter.

Participation inequality is an issue that needs to be addressed in order to maintain a healthy and meaningful interaction between developers and supporters. Unfortunately, this problem is inherent to human behaviour and it has been present in every community and service studied so far, proving itself nearly impossible to eradicate [49]. However, there are methods such as gamification that effectively mitigate its effects, increasing the overall community engagement in the process.

Gamification is the name given to the use of game mechanics in non-gaming environments, generally aimed at increasing the level of enjoyment of the users while encouraging desired behaviours. Gamification appeals in many levels to the users'



natural desires: socialising, learning, mastery, competition, achievement, status, self-expression, altruism, or closure [51]. In the context of a community, gamification involves reinforcing positive behaviours by rewarding the users after accomplishing certain tasks that are valuable for either them or the community as a whole. This mechanism has proven to effectively increase consumer engagement, improve quality of user contributions and accelerate adoption [52, 53].

In this platform, the gamification features would address the desired behaviours of both developers and gamers and would also be used to reinforce reputation and credibility among users (see section 5.2.4 *Gamification*). The types of rewards offered in the system would be user/developer levels, achievements, badges, titles and distinctive labels for the social grounds (i.e. forums, user groups, etc.). Creating content, backing projects and helping and interacting with the community would grant the users rewards to show in their profile, giving them an incentive to take active part in the community and the events of the platform.

### **5.3.8 Game jams**

A game jam is an event where the participants have to create a new game within a certain amount of time, usually sharing common theme and constraints [54]. Due to the short life span in which game jams unfold (from 24-48h to a few days) the games developed are highly experimental and creative, frequently becoming the initial prototype for a fully realised game later on [55].

The game jams should be a central element of the platform due to their perfect synergy with the rest of the features: they keep the community active and creative, foster

experimentation and innovation and act as a source of new and original projects for the platform. Moreover, these contests are perfectly suited to the purpose of seeding the platform with projects and kick start the community at an early stage, which can be particularly empowered by adding gamification elements to the competitions [53].

However, there may be the case that a developer who does not belong to an organised team wants to participate in a game jam. In line with the platform's social approach and as a complement to the game jam feature, the platform should offer a "*Team Builder*" service that would give developers the chance to randomly team up with other community members who meet their requirements to form a team for a particular game jam, providing them with a unique opportunity to meet potential partners to work with in future projects.

Although this feature may be desirable within the frame of this proposal, it is not realistically testable in a prototype. Game jams will be part of the list of features proposed in this dissertation, but due to the difficulty to perform an appropriate experiment it will not be tested in the next section.

### **5.3.9 Summary**

After considering a wide range of aspects to build a strong proposition, the list of features the platform should include is as follows:

- **Crowdsourced funding models:** flexible (keep-it-all) and fixed (all-or-nothing)  
– Proposed/Testable
- **Complementary funding features:** custom promotions, auctions, donations and pre-sales – Proposed/Testable

- **Promotion and exposure features:** categories (genres), tags, staff picks/featured projects, suggestions for similar games – Proposed/Testable
- **Tracking features:** subscriptions and filters – Proposed/Testable
- **Reputation features:** developer/studio timeline and reputation badges (gamification) – Proposed/Testable
- **Constructive interaction features:** gamification items (e.g. badges, levels) – Proposed/Testable
- **Community features:** comments, reviews, friend lists, chat rooms, forums and thematic user groups – Proposed/Not testable
- **Professional network** – Desirable/Not testable
- **External promotion** – Desirable/Not testable
- **Game jams** – Desirable/Not testable
- **Financial and legal support** (as stated in the section 5.2 *Developer questionnaire*) – Desirable/Not testable

## 5.4 Prototype testing

The features proposed above are specially designed to meet the needs of independent video game developers, but they also need to be well received by users since they are ultimately responsible for their success. Following the previously proposed architecture, a prototype was developed in order to test the users' reaction to this proposal. This prototype incorporated all the features regarded as "Proposed / Testable" in the previous section. In order to obtain the users' validation, an online questionnaire including screenshots of certain sections of the prototype was created (Appendix B). Then, announcements were posted on video game communities asking users to voluntarily

evaluate the proposed solutions. A total of 89 anonymous responses were obtained, and the results are presented below. Note that, as all the questions were entirely optional, most results add up a total of votes below 89.

### 5.4.1 Funding methods

Initially, the participants were presented two pictures from projects with the same characteristics (e.g. rewards, description, multimedia content and so on) with the only difference being the funding plan they were using. The first of them used the flexible (keep-it-all) funding whereas the second used fixed (all-or-nothing). The details of each funding plan were explained in a tooltip beside the funding plan label to ensure the participants knew the implications of each of them. Then, they were told they had €10 to spend in backing projects and were asked to spend that amount assuming they liked both projects. The results were:

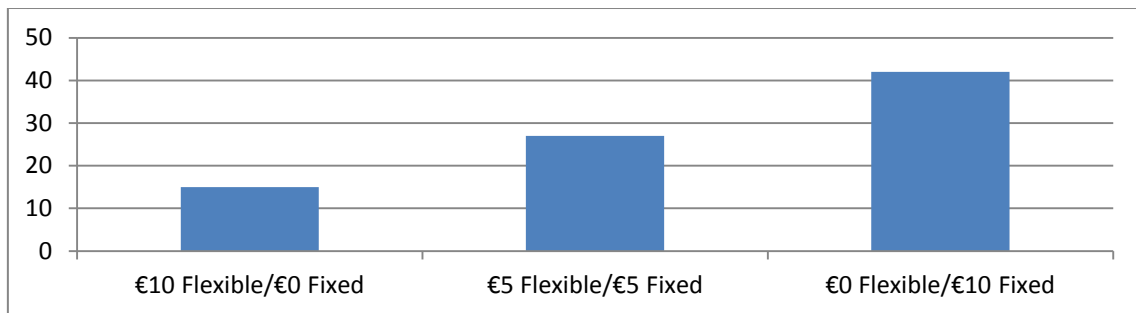
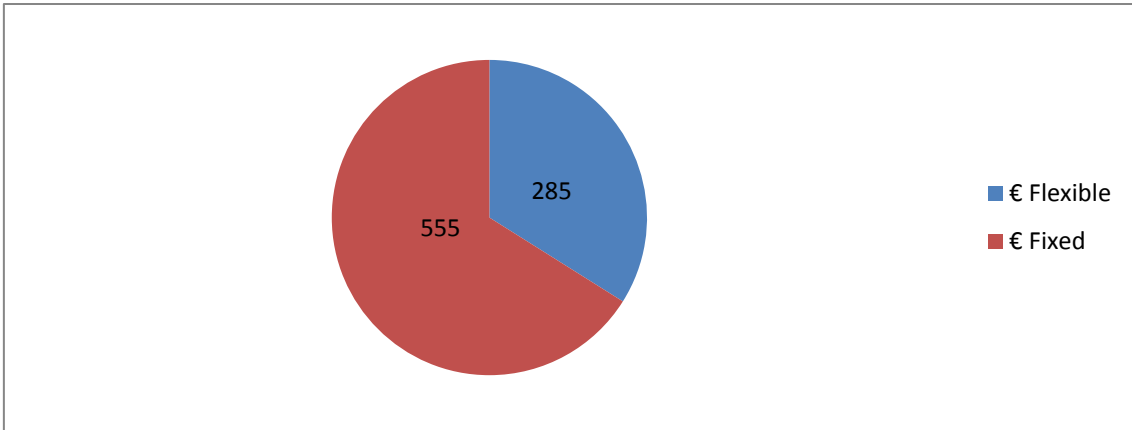
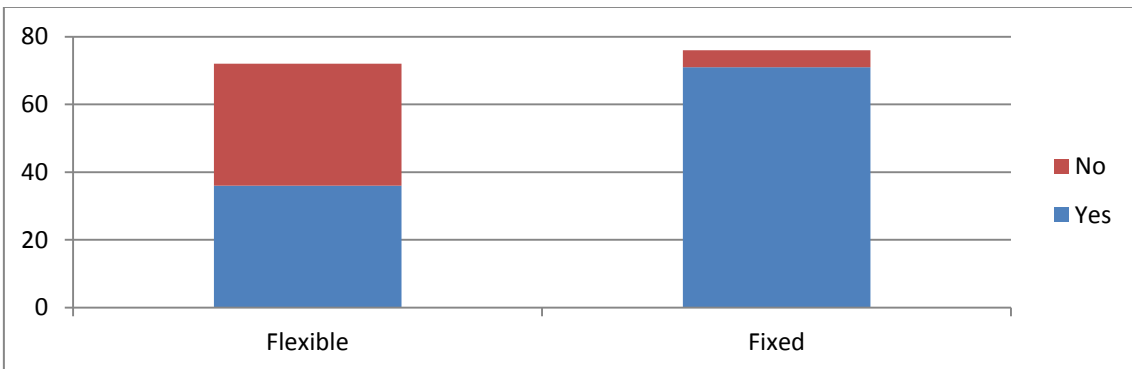


Figure 11 - Pledges to flexible and fixed projects (Q1)



**Figure 12 - Overall money raised by each funding method (Q1)**

The outcome was dramatically positive for fixed funding and poor for flexible funding. Fixed funding raised almost two times more funds than flexible funding, demonstrating that users do mind about the funding model the projects use.

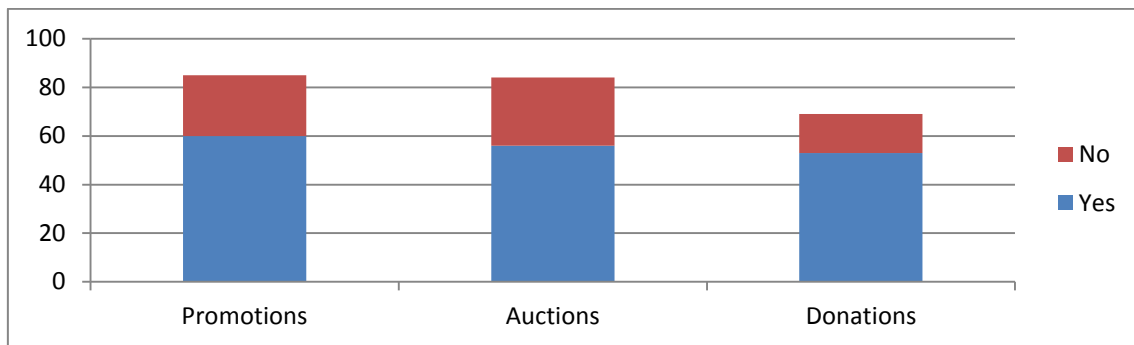


**Figure 13 - Suitability of funding methods for indie video games (Q2, Q3)**

Finally, in order to clarify the results of the previous experiment, the users were asked to evaluate the suitability of both funding models particularly for indie video games. The results made clear that flexible funding is often not seen by the public as a viable option for video games.

## 5.4.2 Additional funding features

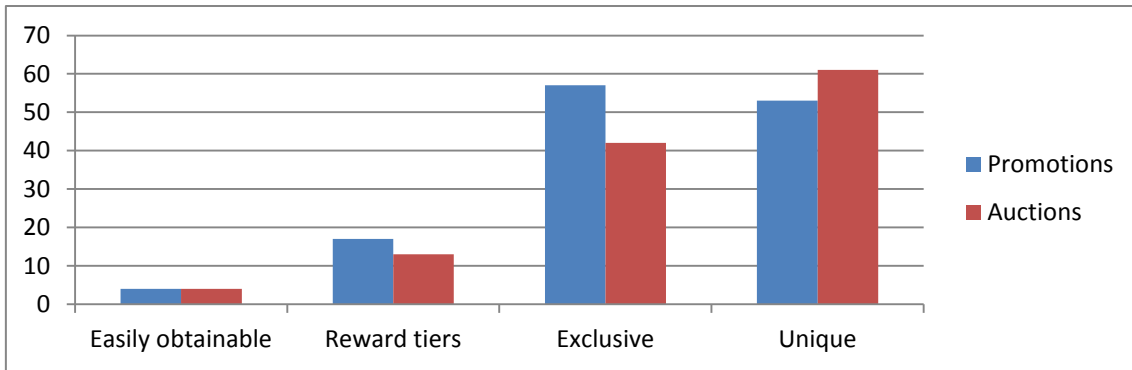
Following the traditional crowdfunding models, participants were asked to evaluate complementary funding features that developers might use to maximise the money raised throughout the development process while providing exclusive rewards to their fan base. Promotions, auctions and donations were presented in separate pictures and their details were explained before the participants were asked to consider their viability for funding video games.



