

# The technical and legal implementation of a crowdfunding platform

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## Abstract

Crowdfunding platforms are widely used in the start-up scene worldwide to fund a project or venture over the Internet. Their purpose is to provide a platform for investors to invest their capital into different projects or start-ups. Additionally, the platform gives projects or start-ups a new possibility to find new customers and investors.

The purpose of this work is to analyse the legal situation before and after the new alternative financing act, which was enacted in August 2015. Furthermore, crowdfunding will be included into the present corporate financial models and the introduction of Basel III as a consequence of the crisis will be described.

The thesis will characterize the requirements of a crowdfunding platform and define the stakeholders, for whom a role concept will be developed. Additionally, the technical concept is supported with a usability test and the financial data of the big three Austrian crowdfunding platforms.

Besides the alternative financing act the work also includes alternative payment methods for crowdfunding platforms with the special focus on Bitcoin. The technical functionality and the legal situation of electronic money will be described in detail.

Comparing the new legal situation after the enacted alternative financing act with the situation before shows that projects or start-ups are able to gather more capital through crowdfunding platforms but have to provide the investor with more information. The investor has more rights concerning the project or start-up but is limited with his investment amount. The analysis of the different alternative payment methods including Bitcoin and their usage on crowdfunding platforms shows that there are possibilities to use them legally.

## Kurzfassung

Crowdfunding Plattformen werden dazu verwendet ein Start-up Unternehmen oder Projekt zu finanzieren und sind weltweit verbreitet. Die Plattformen geben den Investoren die Möglichkeit in verschiedene Projekten zu investieren und den Start-ups oder Projekten eine Möglichkeit neue Kunden zu gewinnen.

Ein Teil dieser Arbeit soll die rechtliche Situation vor und nach der Einführung des Alternativfinanzierungsgesetzes im August 2015 zeigen. Zusätzlich wird die Finanzierungsmethode Crowdfunding in die derzeitigen Finanzierungsmodelle eingeordnet und die Konsequenzen der Einführung von Basel III nach der Krise dargestellt.

Ein anderer Teil der Arbeit beschreibt die Anforderungen an die Crowdfunding Plattform und definiert Stakeholder, für die ein Rollenkonzept definiert wird. Zusätzlich wird das Implementierungskonzept durch die wirtschaftlichen Daten und den getätigten Usability Tests der Big Three Crowdfunding Plattformen in Österreich unterstützt.

Abseits des neuen Gesetzes und der technischen Implementierung werden alternative Zahlungsmethoden für Crowdfunding Plattformen vorgestellt. Dabei liegt der Fokus auf der Zahlungsmethode beziehungsweise dem Internetgeld Bitcoin. Zusätzlich zur technischen Beschreibung wird auf die rechtliche Situation eingegangen und geprüft, ob Crowdfunding Plattformen diese Zahlungsmethoden einsetzen dürfen.

Der Vergleich der rechtlichen Situation vor und nach Einführung des Alternativfinanzierungsgesetzes zeigt, dass die Start-ups oder Projekte zwar mehr Informationen über sich selbst zu Verfügung stellen müssen, aber dadurch auch mehr Kapital sammeln können. Zusätzlich bekommt der Investor mehr und gezieltere Information über die Start-ups oder Projekte, ist aber ohne Preisgabe seiner Finanzen bei der Investitionshöhe limitiert. Die Analyse der zusätzlichen Zahlungsmethoden für Crowdfunding Plattformen zeigt, dass außer bei Bitcoin Möglichkeiten bestehen, die Methoden rechtlich zu verwenden. Bei Bitcoin ist die rechtliche Situation der Nutzung auf einer Plattform nicht hundertprozentig geklärt.

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# 1. Introduction

The idea of crowdfunding came up some years ago and is now a huge phenomenon in the start-up scene worldwide. Crowdfunding: *“the practice of funding a project or venture by raising many small amounts of money from a large number of people, typically via the Internet.”*<sup>1</sup> The term crowdfunding stands for raising capital from different investors (the crowd) over the Internet for a specific project or enterprise. For crowdfunding there are different expressions like crowd lending, crowd investing and other forms over the last years.<sup>2</sup> All of them have the purpose to finance big ideas, which require a large amount of money by small investments from private sponsors and investors, the crowd.

The popularity of crowdfunding arises because of the existing corporate financial system. The existing corporate financial system faces problems because of the economic situation today and is blocked by strict regulations from Basel III. Therefore, banks are not able to give credits with affordable conditions to start-ups or even have to refuse credit inquiries, mostly because of insufficient collaterals. Because of this problem, crowdfunding platforms are growing in the alternative investment scene.<sup>3</sup>

Because of the growing Austrian crowdfunding market and the establishment of a legal framework, the ministry of science, research and economy sent the draft law for the alternative financing act (AltFG) for the assessment in April 2015. On the 14th of August 2015 the Austrian parliament enacted the AltFG.<sup>4</sup>

On one hand, the work will show the legal situation of crowdfunding platforms in Austria before enacting the alternative financing act and on the other hand it will show the legal situation after the introduction. Before the act is described, crowdfunding is explained in detail and included into the present corporate financial models. Additionally, the introduction of Basel III as a consequence of the crisis will be described.

In this work, the legal situation for the crowdfunding platform operator will be described in detail with all the different requirements after the introduction of the alternative financing act. Based on this introduction, the requirements of a crowdfunding platform will be characterized and the stakeholders will be defined, for whom a role concept will be developed. Additionally,

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<sup>1</sup> *Oxford Dictionaries*, Crowdfunding, [oxforddictionaries.com/definition/learner/crowdfunding](http://oxforddictionaries.com/definition/learner/crowdfunding).

<sup>2</sup> Robert Blöschl und Mag. (FH) Harald Reiter, Crowdfunding in Österreich, SWK-Heft 26/2015, 1157 (1).

<sup>3</sup> Hofmann/Schmolz, Controlling und Basel III in der Unternehmenspraxis (2014) 51.

<sup>4</sup> Alternativfinanzierungsgesetz-AltFG BGBl I 2015/114.



the technical concept is supported with an additional usability test of the big three Austrian crowdfunding platforms. Based on the outcome of the evaluation a design and structure concept will be presented.

Besides the alternative financing act the work also includes alternative payment methods for crowdfunding platforms. The technical functionality and the legal situation of electronic money will be described in detail. The biggest focus in the alternative payment methods chapter is on Bitcoin. The work will show how the Bitcoin system is working and if there are possibilities to integrate this payment method into crowdfunding platforms.

## 2. Alternative financing

### a. Crowdfunding history

Crowdfunding is a special form of crowdsourcing and indicated a new form of finance where private investors are financing start-ups with small amounts of money. The idea of crowdfunding is nothing new, Mozart and Beethoven financed their concerts with pre-orders and the base of the statue of liberty was financed with a public call.<sup>5</sup>

The crowdfunding market developed disproportionately in the last years but is not scientifically explored and growth indicators are not recorded properly. The data of the global, European and German-speaking crowdfunding market is appreciated sometimes because of the reason mentioned before. The newest evaluation and analysis of the year 2014 comes from the study of the University of Cambridge. The crowdfunding market in Europe had a value of 3 billion Euro in the year 2014, from this amount Great Britain had 2.3 billion Euro.<sup>6</sup>

The selection of the best fitting finance model is a very important question in the founding stage of a new corporate. Different models have diverse impacts on the development of the start-up. In the old economy, the financial funds influence the project idea and the further progress. On the other hand, you have the net economy where the financial model has no or less impact on the business models because it is independent from the financial resources.

In the thesis, the term start-up will be used very often. It is used for young companies in the founding process regardless of their provided services and products. The companies are looking for financial resources and have a high innovation potential that brings an above average return of investment. Start-ups are very popular for young people who would like to have a personal fulfilment and to be self-determined in their work. For example, this is also possible with a successful business model and good idea to make theoretically a lot of money in a short time on the Internet. They can be even more successful than the old economy (companies that have been market leader for a long time) and dominate their respective market in a short time period. With the web-based business, it is possible to have the company at home with only a small budget in the beginning. However, it is very crucial for a start-up to be liquid in every company phase, so the financing is an important part in the funding stage.<sup>7</sup>

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<sup>5</sup> Harris, A statue for America (1985) 35.

<sup>6</sup> Robert Wardrop, Bryan Zhang, Raghavendra Rau & Mia Gray, Moving Mainstream - The European Alternative Finance Benchmarking Report.

<sup>7</sup> Hahn, Finanzierung und Besteuerung von Start-up-Unternehmen, SpringerLink : Bücher (2014) 4.

In the next chapter, the different present corporate financial models are presented and the disadvantages are shown.

## b. Present corporate financial models

In this chapter, different corporate financial models are presented and it will be shown where the problems are nowadays. In addition, it will show which risks and financing requirements there are for start-ups in different stages.

Starting a new corporation is an entrepreneurial process with many risks. To be successful it needs many different skills, expertise, s strong personal motivation and the right environment.

*“Entrepreneurship is the process of creating something new with value by devoting the necessary time and effort; assuming the accompanying financial, psychic, and social risks and uncertainties; and receiving the resulting rewards of monetary and personal satisfaction”<sup>8</sup>*

### i. Financing stages

Nearly each corporation goes through different stages of development. Those stages could be very different in detail but follow the same pattern of development. At the beginning, there is a product- or service idea in the market that will be implemented after the founding of the corporation. During the founding process of the corporation, the company goes through different stages. Figure 1 will show the different stages:

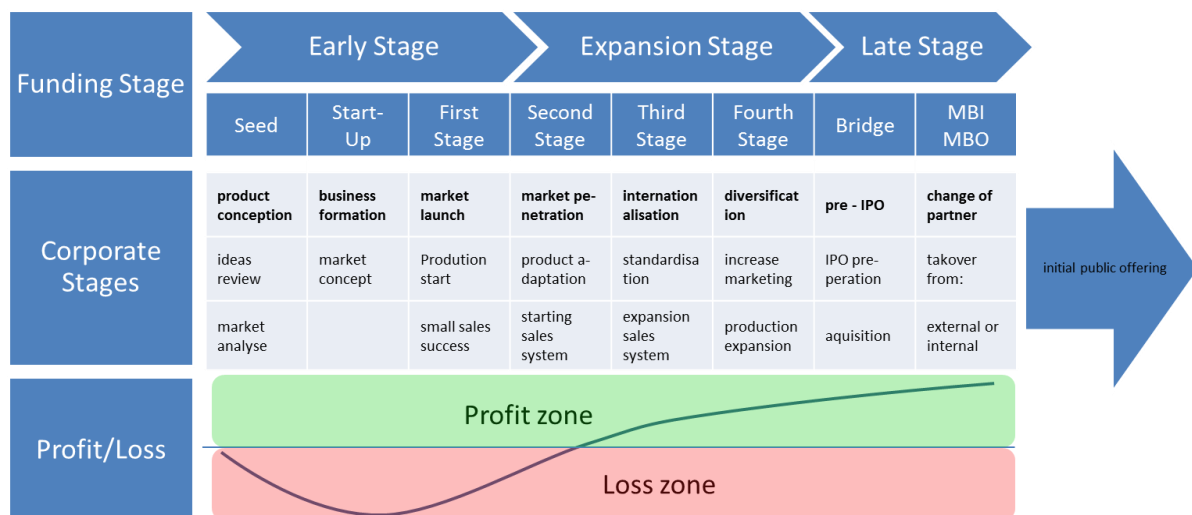


Figure 1: Financing phase in different lifecycles of a corporate,<sup>9</sup> Löffler 2005, own draft

<sup>8</sup> Hisrich/Peters/Shepherd, Entrepreneurship<sup>8</sup> (2010) 8.

<sup>9</sup> Clemens Löffler, Die Entwicklung des österreichischen Venture Capital Marktes (2005) 24.

In each stage, the financial model that fits best for the current stage has to be found in order to move on to the next stage.

### **Early stage**

The early stage is the phase with the highest risk for the investors but if it is successful, it could be very profitable for the shareholders. Before there is a visible product or corporation concept, a big amount of capital is needed for its development. In this stage, the border between success and failure of the business concept is very thin and the uncertainty is very high about the future corporate development.<sup>10</sup> As shown in figure 1 the early stage consists of the seed, start-up and first stage phase.

In the **seed phase**, there is only the idea of the product or service and no existing organisational or management structure. This stage includes the fundamental research and the improvement of the product-, enterprise concept. In the **start-up** phase, the enterprise is close to or in the process of founding and the capital cost is higher than in the seed phase. The further development of the product to the market readiness is the important part in this stage. The sources of financing in this phase could be incubators, business angels, crowdfunding, venture capital, self-financing, family and friends. With the market launch of the product, the **first stage** is reached and the first sales are done. In this phase, the capital cost is the highest of the three phases because of the investment in marketing, employees and administration. The risk in this stage is less than in the other because it is possible to estimate the market acceptance. From the investor side the first stage is the best time to start to invest in start-ups because of the manageable risk and the high rate of return.<sup>11</sup> For the investments taken, the investor gets shares of the enterprise and the founder signs the contract with the financier.<sup>12</sup>

### **Expansion stage**

The expansion stage, like in figure 1 is divided into three different phases but in other literature, they are presented as only two which have only small differences to the version in figure 1. In the **second stage**, the focus is on the expansion in local markets and in the **third stage** the penetration of foreign markets. The **fourth stage** consists of the effort to differ from the original product with extensions and new products.<sup>13</sup> When divided into two stages only, the expansion stage consists of the emerging growth-phase and the bridge-phase but both phases include the same tasks as the three stages mentioned above. In both explanations of the expansion stage,

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<sup>10</sup> Hahn, Finanzierung und Besteuerung von Start-up-Unternehmen 28.

<sup>11</sup> Clemens Löffler, Die Entwicklung des österreichischen Venture Capital Marktes (2005) 24–26.

<sup>12</sup> Hahn, Finanzierung und Besteuerung von Start-up-Unternehmen, SpringerLink : Bücher (2014) 28.

<sup>13</sup> Clemens Löffler, Die Entwicklung des österreichischen Venture Capital Marktes (2005) 26.

the investment costs are very high and the enterprise is investing in future spheres of action. In the best case, the company can self-finance the future projects or has guarantees for the external investments. In practise, this financing is possible after the breakeven point has been reached. In the expansion stage start-ups with an above average growth potential have the possibility to prepare the initial public offering. The flotation needs more investments but it is a good exit point for the investors and founders of the enterprise.<sup>14</sup>

### **Late stage**

In this stage, the enterprise is established in the market and the strongest growth was in the expansion phase. The late stage is as the fourth stage the time to prepare for the stock market but also to make an initial public offering. In addition, the **MBI** (management buy-in) and **MBO** (management buy-out) is happening in this stage. In the case of MBI an external management purchases the corporation. MBO is happening when the “old” management is taking the company over and makes a change of ownership.

## ii. Categorisation of crowdfunding in the stages

Crowdfunding is not easy to categorize into a special stage there are different which are possible for it. Start-ups have normally a finished business plan to be able to subscribe on a crowdfunding platform to get capital. Without a business plan in the most platforms, it is not possible to start a campaign. Crowdfunding is normally happening in the early stage and it is usually in all three phases of this stage, see in figure 1. Another important part for the start-ups is to have all founding members and a finished marketing video. In most of the Austrian platforms, it is necessary to have a video about the product or service. Crowdfunding as a financing form is for start-ups relevant in the seed and start-up phase. It is at the beginning of the start-ups when the founding process started and the business plan is ready. Also in the first-stage phase, crowdfunding is a possible financing model for start-ups which are one-step further and preparing themselves for a market entry. After the comparison of the Austrian crowdfunding market also companies which in the expansion stage are starting to look for new investors. This enterprises launched their product or service and starting to expand the market position or to make the production more effective. The only important think to be on a crowdfunding platform are the idea and the finished business plan for start-ups.<sup>15</sup>

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<sup>14</sup> Hahn, Finanzierung und Besteuerung von Start-up-Unternehmen, SpringerLink : Bücher (2014) 29.

<sup>15</sup> [www.dasertragreich.at](http://www.dasertragreich.at), [www.crowdcapital.at](http://www.crowdcapital.at), [www.conda.at](http://www.conda.at), [www.greenrocket.at](http://www.greenrocket.at), [www.regionalfunding.at](http://www.regionalfunding.at), [www.1000x1000.at](http://www.1000x1000.at) (11.01.2016).

### iii. Financing instruments

The question about the best fitting form of financing has to be tested and structured at the beginning for each start-up. There are different models of financing in the founding stage where the founders have to decide which model is the best for the business model and the different development phases. The different forms of financing have the purpose that in each company phase the firm is able to pay. In the founding phase the start-ups have to consider the large investments in development and company structure. The models have different characteristics and not every enterprise has the probability to choose each of them.<sup>16</sup> In figure 2 the typical financing instruments are shown and presented.

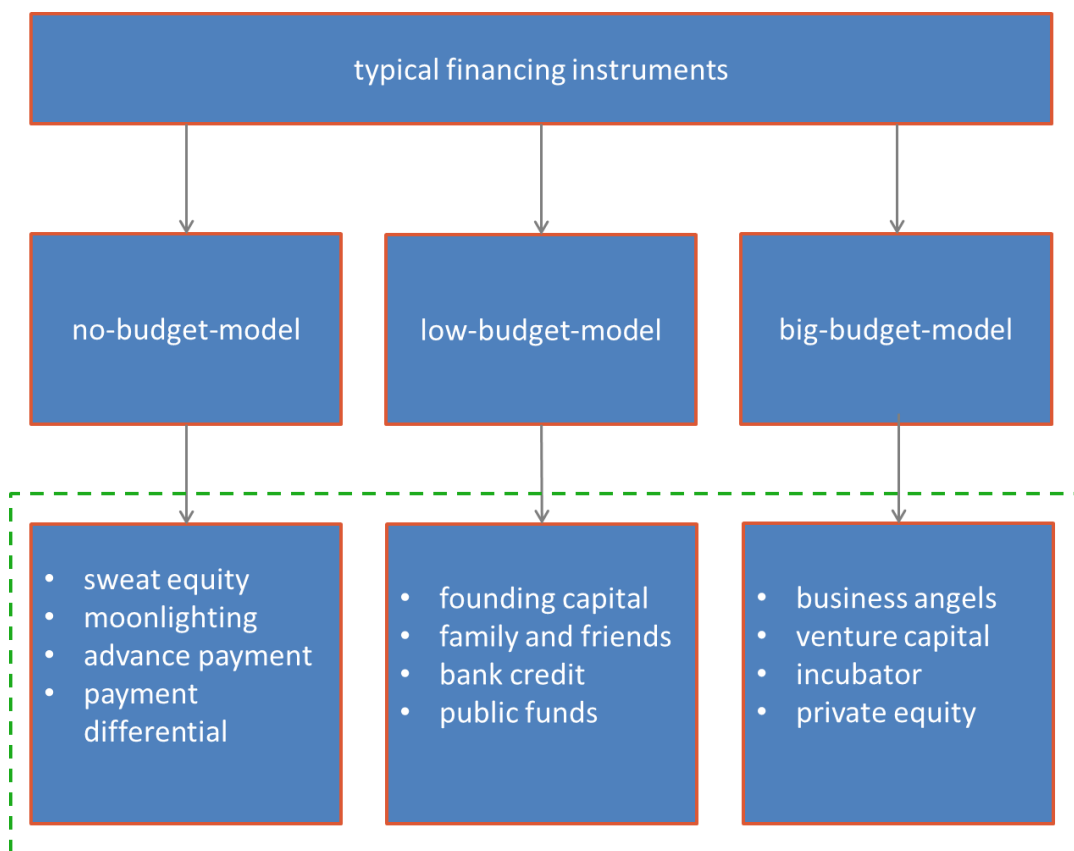


Figure 2: typical financing instruments,<sup>17</sup> Hahn 2014, own draft

#### No-budget model

The non-budget model is also called self-feeding business. The creation of an enterprise without equity capital is not only possible in the IT environment, every kind of business idea has to cope with non-budget founding which is implemented with individual performance and service from the founder. The initiators have to get liquid from nothing with personal input and have

<sup>16</sup> Kollmann, E-Entrepreneurship<sup>5</sup>, Lehrbuch (2014) 432.

<sup>17</sup> Hahn, Finanzierung und Besteuerung von Start-up-Unternehmen, SpringerLink : Bücher (2014) 22.

to monetize all of their entrepreneurial tasks. In the framework of the non-budget model the following financing options are possible:

- Founders work free of charge “sweat equity”
- Founding the start-up and at the same time working for a company to get money “moonlight”
- The customer makes an advance payment before the service is delivered “advanced payment”
- Generating liquidity with by reducing customers’ payment targets and shifting the payment obligation into the future “payment differential”

Crowdfunding is not defined in the non-budget model because the start-ups must have a business plan, which needs investments to get on the crowdfunding platform.<sup>18</sup> Another possibility would be the donation crowdfunding

### **Low-budget model**

In the start-up scene and in the English speaking countries it is also called “bootstrap-financing”. The low-budget model includes different possibilities for the start-up to increase their equity capital. When founding capital is an option the equity only includes capital from the founder and no external resources are needed in the early stage. There is also the possibility to generate equity capital with the help of family and friends. Bank credits and public funds are also possibilities to raise the capital but the founder needs a proper credit rating before he can choose this option.<sup>19</sup>

The possibility to generate equity capital in Austria via “family and friends” is the exception of the KMG (capital market act) §3 Abs 1 Z14. The exception “Angebote, die sich an weniger als 150 natürliche oder juristische Personen pro EWR-Vertragsstaat richten, bei denen es sich nicht um qualifizierte Anleger handelt“<sup>20</sup> says that an offer can be done without prospectus requirement if it is not given to more than 150 natural persons and the persons are not qualified investors. Detail information about the prospectus requirement in Austria is given in the chapter “Austrian problems with the crowdfunding financing model”. Without the exception in this law, the capital from family and friends would be very expensive for the start-up.

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<sup>18</sup> Kollmann/Kuckertz, E-Venture-Capital<sup>1</sup> (2003) 13.

<sup>19</sup> Hahn, Finanzierung und Besteuerung von Start-up-Unternehmen, SpringerLink : Bücher (2014) 23.

<sup>20</sup> § 3 Abs 1 Z 14 KMG BGBl 1991/625.



Another possibility for start-ups to increase the equity capital are the public funds in Austria. The most important funding sources in Austria are the AWS (Austria Wirtschaftsservice) and the FFG (Austrian Research Funding Agency).<sup>21</sup> Other smaller public funds are also available in the different federal states in Austria. For an example, how can it work to get capital from a public fund this work looking on the “venture capital” from the organisation AWS. To get investments for the start-up following criteria has to be fulfilled to get into the selection process:

- the company location has to be in Austria
- maximum 10 million Euro sales
- less than 50 employees
- the founder needs a minimum participation of 25 percent on the company
- the business model need a clearly consumer benefit with a proven concept and market
- target market has a significant volume and high growth rate
- investment from 100,000 Euro to 3 Mio. Euro
- for silent partnerships the start-up need sales in the core business

The get the investment from the AWS following workflow has to be done for a participation agreement:

- sending the business plan and financials from the start-up to the AWS
- initial analyse of the start-up and first meeting
- letter of intent between the start-ups and AWS
- formulating a participation contract from the experts of the AWS
- conclusion of contract
- exit (silent participation: giving returning the participation after three years, open participation: sale)<sup>22</sup>

These points show the way of start-ups to get an investment from the public fund AWS.

### **Big-budget model**

The big-budget model is also called “staged financing” in the start-up scene. This model is characterized by huge financial resources and is independent from any shortage in the financing

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<sup>21</sup> *Invest in Austria*, Startup funding in Austria, [investinaustria.at/en/startups/funding.php](http://investinaustria.at/en/startups/funding.php) (abgefragt am 29. 3. 2016).

<sup>22</sup> AWS, Unsere Beteiligungskriterien:, [awsg.at/Content.Node/risikokapital/gruenderfonds/77014.php](http://awsg.at/Content.Node/risikokapital/gruenderfonds/77014.php) (abgefragt am 29. 3. 2016).

of the start-up. In the framework of the big-budget model following financing options are possible:

- Private persons who invest capital and know-how in the early stage of the business are called “**business angels**”. In return, business angels get company shares and are involved in the profit of the enterprise, because they spent private money. They are interested in the corporate success and affected by the further development.<sup>23</sup>
- The **incubator** also called accelerator invests in the start-up but is more characterized by supporting them with ideas, processes and contacts. In return, the incubator gets company shares and assists the enterprise from the early stage for a longer period.
- The term **venture capital** stands for equity financing of start-ups by investors who have on the one hand a high risk of loss and on the other hand a big chance of winning. That includes a big sum of capital for the entrepreneurs but the financier gets company shares and participation rights. The investor hopes that the start-up expands and gets an economical grow over the timespan of five to eight years. If everything goes well the financier disposes his shares with a high profit at the end.<sup>24</sup>
- **Private equity** designates investment capital that is invested at the expansion stage of the start-up to support the business growth. The aim of the investor is to go beyond the break-even point of the enterprise and to increase the value of the company shares. The benefits for the financier are the shares of the start-up and stock profits.

#### iv. Categorization of crowdfunding in the financing models

The classification of crowdfunding in these three models is very difficult because of the legal situation. The big-budget and the low-budget model have typical characteristics for crowd financing. The big-budget model has the principle “all or nothing” and is very similar to crowdfunding projects. The invested money has to reach a certain threshold before the funding is possible. So the project idea can be implemented without any adaptations from outside, this is also a connection to the big-budget model. Normally the difference between big- and low-

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<sup>23</sup> Börner/Grichnik, Entrepreneurial finance (2005) 92.

<sup>24</sup> Börner/Grichnik, Entrepreneurial finance (2005) 90.

budget models are the funding level. Projects with high investments use the big model and the ones with lower investments the low model. In the Austrian market before the alternative financing act, crowdfunding was a low budget model because of the maximum investment level of 250,000 Euro. This maximum investment level comes from the exception of the KMG (capital market act) § 3 Abs 1 Z 10, that there is no prospectus requirement if the investment sum is under 250,000 Euro.<sup>25</sup> The prospectus requirement is for start-ups or companies very important because if participants seeking for investments over 250,000 Euro a prospectus had to be done which is not affordable for small and medium companies.

Nevertheless, the principle that the investors can only influence the start-up's strategic orientation but not the daily business like business angels or venture capitalists usually occurs in crowdfunding financing. The project gets the investment and in return, the crowd gets participation rights but is not involved in any operative business. With these different factors, crowdfunding is domiciled in the big-budget model.<sup>26</sup>

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<sup>25</sup> § 3 Abs 1 Z 14 KMG BGBl 1991/625.

<sup>26</sup> *Kollmann, E-Entrepreneurship*<sup>5</sup>, Lehrbuch (2014) 71.

### c. Consequences of the crisis

In this chapter, the consequences of the crisis for the granting of credits are shown. The financial crisis started before the declared bankruptcy of the Lehman Brothers. In the years before, the financial market became very difficult because of the exaggeration in the real estate and credit market in the United States.<sup>27</sup> In addition, the interbank-market had problems before the bankruptcy. The banks did not trust each other and did not give any money to each other because many of the banks had toxic papers in their books. With the bankruptcy of the Lemman Brothers the banks no longer had trust in the bank system.<sup>28</sup> After the bankruptcy in September 2008, the financial system in the European Union also got problems and many Banks needed help from different States.<sup>29</sup> This is only a short description of the bank crisis in the USA and Europe. In this thesis, this information is enough to understand the problems related to getting a credit in Austria after the bankruptcy of the Lehman Brothers. There have been the following consequences for the real economy:

- deterioration of the financing conditions
- fall in asset prices
- uncertainty

Because of these consequences, the creditor has lower trust that the borrower can pay back the credit. When this mechanism is disturbed, the creditor does not give credits very easily to the consumer. Because of that, the banks give fewer credits and need more equity capital for given credits.

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<sup>27</sup> *Elschen/Lieven, Der Werdegang der Krise (2009) 199.*

<sup>28</sup> *Elschen/Lieven, Der Werdegang der Krise (2009) 209.*

<sup>29</sup> *Elschen/Lieven, Der Werdegang der Krise (2009) 368.*

## i. Basel III

In the year 1947, the Basler committee for banking supervision was founded from the G-10 states. The G-10 is a group that consists of USA, Canada, Great Britain, France, Germany, Italy, Belgium, Netherlands, Sweden and Japan. This committee deals with standardisations of supervisory rules in the financial sector. The first policies were Basel I and Basel II which had the goal to prevent financial crisis and breakdowns of banks. In the year 1988 the committee passed Basel I which was the first international standard in this field. It was defined that the bank needs eight percent of all private and company credits in form of an equity ratio. This regulations are controlled by the banking supervision. The regulation Basel II concentrated on the assessment of the borrower and if he is able to pay back the entire credit on time. The creditworthiness is based on a rating and the bank needs more equity ratio if the credit is more risky. With this system, the banks started to consider more and more information about the borrower and connected this data to the ranking.<sup>30</sup>

The economic crisis after 2007 showed that banks are insufficient equipped in stress scenarios. One of the biggest problems has been the external financing and the small equity capital of the banks. Additional, the cash position of the banks had been insufficient and so the interbank market dried out. Out of this, the banks had liquidity problems and this affected the shortage of granting of credits. Because of the world economy crisis, Basel III was introduced in December 2010 which gradually became effective from 2013 until 2019. With the regulation, a special focus was on the stabilisation of the banking system with increasing the required equity base of credit institutions. For the regulation, it was also important that risks of the banks could be covered by equity base and the equity requirements increased from 8 percent Basel II to 13 percent Basel III of the whole capital of the bank. Additional to the increased equity base a capital buffer was introduced with the regulations.<sup>31</sup> In the case of a crisis this rules should help the banks to be more stable and survive it.

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<sup>30</sup> Gaedke/Nöstlhaller-Kropf/Pinter/Rhomberg/Weigl, *Innovative Finanzierung & Investitionen im Klein- und Mittelbetrieb*, Praxishandbuch (2012) 181.

<sup>31</sup> Ernst & Young Corporate Finance, *Auswirkungen von Basel III auf die Tourismusfinanzierung in Österreich*, [www.bmwfw.gv.at/Tourismus/TourismusstudienUndPublikationen/Documents/Auswirkungen%20von%20Base%20III%20auf%20die%20Tourismusfinanzierung%20in%20%C3%96sterreich.pdf](http://www.bmwfw.gv.at/Tourismus/TourismusstudienUndPublikationen/Documents/Auswirkungen%20von%20Base%20III%20auf%20die%20Tourismusfinanzierung%20in%20%C3%96sterreich.pdf) (abgefragt am 29. 3. 2016).

While Basel II was more concentrated on risk management, Basel III makes new definitions for the equity capital and capital buffers.<sup>32</sup> The regulations are implemented with the EU directive 2013/36/EU<sup>33</sup> and the EU regulation 575/2013<sup>34</sup>.

## ii. Basel III for the Austrian market

Compared to the international market the Austrian company structure has a small equity base. Therefore, the loan financing is very dominant in Austria compared to France or Belgium where equity is more important. With Basel II the banks started to rate the companies with more data than only the balance sheet or the profit/loss. For example also the quality of the management and other criteria are considered. For enterprises, the situation could be the same as before the implementation of the regulation, unless they are rated worse. With the increased equity requirements from the Basel III regulations, banks give fewer credits than before and maybe have to reduce credits.<sup>35</sup>

In the year 2012 in Austria, the WKO conducted a survey to get information about the situation for companies in the credit market. The survey said that the companies had more investment plans than in the years before like the expansion of the enterprise. At the same time the financing with bank credits decreased. As the banks rejected credits the companies postponed the investment plans, changed the home bank or looked for alternative investments. The usage of alternative investments forms increased from five percent in 2011 to nine percent in 2012.<sup>36</sup>

Alternative investments are very attractive for companies who have problems to get credits from banks because of the increased regulations from Basel III. As a useful alternative investment form, crowdfunding is very popular for companies or start-ups.

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<sup>32</sup> *Gaedke/Nöstlhaller-Kropf/Pinter/Rhomberg/Weigl*, Innovative Finanzierung & Investitionen im Klein- und Mittelbetrieb<sup>1</sup>, Praxishandbuch (2012) 182.

<sup>33</sup> Directive 2013/36/EU from the European parliament from the 26 June 2013 on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms, amending Directive 2002/87/EC and repealing Directives 2006/48/EC and 2006/49/EC.

<sup>34</sup> Regulation (EU) No 575/2013 of the European parliament and of the council of 26 June 2013 on prudential requirements for credit institutions and investment firms and amending Regulation (EU) No 648/2012.

<sup>35</sup> *Gaedke/Nöstlhaller-Kropf/Pinter/Rhomberg/Weigl*, Innovative Finanzierung & Investitionen im Klein- und Mittelbetrieb<sup>1</sup>, Praxishandbuch (2012) 183.

<sup>36</sup> *Morozov Ilja*, Unternehmensfinanzierung 2013 - Strukturbefragung unter österreichischen Betrieben, [wko.at/Content.Node/Interessenvertretung/Budget--Steuern-und-Finanzierung/Analysen\\_1308\\_Unternehmensfinanzierung\\_2013.pdf](http://wko.at/Content.Node/Interessenvertretung/Budget--Steuern-und-Finanzierung/Analysen_1308_Unternehmensfinanzierung_2013.pdf) (abgefragt am 22. 1. 2016).

## d. Definitions of Crowdfunding

Crowdfunding is a special form of crowdsourcing and is a new way of financing different kinds of projects. Private sponsors and investors (crowd) investing a small amount of capital into projects, finance big ideas with a large amount of money. Another umbrella term would be crowd creativity, different people giving ideas and concepts to other people who eventually start projects out of it. Crowd voting is also a term and supports the decision process with the knowledge from people. The difference to crowdfunding is that the crowd finances ideas, products or services.<sup>37</sup>

The principle of crowdfunding is not new. For example, Mozart and Beethoven used the crowd to finance their concerts. With the increasing possibility to communicate over the Internet and the help of the social media boom from the last years, crowdfunding developed into a risk capital funding model.

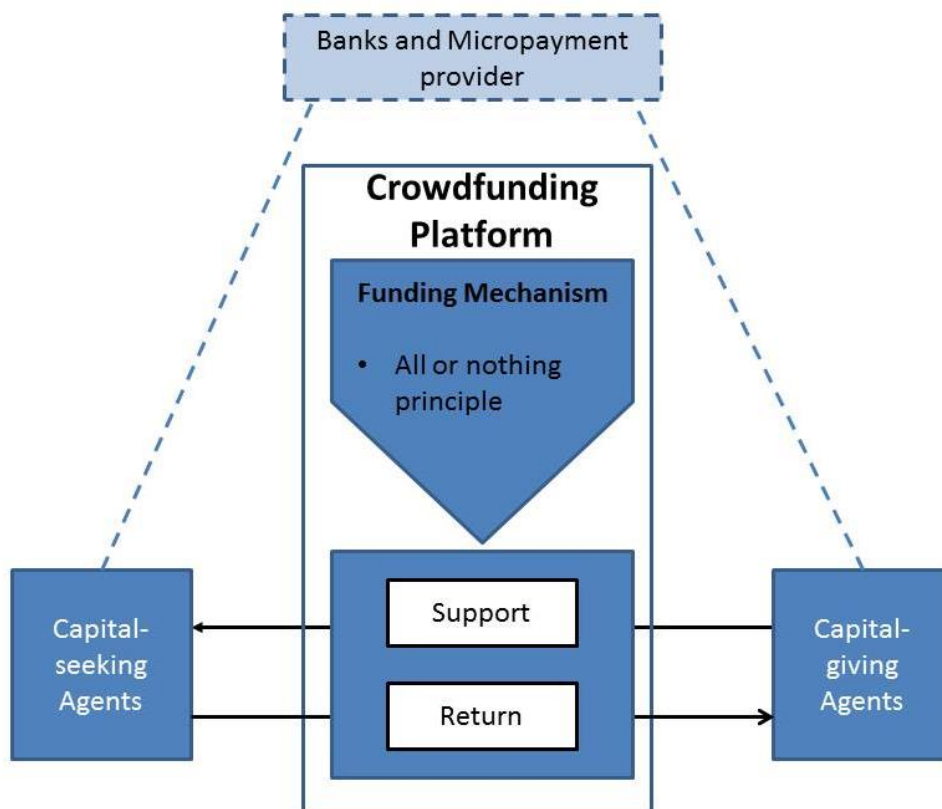


Figure 3: Crowdfunding Intermediation Model,<sup>38</sup> Haas P 2014, own draft

<sup>37</sup> Mollick, The Dynamics of Crowdfunding: An Exploratory Study, Journal of Business Venturing, Volume 29, Issue 1, January 2014 1–16 (1).

<sup>38</sup> Haas P., Blohm I., and Leimeister, An Empirical Taxonomy of Crowdfunding Intermediaries, International Conference on Information Systems 2014 (6).

In figure 3 the crowdfunding model for platforms is shown. The crowdfunding platforms have the all or nothing principle, if the given investment is over a certain sum the money is given to the start-up or project. If the sum is not reached with the invested money the capital-seeking start-ups gets nothing and the founding over the platform failed. Crowdfunding is a two-sided market linking the capital-seeking with the capital-giving agents. The capital-giving crowd gives money to the capital seeking start-up or project. In return, the giving crowd get something or nothing back from the seeking agent. The crowdfunding platform plays the intermediary in this model. It supports the capital-seeking agents to present the product or service in the best way to raise more money. Another part is the selection of the best products or services they would present on their platform. For the capital giving-agents the crowdfunding platform gives information, helps with the communication and is a processing portal. The platform does not handle the invested capital and the transactions normally a bank or a micropayment provider supports it. From the law perspective, the platform owner has no right to deal with the money from the capital giving-agents. With this model, different start-ups and projects can be financed over crowdfunding platforms.<sup>39</sup>

At the beginning, creativity projects and social projects were financed with microcredits or donations. With the first crowd-based projects, the awareness level increased and more and more platforms started. In the last years, the crowdfunding platforms started as an intermediary between capital investors and start-ups looking for investments. The scene is very global with platforms like Kickstarter or Indiegogo and the market is growing in Austria.<sup>40</sup>

Actually risk capital is a scarce resource in Austria and too expensive for start-ups. Projects with a high-risk potential are not able to receive credits from banks because of strict regulations. Chapter "Consequences of the crisis" will show reasons and background information about this situation for start-ups.

There are also different subtypes of crowdfunding in the literature and this thesis will consider the following models, shown in figure 3 from the crowdfunding study 2013.

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<sup>39</sup> Zeitschrift für KMU und Entrepreneurship<sup>62</sup> (2014) 62–63.

<sup>40</sup> *Hemer*, A snapshot on crowdfunding, [isi.fraunhofer.de/isi-de/p/download/arbapap\\_unternehmen\\_region/ap\\_r2\\_2011.pdf](http://isi.fraunhofer.de/isi-de/p/download/arbapap_unternehmen_region/ap_r2_2011.pdf).



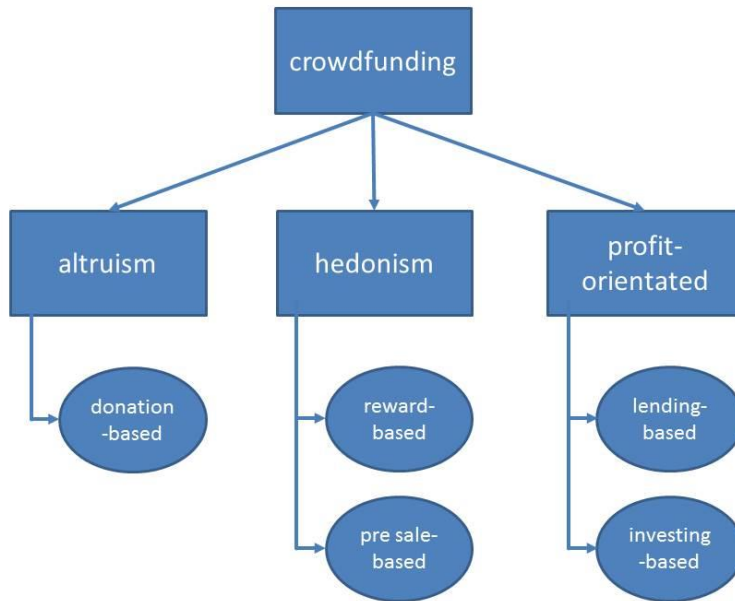


Figure 4: Arten von Crowdfunding,<sup>41</sup> Blohm 2013, own draft

The categories from figure 4 used in this thesis are from the European commission<sup>42</sup>.

### **Donation-based crowdfunding**

Donation-based platforms search for donations and help people find the best projects to invest in. Normally these investments are done without any consideration based on altruism and unselfishness. This form of crowdfunding is very popular for creative or social projects and is part of regional crowdfunding.

### **Reward-based crowdfunding**

The reward-based form is very popular because of the US platforms Kickstarter and Indiegogo. For the investment, the investor gets non-material or material based recognition from the start-up or project, e.g. things like a secondary role in a movie or merchandise from the product.

### **Pre-sale based crowdfunding**

Projects on pre-sale based platforms use the financing model based on pre-orders from the investors and buyers. Besides financing, also the market research is very important for the start-ups to get information about demand and the pricing model. This form of crowdfunding is a further development of the reward-based model and the recognition comes from products or services. In practice, both models are used at platforms and in projects for different high

<sup>41</sup> Blohm/Gebert/Wenzlaff/Leimeister, Crowdfunding-Studie 2013/2014 (2013) 18.

<sup>42</sup> Europäische Kommission, Mitteilung der Kommission zur Freisetzung des Potenzials von Crowdfunding in der Europäischen Union (KOM (2014) vom 27.03.2014), 3, [parlament.gv.at/PAKT/EU/XXV/EU/01/99/EU\\_19937/imfname\\_10455144.pdf](http://parlament.gv.at/PAKT/EU/XXV/EU/01/99/EU_19937/imfname_10455144.pdf).

investments. Reward and pre-sale crowdfunding are based on hedonism, which means that the orientation on present delights is important and humans search for desire or joy.

### **Lending-based crowdfunding**

The lending-based segment covers the whole microcredit market for projects. The private investor invests his capital offer on the platform in projects or companies. The investor gets his investment plus an interest rate over a defined period. The interest rate varies for each project and company. In Austria, this model is possible but not used very often for start-ups to raise risk capital.

### **Investing-based crowdfunding**

Investing-based crowdfunding is also called equity-based or with the umbrella term crowdfunding. This financing method is used in the early stage of start-ups or innovation projects of small and medium companies. The crowd investor is involved as a silent partner with a participation certificate or as a lender. In the worst case, investors can lose their whole investment. By distributing the invested capital to more than one project, the investor can minimize his investment risk.<sup>43</sup>

## **i. Procedure of a crowdfunding campaign**

The typical crowdfunding campaign is split into four different stages and is done by the capital seeking start-up or project:

- **the application**

In the application stage, the start-up or project has to submit detailed information about the company or project to be confirmed by the crowdfunding platform. For the screening process from the crowdfunding platform, the start-up or project has to give different information depending on the platform about them self. Following data could be asked from the platform:

- business model, including the product or service and the price structure
- unique selling point against the competitor
- size, characteristics and competitors from the market and the distribution
- existing situation and the proof of concept
- sales targets

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<sup>43</sup> *Europäische Kommission*, Mitteilung der Kommission zur Freisetzung des Potenzials von Crowdfunding in der Europäischen Union (KOM (2014) vom 27.03.2014), 3–10, [parlament.gv.at/PAKT/EU/XXV/EU/01/99/EU\\_19937/imfname\\_10455144.pdf](http://parlament.gv.at/PAKT/EU/XXV/EU/01/99/EU_19937/imfname_10455144.pdf).

- the financing situation of the start-up or project like ownership structure, existing investments and utilization of the resources
- which data should be provided over the platform to the potential investor
- basic information for the campaign like the funding threshold, the fundraising maximum (different limits after the new alternative financing act AltFG described in the chapter "Introduction of the alternative financing act"), the campaign duration days and the amount of shares, which the investor gets for the investment

This list is only a possible list with information, which is demanded by the platform. The screening process of the information is different depending on the crowdfunding platform.

- **preparation for the campaign**

After the start-up or project got a ok to start the campaign from the crowdfunding platform, both sides has to prepare for the publishing. Following points are needed for the campaign on the crowdfunding platform:

- creation of texts, graphics and videos on the campaign site to present the product or service and the team
- planning the dramaturgy of the campaign, when comes what
- planning of the marketing communication activities to get a large scope of people via social media and other channels

For the investors the content of the campaign is very important and if the start-up or projects planned it better, the campaign has more success.

- **starting the campaign**

The duration of the campaign, published on the platform is from the activation until the end of the set duration. If the investments from the investors are not going over the funding threshold in the duration time, all the investors get their investments back and the project or start-up gets no capital. When the funding threshold is reached, the campaign was a success and the start-up or project gets the invested capital. In the case, the funding maximum limit is reached, the campaign will end early.

During the campaign, the investor is able to invest into the start-up or project. The minimum investment for the investor is depending on the crowdfunding platform and can be from 100 Euro to 250 Euro in Austria. For the success of the campaign the start-up or project is responsible and depending on the effort of the team.

- **end of the campaign**

If the funding threshold is reached, the start-up or project can use the invested capital for the predefined use. After the end of the campaign, the start-up or project has to give defined information like the annual financial statement, list of the capital base and more to the investors via the platform or direct updated if something changes.<sup>44</sup> After the reached duration time of the investment, the investor gets the invested capital back with the interest rates. It is depending on the contract with the start-up or project if the interest rates are given yearly in the duration time or at the end.

## ii. Crowdfunding in Europe

In Europe, the online alternative finance market started growing in 2012 and is very strong until today. From 2012 until 2014, 255 platforms in 27 European countries facilitated 4,655 million Euro in four years. In the year 2012, it started with € 487 million and increased to € 1,211 million in 2013 and to 2,957 million Euro until 2014. The leader in Europe is the United Kingdom they started with 350 million Euro and had 2,337 million Euro in 2014. They are also the leader with 65 crowdfunding platforms with equity-, reward-, donation-, lending-based financing models.

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<sup>44</sup> Pöltner/Horak, Crowdfunding und Crowdinvesting<sup>1</sup> (2015) 7–10.

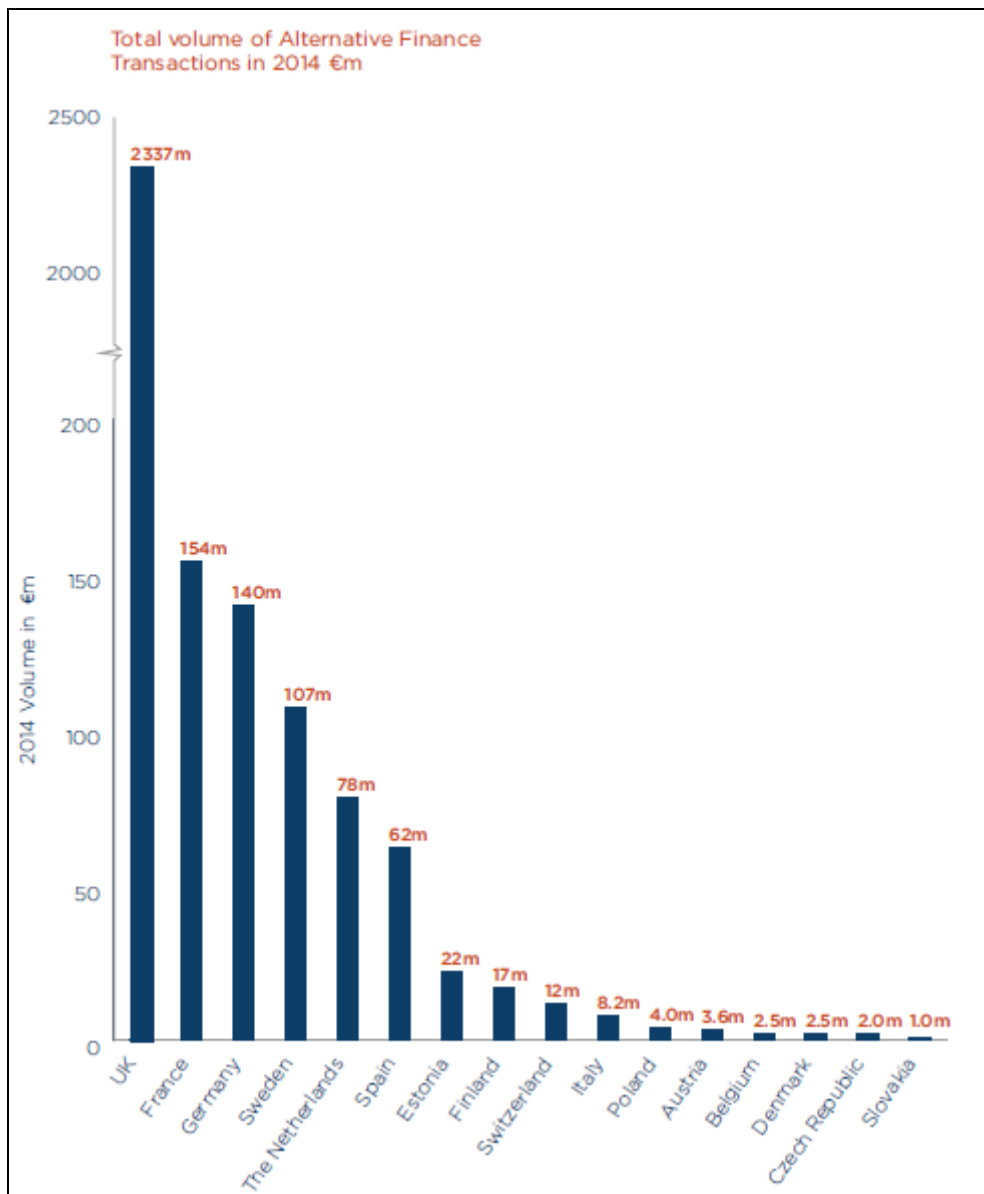


Figure 5: comparative volumes of alternative finance transaction in 2014,<sup>45</sup> Wardrop 2015

After UK and France, Germany is next with 31 platforms in Europe shown in figure 5. England had 2337 million Euro total volume of alternative finance transactions in 2014 compared to France with 154 million Euro and Germany with 140 million Euro. In this benchmark, Austria had a transaction sum of 3.6 million Euro in 2014. Equity-based crowdfunding had a transaction sum of 82.56 million Euro in 2014 from firms in the early-stage and without the UK and donation-based funding 16.34 million Euro. The largest sum was reward-based funding with 120.33 million Euro and consumer/business lending crowdfunding summed up to 283.93 million Euro. This data is from the European alternative finance benchmark made from 2012 to 2014 from the University of Cambridge and was published in February 2015. In this study,

<sup>45</sup> Robert Wardrop, Bryan Zhang, Raghavendra Rau & Mia Gray, Moving Mainstream - The European Alternative Finance Benchmarking Report.

255 leading crowdfunding platforms in 27 European states provided their data over a questionnaire to the publisher.<sup>46</sup>

The market in Europe is growing but according to the benchmark, Austria had problems with the regulations and only three platforms had been available in the market in 2014. In the next chapter, only the Austrian market is analysed.

### iii. Crowdfunding in Austria

The first crowdfunding platform started in the year 2010 in Austria with the name *Respect.net*. It was a donation-based platform and presented projects with social benefit. So far this platform was able to collect 850,000 Euro for more than 150 projects until May 2015. In the year 2013, 1000x1000.at and conda.at started in Austria with equity-based crowdfunding. More than 5.4 million Euro have been collected with equity- and lending based platforms for start-ups until June 2015. The data was collected from Paul Pöltner in his article “Unternehmensfinanzierung mit Crowdfunding / Crowdfunding – Herausforderungen und Entwicklungen in Österreich“ until June 2015 from platforms which had projects over 100,000 Euro investment sum.<sup>47</sup>

In June 2015, the economic chamber WKO presented data to crowdfunding platforms in Austria split into four crowdfunding models:

- **donation-based crowdfunding**

There are no possibilities to estimate how many donations come from online fundraising or from classical offline donations. In the year 2014 the fundraising sum in the classical way amounted to 550 million Euro. It is to be assumed that about 1 million Euro were donated over the crowdfunding platforms until February 2015. It is not possible to set the donations off against tax liability with donation-based crowdfunding platforms. With the classical donation system it is possible since 2014. The most successful donation-based platform is *Respect.net* in Austria and started in 2010.<sup>48</sup>

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<sup>46</sup> Robert Wardrop, Bryan Zhang, Raghavendra Rau & Mia Gray, Moving Mainstream - The European Alternative Finance Benchmarking Report.

<sup>47</sup> Paul Pöltner, Unternehmensfinanzierung mit Crowdfunding/Crowdfunding Herausforderungen und Entwicklungen in Österreich, CFOaktuell 2015, 151, 151 (3).

<sup>48</sup> Reinhard Willfort, Peter Mayr, Conny Weber, Crowdfunding und Crowdsourcing: Potenzial für den österreichischen Innovationsstandort, rat-fte.at/tl\_files/uploads/Studien/Crowdfunding-Crowdsourcing-Potenzial\_Endbericht.pdf (abgefragt am 12. 1. 2016).

- **reward-based crowdfunding**

The reward-based crowdfunding market is not developed in Austria and no data is available.