**Figure 14 - Suitability of complementary funding methods to raise funds for indie games (Q4, Q12, Q19)**

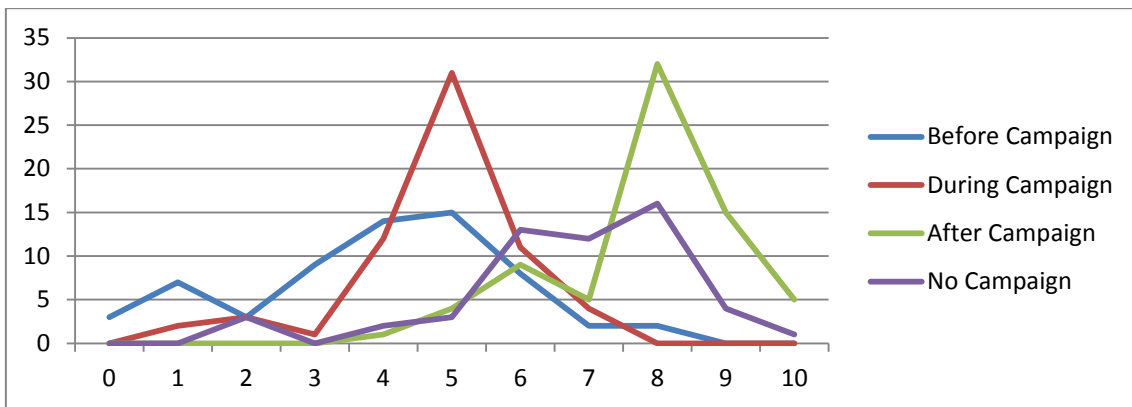
60, 56 and 53 participants out of 89 thought that promotions, auctions and donations respectively were viable as a way to fund video games. With around two thirds of the participants' positive votes, they all seemed to be regarded positively by the public.

Right after, the participants were asked to evaluate the suitability of promotions and auctions for specific types of rewards.

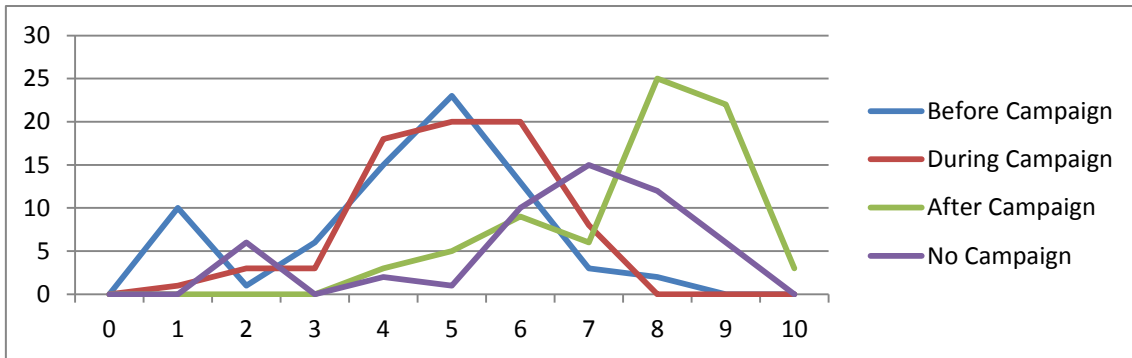


**Figure 15 - Types of rewards offered in promotions and auctions (Q5, Q18)**

The type of rewards that are expected from promotions and auctions are generally exclusive or unique content, with campaign rewards being better kept exclusively for campaign tiers. According to the participants, promotions seem to be slightly more suitable for limited or exclusive content while auctions are more fitted for very unique items.



**Figure 16 - Suitability of promotions regarding the crowdfunding campaign of a project (Q7, Q8, Q9, Q10)**

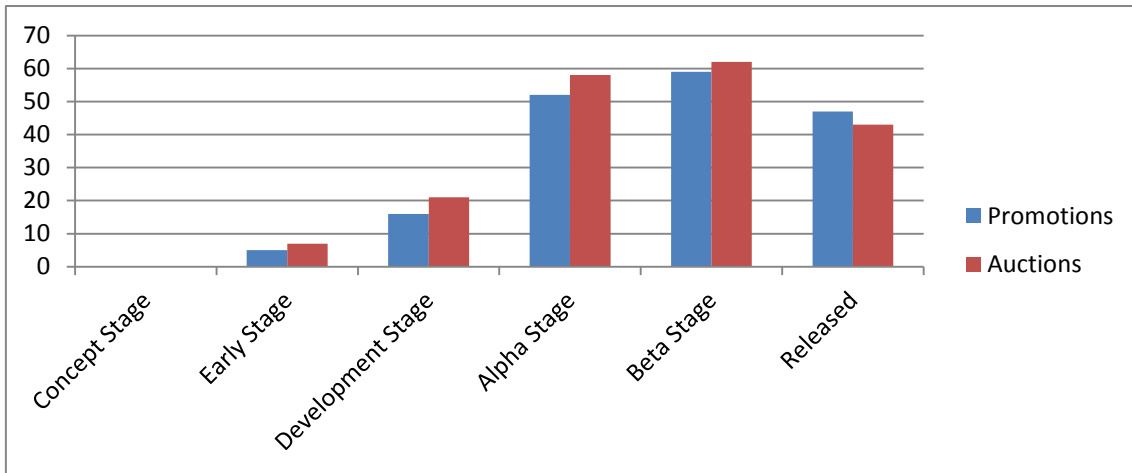


**Figure 17 - Suitability of auctions regarding the crowdfunding campaign of a project (Q13, Q14, Q15, Q16)**

Next, participants had to score in a scale from 0 to 10 the timing they considered best for promotions and auctions regarding a project's crowdfunding campaign (i.e. before, during or after) and whether they would be useful for projects that are not planning on launching any fundraising campaign. The results, as shown above, suggest that both promotions and auctions are generally better received once the campaign is over (assuming that reward tiers are permanently offered during the campaign), while they are both considered positive for projects not actively looking for funding.

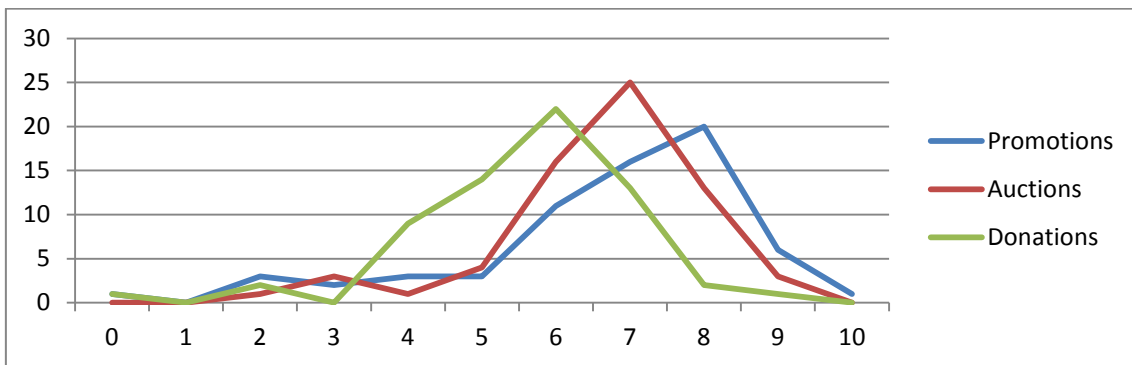
When asked more specifically about the phase of the game promotions and auctions should be launched in, participants seemed to agree on alpha, beta and release stages as the best options. Although the difference was very small, promotions were regarded as slightly better for released stage and auctions for alpha and beta.





**Figure 18 - Suitability of promotions and auctions regarding the project phase in which they are launched (Q11, Q17)**

Finally, as a wrap-up for this section, the participants were asked to rate the three additional funding features presented according to the overall relevance they thought the features had towards the funding of video games.



**Figure 19 - Overall relevance of promotions, auctions and donations to fund indie video games (Q20)**

The promotions seem to be the highest rated (6.68 average, 1.97 standard deviation), followed closely by auctions (6.62 avg., 1.41 std. dev.) and finally donations (5.59 avg., 1.48 std. dev.).

In general, promotions, auctions and donations were well received by users, although none of them clearly stood out from the rest as particularly promising. Promotions and

auctions are better seen as post-campaign fundraising tools to provide exclusive and unique game-related content to the users during the alpha and beta phases of the development and once the project has been released. Donations however, are regarded as plainly positive, being particularly suited for projects not actively looking for funding.

### 5.4.3 Pre-sales

Another complementary funding feature previously proposed was pre-sales. Pre-sales are essentially sales of the game that are made during stages of development prior to the final release version. If the game is not yet available and the customer has to wait until the game is eventually released they are usually called pre-orders.

The participants were asked if pre-sales should be available on the platform, and if so, if developers should offer not plainly the game but also packages with additional content and whether those packages should be different from the reward tiers offered during the crowdfunding campaign.

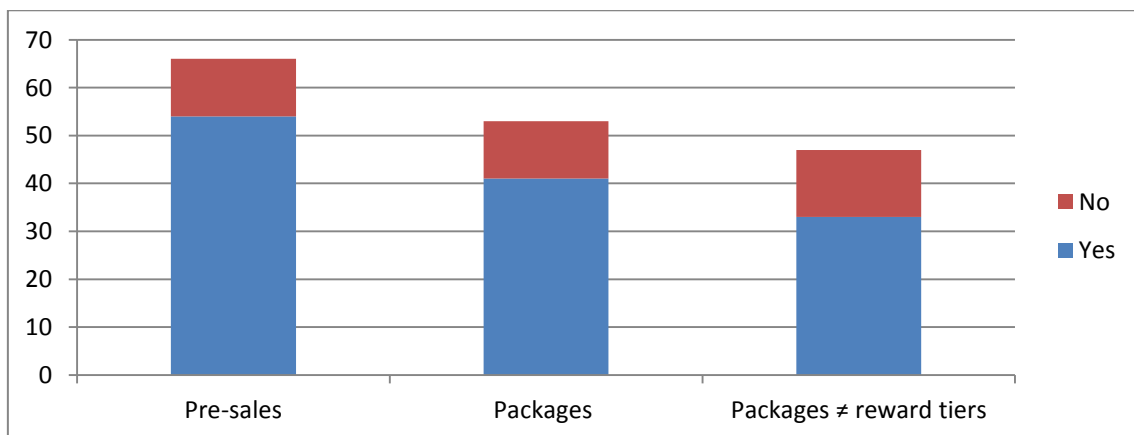
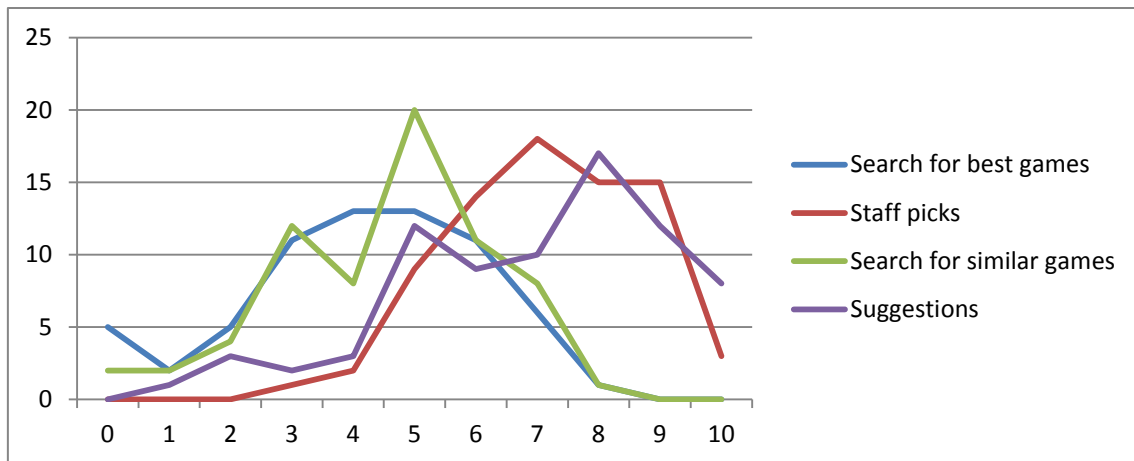


Figure 20 - Suitability of pre-sales (Q21, Q22, Q23)

The most common answer was that pre-sales should be available. However, only around half of the participants answered the other two questions, being “yes” the general answer. The fact that such a low proportion of participants answered those two questions suggests that many participants might not find it particularly relevant. In any case, the most important conclusion that can be drawn from these questions is the suitability of pre-sales as an additional funding feature for the platform.