- **lending-based crowdfunding**

Lending-based crowdfunding is not available over platforms in Austria, it only happens in the direct way between the capital seeking company and the capital giving person or customer. Accurate data is not available in this area, the project “Unternehmen Grüne Erde” was able to collect 8 million Euro investment volume. Other big projects are alternative energy projects which also use the lending-based crowdfunding model but without any platform as intermediary.<sup>49</sup>

- **equity-based crowdfunding**

The equity-based crowdfunding also called “crowdinvesting” and has the largest volume in Austria. The newest statistics from the WKO (08-07-2015) said that until the second quarterly period of 2015 the platforms financed projects with an investment volume of 6.3 million Euro in Austria. In the first half-year of 2015, more capital could be raised than in the year 2013 and 2014 together.

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<sup>49</sup> Reinhard Willfort, Peter Mayr, Conny Weber, Crowdfunding und Crowdsourcing: Potenzial für den österreichischen Innovationsstandort, [rat-fte.at/tl\\_files/uploads/Studien/Crowdfunding-Crowdsourcing-Potenzial\\_Endbericht.pdf](http://rat-fte.at/tl_files/uploads/Studien/Crowdfunding-Crowdsourcing-Potenzial_Endbericht.pdf) (abgefragt am 12. 1. 2016).

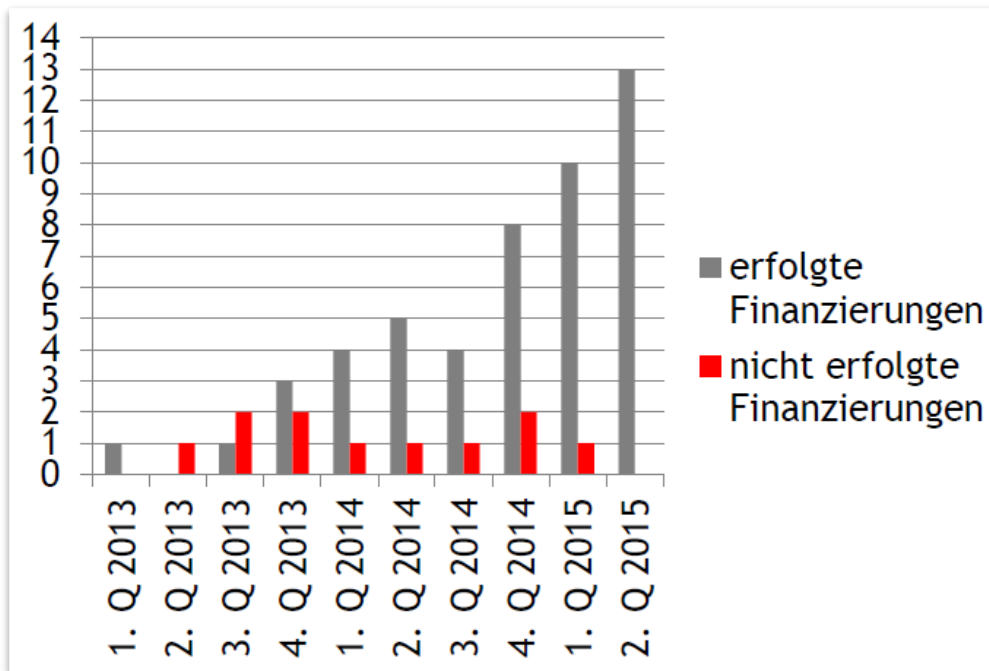


Figure 6: Statistik crowdinvesting,<sup>50</sup> Wirtschaftskammer Österreich 8.7.2015

In figure 6 it is shown that all of the platforms had 49 successful financed projects or start-ups until the first half-year of 2015. The most not financed projects or start-ups were in the year 2013 and in the last quarterly period of 2014.<sup>51</sup> The data is from the WKO and includes the six known crowdfunding platforms in Austria based on the equity and lending financial model. Following platforms are included: Conda, Green Rocker, Crowd Capital, Regional funding, das Ertrag Reich, 1000x1000.<sup>52</sup>

<sup>50</sup> *Wirtschaftskammer Österreich* in *Wirtschaftskammer Österreich*, Statistik crowdinvesting (Stand 8. 7. 2015, [wko.at/Content.Node/branchen/oe/sparte\\_iuc/Finanzdienstleister/Publikationen---Downloads/Pressemitteilungen/Statistik-Crowdinvesting-08-07-2015.pdf](http://wko.at/Content.Node/branchen/oe/sparte_iuc/Finanzdienstleister/Publikationen---Downloads/Pressemitteilungen/Statistik-Crowdinvesting-08-07-2015.pdf)).

<sup>51</sup> *Wirtschaftskammer Österreich* in *Wirtschaftskammer Österreich*, Statistik crowdinvesting (Stand 8. 7. 2015, [wko.at/Content.Node/branchen/oe/sparte\\_iuc/Finanzdienstleister/Publikationen---Downloads/Pressemitteilungen/Statistik-Crowdinvesting-08-07-2015.pdf](http://wko.at/Content.Node/branchen/oe/sparte_iuc/Finanzdienstleister/Publikationen---Downloads/Pressemitteilungen/Statistik-Crowdinvesting-08-07-2015.pdf)).

<sup>52</sup> [www.dasertragreich.at](http://www.dasertragreich.at), [www.crowdcapital.at](http://www.crowdcapital.at), [www.conda.at](http://www.conda.at), [www.greenrocket.at](http://www.greenrocket.at), [www.regionalfunding.at](http://www.regionalfunding.at), [www.1000x1000.at](http://www.1000x1000.at) (11.01.2016).



## e. Crowdfunding capital for companies

### i. Difference between internal and external financing

The difference between internal and external financing regards the fact if the financial resources are generated inside the company or from sources outside. The internal financing is separated into two types:

- financing through revenues → kept profit, depreciation value and provision value
- financing through equity release → rationalization, selling financial assets

The external financing has different possibilities to get capital such as the internal. When the company gets equity capital in the form of money or assets in kind, it is equity financing and the investor becomes co-owner of the enterprise. The most known external financing is the bank credit, which declares that investors are creditors with the right of principal payment and interests.

The categorisation of crowdfunding of these two financing possibilities is logical. The allocation to external financing in this case is clear because the persons that invested in the company never had any contact points with the enterprise before.<sup>53</sup>

### ii. Differences between equity capital and borrowed capital

In literature and practice exist different definitions developed for equity- and borrowed capital over time. Between the two capital systems, a clear separation is not possible because of new complex finance instruments, which are hybrid forms of the original. The new form is called mezzanine capital and includes aspects from both structures.

The following criteria are showing the differences between the equity- and borrowed capital:

- **capital use remuneration**  
Equity capital investors get an interest rate if the company makes profit.  
Borrowed capital investors get a fixed rate of interest and repayment.
- **capital retention duration**  
The capital retention duration describes the time that the investors put their investment in the company.

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<sup>53</sup> Hahn, Finanzierung und Besteuerung von Start-up-Unternehmen, SpringerLink : Bücher (2014) 33–35.

In literature, equity capital has no time limit while borrowed capital has a fixed time limit. In practice, both systems can have fixed or not fixed contracts. It depends on the agreement between the investor and the company.

- **liability**

The big difference shows if the investor has to make repayments for company debts in the case of insolvency. Equity investors are liable with their whole investment and in some legal cases additionally with their private assets. Borrowed capital investors are not the owner of the company. In this case, creditors have rights to get their investment back.<sup>54</sup>

### iii. Mezzanine capital

Mezzanine capital is a hybrid-financing form that includes equity and borrowed capital characteristics. It includes also additional capacity for both systems like the subordination in case of insolvency. The mezzanine capital is paid back after all other creditors got their investments back. After the mezzanine capital is paid back the equity capital providers are the last ones to get something back.<sup>55</sup>

### iv. Silent participation

The silent participation is one of different other possible contracts between the investor and the start-up or project. In this work, the participation will be explained for the allocation of the crowdfunding capital for the companies. The information about the silent participation is written in the UGB (corporate code) §179-§188. There is a silent partnership if the contribution from the investors is transferred into the asset from the investment looking company. It derives to an article of association between the partner and the owner. The contribution is transferred to the asset of the company's owner and the silent participant has no property anymore. For the given asset, the partner gets a profit participation. In the article of association, optional can be written that the silent participation is not involved in the loss, but the share on the profit is obligatory. Silent participation includes the share of capital but without any operational cooperation. For the investor the liability regards only the amount of the investment. He has only control rights but no company management competences. In the UGB there are no special

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<sup>54</sup> Hahn, Finanzierung und Besteuerung von Start-up-Unternehmen, SpringerLink : Bücher (2014) 36–38.

<sup>55</sup> Hahn, Finanzierung und Besteuerung von Start-up-Unternehmen, SpringerLink : Bücher (2014) 39.

rules for creditor protection or the representation, so in practise the participation contracts can be very flexible.<sup>56</sup>

## v. Allocation for silent participation into equity and borrowed capital

The allocation of the silent participation into equity or borrowed capital is not possible because the contracts can be very different. In order that the silent partnership fulfils the criteria for the equity capital, the following points are important:

- the silent participation gets no yearly fixed payment, it gets paid from the yearly profit in the amount of his participation
- the silent participation is connected to the loss in the amount of the share
- the investment has to have the minimal duration of five years (also three are possible)
- in an insolvency or liquidation the investment is subordinate, the silent participant is the last one to get something back

In the case, that all of the criteria are fulfilled the silent participation is allocated in the equity capital. If one of the characteristics is wrong, the share is classified as borrowed capital. In practice in Austria, the silent participation is a mezzanine capital. It is located between equity and borrowed capital.<sup>57</sup>

## vi. Silent participation in the case of crowdfunding

The previous chapter described the differences between external and internal financing for companies. In addition, the delimitation for equity, borrowed and mezzanine capital was explained in detail. In Austria, the situation is not as the criteria explained in the previous chapter. For the companies the crowdfunding capital normally is like equity capital but in Austria, it is hybrid capital (mezzanine capital). It is between the equity and borrowed capital and treated as an extra item in the balance sheet, if the following criteria is fulfilled with the silent participation:

- performance related remuneration
- participation in the loss
- long-term capital

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<sup>56</sup> Karollus/Harrer/Huemer, Casebook Handels- und Gesellschaftsrecht<sup>4</sup>, Manual (2012) 197–199.

<sup>57</sup> Hirschler, Bilanzrecht (2010) Rz 106-112.

- subordinate in the case of insolvency

Therefore, the silent participation in Austria is a hybrid or mezzanine capital for the companies. This should show the categorisation of the crowdfunding capital into balance of the company. In the case of crowdfunding, not every company will have a silent participation in the contract between the company and the investor. In practise, different contracts can be between both parties and no standard contract or the silent participation is obligated. In the next chapter, the financing model and the resulting problems before the alternative financing act will be explained in detail.

## f. Crowdfunding financing model before the new law

The crowdfunding financing model depends on the laws in different countries. In the German speaking countries, the legal models are nearly the same because of the almost equal finance laws. The United States of America enacted the JOBS Act (Jumpstart Our Business Act) in 2012 to help small firms in the initial public offering market. With the introduction of the JOBS act and other acts, the federal regulatory system changed to facilitate existing requirements for companies. After the new regulation the public offering market increased and the crowdfunding market in the USA collected 1.6 billion Dollar.<sup>58</sup> In this chapter, only the Austrian crowdfunding financing model, which is similar in some cases to the German model, is considered.

In Austria, there are different models for companies to raise capital via crowdfunding platforms. It is very difficult to classify which law is valid for the different structures. For example, the supervisory law is an instrument for the state to control on one hand the companies who are looking for investments and on the other hand to protect the investors. This small example shows that different laws, institutes and perspectives are important for the crowdfunding model. The term crowdfunding is used as an overall synonym for different words with other meanings like Crowddonating, Crowdfunding, Crowdsourcing, Crowdsponsoring and Crowdlending. In the chapter “definition of crowdfunding”, the special meanings and misunderstandings are enlightened. The general term crowdfunding means a public call over the Internet to raise a small amount of capital for a specific project. It is only the financing channel.<sup>59</sup> Out of this, many different models are developed and the main difference is the kind of consideration.

### i. Crowdfunding models

Following models are especially successful and very often used:

- **equity-based crowdfunding**

In this model, the investor gets material benefits, so normally he is a shareholder of the company and has a yearly profit or loss participation.

- **reward-based crowdfunding**

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<sup>58</sup> Parrino/Romeo, JOBS Act eases securities-law regulation of smaller companies, J of Investment Compliance 2012, 27 (3).

<sup>59</sup> Mitteilung der Kommission Potential Crowdfunding 8485/14, 2.

This model is based on a non-material principle. The investors are getting back a non-material reward equivalent to the value of the investment such as a prototype, bonus material from a music production or a visit at the film studio.

- **lending-based crowdfunding**

In this model, the investors provide a credit over a certain time and are getting back a percentage of the given sum. The platform manages the credits, the probability of default and the repayment capacity from the credit applicant.<sup>60</sup>

The different crowdfunding models are as different as the contractual interpretation. Following models for the implementation of a crowdfunding platform before the alternative financing act will be described. The act will regulate the investors and platform operators. Therefore, for the models the following norms are applied WAG (securities Supervision Act), GewO (trade regulation), ZaDig (payment provider act), KMG (capital market Act) and the BWG (banking act). To finance a project, the minimum funding amount has to be reached before the raised capital will be given to the company. If the project funder does not get enough money, the investors get their investments back and the project cannot be started. The following legal models are used to discuss how the crowdfunding platforms worked before the alternative financing act passed the parliament in Austria.

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<sup>60</sup> Xu/Zheng/Xu/Wang, Configurational paths to sponsor satisfaction in crowdfunding, Journal of Business Research 2015 (2).

## ii. Legal definitions of the financing model

### **Social Participation**

In this form the investor, directly participates in the profit and loss of the company. This is one of the most common participation methods in Austria. For crowdfunding platforms, it is unusual to use this model. In practice, the investors participate in a subsidiary of the platform with an amount they choose. The subsidiary is a silent shareholder of the enterprise with the single aim of representing the collected money. In this case, a direct involvement is undesirable because the advantage of the described model is that the investors shall not be liable for the liabilities. Therefore, the maximum loss of the investor is only his invested capital. This form is not very common and used for example at the German platform fundster.de.

### **Profit participation right**

The profit participation right is a classic crowdfunding model where the handling of a large amount of investors is easy. This right says that the investor is directly involved in the profits of the investments and gets back an amount of the provided capital. Normally the investor and the company agree on a fixed percentage of the profit. In this model, the investor has no membership rights or right of participation in the enterprise. In this construct, the crowdfunding platform is mediator between the investor and the company that is looking for investments.

### **Qualified subordinated loans**

The qualified subordinated loans model was developed in Austria because of the recognition from the VwGH (administration court) of the problems that are presented by the FMA (financial market authority) institution. The VwGH decided that normal part loan-models, when a group of investors give credits to a project or enterprise, are a deposit business and according to the §4 Abs 1 BWG are only legal for licensed credit institutes. In the new concept, the group of investors again give credits to projects but they have a qualified subordination status. This means, that the repayment of the credit cannot be demanded if this will open an insolvency proceeding. In the event of insolvency, the investors are the last ones who get something back from their investment.<sup>61</sup>

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<sup>61</sup> *Saria*, Unternehmensanleihen und Crowdfunding (2015) 147–150.

### iii. Austrian problems with the crowdfunding financing model

The concepts that have been explained before have all the same problem, the question arises if the crowdfunding platform owner needs a bank concession because of the acceptance of capital from the investors. If this is the case, the business model will not make any sense because of obligations that arise with a bank concession. The main law in this case is the BWG (banking act). It defines responsible rules for banks and regulates banks, specifies an orderly corporate structure and an appropriate equity base.<sup>62</sup> In this law, the question if a crowdfunding platform is a deposit business decides if there is a need of a bank concession. Normally facts like the public offer and the deposit business say that this business needs a banking licence but the loans are subordinate and so the BWG is not responsible in this case.<sup>63</sup> The subordinate loan means that the investor has no guarantee that his investment is not lost during the time of the investment. This construction says that only in the case when the emitter obtained an annual net profit the investor gets his interest rate and the investment back. If the issuer becomes insolvent, all creditors get their money back before the subordinate capital provider. In practice, the contract from the crowdfunding platform between the investor and the start-up includes following additional loan conditions:

The investor gets not back his investment:

- if the emitter has payment difficulties
- if the emitter has to eliminate a crisis or has to restructure the organisation

This shows that in practice the contracts for the subordinate loans are advantageous for the investor if the start-up has problems because the normal investment time is more or less five years.<sup>64</sup>

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<sup>62</sup> FMA in FMA, Allgemeine Information der Finanzmarktaufsicht (FMA) zu Bürgerbeteiligung s Allgemeine Information der Finanzmarktaufsicht zu Bürgerbeteiligungs modellen für Verbraucher (Stand März 2014, fma.gv.at/typo3conf/ext/dam\_download/secure.php?u=0&file=8157&t=1377254188&hash=cfbe98b1d11a9dc31a93812965db9916).

<sup>63</sup> FMA in FMA, Allgemeine Information der Finanzmarktaufsicht (FMA) zu Bürgerbeteiligung s Allgemeine Information der Finanzmarktaufsicht zu Bürgerbeteiligungs modellen für Verbraucher (Stand März 2014, fma.gv.at/typo3conf/ext/dam\_download/secure.php?u=0&file=8157&t=1377254188&hash=cfbe98b1d11a9dc31a93812965db9916).

<sup>64</sup> Hainz/Krejci, Festschrift Johannes Reich-Rohrwig (2014) 68–87.



The second important question for the crowdfunding platform is, if the subordinate loan has a relation to the banking business. In this case, the FMA (financial market authority) says no, if the loans are assessments and not credits. Then the KMG (capital markets law) is responsible.<sup>65</sup>

The financial market authority FMA has to prevent illegal financial service providers and banking businesses. It is also responsible for the compliance of the prospectus from the companies, which are going public to raise money.

The KMG law describes the regulation concerning the public over for company bonds, shares, loans and the regulation of the content in the brochure. The act is only relevant for crowdfunding platforms where the investors get a specific monetary value as a consideration for the investment.<sup>66</sup> For the **donation-based model**, the KMG is not responsible because the investor gives only a donation with no return. In addition, the **reward-based system**, where the financier gets only a symbolic equivalent is also not subject to the act. The symbolic equivalent could be a secondary role in a movie or merchandise from the product.

Under the KMG act, the **lending-based crowdfunding** model is not an option for platform owners because it is a deposit business and for that, they need a banking licence. The only working model, where the investor gets his investment back with an interest rate and participates in the profit and loss, is the **equity-based system**. The financier holds shares of the enterprise and has the risk that his whole investment is gone.<sup>67</sup> In the case of the crowdfunding-financing model, it is not certain if the subordinate loans are investments and are subject to the act.<sup>68</sup> The FMA said that each case is interpreted differently depending on the question if the model underlies the prospectus requirement or not.<sup>69</sup> Because of this, paragraph three from the KMG, the prospectus requirement exceptions, is very important for the crowdfunding platform owner and the investors. When a company has to make a prospectus, the official requirements for the publication are very cost intensive and start-ups are not able to pay this expenses. This is the reason, without the following exclusions the platform owners are not able to make their business. The following three exemptions are very important. There is no prospectus requirement if:

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<sup>65</sup> *Saria*, Unternehmensanleihen und Crowdfunding (2015) 155.

<sup>66</sup> *Zib/Russ/Lorenz*, Kapitalmarktgesetz (2008) 20.

<sup>67</sup> *Saria*, Unternehmensanleihen und Crowdfunding (2015) 158.

<sup>68</sup> *Susanne Kalss /Martin Oppitz*, Die Neuregelungen der KMG-Novelle 1994, Bd. 350 (1995).

<sup>69</sup> *FMA* in FMA, Allgemeine Information der Finanzmarktaufsicht (FMA) zu Bürgerbeteiligung s Allgemeine Information der Finanzmarktaufsicht zu Bürgerbeteiligungsmodellen für Verbraucher (Stand März 2014, [fma.gv.at/typo3conf/ext/dam\\_download/secure.php?u=0&file=8157&t=1377254188&hash=cfbe98b1d11a9dc31a93812965db9916](http://fma.gv.at/typo3conf/ext/dam_download/secure.php?u=0&file=8157&t=1377254188&hash=cfbe98b1d11a9dc31a93812965db9916)).

- the investors can purchase securities and assessments above the minimum investment of 100,000 Euro
- the total offer from the start-up is not more than 250,000 Euro within the European Union
- the offer focuses on less than 150 natural people for each EEA(European Economic Area) state

The operators normally used the second exception for the crowdfunding platform to provide the projects there. For the start-ups the limit of 100,000 Euro like in the first rule was too high for their projects. The investors did not know about the last exception concerning the 150 participants. On the 29<sup>th</sup> of July 2013 the Austrian state changed the law so that 250,000 Euro was the new limit. Before it was only 100,000 Euro. To control that the projects on the crowdfunding platforms do not exceed the 250,000 Euro limit, the platforms only allow projects which are below this limit.<sup>70</sup>

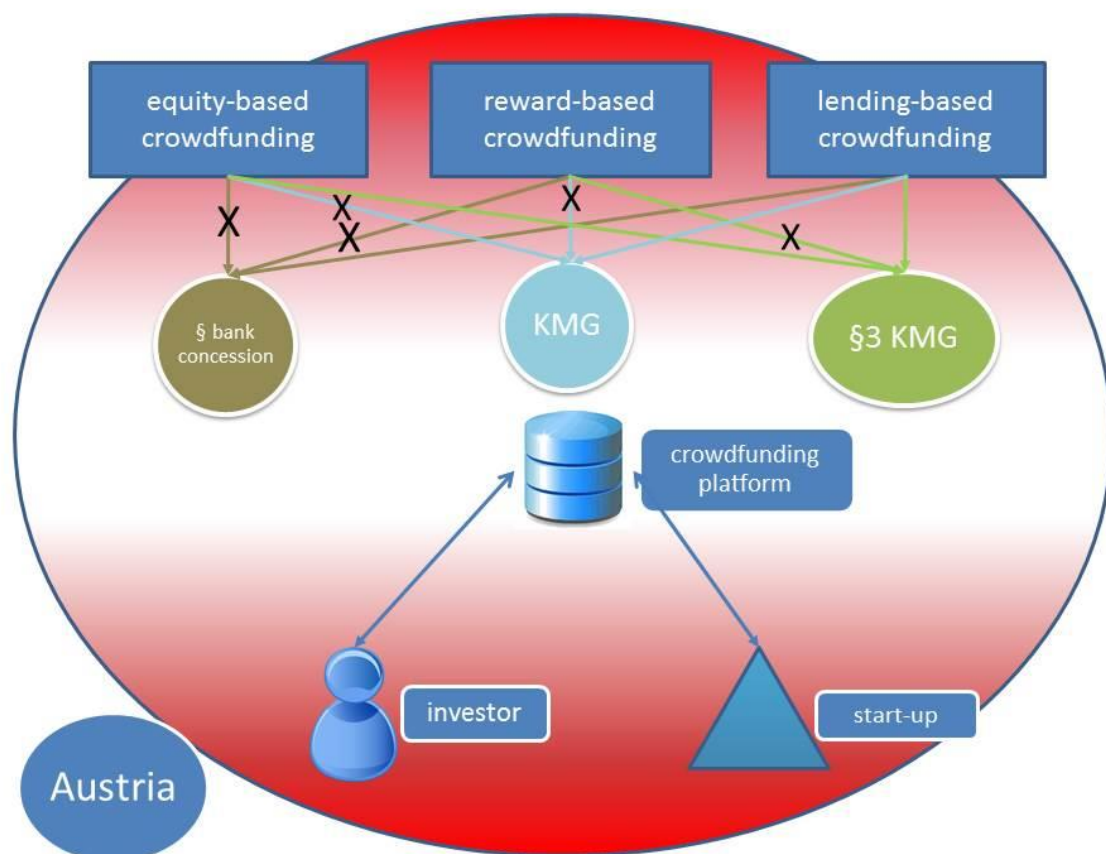


Figure 7: own draft

<sup>70</sup> Univ.-Prof. Dr. Michael Gruber, KMG: Untergrenze für Prospektspflicht auf 250.000 erhöht, Bd. 211 (2013) 106.

Figure 7 shows the crowdfunding financing models and if the different laws are linked or not. The Reward-based model was a possibility in Austria but was not very relevant for investors who were interested in a profit from the investment. The lending-based model was not a possibility for the platform owner because of the required banking licence. In figure 7 only the equity-based model was possible for the Austrian market because of the §3 from the KMG and because there was no need for a banking licence. The §3 from the KMG act describes the exceptions, when the public offers are not regulated by the law.

#### iv. Financing model before the alternative financing act

The following financing model was available for the Austrian crowdfunding platforms before the new alternative financing act.

The platform owner presented information about the start-up and looked for potential investors. From the law side there are no special regulations for the information about the company looking for capital or for the protection of the investor. In the case of an investment, the investor signed a subordinate loan contract with the start-up and transferred the money. The account for the money had to be from a financial intermediary and an escrow account. The escrow account is an account where a third party can control the money.<sup>71</sup> The subordinate loan model is the only legal one where the investor is the last creditor who gets his money back in the case of insolvency. This model is not a deposit business because of the subordination and therefore not subject to the BWG act. In principle, the crowdfunding platform is a public offer place but with the exceptions in the KMG act, it has no prospectus requirement. After the signing of the contract and the transferring of the capital, the investor got some rights. In the contract, the investor normally got a substantial participation right with different conditions about the yearly profit and the exit options. The substantial participation right says that the investor is a shareholder but has no membership rights. He only gets a yearly profit out of this involvement and loses his investment if the enterprise is insolvent.<sup>72</sup> This described model was standard for almost all crowdfunding platforms in Austria and was called equity-based crowdfunding. The differences between the equity-based and the lending-based are described in the chapter "Crowdfunding models".

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<sup>71</sup> *Wirtschaftskammer Österreich* in *Wirtschafts Kammer Österreich, Gewerberechtliche Sicht von Crowd-Funding/ Crowd-Investing (Crowd-Plattformen)* (Stand 12. 4. 2013).

<sup>72</sup> Explained in the same chapter in the point profit participation right.

On the 5<sup>th</sup> of July 2013, the opposition party brought a resolution proposal into the national council to make an act for alternative financing models.<sup>73</sup>

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<sup>73</sup> Pfeil/Urnik, Gesellschaftliche Verantwortung und Gemeinwohl als Unternehmensziele (2015) 119,

## g. Introduction of the alternative financing act

On the 14th of August 2015 the Austrian parliament enacted the alternative financing act (AltFG). With the introduction of the act, the capital market law was also adopted. In this chapter, the whole act is described and the main points for the crowdfunding platform are pointed out.

### i. Participants of the act

There are three different participants: the issuer, the investor and the crowdfunding platform owner.