#### **5.4.4 Internal exposure and game discovery**

Improving project discoverability was recognised as a crucial issue to promote projects within the platform, so participants were asked to evaluate different methods to find the most interesting games of their favourite genre and games similar to the ones they know and love. In order to do so, the participants were shown a set of screenshots in which the proposed search methods were depicted. The methods being evaluated in these questions were “search tool” and “featured projects/staff picks” for the most interesting games of a genre and “search tool” and “automated suggestions” for similar games. Video games were already classified in genres, what should make the task easier in every case.



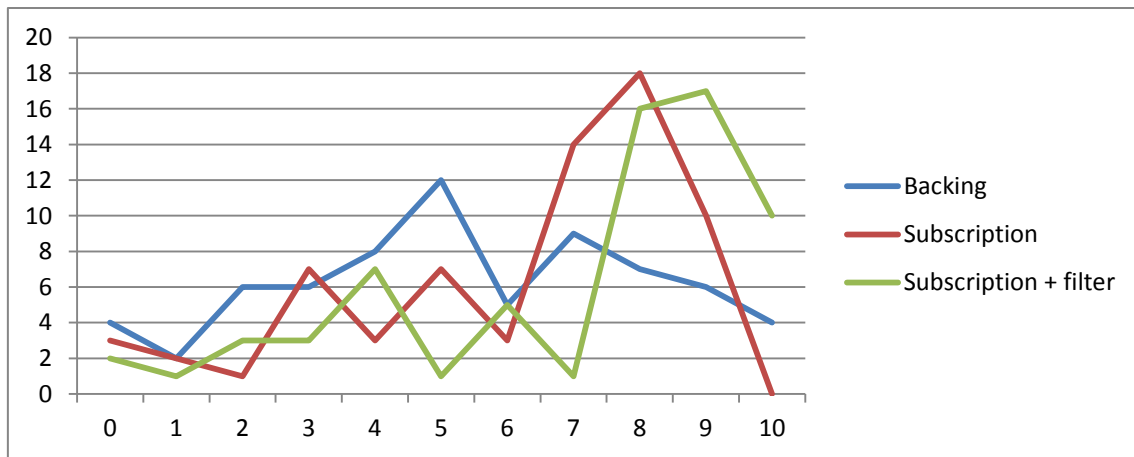
**Figure 21 - Suitability of traditional and new methods for discovering games (Q24, Q25, Q26, Q27)**

The results clearly show that participants saw featured projects/staff picks as a significantly better option than the traditional search tool to find the most interesting games of a genre (Staff picks: 7.56 average, 1.56 standard deviation; Traditional search: 4.15 avg., 1.96 std. dev.). On the other side, the search tool also seemed to work worse for the participants than the automated suggestions to discover new similar games (Traditional search: 4.54 avg., 1.77 std. dev.; Suggestions: 6.92 avg., 2.19 std. dev.).

In summary, participants considered that featured projects and automated suggestions improve the discoverability of projects in comparison to traditional searching methods.

### **5.4.5 Notifications and updates**

As it was pointed out by some developers in the “Developer questionnaire” section, the tools for tracking the projects and keep up with the projects’ progress might be improved, so participants were asked to give their opinions on this regard.



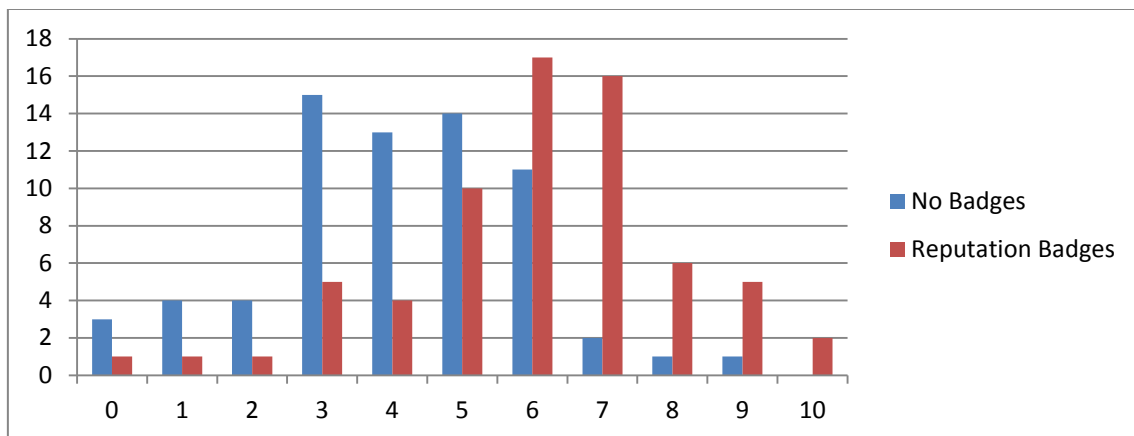
**Figure 22 - Suitability of methods for following a project (Q28, Q29, Q30)**

As can be seen above, pledging money to a project as a means to receive its updates is not clearly considered by a mass of participants as either positive or negative, with its scores evenly spread across the 0-10 range. However, regular and selective subscriptions to projects have a noticeable peak around 8 or 9, which suggests that many participants thought they might be highly useful as a tracking method for projects. The scores achieved by these three methods were 5.32 average, 2.74 standard deviation for backing; 6.21 avg., 2.53 std. dev. for regular subscriptions and 7.08 avg., 2.78 std. dev. for selective subscriptions. This result does not necessarily imply that backing should be removed as a tracking system for projects, but it may coexist with subscriptions or even improved by letting the users select the notifications they want to receive. On the other hand, subscriptions in general, and selective subscriptions in particular seem to be the highest rated options for following the progress and news of projects on the platform.

## 5.4.6 Gamification and reputation

Finally, the last section of the questionnaire asked the participant about their opinion about gamification as a tool to drive the community behaviour and to allow the user to build reputation.

The first of the three questions of this section presented a scenario in which the participant discovered a newly created project that had not raised any funding yet and whose creators had never been seen on the platform by the participant. Then, the participants were asked to rate how safe they considered pledging money to that project was. Immediately after, they were shown another screenshot of the exact same project, but this time with reputation badges and level under the creators' name and the option of browsing the creators' previous projects enabled, and were again asked to rate this new scenario.

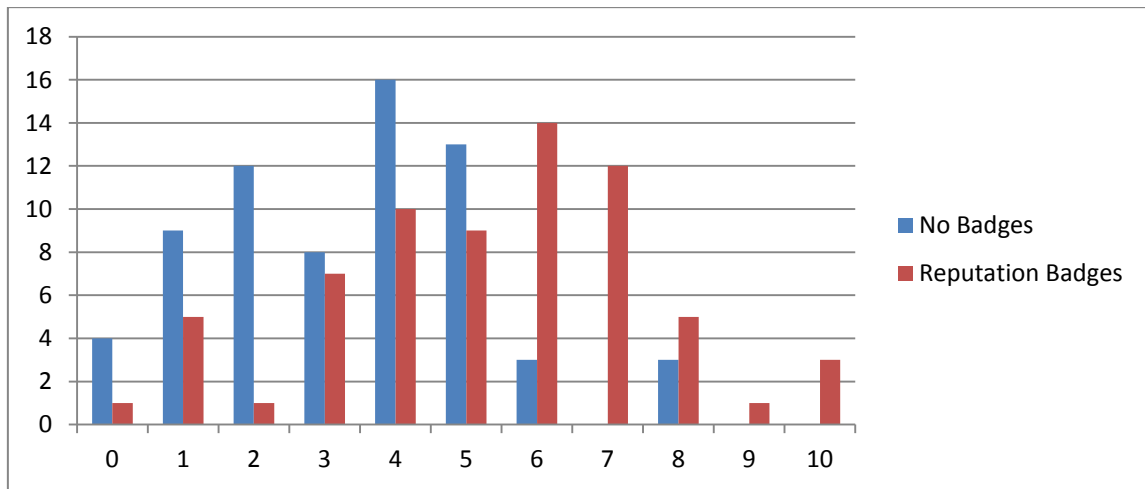


**Figure 23 - Effect of gamification badges on project credibility (Q31, Q32)**

The outcome of this experiment is visible on the figure above. The participants considered significantly safer the project with reputation badges and timeline (4.06

average, 1.86 standard deviation) than the one without them (avg. 6.04, std. dev. 1.99). That shows how beneficial gamification can be when applied to fields like reputation.

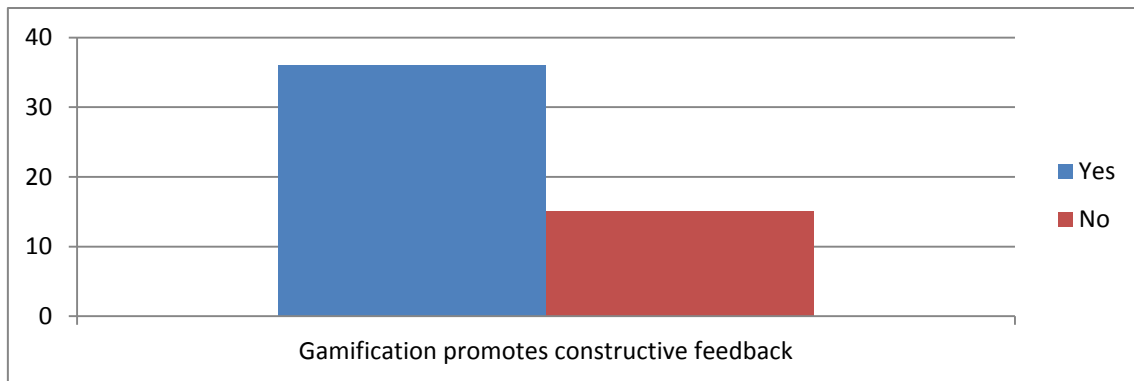
After this experiment, gamification was tested again as a reputation tool this time applied to user comments. The participants were asked to rate two comments by different users, one of them with and the other without reputation badges.



**Figure 24 - Effect of gamification badges on feedback credibility (Q33, Q34)**

Again, gamification proved useful as a reputation tool, this time at a user level. This suggests that the power of gamification goes beyond a mere mechanism for obtaining cosmetic awards to one that actually drives the behaviour of the community of users.

As last question, to ultimately prove whether gamification can actually lead users to increase their level of interaction, the participants were asked if they would be more willing to contribute constructively to the community if they were awarded with those badges.