- **Issuer**

In the act, the issuer is specified as small and middle business with the reference of the recommendation of the European Commission 2003. A small and middle business is an enterprise with less than 250 employees and at most an annual turnover of 50 million Euro or the balance sheet total has to be less than 43 million Euro.<sup>74</sup> Not in the scope of the act are issuers with a concession based on the banking act (BWG), the supervision of securities act 2007 (WAG 2007), the alternative investment fund manager act (AIFMG), the payment service act (ZaDIG), the insurance supervision act (VAG) or the e-payment act. Additionally, the issuer needs to direct more than 150 investors to be under the AltFG. Issuers who are not under the AltFG are automatic under the capital market law (KMG). The exceptions from the KMG for the prospectus requirement, described in the chapter “Austrian problems with the crowdfunding financing model”, also apply for the new AltFG.<sup>75</sup>

- **Investor**

The investor, also called capital giving agent in this paper, is a natural or legal person who purchases alternative financial instruments.

- **Platform owner**

The crowdfunding platform is specified as a website, which deals with alternative financial instruments and mediates between the issuer and investor. For the platform, an owner is specified who is a natural or legal person and operates an Internet platform.<sup>76</sup>

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<sup>74</sup> EMPFEHLUNG DER KOMMISSION vom 6. Mai 2003 betreffend die Definition der Kleinstunternehmen sowie der kleinen und mittleren Unternehmen.

<sup>75</sup> § 1 Abs. 2 und 3 AltFG BGBl I 2015/114.

<sup>76</sup> § 2 Abs 4, 5, 6 und 7 AltFG BGBl I 2015/114.

## ii. Alternative finance instruments according to the AltFG act

The scope of the alternative financing act is only limited for specific financing models. Alternative finance instruments are shares, bonds, shares in a corporation and cooperative society, profit participations right, silent partnerships and subordinated loans. Important is that there is no absolute repayment claim except for the bonds and no additional payment need except shares in a corporation. This means that for the usage of the AltFG act no absolute repayment of the investment from the issuer is needed except for the bonds. The term absolute repayment claim says that the issuer is obligated to fulfil the repayment regardless of the issuer's economic situation.<sup>77</sup>

## iii. Limitation of the distribution of alternative financing instruments

The issuer has different limits to issue alternative financing instruments like shares, bonds, silent partnerships and subordinate loans. The total value of public offers of alternative financing instruments is 1.5 million Euro except shares and bonds, those instruments are limited by 250,000 Euro. For cooperative shares, which belong to an auditing association the limitation is set between 750,000 Euro and 1.5 million Euro. Other public offers, which are not in the scope of the AltFG, do not have the full prospectus requirement if the total value is under five million Euro and the period under review is seven years.<sup>78</sup> The prospectus requirement light is a special prospectus with required information from the AltFG act. The following **information** is needed for the prospectus light:

- **Section 1**

Name and position from responsible persons

- **Section 2**

Information about the investment like legal form, type of the investment, period of time and possible costs

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<sup>77</sup> § 2 Abs 2 und 3 AltFG BGBl I 2015/114.

<sup>78</sup> § 3 AltFG BGBl I 2015/114.

- **Section 3**

Information about the issuer like company name, members of the executive board, information about the shareholders and the last annual financial statement

- **Section 4**

Information about the custodian bank like company name and office

- **Section 5**

Information for the investor about the economic development of the investment and additional information which is necessary for the investor<sup>79</sup>

In the contrast to the prospectus light, the normal prospectus requirement for assessments and securities requires more information. In the section two of the full prospectus requirement 29 points of information are required and in the prospectus light only eighteen. All other sections have the same size of information points.<sup>80</sup> At this time, it is not possible to say how much the costs of the prospectus light are, with less information, missing forecasts and cheaper insurance premium for the prospectus control.

For the better understanding, which financing instrument has a different limit the following figure should show the differences.

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<sup>79</sup> Anlage F AltFG BGBl I 2015/114.

<sup>80</sup> Anlage C KMG BGBl 1991/625.

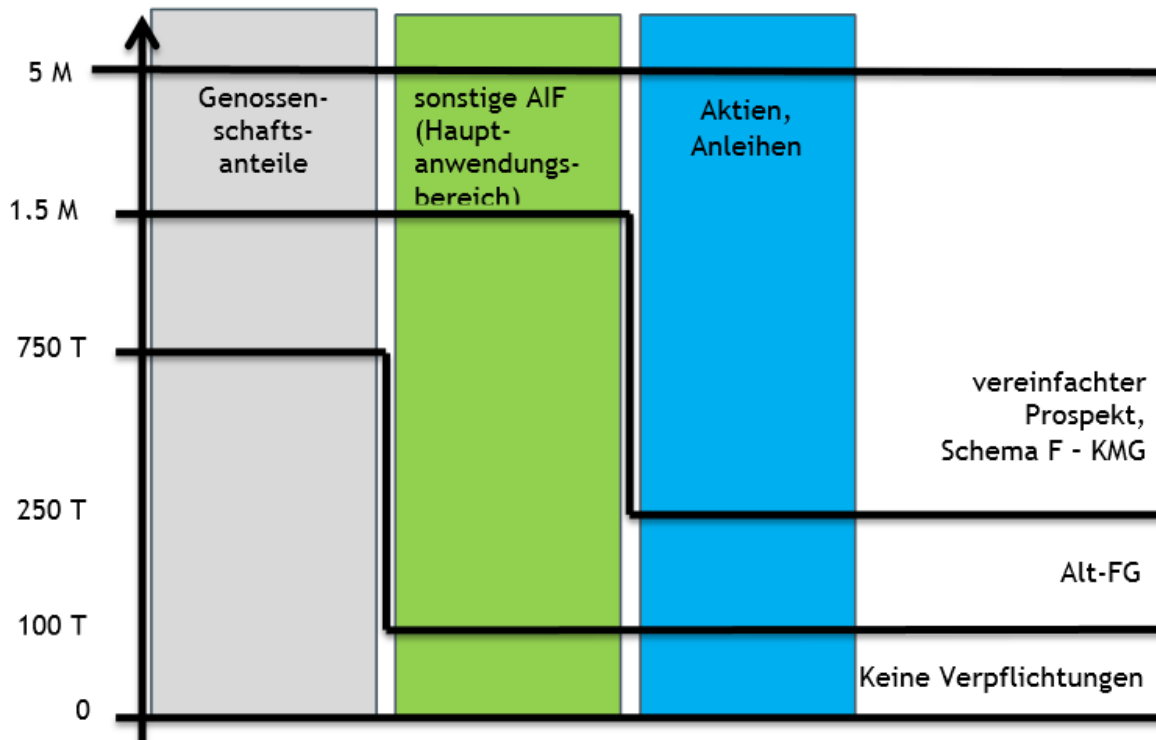


Figure 8: Focus of the AltFG by total value,<sup>81</sup>

Figure 8 shows that there are no liabilities for financing instruments under the limit of 100 000 Euro. After the first limit, the AltFG act is responsible for all the financing instruments explained in the chapter “Alternative finance instruments according to the AltFG act”. At the total value of 250,000 Euro the shares and securities need a prospectus light up to five million Euro. The other finance instruments, except the two mentioned before and the cooperative shares have a limit of 1.5 million Euro. After this border, the prospectus light is required for up to 5 million Euro. The cooperative share has no liabilities until it reaches 750,000 Euro, after that the AltFG is responsible for up to 1.5 million Euro. After this border, the prospectus light is required like in the previous finance instruments.

The consumer of the alternative finance instruments if it is a natural- or a legal person, is able to invest a maximum of 5000 Euro within one year per issuer. For legal persons the limit is not valid if they are not consumers in compliance with the consumer protection law. The limiting amount can be exceeded if the investor gives information about himself to the crowdfunding platform or to the auditor of the platform, which is described in the next chapter. For increasing the limit, the investor has to give information about his financial situation. With this

<sup>81</sup> *Wirtschaftskammer Österreich Fachverband Finanzdienstleister* in *Wirtschaftskammer Österreich, Alternativfinanzierungsgesetz und Crowdfunding-Plattformen (Stand 5. 11. 2015, wko.at/Content.Node/branchen/oe/sparte\_iuc/Finanzdienstleister/Rechtsartikel/Artikel-Crowd-Plattform.pdf)*.



information, the investor can invest twice his monthly average net income calculated over twelve months or ten percent of his financial wealth at most. The crowdfunding owner or the auditor of the platform do not need to check the given information, the investor has only to give a self-disclosure.<sup>82</sup>

#### iv. Information requirements for the issuer

The issuer has to create an information sheet if the amount of money he wants is higher than 100,000 Euro and lower than 1.5 million Euro. For the information sheet, the federal ministry of economy, research, work and social issues introduced an additional regulation called AltFG-InfoV (information from the issuer about the alternative form of financing) beside the AltFG act. The AltFG-InfoV requires that different information is mentioned in the appendix of the AltFG act. Additionally the issuer has to provide the actual annual financial statement or the opening balance, the business plan with the target issue volume, the planned approach if the issue volume is not achieved and the general terms and conditions of the alternative financing instrument.<sup>83</sup> According to the appendix, the following information is expected from the issuer.

##### **Information about the issuer:**

- facts (legal form, address, UID-Number, etc.)
- capital structure

The capital structure is divided into voting right, duration and sequence in the event of insolvency.

- authorised professional representative
- owners and economic owners with at least 25%
- business purposes

##### **Information about the alternative financial instrument:**

- legal form and type
- duration, period of notice, termination date
- information about the type and the amount of the interest rate

##### **Information about costs:**

- possible distribution, administration and management costs in percent

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<sup>82</sup> § 3 AltFG BGBl I 2015/114.

<sup>83</sup> § 1 AltF-InfoV BGBl II 2015/242.

- total sum of one-off and running costs in percent
- possible charges
- provision about the position of the investor in the event of insolvency
- control and participation rights
- possibilities and costs in the case of disposal
- information about the taxes to pay

#### **Other information and indications:**

- information about the usage of the capital from the alternative financial instrument
- information about the responsible authority in an administrative prosecution

#### **Note on risk**

In the note on risk, a specific paragraph says that the FMA is not responsible for the compliance of the AltFG. Additionally it explains the high risk for the investor if the capital seeking agent becomes insolvent.<sup>84</sup>

This information has to be updated every year until the repayment of the investment is completed. Additionally, the information and the contract between the issuer and the investor have to be reviewed on coherence, completeness and comprehensibility. For better understanding, the criteria will be explained:

- **coherence**

The information has to be consistent and the risks and benefits have to be considered equally.

- **completeness**

The information has to be complete and sufficient so that the investor is able to understand the content of the appendix.

- **comprehensibility**

The information cannot be complicated for the investor and should be understandable.<sup>85</sup>

The AltF-InfoV information is reviewed only on the mentioned criteria and not on the correctness of the content. More details about the explained criteria and the depth of the

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<sup>84</sup>Anlage AltF-InfoV BGBl II 2015/242.

<sup>85</sup> *Wirtschaftskammer Österreich Fachverband Finanzdienstleister* in *Wirtschaftskammer Österreich, Alternativfinanzierungsgesetz und Crowdfunding-Plattformen (Stand 5. 11. 2015, wko.at/Content.Node/branchen/oe/sparte\_iuc/Finanzdienstleister/Rechtsartikel/Artikel-Crowd-Plattform.pdf)*.

examination are described in the chapter “Information requirements for the crowdfunding platform”. Additionally to the review, the issuer can sign an insurance regarding the content.<sup>86</sup>

The following groups of people have the permission to review this information as auditors:

- lawyers
- public accountants
- notaries
- management consultants
- commercial investment advisors

The auditor is not allowed to be subject to a conflict of interest and especially regarding the issuer and the platform owner.<sup>87</sup> After the review, the auditor has to give a written confirmation to the issuer. The legislator has not provided any explicit formal requirements so the auditor can make a list of the viewed documents and sign it. Thereby the coherence, completeness and comprehensibility of the documents are confirmed.<sup>88</sup>

If the alternative financial instrument is traded through a crowdfunding platform, the issuer has to provide the platform with the information which has been mentioned before. This information is then published by the platform. Advertisement for alternative financial instruments has to be apparent and cannot be incorrect or misleading.<sup>89</sup>

In addition to the information the issuer has to provide, the annual financial statement has to be published immediately after registering the company. Only the documents, which are provided by the commercial register, need to be published. If there is no information in the commercial register available, for example from foreign companies, similar information has to be provided. Additionally, the information from the AltF-InfoV and the annual financial statement have to be sent to the consumer protection association via email.<sup>90</sup>

Up to a funding limit of 1.5 million Euro the issuer only has to provide the information described in the AltF-Info appendix. After this limit up to 5 million Euro, the issuer has to provide the additional information required for prospectus light, which is described more detailed in the chapter “Limitation of the distribution of alternative financing instruments”.

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<sup>86</sup> § 4 Abs 9 AltFG BGBl I 2015/114.

<sup>87</sup> § 4 Abs 9 AltFG BGBl I 2015/114.

<sup>88</sup> Kaufmann/Seper/Zenz, Handbuch Crowdfunding und AltFG, Handbuch 129.

<sup>89</sup> § 4 Abs 4 AltFG BGBl I 2015/114.

<sup>90</sup> § 4 Abs 3 und 4 AltFG BGBl I 2015/114.

When the issuer needs more than 5 million Euro, he is required to publish the normal full prospectus with all the regulations and controls according to the capital market law.

## v. Required concessions for crowdfunding platforms

Crowdfunding platforms got additional requirements with the new AltFG act. To provide alternative financial instruments on a crowdfunding platform its owner needs a permission as **commercial investment advisor** or a concession as **investment service provider**.

The commercial investment advisor has to fulfil the following admission requirements from the industrial code to get the permission.<sup>91</sup> There are two possibilities for the qualification: successful passing of the qualification examination or a relevant university degree with at least one year of professional work experience.<sup>92</sup> The content of the qualification examination test are three modules and regulated by the chamber of commerce. Following modules are part of the test:

- **written part**

The written part includes the topics investments and assessments, insurance brokerage, financing operations and a general part. These topics contain questions regarding the legal, economic and fiscal aspects.

- **oral part**

The oral part includes the same topics as the written test and additionally a part about cooperate governance.

- **instructors exam part**

The instructor's exam part is an oral exam where the candidate is asked about professional competence and practical application.<sup>93</sup>

The second possibility is a university degree from a relevant university, a relevant university of applied science or a relevant university course with at least four semesters. For the positive permission as commercial investment advisor the state is responsible.<sup>94</sup> Additionally to the

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<sup>91</sup> § 136a Gewerbeordnung 1994 BGBl 1994/194.

<sup>92</sup> § 1 Abs 1 Gewerblicher Vermögensberater-Verordnung BGBl II 2012/87.

<sup>93</sup> *Fachverbands Finanzdienstleister*, Verordnung 2/2012 des Fachverbands Finanzdienstleister über die Befähigungsprüfung für das reglementierte Gewerbe „Gewerbliche Vermögensberatung“ gemäß § 94 Z 75 GewO 1994 – Vermögensberatungsprüfungsordnung., [wko.at/Content.Node/branchen/oe/sparte\\_iuc/Finanzdienstleister/Rechtliches/Befaeigungspruefung-der-Gewerblichen-Vermoeogensberatung/Pruefungsordnung\\_GVB\\_30-03-12.pdf](http://wko.at/Content.Node/branchen/oe/sparte_iuc/Finanzdienstleister/Rechtliches/Befaeigungspruefung-der-Gewerblichen-Vermoeogensberatung/Pruefungsordnung_GVB_30-03-12.pdf) (abgefragt am 25. 4. 2016).

<sup>94</sup> § 1 Abs 1 Gewerblicher Vermögensberater-Verordnung BGBl II 2012/87.

admission requirements, the commercial investment advisor has to participate in a 40 hour training every three years.<sup>95</sup>

The concession as investment service provider is separated into two types, which have different characteristics.

The concession investment firm is a legal person based in Austria and is able to handle the following investment services:

- investment advisory in the field of financial instruments
- management of portfolios from customers
- acceptance and transmission of orders if they are financial instruments
- operation of a multilateral trading system<sup>96</sup>

The described investment services are based on the following financial instruments: transferable securities, money market instruments, fund shares, financial derivatives, derivatives on commodities, financial speculation on differences and other derivatives. No financial services according to the securities supervision act 2007 (WAG) are: not securitised assessments, closed funds, building loan contracts, insurance contracts, credit contracts, leasing contracts and loan contracts. For the financial products which are not considered by the WAG a business licence is needed.<sup>97</sup>

The concession as **securities-related service enterprise** is a legal or a natural person based in Austria and is able to offer the same services as the investment service provider except:

- management of portfolios for customers
- investment services can only be transferable securities
- the investment service provider can only give orders to special institutions<sup>98</sup>

To get the concession from the FMA (financial market authority), the companies or people have to provide different information about the company or person, like the business plan and have to consider the following requirements:

- legal form: limited company, stock company

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<sup>95</sup> § 136a Abs 6 GewO 1994 BGBl 1994/194.

<sup>96</sup> § 3 Abs 2 Wertpapieraufsichtsgesetz 2007 BGBl I 2007/60.

<sup>97</sup> *Finanzmarktaufsichtsbehörde*, Information für Konzessionswerber, fma.gv.at/typo3conf/ext/dam\_download/secure.php?u=0&file=7980&t=1361359798&hash=1357b4f76687d567dea93bf131b1e878 (abgefragt am 26. 4. 2016).

<sup>98</sup> *Finanzmarktaufsichtsbehörde*, Information für Konzessionswerber, fma.gv.at/typo3conf/ext/dam\_download/secure.php?u=0&file=7980&t=1361359798&hash=1357b4f76687d567dea93bf131b1e878 (abgefragt am 26. 4. 2016).

- equity capital when founding: 50,000 Euro
- management: at least two managers with professional competence
- shareholding structure: no close connection with other natural or legal people, qualified owners (natural or legal people with more than 10 percent voting right or people who hold capital)
- corporate purpose: no holding of capital, securities or other financial instruments to become debtor from the own customers
- business plan: information about the type of planned businesses, presentation of the organizational structure, budget accounting over the first three years
- membership in a compensation institution<sup>99</sup>

This information has to be sent to the FMA to start the concession process. After the content check, the authority invites the managers of the company who are applying for the concession, to a hearing. The managers are asked about their obligations and tasks as a managing director and about their professional qualification. After this hearing, the FMA makes the decision about the positive or negative concession.

Additionally to the permission or concession, the platform owner is not allowed to have one of the following concessions:

- BWG: concession as a bank<sup>100</sup>
- AIFMG: concession as an alternative investment fund manager<sup>101</sup>
- ZaDIG: concession as a payment service provider<sup>102</sup>
- VAG: concession as an insurance company<sup>103</sup>
- Electronic money act: concession as an electronic money giving company (electronic money is every electronically magnetic saved monetary value in form of a claim against an issuer)<sup>104</sup>

Beside the concession, the AltFG provides a legal framework for crowdfunding platforms. The activities of the crowdfunding platform include the mediation between issuers and investors. In

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<sup>99</sup> *Finanzmarktaufsichtsbehörde*, Information für Konzessionswerber, [fma.gv.at/typo3conf/ext/dam\\_download/secure.php?u=0&file=7980&t=1361359798&hash=1357b4f76687d567dea93bf131b1e878](https://fma.gv.at/typo3conf/ext/dam_download/secure.php?u=0&file=7980&t=1361359798&hash=1357b4f76687d567dea93bf131b1e878) (abgefragt am 26. 4. 2016).

<sup>100</sup> § 1 Abs 1 Bankwesengesetz BGBl 1993/532.

<sup>101</sup> § 1 Abs 1 Alternative Investmentfonds Manager-Gesetz BGBl I 2013/135.

<sup>102</sup> § 1 Abs 1 Zahlungsdienstegesetz BGBl I 2009/66.

<sup>103</sup> § 1 Abs 1 Versicherungsaufsichtsgesetz 2016 BGBl I 2015/34.

<sup>104</sup> § 1 Abs 1 E-Geldgesetz 2010 BGBl I 2010/107.

the act, only the mediation concerning the announcement and processing of the issuer's campaign is specified. However, the platform is not entitled to offer advice about alternative financing instruments.

## vi. Information requirements for the crowdfunding platform

The following information has to be provided by the crowdfunding platform and has to be easily accessible on the webpage:

- **general information about the platform**

Legal form, company name, address, official representatives, owners with a participation more than 25%, excerpt of commercial register if it is a legal person, business purposes and actual annual financial statement.

- **information about selection criteria**

The platform has to provide the selection criteria for the admission of the issuer. The investor should see how much of an effort the issuer has to make in order to present the project or start-up on the platform. The information about the issuer has to be provided in a correct manner and clearly assigned for each campaign.

- **information about charges**

The type, frequency and level of charges from investors and issuer have to be published on the platform. For the investors, the statement of cost has to be general and it should give an overview, how much the issuer gets from the investment. The list should show the different costs of the activities in the sense of the AltFG and others.

- **information about risk spread**

The crowdfunding platform has to inform the investor about the risk spreading and that the investment should be affordable. Additionally a note should provide the information about the risk of complete failure. The investor should confirm that he has received the information.

Additionally, the crowdfunding platform has to provide the actual annual financial statement and the information described before has to be up to date.<sup>105</sup> The platform owner is independent

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<sup>105</sup> § 5 Abs 3 und 8 AltFG BGBl I 2015/114.

from the AltFG information requirements, from the ECG (e-commerce law), MedienG (media law) and FernFinG (distance selling from financial services law) laws.<sup>106</sup>

The crowdfunding platform has to notify the Austrian control bank AG about each offered alternative financing instrument on the platform. This platform has to provide information about the issuer, the publication time, the total volume, the runtime and the type of the instrument. Although the financing in the regulation of the AltFG has no prospectus requirement in the KMG, it is required to add a new offering to the calendar.<sup>107</sup> The calendar from the Austrian control bank AG is public and presents the following information:

Meldetyp	Anmeldender Anbieter	Wertpapierklasse	Identifikation	Zeitpunkt der Emission <sup>↓</sup>	Errechneter Kurswert in Währung
Meldung	wohinvest consulting GmbH (Wien)	Veranlagung	MN0009792271	24.11.2015	12.000.000 EUR
Meldung	SK Rapid GmbH (Wien)	Veranlagung	MN0009767160	20.11.2015	1.000.000 EUR
Meldung	SK Rapid GmbH (Wien)	Veranlagung	MN0009767159	20.11.2015	1.000.000 EUR
Meldung	SK Rapid GmbH (Wien)	Veranlagung	MN0009767158	20.11.2015	1.000.000 EUR
Meldung	CONFIRM Wirtschaftsprüfung GmbH (Leonding)	Veranlagung	MN0009685338	18.11.2015	2.500.000 EUR
Meldung	all i need beverage GmbH (Wien)	Veranlagung	MN0009747906	16.11.2015	800.000 EUR

Figure 9: Issuer calendar of the Austrian control bank AG,<sup>108</sup>

In figure 9 an extract is shown from the calendar of the Austrian control bank AG. It shows the last big crowdfunding campaigns on conda.at, the issuer “SK Rapid” and “all I need”.

The crowdfunding platform also has to provide the actual data from each issuer, which was described in the chapter “Information requirements for the issuer”.

### Standard of review

One of the important points in the review of the data from the issuer is the depth of the examination if the AltF-InfoV is used. For the review on one side, the information and the terms in the participation contract from the issuer have to be reviewed from a special group of auditors, described in the chapter “Information requirements for the issuer”. On the other side, the information and the terms in the participation contract also have to be reviewed from the crowdfunding platform concerning the same criteria completeness, comprehensibility and coherence.<sup>109</sup> For the review it is very important how detailed the auditor examines the given

<sup>106</sup> Pöltner/Horak, Crowdfunding und Crowdfunding<sup>1</sup> (2015) 46.

<sup>107</sup> § 13 KMG BGBl 1991/625.

<sup>108</sup> <https://meldestelle-online.oekb.at/home.xhtml> (03.03.2016).

<sup>109</sup> § 5 Abs 4, 5 und 7 AltFG BGBl I 2015/114.



information. In the following part, the criteria will be explained more detailed in reference to the capital market act and the prospectus review:

- **completeness**

The auditor has to review the information on compliance from the AltF-InfoV and in detail on presentation, schemes and modules. The minimum details have to be given in every section and the information has to be meaningful. If the meaningfulness is given according to these criteria, the review is finished.<sup>110</sup>

- **coherence**

The auditor has to review the information on obvious inconsistency respectively deviations between the summary and the additional given data. Alternatively, the auditor has to audit discrepancies between the given financial information and the remaining information. However, there is no need to compare the financial information with the business and financial situation.<sup>111</sup>

- **comprehensibility**

The auditor cannot base the review of the information on his expertise. The information has to be audited on comprehensibility from the perspective of an average investor. In case of doubt, a heterogeneous target group has to be taken into consideration.

Only the mentioned criteria and not the accuracy of the content have to be reviewed by an auditor. If the reviewer has different information from the given information from the issuer, the auditor is not legally bound to take the own information into account in the approval process. Because of this, the issuer is still responsible for the correctness of the content and the terms in the participation contract.<sup>112</sup>

The review has to be done by the platform owner but it is not regulated if it is done by an external auditor or by the platform. For the platform owner there is no alternative with an insurance for the correctness of the criteria audit like for the issuer. The legislator does not provide explicit formal requirements for the confirmation of the audit of the given information from the issuer. Therefore, the reviewer can make a list of the reviewed documents and sign it to confirm the coherence, completeness and comprehensibility of the documents.

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<sup>110</sup> *MMag. Julia Lemonia Raptis, LL.M., Prüfungsmaßstab von Wertpapierprospekten, ZFR 2011/169 (2011) 304.*

<sup>111</sup> *MMag. Julia Lemonia Raptis, LL.M., Prüfungsmaßstab von Wertpapierprospekten, ZFR 2011/169 (2011) 306.*

<sup>112</sup> *MMag. Julia Lemonia Raptis, LL.M., Prüfungsmaßstab von Wertpapierprospekten, ZFR 2011/169 (2011) 306.*

The platform owner has to provide the information directly, permanently and easily accessible on the Internet platform. The whole information from the issuer has to be published until the end of the financing campaign. For better transparency, the platform owner is not allowed to operate as an issuer on the crowdfunding platform.<sup>113</sup>

## vii. Additional requirements for crowdfunding platforms

Additional to the requirements listed in the chapters before the platform owner also has to consider the following points.

- **identification obligation and trustee**

The crowdfunding platform needs an account with a payment provider or bank for the payment process between investor and issuer. Otherwise, the platform needs a bank licence or concession according to the ZaDig (payment service act) to perform the payment service.<sup>114</sup> Banks are not able to keep customer capital with a normal bank account. A special escrow account is needed for the investment.<sup>115</sup> For the escrow account, a trustee has to be between the issuer and investors to keep the investment safe until the end of the crowdfunding campaign. According to the bank act, the trustee has to identify all the investors because of the money laundering prevention.<sup>116</sup> Before the trustee is allowed to identify the investors, the bank physically has to identify the trustee with an official identification document. After the identification, the trustee has to give a written declaration that the identities of the investors have been controlled.<sup>117</sup> Additionally, the crowdfunding platform's owner has to identify the issuer, who uses the Internet platform and the investor, who purchases the alternative financing instruments over the platform.<sup>118</sup>

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<sup>113</sup> § 5 Abs 4, 5 und 7 AltFG BGBl I 2015/114.

<sup>114</sup> § 17 Abs 1 Z 1 Zahlungsdienstgesetz BGBl I 2009/66.

<sup>115</sup> *Wirtschaftskammer Österreich Fachverband Finanzdienstleister* in *Wirtschaftskammer Österreich, Alternativfinanzierungsgesetz und Crowdfunding-Plattformen* (Stand 5. 11. 2015, [wko.at/Content.Node/branchen/oe/sparte\\_iuc/Finanzdienstleister/Rechtsartikel/Artikel-Crowd-Plattform.pdf](http://wko.at/Content.Node/branchen/oe/sparte_iuc/Finanzdienstleister/Rechtsartikel/Artikel-Crowd-Plattform.pdf)).

<sup>116</sup> § 40 Abs 2 Bankwesengesetz BGBl 1993/532.

<sup>117</sup> *Kaufmann/Seper/Zenz*, *Handbuch Crowdfunding und AltFG*, Handbuch 84.

<sup>118</sup> § 5 Abs 1 AltFG BGBl I 2015/114.

- **corporate code**

Companies that are registered in the commercial register have to publish certain information about the company on the website based on the § 14 corporate code.

Following information has to be published:

- the company
- the legal form
- the location of the company
- the commercial register number.<sup>119</sup>

- **far financial service provider act**

Concluded agreements between the customer and the issuer through the crowdfunding platform are regulated by the far financial service provider act. For example, it regulates the right of withdrawal within two weeks in the context of a crowdfunding platform.<sup>120</sup>

- **e-commerce act**

The e-commerce act regulates the electronical commerce and the electronical legal transactions. In particular, the act regulates the online distribution of goods and services, in which the provider and supplier are not physical present. For the crowdfunding platforms this means that following information has to be found easily and immediately:

- the company's name
- the business address and other communication data (telephone, fax, e-mail)
- the commercial register number and the associated court
- the competent supervisory authority
- the associated chambers or associations
- the value added tax identification number<sup>121</sup>

According to the § 9 of the e-commerce act, the information described before has to be given to the user of the crowdfunding platform before the contract is signed. Additionally, the platform has to provide understandable and clear information for the user how the contract declaration is done.<sup>122</sup>

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<sup>119</sup> Kaufmann/Seper/Zenz, Handbuch Crowdfunding und AltFG, Handbuch 120.

<sup>120</sup> Fern-Finanzdienstleistungs-Gesetz BGBl I 2004/62.

<sup>121</sup> Kaufmann/Seper/Zenz, Handbuch Crowdfunding und AltFG, Handbuch 121.

<sup>122</sup> § 9 Abs 1 E-Commerce-Gesetz BGBl I 2001/152.

## viii. Summary of the alternative financing act

The AltFG is a new possibility for crowdfunding platforms to provide a platform with legal securities. Additionally, the limits for the capital seeking projects or start-ups changed, they have the possibility to raise up to **1.5 million Euro** without any prospectus requirement. They have to provide detailed information about their project or start-up, which have to be controlled from third party on the criteria **coherence, completeness, comprehensibility**, for the platform. The review has to be done by a special group of people and is completed with a testing protocol about the reviewed information. Very important for the review is how detailed the auditor examine the given information. Every criteria has to be reviewed very different in its detail and is described very detailed in the chapters before. Overall, the auditor controls the information on the criteria and **not the accuracy of the content**. If the auditor has information against the given information from the issuer, the auditor is **not legally bounded** to take the own information into account in the approval process. **After** the sum of 1.5 million Euro, the capital seeking projects or start-ups need a prospectus light with not so many data inside as the full prospectus but with the same official requirements until **5 million Euro**. This is the last limit, after that the full prospectus requirement is active. The **alternative financing instruments** can be shares, bonds, shares in a corporation and cooperative society, profit participation rights, silent partnerships and subordinated loans, which are provided with the AltFG act.

For the crowdfunding platform owner, different requirements are introduced by the act. The first requirement for the owner is to have permission as **commercial investment advisor** or the concession as **investment service provider**. Both have different ways to get the permission or the concession. The concession as **investment service provider** is problematic for the crowdfunding platform owner because the loan contract is not subject to the concession. In Austria, the most distributed contracts between issuer and investor is the subordinate loan contract. Therefore, the concession is not needed and the permission as commercial investment advisor is more suitable for the crowdfunding platform owner. The permission seems easier to become with a **successful qualification examination** or a relevant **University degree** with additional at least one year professional works in return to the commercial investment advisor.

The second requirement for the platform owner is to provide the given information **easy of access** from the issuer on the platform. Additionally, the owner needs to **review** the given information and the contract for the investment on the criteria **coherence, completeness, and comprehensibility**. According to the alternative financial act, the platform owner needs no

testing protocol but has the responsibility to the reviewed criteria like the issuer. It has to be assumed that in the case of mediation over crowdfunding platforms an auditor and the platform owner do the controlling.<sup>123</sup> The owner also has to give following information on the platform for the issuer: **admission requirements, general information, information about risk spread and information about charges**. Additionally, the platform has to give a special reference about the risk of the total failure that could look like: “The investment into the start-up XYZ is highly risky so that the total investment can be lost. XYZ is a new company with no soled product and the production risk is very high. The investment is bound minimum five years and there is no possibility to get the capital back in this time.”<sup>124</sup> In addition, the owner has to publish information on the platform according to the e-commerce act and the corporate code. The contracts, which are signed over the crowdfunding platform, have special regulations by the far financial service provider act.

Another requirement is that the crowdfunding platform needs a special **escrow account** at the bank to keep customer capital. For the escrow account, a **trustee** has to be between the issuer and investors to keep the investment save until the end of the crowdfunding campaign. Details about alternative payment methods on crowdfunding platforms are explained in the chapter “Alternative payment methods”. The crowdfunding platform owner has to **identify the identity** from the issuer, who uses the Internet platform and from the investor, who purchases the alternative financing instruments over the platform. This is necessary for the trustee, who confirms the bank, that the identities of the investors are controlled because of the **money laundering prevention**.

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<sup>123</sup> Pöltner/Horak, Crowdfunding und Crowdfunding (2015) 42.

<sup>124</sup> *Wirtschaftskammer Österreich*, Alternativfinanzierungsgesetz und Crowdfunding-Plattformen, [wko.at/Content.Node/branchen/oe/sparte\\_iuc/Finanzdienstleister/Rechtsartikel/Artikel-Crowd-Plattform.pdf](http://wko.at/Content.Node/branchen/oe/sparte_iuc/Finanzdienstleister/Rechtsartikel/Artikel-Crowd-Plattform.pdf) (Stand 5. 11. 2015).

### 3. Technical implementation

The technical implementation includes different fields, in the first part the basic structure of a crowdfunding platform will be shown in a use case diagram. In addition, the different requirements of the stakeholders are described in detail. In the second part, the usability of the existing platforms is going to be described because it is very important for the comparison. The best three performing crowdfunding platforms will be chosen to compare them in a usability test. Five different persons will test the three different platforms on 247 questions about the usability. For the test a special method is used which was invented by Jakob Nielsen and adapted with a special heuristic by David Travis. After the usability test a connection between the success, performance of the crowdfunding platforms and the platform design will be given. Out of this, the best fitting design will be discussed and shown in detail. For the technical implementation, also the new regulations from the AltFG act will be discussed and possible solutions shown. Another part of this chapter are the payment methods which are available for crowdfunding platforms.

#### a. Design of the Crowdfunding platform

In this chapter, the technical implementation of crowdfunding is designed and possibilities are described. Before the structure and framework is shown the requirements and the use cases are defined. For the better understanding a use case diagram will be shown in this chapter.

##### i. Stakeholders

Before the different tasks are defined, the stakeholders of a crowdfunding platform are shown. The following user groups have different point of views and interests in a platform:

- **Platform user** - The crowdfunding platform can be used by every person with different previous knowledge and competences. For the user two different views are available: account and no account view. The user has the possibility of investing money in start-ups or projects and getting information about the running or upcoming projects.
- **Project or start-up owner** – They present their projects and start-ups on the platform to get money from the crowd. This stakeholder has the possibility to design his crowdfunding campaign on the platform. There are different options with graphics, information and videos to introduce the start-up or project.
- **Platform owner** – The platform owner is responsible for the execution of the different crowdfunding campaigns and the legal aspects. He provides the platform users

information about their rights and obligations. Another part is the marketing of the crowdfunding platform to get more users.

- **Information auditor** – The auditor has to review all the given information and the loan contract with regard to coherence, completeness and comprehensibility from the start-up or project on the crowdfunding platform. The AltFG act says that it could be a management consultant, investment adviser, economy trustee, lawyers, notary and the chamber of commerce.<sup>125</sup>
- **Trustee** – The trustee is between the project or start-up owner, investor and the depository bank. All of the investments are on an escrow account on the depository bank controlled by the issuer.
- **Depository bank** – The depository bank is the holder of the investments from the investors for the start-ups or projects. The trustee and the depository bank manage all of the invested capital from the crowd. The platform owner does not appear as a bank for the invested capital.

## ii. Requirements

The requirements for the technical implementation are defined by the interaction between the stakeholders and the crowdfunding platform to reach a certain goal. There is a difference between functional requirements and non-functional requirements. The functional requirements are functions that are offered by the platform and non-functional requirements are required characteristics. The following requirements come from the stakeholder's needs and interactions between them.

### **Requirements for crowdfunding platform:**

- The platform has to be accessed over the world wide web
- The start-ups or project owners need their own platform area to give information about them self.
- The projects or start-ups have to be able to create and to design their own campaign on the platform with detailed information.
- The investors need a separate area to give personal information, to read additional detailed information about the projects and to make investments. Additionally, the

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<sup>125</sup> Alternativfinanzierungsgesetz, Bd. 2015 (8/2015) §4 Abs 9.

investor should be able to see the AltFG-InfoVO that includes all the special information, which is required from the alternative financing act.<sup>126</sup>

- The platform needs different views for users with and without an account.
- The platform owner needs an area to present all the start-ups or projects and to inform the investors about the risks of crowdfunding.
- The platform owner needs an administration area for controlling all of the different areas on the platform the given information, the campaigns and the transaction of the money from the crowd to the capital-seeking agent.

#### **Requirements for the projects or start-ups:**

- The issuer need to provide detailed information about the start-up or project for the selection process form the crowdfunding platform.
- The issuer need to provide information about their whole start-up or project for the campaign on the platform.
- The issuer needs an audit on the given information from an external institute.
- The issuer has to publish an annual financial statement every year.

#### **Requirements for the investors:**

- The investors need to register on the platform to perform an investment and get more information about the start-ups or projects and contracts.
- The investors need to give information about their income and savings if they would like to spent more than 5000 Euro on one project. They have also to accept the possibility to invest more than the limit.<sup>127</sup>

#### **Requirements for the platform owner:**

- The platform owner needs to give detailed information about the platform: legal form, information about the owner and the shareholder, annual financial statement, information about the selection criteria for the admission on the platform, information about the fee for the capital-giving and seeking agent.
- The platform owner has to inform the investors about their risks and the possible loss of invested capital.
- The platform owner has to control the identities of the investors.

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<sup>126</sup> § 1 AltF-InfoV BGBl II 2015/242.

<sup>127</sup> § 3 Abs 3 AltFG BGBl I 2015/114.



- The platform owner needs to make an (external) review on the given information and the contract from the start-ups or projects.
- The platform owner needs to give information whether or not they are successful with the campaign of the start-ups or projects.

#### **Requirements for the trustee:**

- The trustee needs to make a contract between the investors and the start-ups or projects according to the circumstances when the investments are handed out or not.
- The trustee needs to control the identities of the investors for the depository bank.
- The trustee needs to open an escrow account at a depository bank.

#### **Requirements for the depository bank:**

- The depository bank needs to handle the capital transaction between the investors and start-ups or projects.
- The depository bank has to give information about the different bank accounts to the platform owner.

#### **Requirements for the information auditor:**

- The information auditor needs access to the AltFG-InfoVO information and the loan contract from the projects or start-ups before they are online to make a review.<sup>128</sup>
- The information auditor needs to hand out a testing protocol about the tested information and the loan contract.

### **iii. Basic knowledge**

In order to understand which architecture is used for the crowdfunding platform, programming languages and scripts will be described in the next section. Following basic programming languages are needed for the architecture:

- **HTML**

Is a hyper text markup language and the most used display language. It was invented for the access of research papers with text and graphics. Another important task was the link between different documents. The data structure is the ASCII format and includes the basic structure of the websites. In addition, the fundamental formatting commands

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<sup>128</sup> § 1 AltF-InfoV BGBI II 2015/242.

of the pages are described in the HTML. The HTML code is interpreted by the browser and is extended with more functions by other programming languages.<sup>129</sup>

- **CSS**

The cascading style sheet is a language to format HTML elements. It is an addition to the typical HTML formatting options. For example, CSS is able to design lists, fonts and make specific position for graphical elements on the website. CSS is always extended with new features and possibilities. With this programming language it is possible separate the content and the design of the webpage.<sup>130</sup>

- **PHP**

The hypertext processor language was introduced to create dynamic web applications with the combinations of external databases. PHP is platform independent and is developed over the time by a huge community. The programming language makes it possible to make communications with other applications and is performed only on the server.<sup>131</sup>

- **JavaScript**

The JavaScript programming language was invented to provide interactions between the website and the user. It is either directly included in the HTML document or separated as an external document. For example, the software can check form fields on completeness or small programs can be realised. JavaScript is interpreted by the browser and is not so popular anymore because users can deactivate it because of security reasons. But with the introduction of AJAX, asynchronous JavaScript and XML it is very popular for web 2.0 applications.<sup>132</sup>

- **ASP, ASP.NET**

ASP or active server pages was invented by Microsoft for creating dynamic websites. It was introduced for different script languages but only the BVScript was usually used. Because many projects were not satisfied with the situation, ASP.NET was introduced. ASP.NET can be used with every .NET programming language and different development environments exist in contrast to ASP.<sup>133</sup>

## iv. Basic Architecture

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<sup>129</sup> Münz Stefan, Geschichte von HTML, swlx01.hs-esslingen.de/doc/HTML-DOC/tbab.htm (Stand 1997).

<sup>130</sup> Lie/Bos, Cascading style sheets<sup>2</sup> (1999) Chapter 20.

<sup>131</sup> Lavin, Object-oriented PHP (2006) 2–4.

<sup>132</sup> Stefanov, Object-oriented JavaScript, From technologies to solutions (2008) 10–13.

<sup>133</sup> Homer/Sussman, ASP.NET 2.0 illustrated, Microsoft .net Development Series (2007) 12–14.

The architecture of the crowdfunding platform is based on the requirements shown in chapter “Requirements”. The platform is basically accessed over the Internet to reach the whole world wide web. With this possibility the start-ups or projects and the investors are connected over the Internet. Behind the platform is a web server with a connected database.

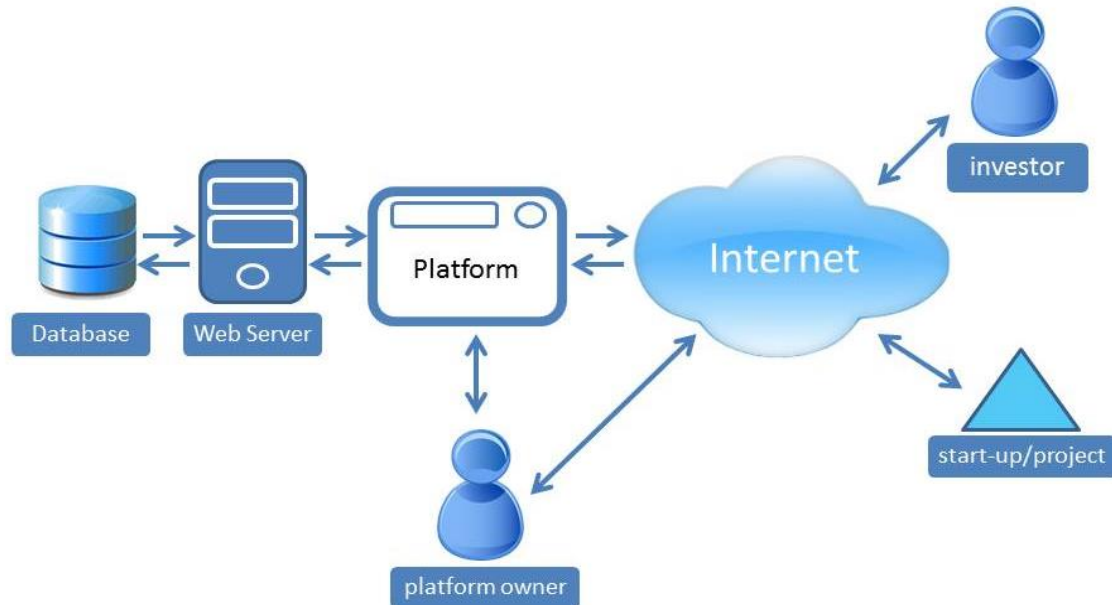


Figure 10: architecture of the environment, own draft

Figure 10 shows the platform owner, who is also connected via the Internet and the administrator of the platform. The figure 10 is not showing the depository bank, the trustee and the information auditor because they are not so relevant for the architecture of the crowdfunding platform. Following functions and properties are must haves for the crowdfunding platform.

### User roles and functions:

- **investors**
  - register and edit the profile
  - own area
  - additional information about the start-ups/projects
  - invest capital in the start-ups/projects
- **projects or start-ups**
  - register and edit the profile
  - own area
  - create/edit the own campaign
  - get information about investors
  - write with the investors

- answer comments
- **information auditor**
  - profile to access the information of the start-ups/projects
- **platform owner**
  - own administration area
  - edit the platform
  - edit/delete campaigns
  - managing the start-ups/projects (editing/activate)
  - delete profiles
  - communicate with the investors and the start-ups/projects
  - information about all the participants
- **platform system**
  - backup of the database
  - content managing with an editor for non-experts
  - user management
  - simple administration for the platform owner
  - communication between all participants (investor, start-up/projects, platform owner)

These are the have to functions of the crowdfunding platform system. In the next chapter a possible solution for these functions is described.

## b. Structure of the Crowdfunding platform

Out of the functions and the requirements in the previous chapter, a WCM system (web content management system) is a possible solution for the crowdfunding platform for this work. In this chapter, the functions and the structure of WCM systems are described. Additionally, the linking between the requirements of the crowdfunding platform and the WCM systems are given. For the best fitting WCM system, three different systems are compared and the best is chosen for the implementation.

### i. Web content management system

Web content management systems (WCM system) are based on content management systems (CMS). The basic idea is to enable the collaborative creating and editing from content in an information system also for technical non-experts. In the last years, the system has been used for websites without any organisational management on the site. However, the system includes the management of different user groups and different views for each.<sup>134</sup> In the current language, the term CMS is used as WCM system but the CMS was not considered as web based information system. The difference is that the CMS is not necessarily a web based system but for the WCM system it is a requirement. WCM systems facilitate the organisation of platforms with fast changing content and different groups of users. There are functions to generate different views on the platform for different users groups. Another speciality is the editing of content on the website with simple editors.<sup>135</sup> The structure of the WCM system is very clear. Figure 11 shows how a WCM system is structured in detail. The basis in most cases is an apache server where the WCM system is hosted. Of course, other server systems can also be used as web server but only apache is supported by every fee licenced WCM system. The content for the website is coming from the database, in most cases a MySQL database is used. For the design of the website, the configuration is located in files on the web server. The client views the website over the Internet on the web server in a bidirectional way, information goes from the client to the server and back. Depending on the system the basic WCM systems use different technologies like HTML, CSS, PHP and others. Some of the technologies that are used to manage or design the website are described in the chapter basic knowledge.

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<sup>134</sup> *Boiko*, Content management bible<sup>2</sup> (2005) 65–66.

<sup>135</sup> *Susan McKeever*, Understanding Web content management systems: evolution, lifecycle and market, Vol. 103 Iss: 9, pp.686 - 692 (2003) 686–687.

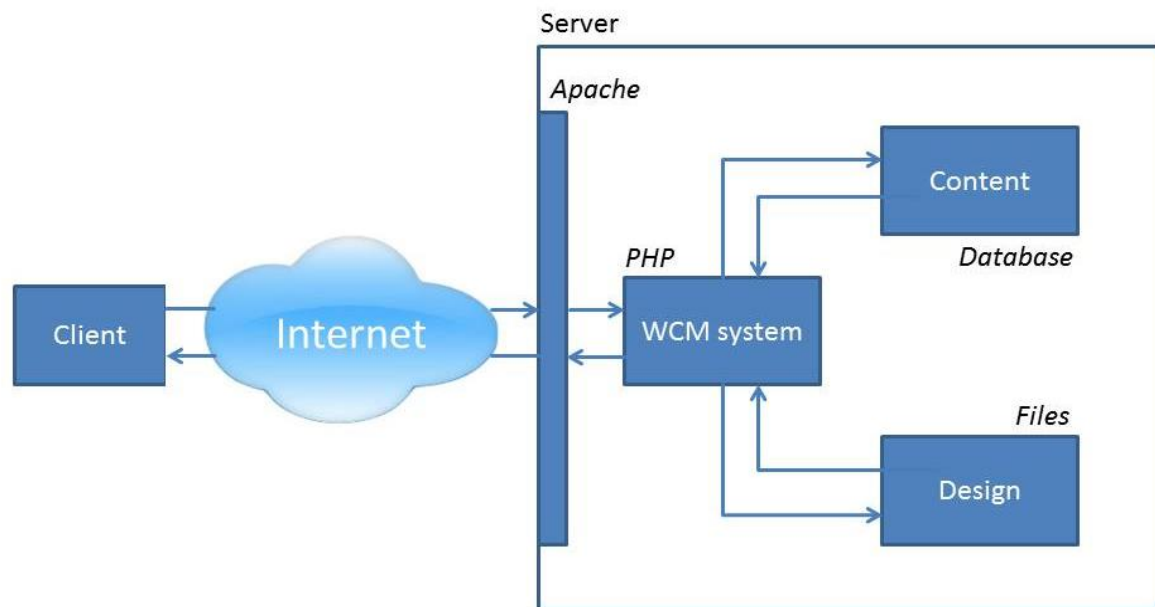


Figure 11: WCM system architecture, own draft

The following basic functions are available with a WCM system: user management, editing content, different views and design different webpages.

## ii. Crowdfunding platform and WCM systems

In order to understanding why WCM systems are perfect for a crowdfunding platform the system is split in a four-layer hierarchy as shown in figure 12.

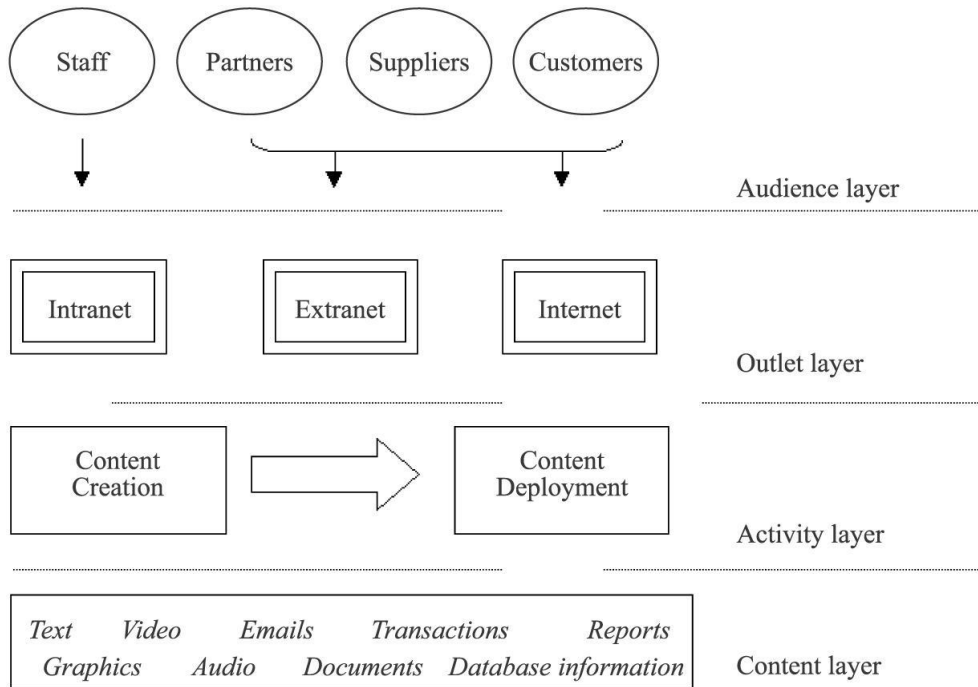


Figure 12: WCSM four-layer hierarchy,<sup>136</sup> McKeever 2003

In the audience layer, the different user groups are shown. For the crowdfunding platform the partners, suppliers, customers are the start-ups or projects, the investors and the auditor. The staff, in this case is the platform owner and administrators who manages all the different users. The audience layer is also responsible for the different views on the platform. Each stakeholder has his own environment on the platform with different permissions. The owner is the person who can give different accesses to user groups at the platform. In the case of the crowdfunding platform, only the Internet is a possibility in the outlet layer. The extranet, for example would be an intranet inside a company. The activity layer represents the workflow between the start-ups or projects and the platform owner. The agents design their campaign and the administrator releases the content on the platform. In addition, the information auditor is also involved in this workflow from the creation to the publishing. This is the basic workflow of every WCM system and the system also includes all the organisational functions. The content layer represents all the different information that is and has to be available on the crowdfunding platform. For example, the campaigns from the start-ups/projects or the information about alternative

<sup>136</sup> Susan McKeever, Understanding Web content management systems: evolution, lifecycle and market, Vol. 103 Iss: 9, pp.686 - 692 (2003) 688.

investments are given from the platform owner. In the chapter “Crowdfunding financing model with the AltFG” details about the must have information for crowdfunding platforms are presented.

The comparison between the WCM system and the requirements should show that with content management systems, nothing has to be reinvented and in the case of this thesis, an existing WCM system is chosen for the implementation of the crowdfunding platform. The idea to develop one’s own WCM system and to get maximal flexibility is not efficient anymore because there are so many complete solutions. They are many free licenced products with big communities that support a lot of additional functions and settings. Which system is the best for a crowdfunding platform will be shown in next part of this chapter.

### iii. Criteria for the WCM systems

For the selection of the best fitting WCM system for a crowdfunding platform following criteria are used to compare different systems. The criteria chosen from an evaluation created by the federal ministry for education:

- **installation of the WCM system**

Analysing the installation process and showing the needed infrastructure for the WCM systems.

- **complexity of the handling**

Comparing the usability and showing the complexity of the whole system. For example if there is a possibility to hide features in a special view because, there is no need in this case so that the handling is as simple as possible.

- **preparation of structure, content and layout**

With these criteria, the concepts of creating content and designing the layout are compared.