**Figure 25 - Gamification badges encourage users to give more constructive feedback (Q35)**

Only slightly more than half of the participants (51) answered this question. 36 of them chose “yes” while 15 selected “no”. Although positive, the low participation on this last question leads to the impossibility of stating anything categorically.

Anyway, gamification proved thoroughly as a positive tool for building user and developer reputation and improving the trust of other users in members whose exemplar behaviour has been acknowledged.

## 5.5 Summary

The first conclusion drawn from this study is that, as previously manifested by the participants, the flexible plan (keep-it-all) may not be recommendable to crowdfund video games. Some additional research has been made on the topic, and the evidence found seemed to support the participants’ point [15, 56, 57]. Therefore, since this funding method does not seem to meet the needs of the customers, it has been removed from this dissertation’s proposal. As to the rest of funding features (i.e. fixed model, promotions, auctions, donations and pre-sales), the participants agreed they would be welcomed in such a platform.



Featured projects and automated suggestions were warmly received by the participants, who considered that both methods improved the project discoverability over the traditional search tools (even with genres and tags in place).

As an additional way to track project progress, the participants deemed positively the integration of subscription features, especially if they allowed to choose the type of notifications they would receive. However, the widespread method of backing a project to receive its updates was not discarded.

Finally, gamification features performed quite successfully. Reputation badges and levels had a significantly positive impact on the credibility of developers, which along with the possibility to check the developers' previous works on their timeline rounded out a seemingly successful reputation package. Moreover, reputation badges were also applicable to users and their reputation among the community. However, the effect of gamification on promoting constructive feedback could not be effectively proven due to the low participation ratio achieved on that question.

## Chapter 6: Conclusions

This dissertation proposed a set of methods to address the current needs of independent developers based on systems that are already familiar to gamers and game developers. Due to the uncertain environment in which the feasibility study of this idea was developed, an adaptation of the business development process of the lean startup methodology was used.

In order to do so, an initial exploratory study of the market for independent games was carried out, followed by a research study with professional developers to discover the problems the independent development studios were currently facing. The analysis of these studies led to the creation of a list of problems, which were later addressed by proposing a set of features and guidelines to be implemented by a development and/or financing platform for independent games. The main topics covered in this proposal were those previously identified as major problems of independent video game studios: access to funding, promotion, exposure, creation of a fan base and user engagement. A number of additional problems of great importance to developers were also outlined yet not included as part of the core proposition, due to being either hardly testable or out of scope for such environment. The proposal used mostly crowdfunding, gamification and social interaction elements to solve the identified problems. Finally, the core features of the proposal were then implemented on a web prototype. This prototype was shown to users of online video game communities in order to assess the impact of the new features compared to the traditional approach.

This dissertation ultimately showed that the implementation on video game funding platforms of game-related mechanisms that are already familiar to developers and

gamers can have a highly positive impact on the level of user engagement and the results achieved by the projects: gamification may significantly improve the reputation and credibility of projects and developers on crowdfunding platforms; elements such as featured projects and suggestions of similar games can leverage the categorisation of games in genres and the labelling of games according to their specific characteristics to improve game discoverability; complementary funding methods such as promotions and auctions that exploit the ability of video games to offer exclusive physical, digital and in-game items during the development process may increase the funds raised; and finally sales of non-final builds of the game (i.e. pre-sales) can be used to keep funding the game once the crowdfunding campaign is over.

This research also suggested that non-game-specific factors, such as specific funding models or project tracking systems, may have a significant impact on the success of video game crowdfunding campaigns.

## **6.1 Future Work**

Since the development of this proposal has been made in a purely experimental setting, the results may be far from those obtained if it was carried out in a real environment, such as a video game funding platform with a large community of users. It is actually possible that the same experiments presented here conducted in such a setting may turn out substantially different. Nevertheless, it would be desirable to perform these very same studies with a broader sample of independent developers from around the globe and perform the same measurements in a fully functional platform with a large user base.

This study has been performed facing the difficulty of creating an experimental environment that simulates a platform with a community of users large enough to be considered representative of the public in a real application, and therefore it would be necessary to implement the proposed solutions on an existing platform that already has that community. Elements such as gamification, complementary methods of financing and promotion mechanisms can be perceived by users rather differently depending on the context in which the test was conducted. The results of these tests can be significantly influenced by historical or functioning elements, since for instance the additional funding methods may be seen as unnecessary or highly undesirable by the users of a funding platform that has traditionally employed all-or-nothing funding plans and has managed to fund successfully several projects. The difficulty of implementing this proposal in its entirety on an existing platform is that it would also imply making many changes to its current system, which could ignite the discomfort of regular users. Therefore, the implementation and measurement of features would be recommended to be performed separately, so that their effects on the behaviour of users and projects' success can be measured independently and the possible clashes they may generate with already existing features can be clearly spotted.

However, there is always the possibility of creating an entire brand new platform that implements all the proposed features hoping that it will succeed as commercial product on its own, which was originally the desire and the ultimate goal of this dissertation work.

# Bibliography

- [1] L. Parker. (2011, February 14). *The Rise of the Indie Developer* [Online] Available: <http://www.gamespot.com/articles/the-rise-of-the-indie-developer/1100-6298425/> [Cited 21<sup>st</sup> August 2014]
- [2] N. Lipkin. "Examining Indie's Independence: The Meaning of 'Indie' Games, the Politics of Production, and Mainstream Cooptation". In *Loading... Journal of the Canadian Game Studies Association* 7, no. 11, pp 8–24, 2013.
- [3] F. Kleemann et al. "Un(der)paid Innovators: The Commercial Utilization of consumer Work Through Crowdsourcing". In *Science, Technology & Innovation Studies* vol. 4, no. 1, pp 5–26, 2008.
- [4] P. Belleflamme et al. "Crowdfunding: Tapping the Right Crowd". In *Journal of Business Venturing, Volume 29, Issue 5*, pp 585-609, 2014.
- [5] E. Kain. (2012, March 30). *Double Fine Adventure's Kickstarter Success Pumps Up New Life into Crowd-Fourced Gaming* [Online] Available: <http://www.forbes.com/sites/erikkain/2012/03/30/double-fine-adventures-kickstarter-success-pumps-new-life-into-crowd-funded-gaming/> [Cited 16<sup>th</sup> August 2014]
- [6] J. Grubb. (2013, April 3). *Torment crowdfunding total surpasses Double Fine Adventure* [Online] Available: <http://venturebeat.com/2013/04/03/torment-crowdfunding-total-surpasses-double-fine-adventure/> [Cited 21<sup>st</sup> August 2014]
- [7] N. Steigenberger. (2014). "On the Motivation of Backers in the Video Gaming Industry – Research report". *Seminar for Business Administration, Corporate Development and Organization, University of Cologne, 2014*. [Online] Available: [http://uo.uni-koeln.de/fileadmin/sites/uo/pdf/videogamecrowdfunding\\_report\\_270114.pdf](http://uo.uni-koeln.de/fileadmin/sites/uo/pdf/videogamecrowdfunding_report_270114.pdf) [Cited 21st August 2014]
- [8] F. Parker. "Indie Game Studies Year Eleven.", 2013.
- [9] B. Simon. "Indie Eh? Some Kind of Game Studies". In *Loading... Journal of the Canadian Game Studies Association* 7, no. 11, pp 1–7, 2013.
- [10] W. Harrel. (2013, October 9). *The Indie Revolution: How Little Games Are Making Big Money* [Online] Available: <https://www.gameacademy.com/the-indie-revolution/> [Cited 12<sup>th</sup> August 2014]
- [11] S. Tardini and L. Cantoni. "A semiotic approach to online communities: belonging, interest and identity in websites' and videogames' communities". In *Proceedings of the IADIS International Conference e-Society*, pp. 371-378, 2005.

- [12] O. Guevara-Villalobos. "Cultures of Independent Game Production: Examining the Relationship between Community and Labour". In *Proceedings of DiGRA 2011 Conference: Think Design Play*, 2011.
- [13] C. Edwards. (2013, November 4). *Valve Lines Up Console Partners in Challenge to Microsoft, Sony* [Online] Available: <http://www.bloomberg.com/news/2013-11-04/valve-lines-up-console-partners-in-challenge-to-microsoft-sony.html> [Cited 13<sup>th</sup> August 2014]
- [14] D. Crawley. (2014, March 4). *Gold Rush: The Race for Crowdfunding Dollars and the Squeeze on Smaller Developers* [Online] Available: <http://venturebeat.com/2014/03/04/gold-rush-the-race-for-crowd-funding-dollars/> [Cited 14<sup>th</sup> August 2014]
- [15] D. J. Cumming et al. (2014). *Crowdfunding Models: Keep-it-All vs. All-or-Nothing*. Available: <http://ssrn.com/abstract=2447567> [Cited 28<sup>th</sup> July 2014]
- [16] R. Hiscott. (2014, March 8). *Why Indie Game Devs Thrive Without Big Publishers* [Online] Available: <http://mashable.com/2014/03/08/indie-developers-self-publishing/>
- [17] K. Taylor. (2013, August 6). *6 Crowdfunding Websites: Which One Is Right for Your Project?* [Online] Available: <http://www.forbes.com/sites/katetaylor/2013/08/06/6-top-crowdfunding-websites-which-one-is-right-for-your-project/> [Cited 16<sup>th</sup> August 2014]
- [18] ICO Partners. (2014, January 10). *2013 for Games on Kickstarter* [Online] Available: <http://www.icopartners.com/blog/archives/3439> [Cited 16<sup>th</sup> August 2014]
- [19] Kickstarter. (2014). *Stats* [Online] Available: <https://www.kickstarter.com/help/stats> [Cited 16<sup>th</sup> August 2014]
- [20] E. Ries. *The lean startup: How today's entrepreneurs use continuous innovation to create radically successful businesses*, 1<sup>st</sup> ed., Ed. New York: Crown Publishing Group, 2011.
- [21] T. Eisenmann et al. "Hypothesis-Driven Entrepreneurship: The Lean Startup". In *Harvard Business School Entrepreneurial Management Case, Note 812-095*, 2011.
- [22] E. Ries. "Leap" in *The lean startup: How today's entrepreneurs use continuous innovation to create radically successful businesses*, 1<sup>st</sup> ed., Ed. New York: Crown Publishing Group, 2011, pp 79-91.
- [23] S. Blank. (2013, March 29). *Nail the Customer Manifesto to the Wall* [Online] Available: <http://steveblank.com/2012/03/29/nail-the-customer-development-manifesto/> [Cited 7<sup>th</sup> August 2014]

- [24] A. Osterwalder & Y. Pigneur. "Canvas" in *Business Model Generation: A Handbook For Visionaries, Game Changers, And Challengers*. Hoboken, NJ: John Wiley & Sons, 2010, pp 1-51.
- [25] A. Maurya. (2012). *Why Lean Canvas Vs Business Model Canvas?* [Online] Available: <http://practicetrumpstheory.com/2012/02/why-lean-canvas/> [Cited 7<sup>th</sup> August 2014]
- [26] E. Ries. "Part Two: Steer - Introduction" in *The lean startup: How today's entrepreneurs use continuous innovation to create radically successful businesses*, 1<sup>st</sup> ed., Ed. New York: Crown Publishing Group, 2011, pp 75-78.
- [27] B. Butler et al. (2002). "Community effort in online groups: Who does the work and why?" in *Leadership at a distance: Research in technologically supported work*, 1<sup>st</sup> ed., Ed. New York: Taylor & Francis Group LCC, 2008, pp 171-194.
- [28] E. Ries. "Grow" in *The lean startup: How today's entrepreneurs use continuous innovation to create radically successful businesses*, 1<sup>st</sup> ed., Ed. New York: Crown Publishing Group, 2011, pp 206-222.
- [29] J. S. Gans and S. Stern. "The product market and the market for "ideas": commercialization strategies for technology entrepreneurs." In *Research policy* 32.2 (2003), pp 333-350, 2003.
- [30] A. Sidhu and S. Kinger. "Analysis of Load Balancing Techniques in Cloud Computing." In *International Journal of Computers & Technology* 4.2c2, pp 737-741, 2013.
- [31] Kickstarter. (2013, October 29). *Five Million Backers* [Online] Available: <https://www.kickstarter.com/blog/five-million-backers> [Cited 23rd August 2014]
- [32] J. S. Hui et al. "Understanding the role of Community in Crowdfunding Work". In *Proceedings of the 17th ACM conference on Computer supported cooperative work & social computing (CSCW '14)*. ACM, New York, NY, USA, pp. 62-74, 2014.
- [33] E. M. Gerber et al. "Crowdfunding: Why people are motivated to post and fund projects on crowdfunding platforms". In *CSCW Workshop*, 2012.
- [34] P. Vesely et al. "Key elements of building online community: Comparing faculty and student perceptions". In *MERLOT Journal of Online Learning and Teaching*, 3(3), pp. 234-246, 2007.
- [35] Wikipedia. (2014). *Early Access*. [Online] Available: [http://en.wikipedia.org/wiki/Early\\_access](http://en.wikipedia.org/wiki/Early_access) [Cited 28<sup>th</sup> July 2014]

- [36] J. Osborne. (2008, July 3). *Key Elements of an Online Community Strategy*. [Online] Available: <http://www.searchenginepeople.com/blog/key-elements-of-an-online-community-strategy.html> [Cited 30<sup>th</sup> July 2014]
- [37] D. Andrews. "Audience-specific online community design". In *Communications of the ACM* 45, 4 (April 2002), pp 64-68, 2002.
- [38] G.B. Contestabile. (2013, November 4). *A guide to financing options for indie developers*. [Online] Available : <http://www.edge-online.com/features/the-many-paths-to-financing-for-independent-game-companies/> [Cited 28<sup>th</sup> July 2014]
- [39] Kickstarter. (2013, September 6). *The Year of the Game*. [Online] Available: <https://www.kickstarter.com/blog/the-year-of-the-game> [Cited 28<sup>th</sup> July 2014]
- [40] W. Schroter. (2014, February 4). *Why Crowdfunding Websites Work*. [Online] Available: <http://www.forbes.com/sites/wilschroter/2014/02/04/why-crowdfunding-websites-work/2/> [Cited 30<sup>th</sup> July 2014]
- [41] R. Boyd. (2012, February 14). *So you want to be an indie developer?* [Online] Available: [http://gamasutra.com/blogs/RobertBoyd/20120214/91082/So\\_You\\_Want\\_to\\_Be\\_an\\_Indie\\_Game\\_Developer.php](http://gamasutra.com/blogs/RobertBoyd/20120214/91082/So_You_Want_to_Be_an_Indie_Game_Developer.php) [Cited 28<sup>th</sup> July 2014]
- [42] R. DellaFave. (2013, October 30). *Working Remotely: Building an Indie Game Development Team*. [Online] Available: <http://gamedevelopment.tutsplus.com/articles/working-remotely-building-an-indie-game-development-team--gamedev-12394> [Cited 30<sup>th</sup> July 2014]
- [43] R. DellaFave. (2014, July 2). *Marketing Your Indie Game: The Single Most Important Thing That No One Knows How to Do*. [Online] Available: <http://gamedevelopment.tutsplus.com/articles/marketing-your-indie-game-the-single-most-important-thing-that-no-one-knows-how-to-do--gamedev-7157> [Cited 28<sup>th</sup> July 2014]
- [44] E. Sebellin-Ross. (2013, January 3). *The Secrets of Promotion for Indies*. [Online] Available: [http://www.gamasutra.com/view/feature/184229/the\\_secrets\\_of\\_promotion\\_for\\_indies.php](http://www.gamasutra.com/view/feature/184229/the_secrets_of_promotion_for_indies.php) [Cited 28<sup>th</sup> July 2014]
- [45] Kickstarter (2014). *Creator Questions. What are project updates?* [Online] Available: [https://www.kickstarter.com/help/faq/creator+questions#faq\\_41781](https://www.kickstarter.com/help/faq/creator+questions#faq_41781) [Cited 31<sup>st</sup> July 2014]
- [46] M. Montales. (2010, November 24). *How to Use Updates on Indiegogo*. [Online] Available: <https://es.go.indiegogo.com/blog/2010/11/how-to-make-the-most-of-updates-on-indiegogo.html> [Cited 31<sup>st</sup> July 2014]



- [47] M. Burns. (2014, April 9). *The Risk and Rush of Supporting a Crowdfunding Project*. [Online] Available: <http://techcrunch.com/2014/04/09/the-risk-and-rush-of-supporting-a-crowdfunding-project/> [Cited 30<sup>th</sup> July 2014]
- [48] J. Nielsen. (1999, September 5). *Reputation Managers are Happening*. [Online] Available: <http://www.nngroup.com/articles/reputation-managers-are-happening/> [Cited 31<sup>st</sup> July 2014]
- [49] J. Nielsen. (2006, October 9). *Participation Inequality: Encouraging More Users to Contribute*. [Online] Available: <http://www.nngroup.com/articles/participation-inequality/> [Cited 31<sup>st</sup> July 2014]
- [50] O. Stewart et al. "Crowdsourcing participation inequality: a SCOUT model for the enterprise domain". In *Proceedings of the ACM SIGKDD Workshop on Human Computation (HCOMP '10)*. ACM, New York, NY, USA, pp. 30-33, 2010.
- [51] Wikipedia. (2014). *Gamification*. [Online] Available: <http://en.wikipedia.org/wiki/Gamification> [Cited 31<sup>st</sup> July 2014]
- [52] R. Negi. (2014, March 24). *Win with Gamification in Online Communities*. [Online] Available: <https://smallbusiness.yahoo.com/advisor/win-gamification-online-communities-100050585.html> [Cited 31<sup>st</sup> July 2014]
- [53] M. Witt et al. "Gamification of online idea competitions: Insights from an explorative case". *Informatik schafft Communities*, 192, 2011.
- [54] Global Game Jam (2014). *Frequently Asked Questions 2014*. [Online] Available: <http://globalgamejam.org/faq> [Cited 29<sup>th</sup> July 2014]
- [55] Itch.io. (2014). *Game Jams*. [Online] Available: <http://itch.io/jams> [Cited 29<sup>th</sup> July 2014]
- [56] CrowdFund Buzz (2013, December 15). *Your Crowdfunding Campaign: Flexible Funding or Fixed Funding?* [Online] Available: <http://crowdfundbuzz.com/your-crowdfunding-campaign-flexible-funding-or-fixed-funding/> [Cited 28<sup>th</sup> July 2014]
- [57] S. Briggman. (2013). "All or Nothing" vs. "Flexible Funding" – Which is a better choice for a crowdfunding campaign? [Online] Available: <http://www.crowdcru.com/all-or-nothing-vs-flexible-funding-crowdfunding/> [Cited 28<sup>th</sup> July 2014]

# Appendix A: Developer questionnaire

*Each question is optional. Feel free to omit a response to any question; however the researcher would be grateful if all questions are responded to.*

- Q1 - What are the main challenges indie developers face during the development process of a game? (Up to 5)

- Funding
  - Frustration /Losing faith in the game
  - User feedback
  - Marketing
  - Press coverage
  - Networking (finding other developers to team up with/ask for help)
  - Deadlines
  - Building fan base
  - Raising game awareness
  - Conveying the game idea/concept/mechanics
  - Technical skills
  - Resources/assets
  - Financial issues
  - Market research
  - Legal issues
  - Pricing strategies
  - Access to distribution platforms
  - Others:
- 

- Q2 - What do you think are the benefits of crowdfunding?

- Access to funding
  - Creating fan base
  - Raising awareness
  - Receiving user feedback
  - Market research/validation
  - Marketing
  - User engagement
  - Risk reduction
  - Creative freedom
  - Others:
-

- Q3 - Do you think indie teams usually know about the market and its trends?

- Yes.
  - No.
- 

- Q4 - Do you think indie teams often lack marketing knowledge/contacts to raise game awareness?

- Yes.
  - No.
- 

- Q5 - Do you think the community of a crowdfunding category (e.g. games) is composed of the people you would consider the actual audience of a video game?

- Yes.
  - No.
- 

- Q6 - Do you think there is a strong and loyal community of video game fans around the major crowdfunding platforms?

- Yes.
  - No.
- 

- Q7 - Do you think the fan base built around a crowdfunding campaign helps the developers significantly during the process?

- Yes.
  - No.
-

- Q8 - Would you say certain funding plans (all-or-nothing, flexible) have a different impact on the credibility and/or reputation of a project/development team? Why?

- Yes.
  - No.
- 

- Q9 - Do you think the tools offered by the platform to follow the projects are appropriate? Do you think there is something missing (e.g. project subscriptions, task boards, update notifications, developer streams, social media integration, etc.)? Which?

- Yes.
  - No.
- 

- Q10 - Do you think the lack of skills at certain stages during the development is a major issue for indie teams?

- Yes.
  - No.
- 

- Q11 - Do you think indie teams often need external developers for particular tasks the team doesn't have the knowledge to deal with?

- Yes.
  - No.
- 

- Q12 - Do you think elements such as gamification (e.g. achievements, badges, levels, titles, etc.) would help to keep people engaged with the platform and the community?

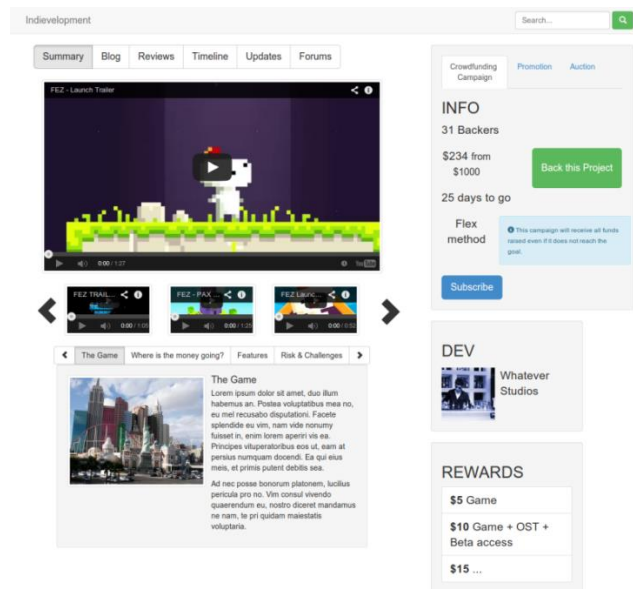
- Yes.
  - No.
-

# Appendix B: Web prototype questionnaire

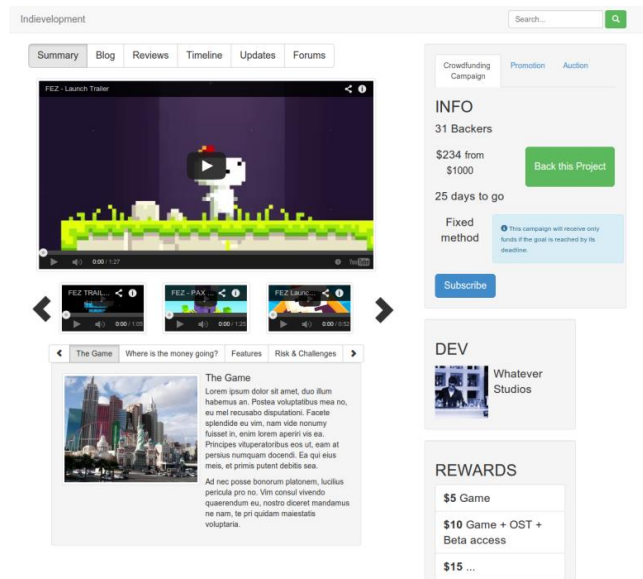
*Each question is optional. Feel free to omit a response to any question; however the researcher would be grateful if all questions are responded to.*

## Funding Methods

Browsing the projects, you have found two you really like. Each of them is using a different funding method: flexible and fixed.