- **extension concept**

Most of the WCM systems have possibilities to extend the system with futures that are not available. In these criteria, which possibilities are available in each system are compared.

- **user model and rights concept**

The crowdfunding platform will be used by different user groups and with different rights. Capital-seeking agents need the possibility to create and edit their campaign. The platform owner will control all the rights and is able to edit content on the crowdfunding



platform. Capital-giving agents need to register themselves with important information to invest capital and to get detailed information on the start-ups/projects. The information auditor also needs access to the information from the capital-seeking agents to proof it. These criteria compare the user and rights concept and the possibility to edit them.

- **security**

With these criteria, the security handling and the update efficiency of the different systems are compared.

- **features**

The comparison of additional features which are needed for the crowdfunding platforms like full-text search, uploading files, backup of the whole system, multi languages, workflow of the publishing process of content.<sup>137</sup>

These described criteria are used to compare the different WCM system on the market.

#### iv. Comparing the different WCM systems

For the comparing of the different WCM systems, the chosen criteria will be used to find the best fitting system. This work will include the widespread WCM systems on the market. The most used WCM system is WordPress with 67% followed by Joomla with 11% and Drupal with 7%.<sup>138</sup> Before the three systems are compared and one is selected out of them, a small introduction about every system will be given.

##### **WordPress**

WordPress is the most popular WCM system on the market. It is open source and focuses on blog systems and workflow models. WordPress is using PHP as script language and MySQL for the connected database. It started with a blogging system called b2/cafelog. In the year 2003 two user of b2/cafelog started to build a new system on top of the old and WordPress was born.<sup>139</sup> The basic architecture is PHP and a MySQL database.

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<sup>137</sup> Dr. Robert Kristöfl, Evaluation von Content Management Systemen, bildung.at/files/downloads/bmbwk-Evaluation-CMS.pdf (abgefragt am 18. 2. 2016).

<sup>138</sup> wappalyzer, Market share WCM systems, wappalyzer.com/categories/cms (Stand 17. 2. 2016).

<sup>139</sup> WpBeginner, The History of WordPress, wpbeginner.com/news/the-history-of-wordpress/ (abgefragt am 18. 2. 2016).

## **Joomla**

Joomla is also a PHP based WCM system and is a spin-off from the known system Mambo. They split the company that Mambo became a registered trademark and Joomla open source. Joomla started in the year 2005 with the same developers as before and a huge community under the GNU-general public license.<sup>140</sup> The basic architecture is PHP and a MySQL database.

## **Drupal**

Drupal is a WCM system and based on PHP. Although, the system can be used for every kind of website, the focus is on WEB 2.0 applications. The start from Drupal was a student, which programmed a simple news board for exchanging messages. Afterwards the website changed to a discussion forum for new web technologies. In the year 2001, the website operator published the WCM system with the name Drupal.<sup>141</sup> The basic architecture is PHP and a MySQL database.

The following criteria are compared with the three WCM systems:

### **Installation of the WCM system**

- **WordPress:** Uploading the downloaded archive to the apache webserver and configuring the file wp-admin with the administration information about the MySQL database.
- **Joomla:** Unpacking the downloaded archive to the webserver and executing the web based assistant to configure the system, like the database connection. After the installation, the installation folder has to be deleted on the web server.
- **Drupal:** Similar to Joomla, uploading the downloaded archive to the web server and executing the web based assistant for the configuration. Drupal also allows PostgreSQL databases.

### **Complexity of the handling**

- **WordPress:** The administration is separated to the content but there is a possibility to edit the content direct in the non-administration view. For the non-expert user the menu is displayed clearly and additionally icons are helping. The menu is located at the left

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<sup>140</sup> *Joomla*, About Joomla! [joomla.org/about-joomla.html](http://joomla.org/about-joomla.html) (abgefragt am 18. 2. 2016).

<sup>141</sup> *Drupal*, History of Drupal, [drupal.org/about/history](http://drupal.org/about/history) (abgefragt am 18. 2. 2016).

sector of the administration area. Every user has his own inbox for messages. For writing a normal post, it is very easy for the user but when the platform is not hosted as a blog the situation is complex.

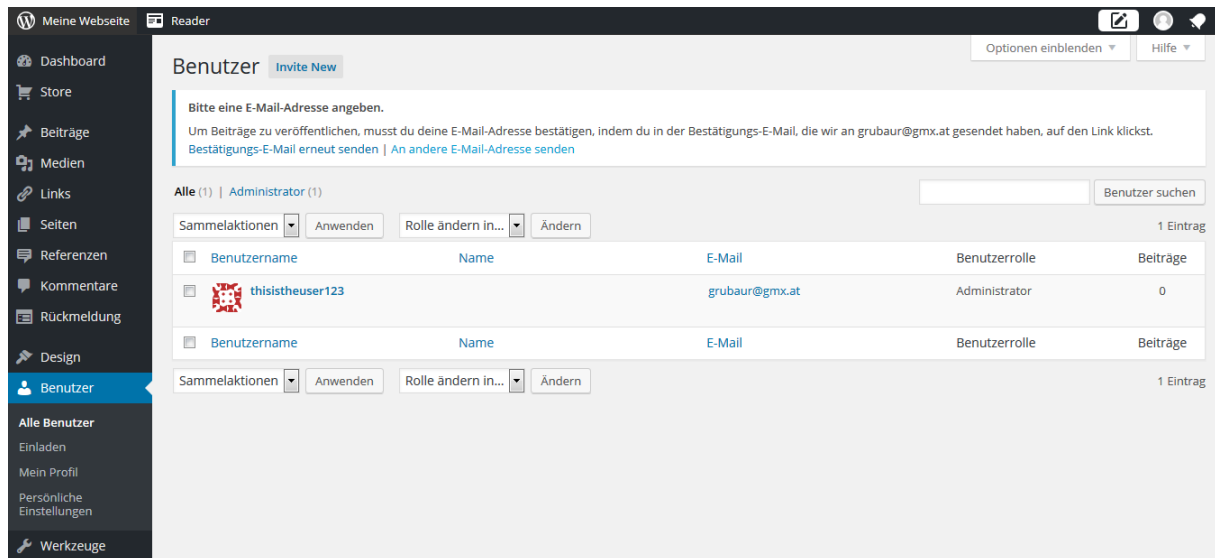


Figure 13: WordPress administration<sup>142</sup>, version 4

- **Joomla:** In Joomla, there is a difference between the administration and the normal view of the website. It is also possible to edit the content in the normal website view. In the administration area, the menu bar is situated in the upper sector. The submenu is only shown if the cursor gets over the main menu item. Additionally an inbox and a preview is available.

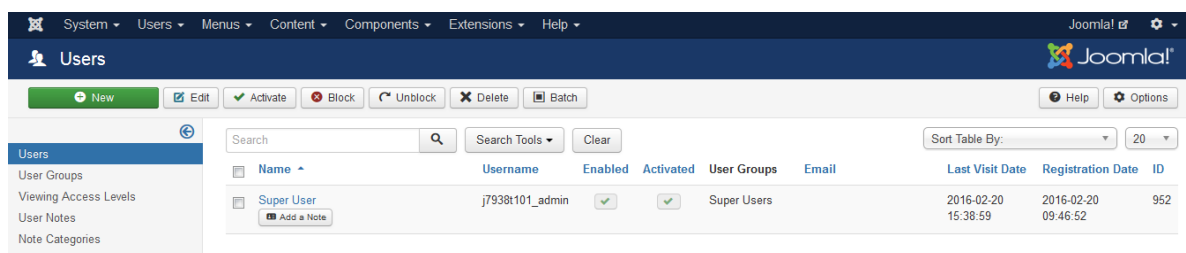


Figure 14: Joomla administration<sup>143</sup> version 3

- **Drupal:** In Drupal the administration menu is included in the normal website and also in the upper sector. If the user is administrator, the admin menu is shown in the normal menu and in the upper sector, so it is very confusing for the user. Different users only have the menu which they can use.

<sup>142</sup> <https://crowdfundingaustria.wordpress.com/wp-admin/users.php> (12.02.2016).

<sup>143</sup> [https://j7938t101.demojoomla.com/administrator/index.php?option=com\\_users](https://j7938t101.demojoomla.com/administrator/index.php?option=com_users) (12.02.2016).

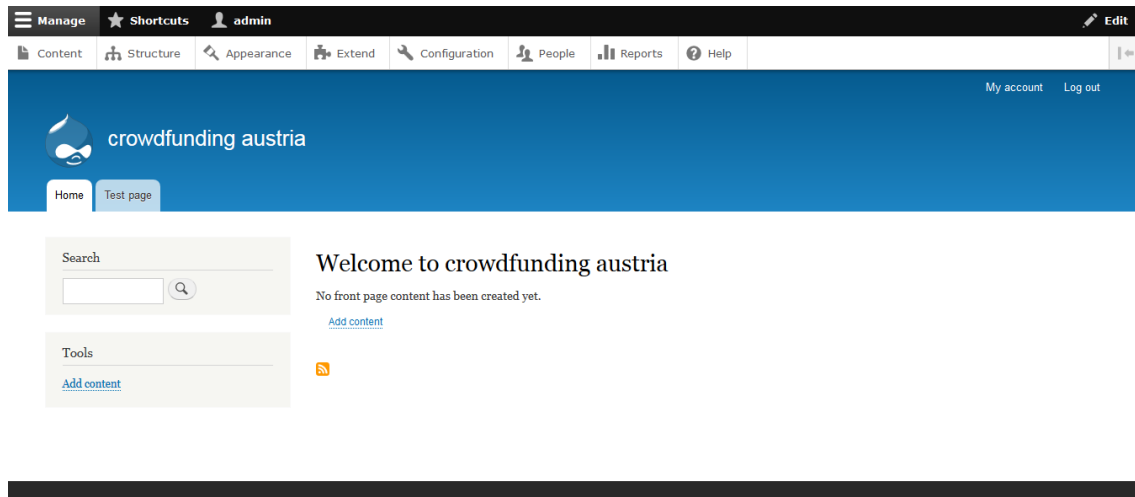


Figure 15: Drupal administration<sup>144</sup> version 8

## Preparation of structure, content and layout

- **WordPress:** WordPress separates the content and the structure design. The frontend (non-administrator view) and the backend (administrator view) are separated. For the content, there are different possibilities to structure the website. One possibility is to make the structure with articles and the other is to do it with sides. The difference is that the articles can be categorised and can be pictures or videos as an article. The menu is based in the design area and easy to administrate with a drag and drop function. The design of the website is situated in the design area and can be changed via a click between free available templates. Additionally the changing of a template is simple. The creation of a new design is difficult for non-experts.
- **Joomla:** Joomla separates the content and structure design like WordPress. The basic content is represented as articles with the title and the content. For the configuration of the structure, the articles can be assigned to categories. The menu is created in the menu area of the administration site. The chosen prefabricated template determines the layout of the website and can be changed. The adoption and creation of a template is difficult for non-experts, the structure is based on PHP and the design on CSS.
- **Drupal:** Drupal also separates between content and structure but not among frontend and backend. The whole organisation and design happens in the frontend of the website but with version seven, it looks more like an administration backend. Each content type like articles, blog posts and pages are represented as nodes in the Drupal system. Every node has a specific id for the identification in the system. The menu administration is

<sup>144</sup> <https://d0f32.ply.st/> (12.02.2016).

very flexible and the hierarchy is simple to change. The layout of the website is realised with themes. It is very similar to the Joomla system and only experts are able to adopt or to create a new design.

### **Extension concept**

- **WordPress:** In WordPress, the extensions are called plugins and can be imported via upload. The plugins can be different extensions for the website. For example, the possibilities to display the pictures on the website as a slide show.
- **Joomla:** Joomla has modules, plugins and templates as extensions. With modules, there is a possibility to display non-content. For example, it could be a menu module where the whole menu is displayed in a different way or a login module for the credentials. Plugin are small system extensions that allow the administrator to extend the basic functions of Joomla. There could be a plugin for offered payment methods. The templates offer the possibility to edit and upload a new design for the website.
- **Drupal:** In Drupal the extensions are called modules and can be uploaded to the website. They can for example define new nodes or menu types for the website. Another possibility could be modules for better SEO (search engine optimization).

### **User model and rights concept**

- **WordPress:** WordPress includes five different user groups and permissions. Every group has their own permissions for example, the author is able to write, edit and publish his own post. The view on the frontend can be very different from users with accounts and without. For specific groups it is only possible to edit their content but not to publish. The frontend has also a possibility for users to self-register for other views.
- **Joomla:** The right concept of Joomla includes eight different user groups and permissions. Each group can be configured with different permissions like create, delete, and edit content or access to the administration area. The names of the groups can be changed and additionally added. For the registered users with no rights for the administration area the frontend can be different to non-registered user. One specific user can for example, only edit the content with a special permission. For the frontend user on the website it is possible to register.
- **Drupal:** Drupal uses a role model for the user and right management. After the installation, the system has one backend and one frontend user. The system has the possibility to choose different rights for roles like edit, create, delete and access. With the different roles, the administrator is able to give different permission to the users. In

addition, the view for non-registered and registered users is able to change. It is also possible as a normal user to create an account on the frontend.

### Security

- **WordPress:** WordPress gives information about security on their homepage with many extra materials. Additionally, a list with security changes is given to know what the security problem was.
- **Joomla:** If there is a security problem, the security team posts the update and a short description on the homepage.
- **Drupal:** Like Joomla, there is a security team which posts the issues with information. For developers the website provides documentation about writing secure code.

## v. Conclusion of the comparison

The requirement “**Installation of the WCM systems**” shows that all of the three compared systems are easy to install and to get ready. Only the Joomla system is harder because of the extra deletion of a folder on the web server. In the comparison “**Complexity of handling**” only the WCM system WordPress and Joomla had separated the administration menu from the frontend. Drupal also used the normal menu as the administration area. In the category “**Preparation of structure, content and layout**” each system has different possibilities to create a website structure and content. WordPress is using articles and sites to publish content. The menu creation and the website design is in a special area with a drag and drop possibility. In Joomla, there are only articles for the content creation and a separate menu creation function. The design is coming from templates but needs special know how for adaptations. Drupal has a different way to represent the content with blog posts, articles and pages. In Drupal, the content is identified as a note with a unique id. The menu administration is in an extra area and the website design is done with templates but it is also expertise needed for changes. The “**extension concept**” is very similar for the different systems. WordPress has extensions called plugins, which are able to adopt the website with additional features. Joomla split the extensions into two module categories, which can display the content in another way and plugins, which adopt the functionality of the website. Drupal called the plugins in their system modules with the same function like WordPress. The “**user model and right concept**” is very similar to WordPress and Joomla, both have different user groups with separate permissions. The only difference is the number of user groups used in the system and Joomla has the possibility to change the names of them. Drupal has a role concept which gives the user different permissions

and there are fixed roles after the installation for the normal user. In the “**security**” requirement, all three systems have an information system on their website about new updates and security issues. Additionally, information about the problems is also presented but only Drupal had a guide for writing secure code on their website.

After the comparison of the three WCM systems WordPress and Joomla are very similar and easier to use in practice. For the implementation, WordPress is the choice for the best fitting system for a crowdfunding platform. It has a better administration backend and gives more possibilities for non-experts to use it. In the case of a crowdfunding platform, it is necessary that the capital-seeking agents are able to create and manage campaigns for their start-up or project. Another aspect for WordPress is the easy configuration of the design with drag and drop. For the platform owner it is also necessary that the administration of the user rights and permission can be done in an intuitive way, which is ensured by WordPress. WordPress is also the favourite because of the fact that more than 67% are using it for websites and security issues are found very fast thanks to the community.

## c. Usability testing

In this work, different crowdfunding platforms in Austria are tested against usability. The different platforms are tested with special heuristics for web platforms. The tests should give information about connection between usability and the invested capital in the last three years. Another outcome is the information about the best usability for a new concept for a crowdfunding platform. The usability test considers the implementation and the basic heuristics defined by Jakob Nielsen. For the written test, the set “user focus web usability guidelines” is used as a heuristics from David Travis.<sup>145</sup> The basic heuristics are general principles and defined by Jakob Nielsen 1993. The following examples are the basic Heuristics:

- visibility of system status
- match between system and the real world
- user control and freedom
- consistency and standards
- error prevention
- help and documentation<sup>146</sup>

Heuristic evaluation is an efficient method of expert evaluation and for early stage prototypes in interface engineering. It allows to identify usability problems with relatively low financial and temporal efforts, while guaranteeing a valuable outcome. In this work the evaluation is done for the rating of the different crowdfunding platforms in Austria.

### i. Setup and evaluation method

The evaluation is made by five experts and non-experts to fulfil the specification of the Heuristic evaluation from Nielsen. Nielsen described in his paper that only five persons are needed to find 75% of problems in the usability of the interface. Each evaluator has the same questions and the same usage scenario. A supervisor coordinates and organizes the whole evaluation.<sup>147</sup> Each tester has to fill out 247 questions in different categories and write comments if it is necessary. At the end, a summary of the results gives information about the usability of the different platforms. For this work, only the three best performing crowdfunding platforms are

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<sup>145</sup> *David Travis*, Userfocus User Experience Consultants Home Usability consultancy Usability training Articles & Resources About Us 247 web usability guidelines, [userfocus.co.uk/resources/guidelines.html](http://userfocus.co.uk/resources/guidelines.html) (abgefragt am 3. 2. 2016).

<sup>146</sup> *Nielsen/Mack*, Usability inspection methods (1994) 413–414.

<sup>147</sup> *Jakob Nielsen* in Nielsen Norman Group, How to Conduct a Heuristic Evaluation (Stand 1. 1. 1995, [nngroup.com/articles/how-to-conduct-a-heuristic-evaluation/](http://nngroup.com/articles/how-to-conduct-a-heuristic-evaluation/)).



used for the testing. In the following table 1 all six platforms are shown with the investments from 2013 to 2015.

Table 1: data collected from the six Austrian crowdfunding platforms, own drafts<sup>148</sup>

	GreenRocket	Conda	1000x1000	dasErtrag Reich	Regional-funding	CrowdCapital
Investment 2013	157.950€	221.200€	234.150€			
Investment 2014	1.129.270€	930.300€	142.601€	126.250€	69.200€	1.305€
Investment 2015	2.076.630€	3.630.500€	1.363.975€	585.100€		15.025€

As shown in table 1 the big three of the crowdfunding platforms in Austria are Conda with 4.78 million Euro, GreenRocket with 3.36 million Euro and 1000x1000 with 1.74 million Euro investment capital from 2013 to 2015. The platforms dasErtragReich, regional funding and crowdcapital are not in the list because their investment sum is not high enough and no projects are available in 2016 (January).

For the evaluation, only the big three are tested with the heuristic “user focus web usability guidelines” from David Travis. Following categories are used for the testing:

- **home page**  
20 guidelines to evaluation the usability of the home page.
- **task orientation**  
44 guidelines to evaluate how well a web site supports the user’s tasks.
- **navigation and information architecture**  
29 guidelines to evaluate the navigation and IA.
- **forms and data entry**  
23 guidelines to evaluate the forms for the user and data entry.
- **trust and credibility**  
13 guidelines to evaluate the trust of the platform.
- **writing and content quality**  
23 guidelines to evaluate the content of the platform.
- **page layout and visual design**

<sup>148</sup> [www.dasertragreich.at](http://www.dasertragreich.at), [www.crowdcapital.at](http://www.crowdcapital.at), [www.conda.at](http://www.conda.at), [www.greenrocket.at](http://www.greenrocket.at), [www.regionalfunding.at](http://www.regionalfunding.at), [www.1000x1000.at](http://www.1000x1000.at) (04.02.2016).

38 guidelines to evaluate page layout and the design of the page.

- **search usability**

20 guidelines to evaluate the search on the platform.

- **help feedback and error tolerance**

37 guidelines to evaluate help feedback and error tolerance.<sup>149</sup>

The 247 guidelines are rated by the evaluators with -1, when it doesn't comply with the guidelines, +1 when it complies and 0 when it kind of complies. If a guideline is not relevant for the platform, the rating is blank. To mix the evaluators and the different crowdfunding platforms the categories for the platforms are split to different assessors. After the evaluation, a summary of the results in the different categories will be published and the total score of the crowdfunding platform.

For the usability test, five different people with a certain knowledge of usability are chosen to test the platforms. As mentioned before the chosen crowdfunding platforms are Conda, GreenRocket and 1000x1000. The usability test with 247 questions will be split to the five testers. Following splitting is used for the test:

Table 2: Distribution list of the Evaluators and the crowdfunding platforms, own draft

	Conda	GreenRocket	1000x1000	Evaluators
1	Yellow	Purple	Green	Person 1
2	Yellow	Purple	Green	Person 2
3	Yellow	Purple	Green	Person 3
4	Green	Orange	Red	Person 4
5	Green	Orange	Red	Person 5
6	Green	Orange	Red	
7	Red	Yellow	Purple	
8	Red	Yellow	Purple	
9	Red	Yellow	Purple	

The five evaluators split into blocks with three modules. The modules are the categories that come from the guideline. As shown in table two the persons have to test the different modules on different platforms. This makes it possible to get different information about one platform from different evaluators.

<sup>149</sup> David Travis, Userfocus User Experience Consultants Home Usability consultancy Usability training Articles & Resources About Us 247 web usability guidelines, userfocus.co.uk/resources/guidelines.html (abgefragt am 3. 2. 2016).

## ii. Outcome of the evaluation

After the usability testing from the five persons of the different crowdfunding platforms in Austria, following results are the outcome. The result includes all of the different categories with calculated points, number of questions, number of answers and the score in percent. For the calculated points the possible answers, 0,-1, 1 and nothing are added up for the result. Calculated point plus number of answers divided by two times given answers calculates the total score in percent per category. The overall score is calculated by the mean of all the categories, which are presented in the chapter “Setup and evaluation method”.

### 1000x1000

Table 3: Evaluation data from 1000x1000, in the excel<sup>150</sup>

Summary of results				
	Raw score	# Questions	# Answers	Score
Home Page	7	20	20	68%
Task Orientation	19	44	38	75%
Navigation & IA	8	29	27	65%
Forms & Data Entry	7	23	18	69%
Trust & Credibility	8	13	11	86%
Writing & Content Quality	13	23	21	81%
Page Layout & Visual Design	16	38	37	72%
Search	-1	20	1	0%
Help, Feedback & Error Tolerance	18	37	33	77%
Overall score		247	206	66%

In table 3, the results from the crowdfunding platform 1000x1000 are presented. At first sight, the category “Search” is zero in the result and gives the message that there is no search available on the platform. 1000x1000’s category “Home Page” has a weak score like the “Navigation and Information Architecture”. The best categories are the “Trust & Credibility”, “Content Quality” and “Help, Feedback & Error Tolerance”. In the category trust & content quality, the focus is on up-to date content and third party support like testimonials, which is available on the platform. The “Help, Feedback & Error Tolerance” category is good at the 1000x1000 platform, it has a good faq and additional information about crowdfunding on the website.

<sup>150</sup> David Travis, Userfocus User Experience Consultants Home Usability consultancy Usability training Articles & Resources About Us 247 web usability guidelines, userfocus.co.uk/resources/guidelines.html (abgefragt am 3. 2. 2016).

## Conda

Table 4: Evaluation data from Conda, own draft

Summary of results				
	Raw score	# Questions	# Answers	Score
Home Page	14	20	19	87%
Task Orientation	17	44	38	72%
Navigation & IA	13	29	29	72%
Forms & Data Entry	0	23	22	50%
Trust & Credibility	6	13	11	77%
Writing & Content Quality	15	23	23	83%
Page Layout & Visual Design	21	38	38	78%
Search	-1	20	1	0%
Help, Feedback & Error Tolerance	8	37	33	62%
Overall score		247	214	65%

Table 4 shows the result of the evaluation from the crowdfunding platform Conda. As the 1000x1000 platform, the search possibility is also not available at the Conda platform. The best category is “Home Page”, the landing page of the platform convinced with a good and clear design. Additionally, the content quality, which is assessed in the category “Writing & Content Quality”, is very good. In contrast, the category “Forms & Data Entry” is one of the worst because most of the forms on the platform are not implemented according to any pattern.

## GreenRocket

Table 5: Evaluation data from GreenRocket, own draft

Summary of results				
	Raw score	# Questions	# Answers	Score
Home Page	9	20	19	74%
Task Orientation	23	44	35	83%
Navigation & IA	11	29	22	75%
Forms & Data Entry	9	23	23	70%
Trust & Credibility	8	13	10	90%
Writing & Content Quality	20	23	21	98%
Page Layout & Visual Design	17	38	38	72%
Search	-1	20	1	0%
Help, Feedback & Error Tolerance	14	37	31	73%
Overall score		247	200	70%

The result of the Austrian crowdfunding platform GreenRocket is displayed in table 5. As with both platforms mentioned before, the “Search” category is also not available and the worst in the evaluation. In contrast, the categories “Writing & Content Quality” and “Trust &

Credibility”, which says that the platform has good testimonials and up to date content, have a very good score.

In the next chapter the big three platforms are compared with each other and the economic aspect is included in the comparison to understand the result of the evaluation.

### iii. Comparison of the evaluation outcome of the big three platforms in Austria including the economic aspect

In the previous chapter the results of the big three crowdfunding platforms in Austria have been presented. For the comparison of the scores, an additional chart is used to understand the differences.

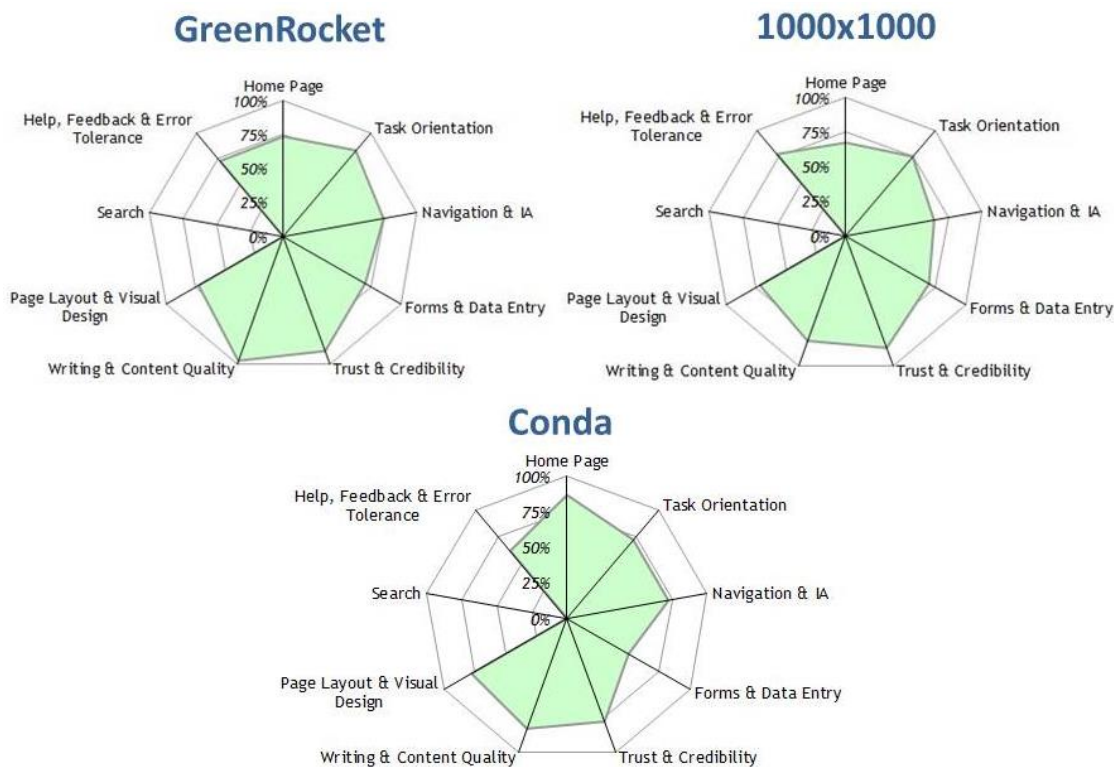


Figure 16: Comparison of the evaluation outcome in a radar chart, own draft

In figure 16 all three crowdfunding platforms with their outcome are shown in a radar chart. It shows that all of the platforms have problems with the search function, because it is not available. GreenRocket has a very good content quality in comparison to the other sites. In the other categories like “Task Orientation” and “Trust & Credibility”, all platforms have nearly the same outcome. The crowdfunding platform Conda has the biggest problem with the category “Forms & Data Entry”. Additionally, “Help, Feedback & Error Tolerance” is also the

worst in this group. In the category, “Home Page” the platform has the best score compared to the others. 1000x1000 is in the middle between GreenRocket and Conda. The ranking based on the score is GreenRocket with 70 percent, 1000x1000 with 66 percent and Conda with 65 percent.

Table 6: Economic outcome of the big three crowdfunding platforms in Austria from 2013 including 2015, <sup>151</sup>

	GreenRocket	Conda	1000x1000
<b>Funding limit reached</b>	19	29	8
<b>Funding limit not reached</b>	2	7	4
<b>Number of investors</b>	3465	4922	1618
<b>Average sum of investors</b>	182.37€	164.72€	202.25€
<b>Sum of investment</b>	3,363,850€	4,687,200€	1,740,726€

In table 6 the three big crowdfunding platforms are compared from the year 2013 including 2015 with the data from the platforms given information in February 2016. For the better understanding of the rows, a short description is given about campaigns on crowdfunding platforms. Each project or start-up defines how much capital it wants from the crowd on the platform in the beginning and sets a duration for the crowdfunding campaign. Additionally, the issuer gives a funding limit, if the invested capital from the crowd is over the border the project or start-up was successful and the issuer gets the capital. In the case the limit is not reached in time, the project or start-up failed with the campaign on the crowdfunding platform. The row “Funding limit reached” defines the successful campaigns on the platforms and the line “Funding limit not reached” shows the number of failed projects or start-ups. In the row “Number of investors” the number of investors from the year 2013 to 2015 is displayed. Additionally, the sum of investments is given from the big three crowdfunding platforms and out of this, with the number of investors, the average sum of investors is also presented.

Comparing the sum of investments with the score of the usability test the data is not coherent. The crowdfunding platform Conda with the worst score in the test has the best economic data with 4.79 million Euro compared to the other. GreenRocket has the best score and the second best sum of investments with 3.36 million Euro. The platform 1000x1000 has the lowest sum of investments compared to the others but regarding the rating score, it is between them. For this result, the category “Home Page” in the usability test seems to be the most important reference for the performance of the crowdfunding platforms because Conda has the best score

<sup>151</sup> [www.dasertragreich.at](http://www.dasertragreich.at), [www.crowdcapital.at](http://www.crowdcapital.at), [www.conda.at](http://www.conda.at), [www.greenrocket.at](http://www.greenrocket.at), [www.regionalfunding.at](http://www.regionalfunding.at), [www.1000x1000.at](http://www.1000x1000.at) (20.02.2016).

in this category and after that GreenRocket is in the ranking. This says that the first contact with the investor is the landing page and it is very important for the attractiveness of the platform. Additionally, it seems that the category “Page layout & Visual Design” is also crucial for the platforms’ economic data, because Conda has the best score before GreenRocket and 1000x1000, which reflects table 6. It says that the design and layout is very important for the user as an investor and for the start-ups or projects who are the issuers for the success of the crowdfunding platforms in Austria. The data for table 6 is coming from the information on the platforms in Austria and was collected in February 2016.

## d. The crowdfunding platform

### i. Concept of design and structure

The concept of the design and the structure is the outcome of the comparison of the different crowdfunding platforms in Austria. In the first part of this chapter the outcome of the usability testing is taken to create a concept for a design that fits the usability well. After the concept of the design, it is going more into detail of the crowdfunding platform's structure based on the requirements of the stakeholders.

The usability test was divided into nine categories which were explained in the chapter "Comparison of the evaluation outcome of the big three platforms in Austria including the economic aspect". The following categories have been very important for the concept of the crowdfunding platform's design. The most important problem found at all analysed platforms has been the missing search function, which is added in the conceptualised design at figure 17 and marked with number one. On the other hand, the category "navigation and information architecture" had a good score at two platforms and so the navigation is very similar to them, shown as number two in figure 17. Out of the comparison in the last chapter, the category "Page layout & Visual Design" is very important for the investor and the visual design is shown as number three in figure 17. The page layout is adapted from the platform with the best score in this category and shown in figure 17.

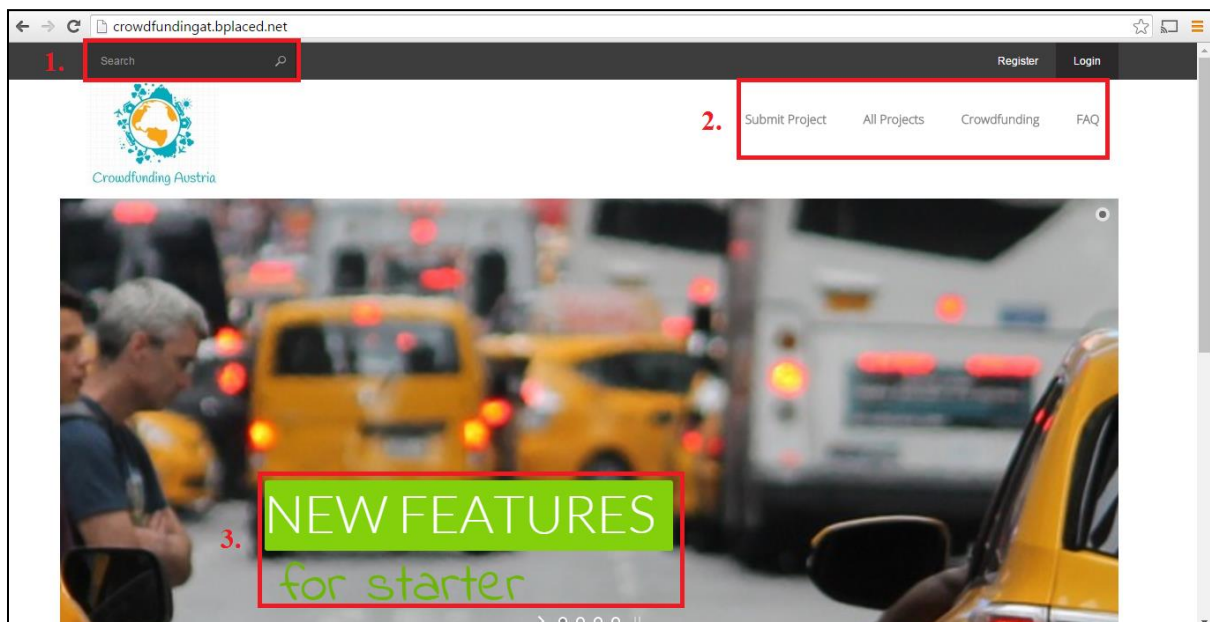


Figure 17: Crowdfunding platform design: home, own draft

The concept of the structure is inspired by the big three crowdfunding platforms in Austria and is separated into three areas:

- **normal user view**



The normal platform user can see all the different projects with the given information, the investment conditions and is able to register to become a possible investor. Additionally, the user is able to register to submit a campaign as a project or start-up. In addition, the user can find information about crowdfunding and the legal situation.

- **investor view**

The investor needs to register with verifiable data for the identification and has to give information about his/her financial situation if the investment is more than 5,000 €. More details about the limitations of the investor are in chapter “Limitation of the distribution of alternative financing instruments”. Additionally the investor gets detailed information about the loan contract and about the projects’ or start-ups’ financial situation. After a successful investment into a project or start-up, the investor gets yearly information about the company like the annual financial statement.

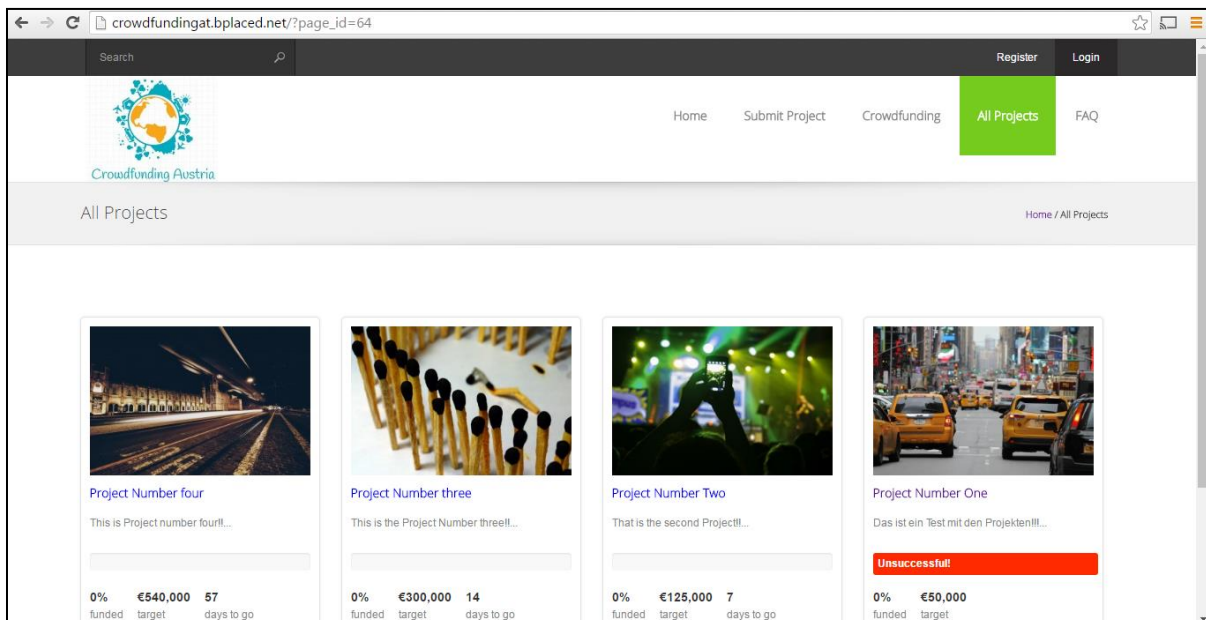


Figure 18: Crowdfunding platform design: all projects, own draft

- **campaign initiator (project or start-up)**

The campaign initiator is able to create a new campaign with information, which is needed for the investor and other information like videos and pictures. Additionally the initiator is able to update the campaign and upload important information.

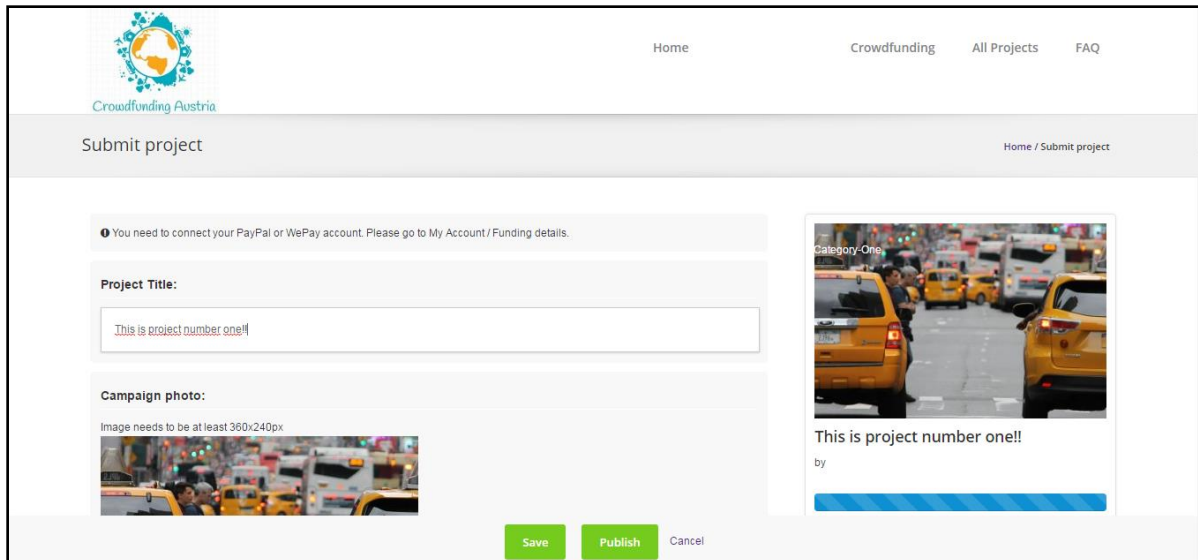


Figure 19: Crowdfunding platform design: submit project, own draft

## 4. Alternative payment methods

The current state of the crowdfunding platforms in Austria is that the investor has to sign the contract between him/her and the start-up or project. After that, the investor receives a bank account number to transfer the determined amount. With the received investment on the bank account, the contract between the two parties is valid.

In the following chapter, the work will explain other possibilities for transaction in the online environment.<sup>152</sup> Before the focus is placed on the different payment methods, the term electronic money will be explained in the next chapter.

### a. Electronic money

With the development of the World Wide Web, the virtual economy started new ways of trade relations. The change also influenced the money from the paper form to the digital form as a file or database entry on a server connected via the Internet. Electronic money is defined as a specific “monetary information” that is transferred in real time between the transaction partners. It can also be seen as a message, which is encrypted and decrypted as a protection to reach the aim. The electronic money is wide spread and unstoppable with the distribution of the digitalisation. Usage of plastic cards and ATMs are not necessary for electronic money anymore. The biggest developers of electronic, online payment systems are the ones who develop and promote transactions over the Internet.<sup>153</sup> The term electronic money is not very well defined because it includes different technologies and methods for the transaction. A good definition for electronic money is the guideline from the European Central Bank: “Electronic money: means electronically, including magnetically, stored monetary value as represented by a claim on the issuer issued on receipt of funds for the purpose of making payment transactions, and accepted by a natural or legal person other than the electronic money issuer.”<sup>154</sup> In accordance with this definition two types of electronic money are introduced:

- multifunctional electronic money (universal use of the means of payment)
- limited functional electronic means of payment (the use of the means of payment in limited outlets)<sup>155</sup>

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<sup>152</sup> Conda, Wie funktioniert der Zeichnungsprozess? support.conda.eu/wie-funktioniert-der-zeichnungsprozess/ (abgefragt am 31. 3. 2016).

<sup>153</sup> Henkel/Nonnenmacher/Teichmann, E-Commerce und E-Payment<sup>1</sup> (2001) 84.

<sup>154</sup> Guideline 2011/525/EU from the European parliament from the 25 August 2011 amending Guideline ECB/2007/9 on monetary, financial institutions and markets statistics. ANNEX II.

<sup>155</sup> Henkel/Nonnenmacher/Teichmann, E-Commerce und E-Payment<sup>1</sup> (2001) 84.

In the Austrian “E-Geldgesetz 2010” in § 1 following definition is given for electronic money “E-Geld bezeichnet jeden elektronisch – darunter auch magnetisch – gespeicherten monetären Wert in Form einer Forderung gegenüber dem E-Geld-Emittenten, der gegen Zahlung eines Geldbetrags ausgestellt wird, ...”.<sup>156</sup> The definition says that electronic money is every electronically magnetically saved monetary value in form of a claim against an issuer.

Characteristics for the qualification of electronic money:

- The saving of the monetary value is electronically or magnetically.
- Because of the saving of the monetary value a claim is caused against the issuer.
- The electronic money is used for a payment transaction.
- The electronic money has to be accepted from third parties as means of payment.<sup>157</sup>

With these characteristics, it is easier to define electronic money.

The next criteria should show the differences between electronic money and other payment services or banking businesses:

- **Advance payment:** electronic money is a prepaid product.
- **Execution of a payment transaction:** electronic money is used only for the execution of a payment transaction.
- **No personalisation necessary:** If personalisation is necessary, it is a payment instrument and the ZaDiG (payment service act) is responsible for it.<sup>158</sup>

The buying and selling process considers the electronic money issuer, the electronic money holder and the acceptor of the electronic money. Only certain institutions like credit institutes, electronic money institutes, the post, the Austrian control bank, the European central bank, the federal government, countries and communities are allowed to be electronic money issuers.<sup>159</sup>

Electronic money can also be separated into hardware and software money. Very common for hardware based money is the electronic wallet on a chip, the magnet stripe of a payment card or on mobile phones. With this payment method, only small amounts of money can be used. Software based money is saved on a payment account on the Internet and available there. Both

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<sup>156</sup> § 1 E-Geldgesetz 2010 BGBl I 2010/107.

<sup>157</sup> *Wirtschaftskammer Österreich*, E-Geldgesetz 2010 und E-Geld-Institute, wko.at/Content.Node/branchen/ooe/sparte\_iuc/Finanzdienstleister/Rechtsartikel/Artikel\_E-Geldgesetz\_11-03-2013.pdf (abgefragt am 4. 4. 2016).

<sup>158</sup> *Wirtschaftskammer Österreich*, E-Geldgesetz 2010 und E-Geld-Institute, wko.at/Content.Node/branchen/ooe/sparte\_iuc/Finanzdienstleister/Rechtsartikel/Artikel\_E-Geldgesetz\_11-03-2013.pdf (abgefragt am 4. 4. 2016).

<sup>159</sup> *Wirtschaftskammer Österreich*, E-Geldgesetz 2010 und E-Geld-Institute, wko.at/Content.Node/branchen/ooe/sparte\_iuc/Finanzdienstleister/Rechtsartikel/Artikel\_E-Geldgesetz\_11-03-2013.pdf (abgefragt am 4. 4. 2016).

possibilities have some similarities, as the user has to pay the money which is used in advance.

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## i. Legal framework

The legal framework for electronic money is necessary to guaranty that only secure electronic money systems and issuers are available on the market. Additionally, all the parties that are working in the market have the same competitive conditions.

For the payment service providers following special laws are necessary:

- BWG (banking act)
- DSG 2000 (data protection act)
- ECG (e-commerce act)
- E-Geldgesetz (electronic money act)
- TKG (telecommunications act)
- SigG (signatures act)

The electronic money act 2010 is based on the Directive 2009/110/EG of the European Parliament and describes the activities of electronic institutes. It provides recommendations who can be an electronic money issuer and under which conditions.<sup>161</sup> In Austria, the FMA (financial market authority) can give concessions to payment service providers to issue electronic money.

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<sup>160</sup> Henkel/Nonnenmacher/Teichmann, E-Commerce und E-Payment<sup>1</sup> (2001) 85.

<sup>161</sup> Henkel/Nonnenmacher/Teichmann, E-Commerce und E-Payment<sup>1</sup> (2001) 95.

## b. Payment methods

There are three typical payment methods used for normal transactions:

- cash transaction (banknotes and coins)
- mixed transaction (one part in cash and the other part cashless)
- cashless transaction (the transaction is done over the bank accounts)

Those mentioned payment methods are very typical but in case of electronic money, only the cashless transaction is important. The cashless transaction is divided into three sectors:

- the paper based transaction (use of payment forms)
- the electronic transaction (use of electronic banking)
- the card based transaction (use of debit card, credit card and cards with electronic money function, Quick for example)<sup>162</sup>

On the Internet and especially at online shops, electronic- and card based transactions are very popular to buy products or services. There are different methods for electronic payment: **access products** (bank transfer, credit card), **prepaid products** (prepaid payment systems, virtual accounts), **collections system** (the user has a virtual account with a collections system provider, the user can pay with this account at online shops and the provider receives money from the user only after a certain period of time or amount of money).

In the next part, some of the traditional payment methods used for transactions on the Internet very often are explained:

- **direct debit**

The direct debit is a financial transaction and the payee collects the money from the payer's account. This method is very simple for the dealer and the customer to exchange money and products or services. Figure 20 shows the process of the direct debit including the customer, dealer and banks. The customer buys a product or service from the dealer and initiates a debit transaction. With the permission from the customer, per extra confirmation at the web shop, the dealer is able to give the permission to his/her bank to demand money from the customer's account. The dealer's bank collects the amount and the customer's bank gives a credit note.<sup>163</sup>

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<sup>162</sup> *Österreichische Nationalbank*, Zahlungsverkehrsbericht 2009, oenb.at/dam/jcr:ede1f8ce-1fc6-47a3-a03f-577cdb2d9e86/zv-bericht\_2009\_tcm16-141249.pdf (abgefragt am 5. 4. 2016).

<sup>163</sup> *Dannenberg/Ulrich*, E-Payment und E-Billing<sup>1</sup> (2004) 86–87.

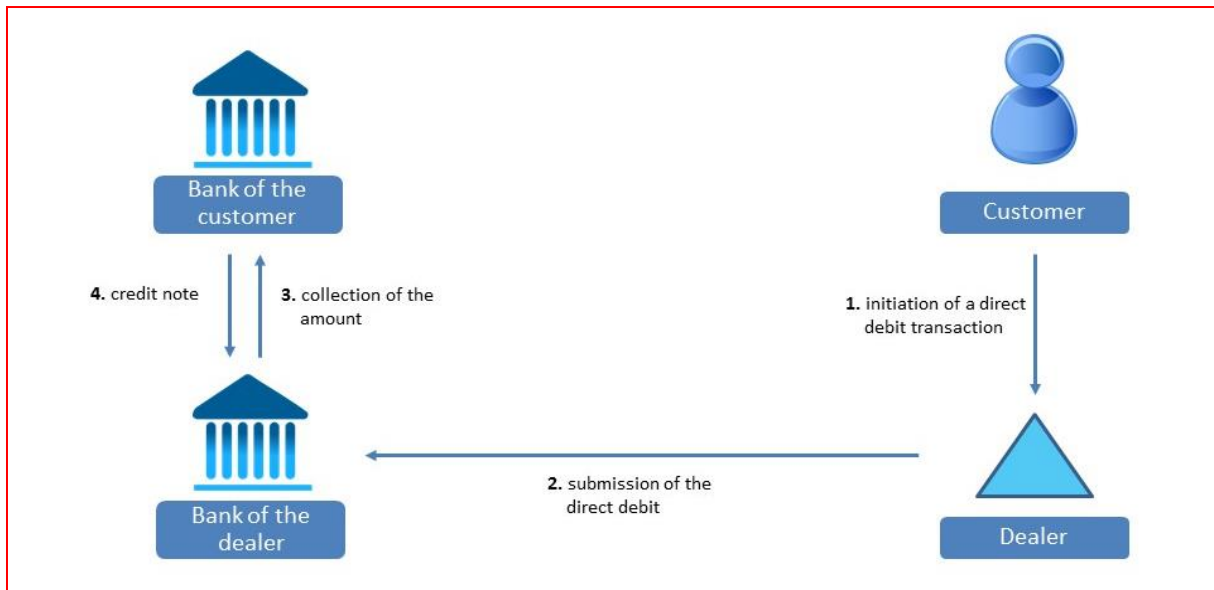


Figure 20: Direct debit architecture, own draft

Since 2014, the European Union introduced the SEPA (single euro payment area) with the account numbers IBAN (international bank account number) and BIC (business identifier code) for secure transactions in the EU. The direct debit authorisation changed with SEPA and the payee needs a mandate from the payer to collect the money automatically.<sup>164</sup>

- **credit card**

Credit cards are for cashless paying in online and offline environments. Paying with credit cards is very easy for cross-border business. Another feature of this payment method is the automatic payment process and security. This method is different to normal direct paying. When paying with credit cards, the money is not charged directly after each payment but it is charged with all expenditures over a month. This method gives the credit card holder a free credit for the period. For security reasons, the biggest credit card providers introduced a security standard. Every company that offers credit cards as a payment method needs a certification from the credit card providers to be accepted in the system.

<sup>164</sup> *Österreichische Nationalbank*, Newsletter Zahlungsmedien - August 2014, [oenb.at/dam/jcr:dad784c0-6228-4128-8454-99068619ef3b/Zahlungsmediennewsletter%20%E2%80%93%20August%202014.pdf](https://www.oenb.at/dam/jcr:dad784c0-6228-4128-8454-99068619ef3b/Zahlungsmediennewsletter%20%E2%80%93%20August%202014.pdf) (abgefragt am 5. 4. 2016).

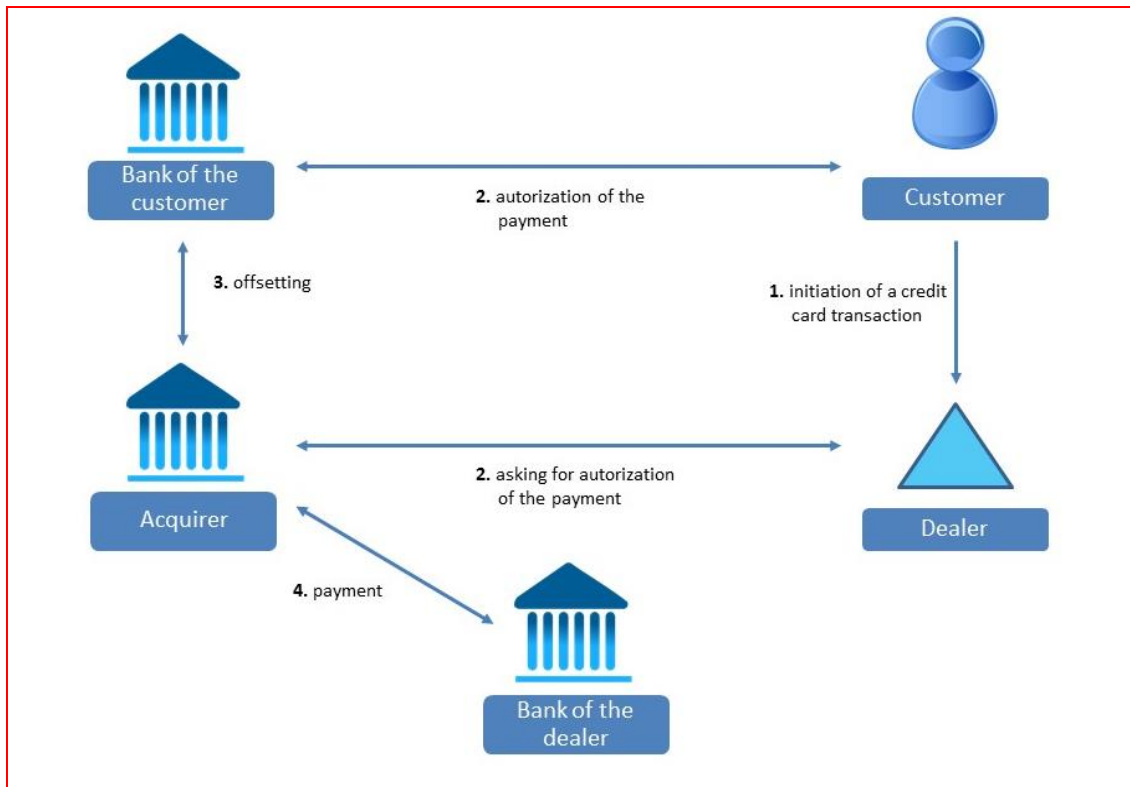


Figure 21: Credit card architecture, own draft

Figure 21 shows how a credit card payment process is working. The dealer or the dealer's acquirer (credit card supporter for the dealer, which makes the authorization and billing) demands from the issuer (publisher of the credit card or bank of the customer) the outstanding amount. The amount will be paid by the issuer and the customer has to pay the invoice of the accounting period. For the payment process, the issuer gets a direct or indirect interchange fee from the dealer. The amount of the interchange fee depends on the business and other influencing factors.