Flexible



### Fixed

Q1 - You have €10 to spend in funding projects. Considering the risk involved in backing these projects, how would you split your money? (Flexible/Fixed) *Read carefully the description of the funding methods before you make a decision.*

- 0€/10€
- 5€/5€
- 10€/0€

Q2 - Do you think the flexible method is a good choice for funding games?

- Yes
- No

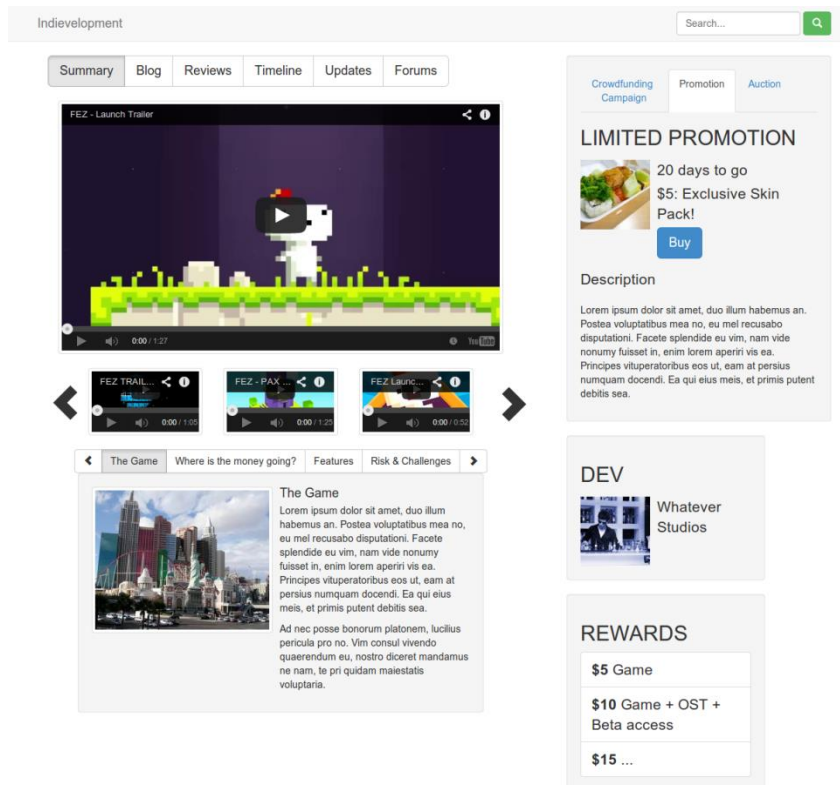
Q3 - Do you think the fixed method is a good choice for funding games?

- Yes
- No

## Additional Funding Features

### Promotions

Promotions are available for a limited time. A promotion can be launched by the developers at any time during the development of a project.



### Promotion

Q4 - Do you think promotions are a positive feature to raise funds for games?

- Yes
- No

Q5 - What content do you think is more appropriate for a promotion? (Multiple choice)

- Easily obtainable content
- Reward tiers' content
- Exclusive content (not available elsewhere)
- Unique items

Q6 - Do you think the items offered in these promotions should be different from those offered as rewards in the game's crowdfunding campaign?

- Yes
- No

Q7 - Do you think promotions have a positive effect when launched before the game's crowdfunding campaign? (If the developers are to launch a crowdfunding campaign, the game is generally at a very early stage of development before the campaign starts.)

Very negative

Very positive

0    1    2    3    4    5    6    7    8    9    10

Q8 - Do you think promotions have a positive effect when launched during the game's crowdfunding campaign? (*When the crowdfunding campaign is open, there are usually exclusive rewards available as part of the campaign's reward tiers.*)

Very negative Very positive

0 1 2 3 4 5 6 7 8 9 10

Q9 - Do you think promotions have a positive effect when launched after the game's crowdfunding campaign? (*Once the crowdfunding campaign is over, the reward tiers are no longer available.*)

Very negative Very positive

0 1 2 3 4 5 6 7 8 9 10

Q10 - Do you think promotions have a positive effect for a game that is not going to use crowdfunding? (*The games that are not opening crowdfunding campaigns don't have any reward tiers and can't make exclusive content available in any other way. The stage of development of a game when a promotion is launched may vary.*)

Very negative Very positive

0 1 2 3 4 5 6 7 8 9 10

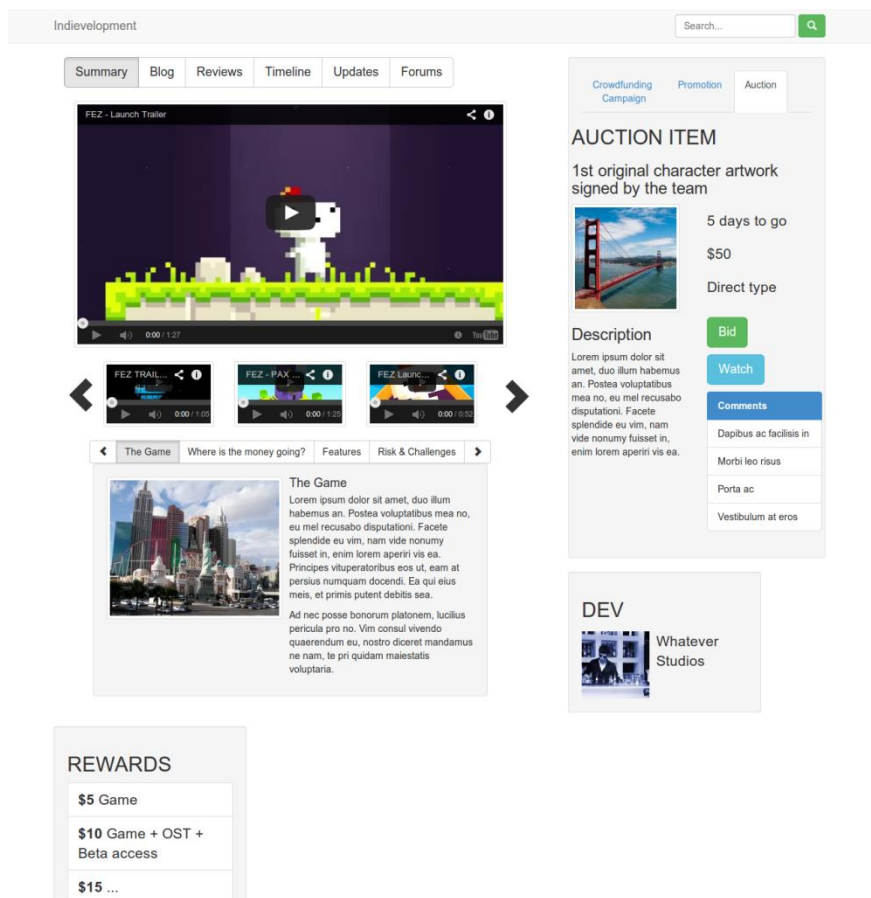
Q11 - What stage you think it would be more appropriate for a game to launch promotions? (Multiple choice)

- Concept stage
- Early stage
- Development stage
- Alpha stage
- Beta stage
- Released

## Auctions

There will be direct (i.e. highest bid wins) auctions that can be launched by the developers at any time during the development of a game.





### Auction

Q12 - Do you think auctions are a positive feature to raise funds for a game?

- Yes
- No

Q13 - Do you think auctions have a positive effect when launched before the game's crowdfunding campaign? *(If the developers are to launch a crowdfunding campaign, the game is generally at a very early stage of development before the campaign starts.)*

Very negative Very positive

0    1    2    3    4    5    6    7    8    9    10

Q14 - Do you think auctions have a positive effect when launched during the game's crowdfunding campaign? *(When the crowdfunding campaign is open, there are usually exclusive rewards available as part of the campaign's reward tiers.)*

Very negative Very positive

0    1    2    3    4    5    6    7    8    9    10

Q15 - Do you think auctions have a positive effect when launched after the game's crowdfunding campaign? (*Once the crowdfunding campaign is over, the reward tiers are no longer available.*)

Very negative Very positive  
0 1 2 3 4 5 6 7 8 9 10

Q16 - Do you think auctions have a positive effect for a game that is not going to use crowdfunding? (*The games that are not opening crowdfunding campaigns don't have any reward tiers and can't make exclusive content available in any other way. The stage of development of a game when an auction is launched may vary.*)

Very negative Very positive  
0 1 2 3 4 5 6 7 8 9 10

Q17 - What stage do you think it would be more appropriate for a game to launch auctions? (Multiple choice)

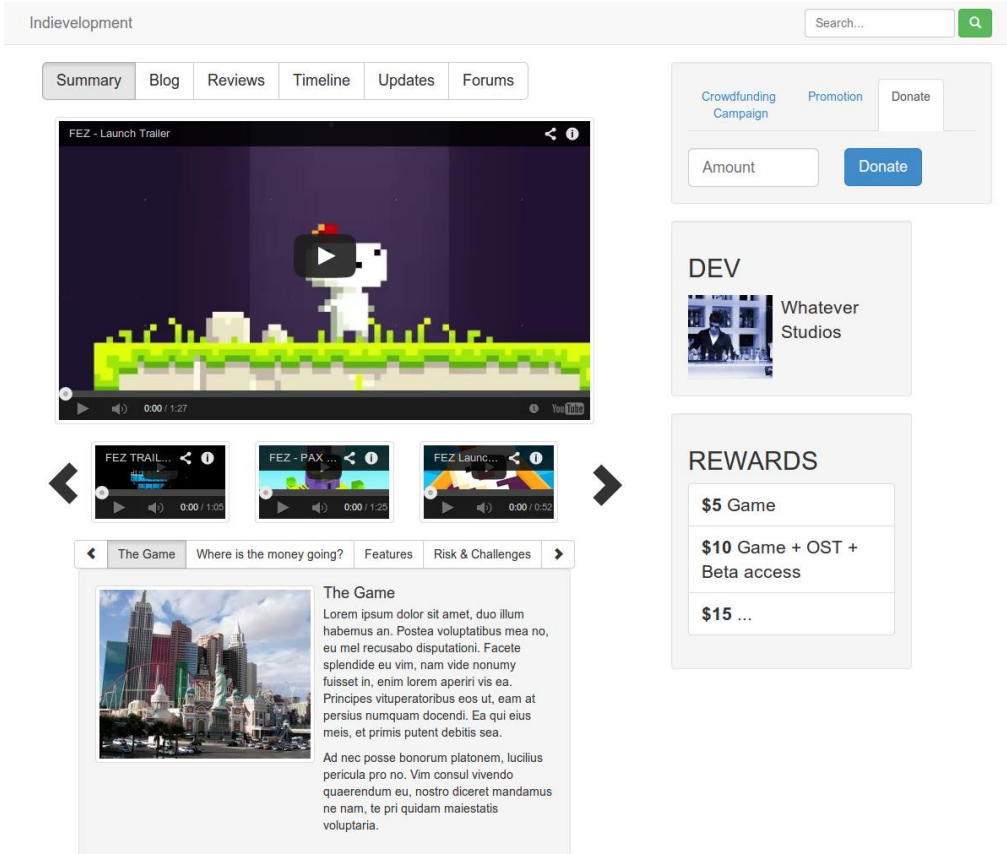
- Concept stage
- Early stage
- Development stage
- Alpha stage
- Beta stage
- Released

Q18 - What content do you think is more appropriate for an auction? (Multiple choice)

- Easily obtainable content
- Reward tiers' content
- Exclusive content (not available elsewhere)
- Unique items

## Donations

When donations are enabled, anyone can donate money to a project. No reward is obtained from donating.