## c. Innovative payment methods

Additionally to traditional payment methods on the Internet there are innovative methods, which have been adapted to the needs of the customer. The innovative payment methods can be categorized by following criteria:

- **time of the payment**

It describes when the account of the customer is charged: e.g. pay before model (amount is charged before the payment, e.g. Paysafecard), pay now model (amount is charged at the same time as the payment, e.g. online bank transfer), pay later model (amount is charged after the payment, e.g. credit card).

- **amount of the payment**

The amount of the payment can be categorized as micro payment (payments with a lower amount) and macro payment (payments with a higher amount).

- **transaction way**

Payment methods can also be categorized by the transaction way, it can be initiated by the sender (online bank transfer) or initiated by the receiver (credit card).

- **hardware or software based method<sup>165</sup>**

The next part shows some of the well-known innovative electronic payment methods.

### **PayPal**

PayPal was founded in 1998 in the United States and was considered as Internet based payment method. Because of the fast growing acceptance of the Internet, PayPal grew up to 1.5 million user accounts. In 2002, 16 million users made 295,000 transactions over the infrastructure of PayPal daily. The online marketplace EBay bought PayPal in 2002 and the user number was increased.<sup>166</sup> PayPal has launched their service in 202 countries worldwide with more than 179 million active users.<sup>167</sup> The payment process is simple and fast. With PayPal the user only needs a simple user account with details about his name and the bank account information. Additionally, the receiver also needs a PayPal Premium or Business account to receive money from the customer. The customer is able to authorize a payment with the e-mail address of the receiver or a link from the web shop only. In seconds, the payment is transferred and the receiver only gets the name and the e-mail address from the customer. With PayPal the transfer of money

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<sup>165</sup> *Dannenberg/Ulrich*, E-Payment und E-Billing<sup>1</sup> (2004) 29–34.

<sup>166</sup> *Thomas Lammer*, Handbuch E-Money, E-Payment & M-Payment<sup>1</sup> (2006) 237

<sup>167</sup> *PayPal*, 10 neue Märkte für mehr globalen Handel, [paypal.com/stories/de/zuwachs-10-neue-mrkte-fr-mehr-globalen-handel](https://www.paypal.com/stories/de/zuwachs-10-neue-mrkte-fr-mehr-globalen-handel) (abgefragt am 6. 4. 2016).

is free for the customer and only the receiver has to pay a fee. Additionally, PayPal protects the buyer and seller as they can complain up to 45 days after the transaction.<sup>168</sup>

### **Paysafecard**

Paysafecard was founded in Vienna in 2000 with the intention to develop prepaid shopping cards. The service from Paysafecard is available in 42 countries and prepaid cards of 10, 25, 50 and 100 Euro can be bought. The important information on the prepaid card is the PIN, which is needed for the purchase. Paysafecard is available in more than 500 000 sales shops and is used by more than two million active users. It is accepted by more than 4000 online shops for online games, music download and gambling sites.<sup>169</sup> The Paysafecard is a banking product and the producer of the cards needs a banking licence. In Austria, the bank Bawag P.S.K produces the cards. The payment process is very simple. When the customer buys a product or service he/she chooses the payment method Paysafecard. Then the online shop requests the PIN on the prepaid card over the Paysafecard payment page from the customer. In the system behind the payment page, the PIN will be verified and the amount on the card will be checked. If the amount is too little the user can give an additional PIN. After the verification, the user is redirected to the page of the online shop and the transaction is finished. For the customer it is an anonymous transaction and the online shop owner is secured regarding the transferred money. The Paysafecard service is free for the customer and the distributor of the cards, only the web shops pay a fee depending on the products sold.<sup>170</sup>

### **Clickandbuy**

Clickandbuy was introduced for low value transactions in the online shop world. The company stopped working in 2016 and gives no information about starting again.<sup>171</sup> However for completeness, the process will be described. The customer has to register on the homepage of Clickandbuy with the name, bank account and e-mail address. With this account, the customer is able to pay small amounts on the Internet and gets the billing once per month.<sup>172</sup>

### **mPAY24**

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<sup>168</sup> Thomas Lammer, Handbuch E-Money, E-Payment & M-Payment<sup>1</sup> (2006) 240–242.

<sup>169</sup> Paysafecard, Online-Zahlungsbranche 2015: Jahr des Wachstums – für Payment-Branche und für paysafecard, [paysafecard.com/de/corporate/presse/pressemitteilungen/detail/online-zahlungsbranche-2015-jahr-des-wachstums-fuer-payment-branche-und-fuer-paysafecard/](https://paysafecard.com/de/corporate/presse/pressemitteilungen/detail/online-zahlungsbranche-2015-jahr-des-wachstums-fuer-payment-branche-und-fuer-paysafecard/) (abgefragt am 6. 4. 2016).

<sup>170</sup> Thomas Lammer, Handbuch E-Money, E-Payment & M-Payment<sup>1</sup> (2006) 251–258.

<sup>171</sup> Clickandbuy, Homepage, [clickandbuy.com/de/](https://clickandbuy.com/de/) (abgefragt am 6. 4. 2016).

<sup>172</sup> Thomas Lammer, Handbuch E-Money, E-Payment & M-Payment<sup>1</sup> (2006) 209.

mPAY24 is a service and includes all of the current payment methods on the Internet like credit cards, online bank transfer, Paysafecard and many more in only one interface for the web shop. It is a payment method for small and medium web shops and no software or hardware is needed for the service. For the web shop, it is easier to support many different payment methods and mPAY24 makes all the transactions in the background. <sup>173</sup>

### **Paybox**

In 2000 Paybox was the first mobile, cashless payment provider and developed the system. The company started to publish the service in 2001 with the first mobile, cashless service for concert tickets, public transport tickets and parking tickets in Vienna. The payment is via the mobile phone and connected via an account from Paybox to the bank account.

The user who buys something on a web shop chooses the payment method Paybox and gives his/her mobile number to the shop. Paybox calls the user automatically on the mobile phone and needs a PIN code to verify the purchase. After the purchase, the user gets the information about the transaction via e-mail and SMS. The amount of the sale automatically is debited from the user's bank account. For the user it is very secure and the most used service from the company is the parking ticket service. <sup>174</sup>

All of the showed innovative payment methods are still in use beside the Clickandbuy method. Of course, there are a lot more known and unknown payment methods available but not necessary for this work. In the next chapter, the payment method Bitcoin is described and at the end, the possibilities for crowdfunding platforms using those methods are discussed.

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<sup>173</sup> Thomas Lammer, Handbuch E-Money, E-Payment & M-Payment<sup>1</sup> (2006) 171.

<sup>174</sup> Thomas Lammer, Handbuch E-Money, E-Payment & M-Payment<sup>1</sup> (2006) 222–223.

## d. Bitcoin

Bitcoin is an electronic payment system to buy products or services. It is also a virtual currency because Bitcoins are a measure of value, so the price of a product or service can be written in Bitcoin. Nevertheless, Bitcoins are not a currency in the legal sense because Bitcoins are not issued from the state or a governmental institution. It is more a unit of value and interpreted differently by each country. The benefit of Bitcoin is that the organisation is decentral and there is no central authority. It is a peer-to-peer network, every computer, which is connected with the Internet can join and is an equal member. Essentially Bitcoin is a system to transfer Bitcoins between user accounts. Every user can have as many accounts as they desire. Another benefit of Bitcoin is the anonymity of the user because no registration is necessary to participate in the system and the transactions are only tracked by the IP-Address. If the user is using an anonymity network like Tor, the information about the users IP-Address is concealed. The biggest disadvantage of Bitcoin is the exchange between US-Dollar, Euro and Bitcoin. Figure 22 shows the exchange rate between Euro and Bitcoin over the last year. Compared to the previous month there are high fluctuations. As the Court of Justice of the European Union sent out a notice that the trade of Bitcoin are exempt from sales taxes fluctuations in October 2015 are especially high. For this reason, the exchange rate in October 2015 increased.



Figure 22: Exchange rate between Euro and Bitcoin over the last year,<sup>175</sup>

The history of Bitcoin started with a group or person known by the alias Satoshi Nakamoto who invented Bitcoin in the year 2008 with the paper “Bitcoin: A Peer-to-Peer Electronic Cash

<sup>175</sup> <http://www.finanzen.net/devisen/bitcoin-euro-kurs> (14.04.2016).

System”.<sup>176</sup> The idea of the proposal from the group or person was new because the authors proposed Bitcoin as a “cryptocurrency” that uses strong encryption algorithms to secure transactions. Additionally, the identities of the users are anonymous and the records about the information are decentralized, so no state or country are in charge of it.<sup>177</sup> In the next chapter the function of Bitcoin is described more in detail.

## i. Structure of Bitcoin

The environment of Bitcoin is based on different components, which play together and serve different services. For a better understanding of the Bitcoin system, the concept of hash-based cryptography is explained. The basis of Bitcoin is the hash function. That function has the characteristic to complicate the procedure to find the input data from the given output value (the hash value). Additionally, it should not be possible to find two possible input data from the same hash value.<sup>178</sup> The basis of Bitcoin is like the electronic money system in which central stations distribute electronic coins that can be used anonymously to buy something. Bitcoin is anonymous and renounces a central supervisory body. Out of this reason, it uses only the transactions that are done via key pairs with a public and private key. The public key is the receiving address, which can be interpreted as account number. Additionally, a third party can use it to verify transactions. The private key is only used to make transactions and needs to be kept secret. With this public private key infrastructure, the transactions are secure and encrypted in the Bitcoin system.

For the user of the Bitcoin system a client (**wallet**) tracks all the transactions in the past and derives an overview of the owned Bitcoins. To make a new transaction, the user has to refer to a transaction made before in order to exchange Bitcoins. The new transaction includes the public key of the receiver, a hash over the transaction made before and a signature of both values. For the verification of the signature, only the public key from the transmitter is needed. Because of the hash from the transaction made before it is ensured that the new transaction is assigned to the one before. To prevent that someone can send one Bitcoin to two different users, the Bitcoin system introduced the block chain.<sup>179</sup> Additionally, for the block chain the **miners** are very important in the Bitcoin system. Miners are individuals or groups running the Bitcoin software and make copies of transactions for the verification in a worldwide network with

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<sup>176</sup> Satoshi Nakamoto, Bitcoin: A Peer-to-Peer Electronic Cash System, bitcoin.org/bitcoin.pdf (abgefragt am 11. 4. 2016).

<sup>177</sup> Extance, The future of cryptocurrencies: Bitcoin and beyond, Nature 2015, 21 (21).

<sup>178</sup> Beutelspacher/Neumann/Schwarzpaul, Kryptografie in Theorie und Praxis<sup>2</sup> (2010) 177.

<sup>179</sup> Sorge/Krohn-Grimberghe, Bitcoin: Eine erste Einordnung, Datenschutz Datensich 2012, 479 (479).

independent computers. They make a new block with the given transactions and add it to the **block chain**. To add the new block to the block chain the miner has to solve a cryptographic problem before the other miners and can win Bitcoins by being the fastest. After adding the new block, all of the miners get the new block chain transferred. Because of the solving time only every 10 minutes a new block is added to the block chain. The block chain is an online ledger that includes every Bitcoin transaction. Every miner has a copy of the block chain, which additionally is used to proof the ownership of all Bitcoins in the system. As an example to proof the ownership, Bob sends some Bitcoins to Alice but Bob spent his bitcoins somewhere else before. In this case, the block chain will reject the transaction to Alice because it has the record of the Bitcoins spent by Bob.<sup>180</sup>

Overall, the Bitcoin system is a worldwide network including miners for the process of making new Bitcoins and adding new blocks of transaction to the block chain, which is the central knowledge base of all transactions. To exchange Bitcoins as a normal user, different online dealer exchange Euro or other currencies into Bitcoins and vice versa. Additionally, in Austria there are some machines and tobacco stores for the exchange. The Bitcoin wallets for users are different software products for mobile phones or computers. For the user the important thing of the wallet is the private key. It can be stored with an additional password on the computer or as a QR code on a piece of paper. This is one of the risky things to lose money in the Bitcoin system.

## ii. Legal situation in Austria

In Austria Bitcoins are available in tobacco shops and at machines. According to the platform [coinmap.org](https://coinmap.org)<sup>181</sup> there are 33 shops which accept Bitcoins in Vienna. The legal situation of Bitcoin changed in January and October 2015. It started with the request to the federal minister of finance about the legal clarification of Bitcoin and other virtual currencies. The parliamentarian Mag. Nikolaus Alm asked the minister 22 questions regarding taxes on Bitcoins, Mining Operator licences, speculation period of one year and many more.<sup>182</sup> The outcome of this questionnaire on the 02.09.2014 was disappointing for the Bitcoin community in Austria. Austrian financial market laws qualified Bitcoin as following:

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<sup>180</sup> *Extance*, The future of cryptocurrencies: Bitcoin and beyond, *Nature* 2015, 21 (22).

<sup>181</sup> <https://coinmap.org> (12.04.2016).

<sup>182</sup> Parliamentary Question Nr. 1577/J 25. GP.

- Bitcoin is not an official money, so taxes are compulsory
- Bitcoin is not an electronic money within the meaning of the e-money act
- Bitcoins are not financial instruments within the meaning of the banking act<sup>183</sup>

Additionally, to the ministry of finance the FMA (financial market authority) answered the questions about the banking licence for Bitcoin distributors in 2015.<sup>184</sup> With the information about Bitcoin, it was confirmed that no banking licence is needed for the distribution of Bitcoins. With this decision, 600 tobacco shops started to cooperate and 450 implemented Bitcoin selling in 2015.<sup>185</sup>

On 22.10.2015, the Court of Justice of the European Union (EuGH) sent out an important press information for the Bitcoin community in Europe. Starting point was the legal case in Sweden, a dispute between the Bitcoin platform Bitcoin.se and the Swedish tax authority. The Swedish tax authority wanted taxes from the platform owner and got a negative notice from the Swedish court. After the notice, the tax authority addressed the Swedish Supreme Administrative Court with this problem. The Supreme Administrative Court asked the Court of Justice of the European Union for clarification of the case. The EuGH decided that trade with Bitcoins is exempt from sales tax, which was a huge change for the Bitcoin traders in the European Union. This notice was also important for Austria because with this judicial decision the trading business with Bitcoins is on a legal basis and exempt from sales tax.<sup>186</sup>

### iii. Advantages and disadvantages of Bitcoins

In recent years, Bitcoin had bad news about stolen money from online exchange platforms. The security of the Bitcoins depends on the storage of the private key. In most cases, the hacker of Bitcoins only stole the private keys of the wallets. Because of this, the storing of the private keys is very important for Bitcoin owners. One of the best-known **advantages** of Bitcoin is the anonymity, which is not 100% correct because behind the used IP-Address is the name and address of the user recorded by the Internet provider. It can be fully anonymous if the user is using a Tor network that obfuscates the own IP-Address on the internet. Another advantage is the independence from a central provider of money because with the peer-to-peer network and

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<sup>183</sup> Parliamentary Answers Nr. 1485/AB 25. GP.

<sup>184</sup> FMA, Information zu Bitcoin, fma.gv.at/de/sonderthemen/bitcoin.html?F=0 (abgefragt am 12. 4. 2016).

<sup>185</sup> *Bitcoinbon*, Bitcoinbon Verkaufsstellen in der Nähe, bitcoinbon.at/outlets/ (abgefragt am 12. 4. 2016).

<sup>186</sup> Press release Nr. 128/15 of the Court of Justice of the European Union in Case C-264/14.

the block chain the electronic money is independent from the normal monetary system.<sup>187</sup> Additionally to the independence, the transaction fees for the selling and buying process are almost zero percent. Credit card companies or other online payment systems are more expensive as they are taking a fee from three to five percent for each transaction.<sup>188</sup> Another advantage is the irreversibility of a transaction in the Bitcoin Network. While cash or direct transfers can be reversed, credit cards and other payment methods like Paypal have the risk of debt default.<sup>189</sup>

One of the most known **disadvantages** is the stealing of private keys from users and platforms that are offering exchange or wallet services in the Bitcoin environment. The handling of the private keys is not secure enough by the users and the biggest attacks of the Bitcoin system have been by stealing wallets from third party trading platforms. The user has no guarantee for their Bitcoins in wallets on trading platforms because the platforms have no regulations and are not subject to an authority.<sup>190</sup> Additionally to the Bitcoin protection, the exchange rate of Bitcoins to Euro or Dollar has a big variation and is a risk for the user, seen in figure 19. Another disadvantage is that Bitcoin is not so widely accepted as a payment method by merchants because of the unstable exchange rate.<sup>191</sup> Because the recipient and sender is almost anonymous transactions with the electronic money can be used for criminal acts like money laundering or drug trafficking.<sup>192</sup>

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<sup>187</sup> *Sorge/Krohn-Grimberghe*, Bitcoin — das Zahlungsmittel der Zukunft? Wirtschaftsdienst 2013, 720 (721).

<sup>188</sup> *van Alstyne*, Why Bitcoin has value, Commun. ACM 2014, 30 (30).

<sup>189</sup> *Sorge/Krohn-Grimberghe*, Bitcoin: Eine erste Einordnung, Datenschutz Datensich 2012, 479 (482).

<sup>190</sup> *FMA*, Information zu Bitcoin, fma.gv.at/de/sonderthemen/bitcoin.html?F=0 (abgefragt am 12. 4. 2016).

<sup>191</sup> *Sorge/Krohn-Grimberghe*, Bitcoin — das Zahlungsmittel der Zukunft? Wirtschaftsdienst 2013, 720 (721).

<sup>192</sup> *FMA*, Information zu Bitcoin, fma.gv.at/de/sonderthemen/bitcoin.html?F=0 (abgefragt am 12. 4. 2016).



## e. Using alternative payment methods on crowdfunding platforms

In practice, it is possible for crowdfunding platforms to use alternative payment methods. Based on the payment service act (ZaDiG) the crowdfunding platform needs a concession as a payment institution or a bank, which has a concession for the processing of the issuer's payment. If the bank holds the investments and manages the payment processing, the account at the bank is a separated escrow account.<sup>193</sup> This separated escrow account is needed because the bank cannot hold client funds.<sup>194</sup> In Austria only a lawyer and a notary is able to create and administrate an escrow account. The trusteeship is not regulated in the Austrian law, it is derived from the legal teaching and defined by individual agreements.<sup>195</sup> According to the attorney regulation (ROA) §10a and the notaries regulation (NO) §109a the lawyer and the notary are able to be trustees for the escrow account.<sup>196</sup> <sup>197</sup> Additionally to the former professions, the auditor and the tax advisor are also able to offer trustee services according to the economy trust profession act (WTBG) §3.<sup>198</sup> The trustee regulates the contract of the deposit and payment between the issuer and the investor. For an offered payment service between the issuer and the investor the owner of the crowdfunding platform needs a concession as auditor, tax advisor or a licence as lawyer or notary. Additionally, the owner can instruct a third party with the specific licence or concession.

For alternative payment methods, only the trustee has to have access to the account and is able to transfer money. In the contract between the issuer and the investor, the deposit and pay out modality is regulated (When is the money given back to the investor, which are the criteria for a late or no pay out). According to the regulations, alternative payment methods like **PayPal**, **Paysafecard** and **PayBox**, which have a licenced bank account for their offered service in the background, can be available for crowdfunding platforms. For example, in the general conditions and terms it is written that escrow accounts can only be accessed by the trustee.<sup>199</sup>

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<sup>193</sup> § 17 Abs 1 Z 1 Zahlungsdienstgesetz BGBl I 2009/66.

<sup>194</sup> *Wirtschaftskammer Österreich Fachverband Finanzdienstleister* in *Wirtschaftskammer Österreich, Alternativfinanzierungsgesetz und Crowdfunding-Plattformen* (Stand 5. 11. 2015, [wko.at/Content.Node/branchen/oe/sparte\\_iuc/Finanzdienstleister/Rechtsartikel/Artikel-Crowd-Plattform.pdf](http://wko.at/Content.Node/branchen/oe/sparte_iuc/Finanzdienstleister/Rechtsartikel/Artikel-Crowd-Plattform.pdf)).

<sup>195</sup> RIS-Justiz RS0010444.

<sup>196</sup> § 10a Rechtsanwaltsordnung RGBI 1868/96.

<sup>197</sup> § 109a Notariatsordnung RGBI 1871/75.

<sup>198</sup> § 3 Abs 2 Wirtschaftstreuhandberufsgesetz BGBl I 1999/58;

<sup>199</sup> *PAYBOX BANK AG, ALLGEMEINE GESCHÄFTSBEDINGUNGEN PAYBOX BANK AG*, [payboxbank.at/download/AGB\\_paybox\\_Bank\\_AG.pdf](http://payboxbank.at/download/AGB_paybox_Bank_AG.pdf) (abgefragt am 21. 4. 2016).

The alternative payment method **mPay24**, which includes credit cards and other services, has the bank account for the service located at a licenced bank.

For the payment system Bitcoin, the procedure to become an alternative payment method on a crowdfunding platform could be legal. There is no problem because of the different infrastructure of Bitcoin and the handling of the public and private keys. In practice, the trustee would get or make a new wallet for the issuer and keeps the private key secure so that nobody else has access to the Bitcoins. On the crowdfunding platform, the possible start-ups or projects would be listed in Bitcoins only or in addition to legal currencies. The transaction from Bitcoins from the investor to the account of the issuer works as described in the chapter “Structure of Bitcoin” with the public key. It can also be compared to a normal transfer from one bank account to another without any automatism offered by the crowdfunding platform. The only problem with Bitcoin could be that the trustee has to take measures to prevent money-laundering and terrorist financing. In every regulation of the professions mentioned before there is paragraph which includes the prevention of money-laundering and terrorist financing. This problem could occur but is also able if money is transferred over a normal bank account because the trustee cannot control in detail from where the money is coming from. He is only able to give indices if there is a suspicion. Another problem can occur because of the statute of escrow this says that every escrow account has to be at a licenced bank in Austria. In this case the statute has an exception article 6.2.2 this says that trusteeships under the given capital of 40,000 Euro are not liable to the statute of escrow.<sup>200</sup> Out of this reasons, the offering of Bitcoin on crowdfunding platforms can be legal in Austria. The other alternative payment methods, which have been mentioned before, should also allow crowdfunding platforms to offer additional payment services.

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<sup>200</sup> *Rechtsanwaltskammer Wien*, STATUT 2010 der Treuhandinrichtung der Rechtsanwaltskammer Wien, [rakwien.at/userfiles/file/Statut%20Treuhandbuch\\_neu.pdf?4d761a5b2734f5364e375f0b400ea96e=852ce85b1f2208eb510a74f1b07ca052](http://rakwien.at/userfiles/file/Statut%20Treuhandbuch_neu.pdf?4d761a5b2734f5364e375f0b400ea96e=852ce85b1f2208eb510a74f1b07ca052) (abgefragt am 14. 6. 2016).

## 5. Conclusion

The thesis is split into different parts with various results and findings. In the beginning of the thesis the history of crowdfunding was explained and showed that the idea is not new. Mozart and Beethoven financed their concerts by public calls. Additionally, crowdfunding was included into the present financing models and is located in the big-budget model.

In the first part the legal situation before and after the new alternative financing act was described in detail. The legal situation before the law was not clear for crowdfunding platforms and start-ups or projects were not able to gather more than 250 000 Euro. Additionally, for the investor the legal situation was not clear either and the start-ups or projects had no requirements to present enough information on the crowdfunding platform. After the introduction of the new alternative financing act the legal situation changed in a good way. On one hand, start-ups or projects are able to gather more capital through crowdfunding platforms depending on the prospectus requirement. In most cases, start-ups or projects receive up to 1.5 million Euro with no prospectus requirement. On the other hand, start-ups or projects need to give detailed information about themselves and the information has to be controlled from a third part following the criteria of **coherence**, **completeness** and **comprehensibility**. For the review it is very important how detailed the auditor examines the given information. It is not legally defined how detailed the review has to be. For the crowdfunding platform, different new requirements have been introduced. The review of the information of the start-up or project and the contract for the investment have to follow the same criteria as mentioned before.

In the second part of the thesis, the technical implementation has been analysed together with all of the relevant stakeholders and requirements and the best fitting web content management system has been chosen for the basic architecture. Besides the structure of the implementation, the biggest three crowdfunding platforms in Austria GreenRocket, 1000x1000 and Conda have been tested regarding their usability. Additionally, the economic outcome of the platforms has been combined with the usability test outcome to get a different view on the usability of their platforms. The results based on the score of the usability test rank GreenRocket as the best, 1000x1000 in the middle and Conda as last. In the review of the economic outcome (the sum of investments with the crowdfunding platform) the result is different. In this review, Conda is on the first, GreenRocket on the second and 1000x1000 on the third place. The combination of the data shows that some usability references like “Home Page” and “Page layout & Visual Design” are very important for the economic data for the crowdfunding platforms.

In the third part, different alternative payment methods have been analysed and the term electronic money has been described. Additionally, the legal framework of electronic money was shown and innovative payment methods like PayPal, mPAY24 and Paysafecard were discussed in detail. In this part, a special focus was on Bitcoin, an electronic payment system and a virtual currency. This part described the technical structure, the legal situation in Austria and the advantages respectively the disadvantages of Bitcoin. In addition, the usage of alternative payment methods on crowdfunding platforms has been discussed and shows that all the payment methods are legal to use.

The results and insights, which have been gained from the different aspects, can be a good base to introduce a crowdfunding platform on a legal basis which includes additional payment methods and accepted usability designs.

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