### Donation

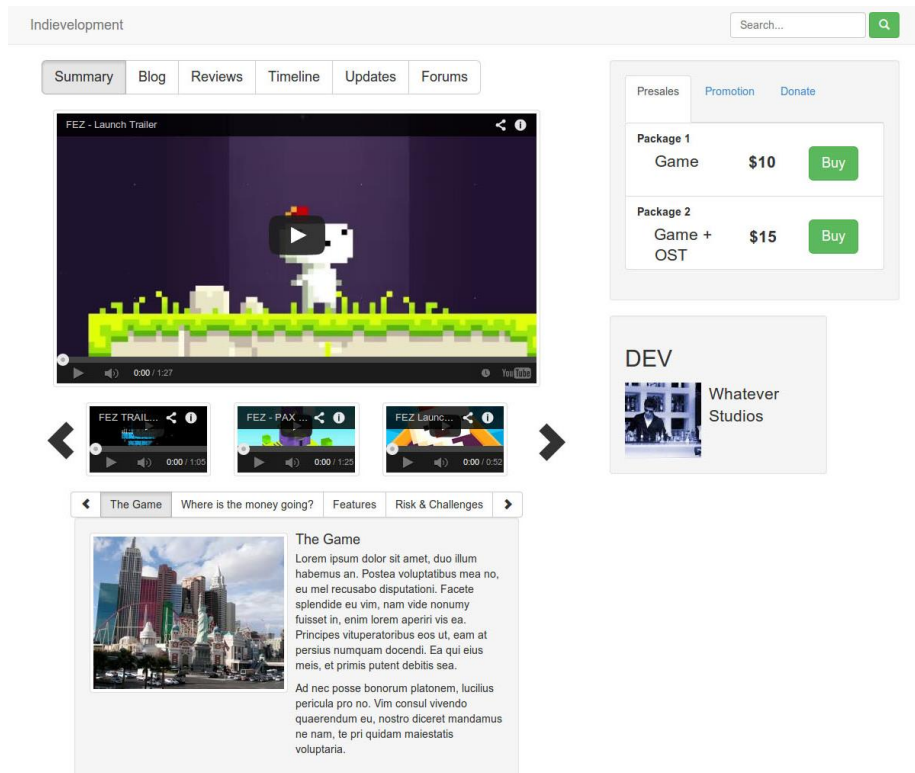
Q19 - Do you think donations are a positive feature to raise funds for a game?

- Yes
- No

Q20 - How relevant do you think each method is?

	Very negative										Very positive											
	0	1	2	3	4	5	6	7	8	9	10	0	1	2	3	4	5	6	7	8	9	10
Promotions	0	1	2	3	4	5	6	7	8	9	10	0	1	2	3	4	5	6	7	8	9	10
Auctions	0	1	2	3	4	5	6	7	8	9	10	0	1	2	3	4	5	6	7	8	9	10
Donations	0	1	2	3	4	5	6	7	8	9	10	0	1	2	3	4	5	6	7	8	9	10

# Pre-Sales and Early Access



## Pre-sales

Q21 - Do you think pre-sales are a positive feature to raise funds for a game?

- Yes
- No

Q22 - Do you think there should be packages available as pre-sales? (e.g. game + beta access + soundtrack)

- Yes
- No

Q23 - If so, do you think they should be different from the reward tiers offered during the crowdfunding campaign?

- Yes
- No

# Internal Exposure / Game Discovery

You want to discover new great games of your favourite genre. Rate the following methods according to how efficient and easy they are for finding those games:

The screenshot shows a web interface for 'Indievelopment'. At the top, there is a search bar with the text 'Search...' and a magnifying glass icon. Below the search bar is a navigation menu with tabs for 'Arcade', 'Action', 'Adventure', 'Platformer', 'Puzzle', 'RPG', 'Shooter', and 'Sports'. The 'Puzzle' tab is currently selected. The main content area displays six project cards, each with a unique image and a 'Score' button. The images are: 1. A person's face covered in a blue cloth. 2. A Siamese cat sitting on a ledge. 3. A person sitting on the ground with a dog. 4. A path lined with trees with autumn leaves. 5. A tree with a bright light source behind it. 6. A colorful, abstract, swirling pattern. To the right of the project cards is a 'FILTERS' section with several categories: 'OS/System' (PC, MAC, Linux, Android, iOS, PS4, PSVITA, XBOX ONE, Wii, Other), 'Development Status' (Complete, In development, Cancelled, Raising funds), 'Origin' (Country / City dropdown), and 'Tags' (Tag input field and Add button). At the bottom of the project cards, there is a pagination bar with 'Prev', '1', '2', '3', '4', '5', and 'Next' buttons.

## Search

Q24 - How efficient and easy do you think traditional search is for finding the most interesting games of a genre?

Very negative




0 1 2 3 4 5 6 7 8 9 10


Very positive

Indievelopment Search...


Arcade Action Adventure Platformer **Puzzle** RPG Shooter Sports

Featured









PROJECT 1 Score




PROJECT 2 Score




PROJECT 3 Score



PROJECT 4 Score



PROJECT 5 Score



PROJECT 6 Score

Prev 1 2 3 4 5 Next

### FILTERS

#### OS/System

- PC  PS4
- MAC  PSVITA
- Linux  XBOX ONE
- Android  WII
- iOS  Other

#### Development Status

- Complete
- In development
- Cancelled
- Raising funds

#### Origin

Country / City ▼

#### Tags

### Featured projects/Staff picks

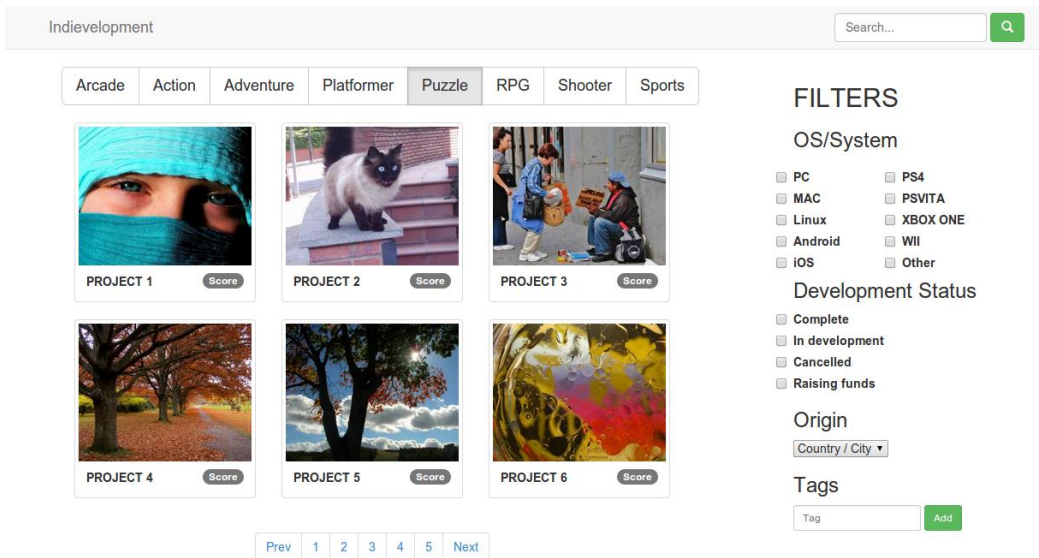
Q25 - How efficient and easy do you think "Staff Picks" are for finding the most interesting games of a genre?

Very negative

Very positive

0    1    2    3    4    5    6    7    8    9    10

You have just found a game you like, and now you'd like to find more games like that one. Rate the following methods according to how efficient and easy they are for finding similar games:



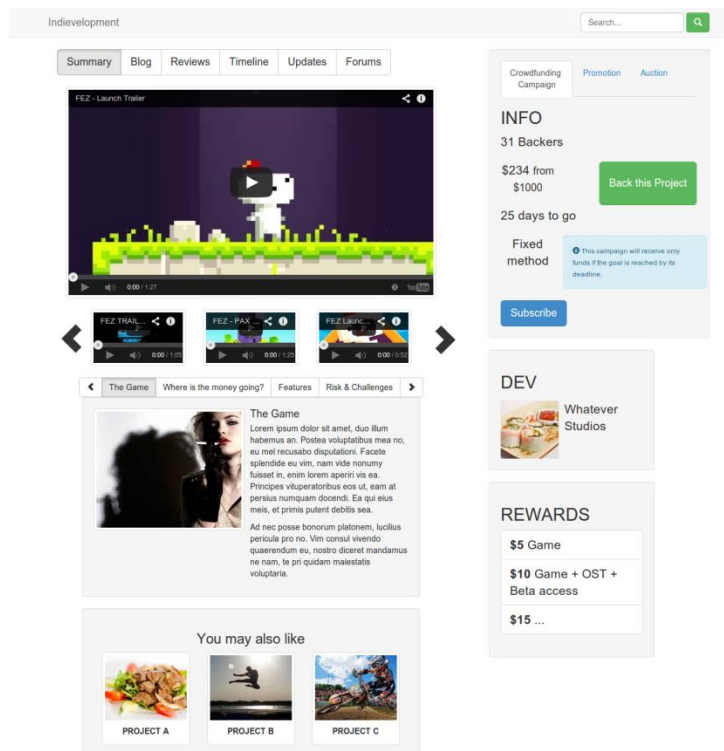
### Search

Q26 - How efficient and easy do you think traditional search is for finding games similar to the one you like?

Very negative

Very positive

0 1 2 3 4 5 6 7 8 9 10



### Suggested projects



Q27 - How efficient and easy do you think auto suggestions are for finding games similar to the one you like? (*Auto suggestions are based on the grade of similarity in aspects such as genre, tags, theme and so on.*)

Very negative

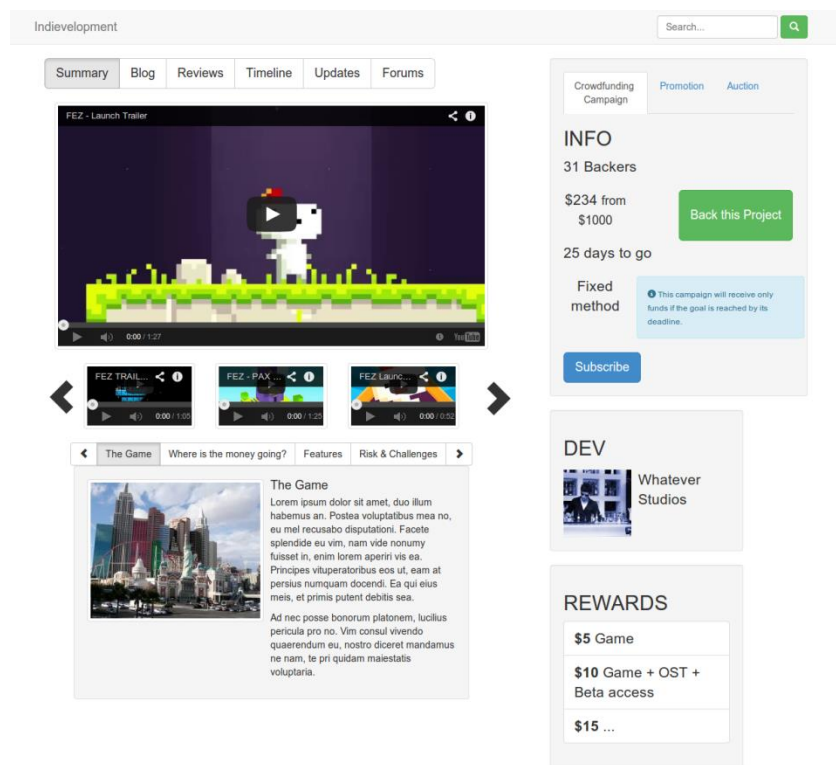
Very positive

0 1 2 3 4 5 6 7 8 9 10

## Notifications and Updates

You have just found a game you like, and you'd like to stay up to date with the development. Rate the following methods according to how easy and convenient they are for achieving that goal:

**Becoming a backer:** You have to pledge money to the project in order to receive the game's updates.



**Backing a project**



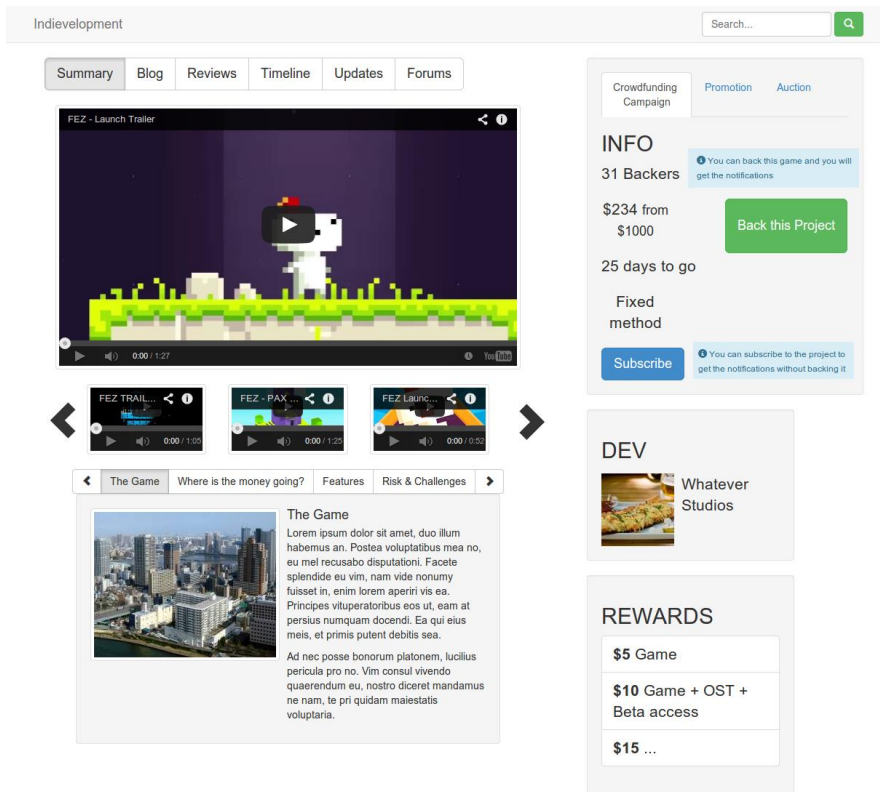
Q28 - You have to back the project (i.e. pledge money) in order to receive the game's updates.

Very negative

Very positive

0 1 2 3 4 5 6 7 8 9 10

**Subscription:** You can subscribe to the project in order to receive the game's updates.



**Subscription**

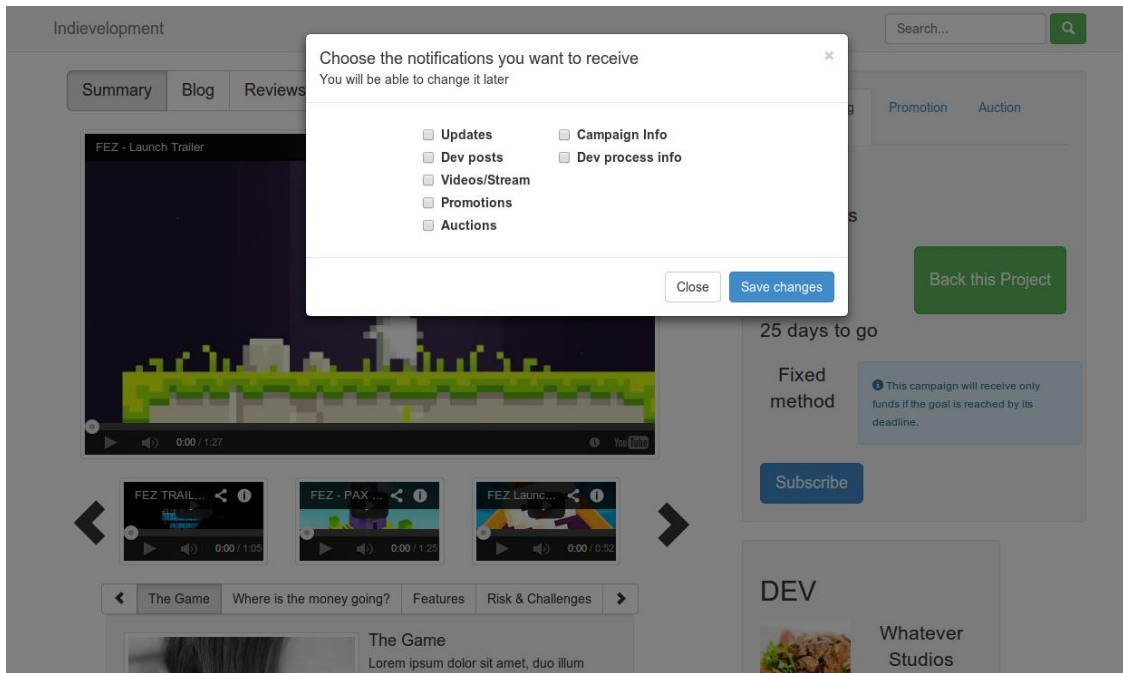
Q29 - You can subscribe to the project in order to receive the game's updates (no need to back the project)

Very negative

Very positive

0 1 2 3 4 5 6 7 8 9 10

## Subscription + notification filter



Subscription + filter

Q30 - You can subscribe to the project and select the notifications you want to receive (no need to back the project)

Very negative

Very positive

0 1 2 3 4 5 6 7 8 9 10

## Reputation system


You have just discovered a game you find interesting. It's currently raising funds through a crowdfunding campaign but you don't know the developer. The project has been created recently and nobody has pledged money yet. Rate how safe you think it is to pledge money to that project in the following cases:

## Scenario 1:

Indievelopment Search...

Summary | Blog | Reviews | Timeline | Updates | Forums

FEZ - Launch Trailer




0:00 / 1:27

FEZ TRAIL... | FEZ - PAX ... | FEZ Launc...

0:00 / 1:05 | 0:00 / 1:25 | 0:00 / 0:52

The Game | Where is the money going? | Features | Risk & Challenges



**The Game**

Lorem ipsum dolor sit amet, duo illum habemus an. Postea voluptatibus mea no, eu mel recusabo disputationi. Facete splendide eu vim, nam vide nonumy fuisset in, enim lorem aperiri vis ea. Principes vituperatoribus eos ut, eam at persius numquam docendi. Ea qui eius meis, et primis putent debitis sea.

Ad nec posse bonorum platonem, lucilius pericula pro no. Vim consul vivendo quaerendum eu, nostro diceret mandamus ne nam, te pri quidam maiestatis voluptaria.

Crowdfunding Campaign Promotion Auction

**INFO**

0 Backers

\$0 from \$1000

25 days to go

Fixed method This campaign will receive only funds if the goal is reached by its deadline.

Back this Project

Subscribe

**DEV**

Whatever Studios

**REWARDS**

- \$5 Game
- \$10 Game + OST + Beta access
- \$15 ...

### Reputation - Scenario 1

Q31 - How safe do you think it is to pledge money to this project?

Very risky


Very safe

0    1    2    3    4    5    6    7    8    9    10

## Scenario 2:

Indievelopment Search...

Summary | Blog | Reviews | Timeline | Updates | Forums



FEZ TRAIL | FEZ - PAX | FEZ Launch

**The Game** | Where is the money going? | Features | Risk & Challenges

**The Game**

>Lorem ipsum dolor sit amet, duo illum habemus an. Postea voluptatibus mea no, eu mel recusabo disputationi. Facete splendide eu vim, nam vide nonummy fuisset in, enim lorem aperiri vis ea. Principes vituperatoribus eos ut, eam at persus numquam docendi. Ea qui elus meis, et primis putent debitis sea.

Ad nec posse honorum platorem, lucillus pericula pro no. Vim consul vivendo quaserendum eu, nostro diceret mandamus ne nam, te pri quidam maiestatis voluptaria.

Crowdfunding Campaign Promotion Auction

**INFO**

31 Backers

\$234 from \$1000 Back this Project


25 days to go

Fixed method This campaign will receive only funds if the goal is reached by its deadline.

Subscribe

---

**DEV**

 **Whatever Studios**  
Lords of the Bytes

Expert Fundraiser  
Exemplar Delivery  
Level 17

---

**REWARDS**


\$5 Game
\$10 Game + OST + Beta access
\$15 ...

### Reputation - Scenario 2 (Project Page)


Indievelopment Search...

**Studio Page**


Games | Members | Achievements | Blog

 **Shadow of Belts**  
2003  
Lorem ipsum dolor sit amet, duo illum habemus an. Postea voluptatibus mea no, eu mel recusabo disputationi. Facete splendide eu vim, nam vide nonummy fuisset in, enim lorem aperiri vis ea. Principes vituperatoribus eos ut, eam at persus numquam docendi. Ea qui elus meis, et primis putent debitis sea.

+ More


 **Shadow of Overwings**  
2006  
Lorem ipsum dolor sit amet, duo illum habemus an. Postea voluptatibus mea no, eu mel recusabo disputationi. Facete splendide eu vim, nam vide nonummy fuisset in, enim lorem aperiri vis ea. Principes vituperatoribus eos ut, eam at persus numquam docendi. Ea qui elus meis, et primis putent debitis sea.

+ More

 **Shadow of Doors**  
2007  
Lorem ipsum dolor sit amet, duo illum habemus an. Postea voluptatibus mea no, eu mel recusabo disputationi. Facete splendide eu vim, nam vide nonummy fuisset in, enim lorem aperiri vis ea. Principes vituperatoribus eos ut, eam at persus numquam docendi. Ea qui elus meis, et primis putent debitis sea.

+ More

**Whatever Studios**



Joined on 14th May 03

**Lords of the Bytes**

Expert Fundraiser Exemplar Delivery  
Level 17

### Reputation - Scenario 2 (Studio Page)

Q32 - How safe do you think it is to pledge money to this project?

Very risky

Very safe

0 1 2 3 4 5 6 7 8 9 10

## Gamification

You go to the comments section of a project you have just discovered and you see the following comments about the game:

The screenshot displays a crowdfunding campaign page for a game. At the top, there's a search bar and navigation tabs for 'Summary', 'Blog', 'Reviews', 'Timeline', 'Updates', and ' Forums'. The main content area features a video player showing a 'FEZ - Launch Trailer'. Below the video are three smaller video thumbnails: 'FEZ TRAIL...', 'FEZ - PAX', and 'FEZ Launch...'. A navigation bar below the thumbnails includes 'The Game', 'Where is the money going?', 'Features', and 'Risk & Challenges'. The 'The Game' section contains a placeholder image of a bowl of food and a block of placeholder text. Below this is a 'Comments' section with three comments from Sarah, Andrew, and John, each with a placeholder image and text. The right sidebar contains campaign information: 'Crowdfunding Campaign', 'Promotion', 'Auction', 'INFO', '31 Backers', '\$234 from \$1000', '25 days to go', 'Fixed method', 'Back this Project' button, 'Subscribe' button, 'DEV' section with 'Whatever Studios' profile, and 'REWARDS' section with '\$5 Game', '\$10 Game + OST + Beta access', and '\$15 ...'.

## Gamification

Q33 - How reliable do you think the first comment is?

Very unreliable

Very reliable

0 1 2 3 4 5 6 7 8 9 10

Q34 - How reliable do you think the second comment is?

Very unreliable

Very reliable

0 1 2 3 4 5 6 7 8 9 10

Q35 - Would you be more willing to interact constructively with the community if you were awarded with those badges/titles/etc by doing so?

- Yes
- No