A Framework for Categorizing Startup Companies

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Abstract

Literature provides numerous ways for categorizing startups, however, the terminologies are often overlapping or incomplete. Based on the available literature in combination with interviews with founders a framework for categorizing startup companies is created and tested. In contrast to existing work, the framework presented puts great emphasis on the intention the founders of the startup have in mind when building the company as this factor – together with size in terms of number of employees- turned out to be not only a good segregating characteristic, it is also of high practical importance to the startup community.

This conceptual work follows the Design Science Research approach and is tested through interviews with seven founders of heterogeneous startup companies. The feedback underlined the high practical relevance and the conceptual analysis indicates academic rigor.

Introduction

Following the rise of the internet towards the end of the last century and the subsequent burst of the economic "dotcom" bubble today's economic conditions nurture a second wave of startups. Once again venture capital is available to fund entrepreneurs of all couleur.

The last decade produced several successful startups stories, especially in the field of providing services via the internet using advanced technology and social media components. Companies like Airbnb, Uber, Spotify, etc. disrupted whole industries. This development affects and influences the whole world and successful companies seem to change and reinvent themselves constantly. We witnessed the influence an (initially small) company can have when it grows rapidly and shakes up traditional business models and their market in incredibly short time. Changing or eliminating a common work processes can destroy fundamental business models. Large companies with complex procedures become powerless when small businesses revolute well-established markets. The examples given above showed this effect dramatically.

This new ecosystem is a fruitful field for research and the output of academic and specifically practically oriented articles and books is soaring, underlining the observation that startups are a highly relevant topic (Ries, 2011).

As startups are so numerous and so broadly spread around different functions, technologies and industry solutions it becomes apparent that a framework is needed to categorize the different types. To do so, one first needs to define what exactly a "startup" is. We follow the suggestions of Kollmann, Stöckmann, Hensellek, and Kensbock (2016) and define a startup as *a company which is less than ten years old, have a highly innovative Business model or apply highly innovative technology and have above average growth in revenue and/or market share and/or employees*.

When taking a look at the founding constellation it appears that in many situations a novice entrepreneur and a more experienced one gather together to combine know-how with ambition. If these two characters do not gather as co-founders it seems the young entrepreneurs are compelled to hire more mature personnel, as it occurred when Steve Jobs hired the more experienced CEO Michael Scott (Isaacson, 2011). Considering this observation, one key characteristic could be the character of the founder (Fauchart & Gruber, 2011). Consequently it can be assumed that startups have individual characteristics which allow for categorization.

In the following, this paper suggests a framework based on literature about startups and interviews with seven founders of heterogeneous startups. By identifying the key characteristics of a startup the framework allows entrepreneurs to allocate their company to a category enabling them to learn from others in the same space. Thus it serves as a guideline for successful decision making by comparing own (future) decisions to that of other companies and their success or failure stories.

The paper is structured as follows: After this introduction we provide a review of the applicable literature which serves as basis for the framework which will be presented thereafter. The framework will then be discussed in light of existing work. The paper closes with explicating its limitations, guiding further research and a conclusion.

Literature Review

Naturally, a topic like this which is of high practical relevance attracts the majority of papers to be published in practice oriented outlets. Therefore this review of previously published suggestions to categorize startup companies includes practically oriented literature as well as academic papers.

Market research firm Gartner (2015) describes three different categories for enterprises with respect to technology. There is type A, a well-funded firm which uses technology to enable their business and gain market share; type B, which utilizes IT to improve productivity – invest in best practices not in innovations – with rather good financial resources; and type C who's first goal is to reduce IT-costs – only installing commodity products - which categorizes them as late followers. Another dimension of business categories is the size of a company which is often based on the number of employees (Gartner, 2011).

The German Startup Monitor (Kollmann et al., 2016) defines categories by type of (high-tech) industry, such as software development, software-as-a-service, mobile technologies, nano technologies, biotech etc.

One could assume that geographical outreach is of great importance but literature suggest that this is not the case. Mair et. al explain this citing the well-established arguments of Schumpeter who states that the regional importance can be neglected (Mair, 2006).

Another stream in literature is the influence of the founder’s mind-set and character on important decisions, especially in the very important early phase of creating the firm (Mair, 2006). Overall, not only applying to startups, leadership affects the company’s attitude through forming the employees' mindsets. It is long known but often underestimated that a firm is a deprived area and therefore it is vital to define company policies with care and be aware of the influence exerted by the entrepreneur (Gutenberg, 1962). Fauchart and Gruber mention three main founder types that influence the business of startups; the “Darwinians”, “Communitarians”, and “Missionaries”. Their study comprises of 49 interviews with founders and analyzes the correlation between founders' behavior and actions and the effect on the overall firm. Especially as the “Question such as ‘Who am I?’ and ‘What is my role in society?’ are of fundamental concern to humanity […]” (Fauchart & Gruber, 2011)

A study by Bürgel (2000) divides startups into five main categories based on the range of products and/or services they produce: (1) Service / Software which comprises all businesses where the main product is or is based on software. (2) Communication Hardware – consists of all business that produce the majority of their products themselves. (3) Engineering and Precision Engineering covers the manufacturer of professional instruments for measurement. (4) Life Sciences contains biotechnology firms. (5) Other comprises the remaining companies which produce components for other products.

Another approach of defining categories by industry is shown by Pfirrmann, Wupperfeld, and Lerner (1997) who suggest categorization into Agriculture, Chemistry, Stone/Earth, Iron/Steel, Mechanical Engineering, Electrical Engineering, Electrical Data Processing, Biotechnology, Environmental Technology, Precision Mechanics, Wood/Paper, Leather/Textiles, Food, Construction, Trade, Traffic, Communication Engineering, Financial Services, and Other.

Blank (2013) presents a concept of categorizing startups based on the people, funding and strategies involved. Blank introduces "social entrepreneurs" whose main goal is to make the world a better place. Instead of increasing the return on investment the social entrepreneur focuses on the benefit of society at large. Blank states that “social entrepreneurs are no less ambitious, passionate or driven to make an impact than any other type of founder. But unlike scalable startups, their goal is to make the world a better place, not to take market share or to create to wealth for the founders.” (Blank, 2013). It seems that a social entrepreneur is a specific type of business startup as (Gedeon, 2010) describes it as well. When comparing this to the Missionary type introduced by Fauchart and Gruber and defined as an entrepreneur identity, it becomes apparent that, although both names point in the same direction, the relevant intention differs. In Blank’s view a social entrepreneur acts in the common interest of the greater good, whereas the Missionary has a clear vision of what she/he wants the world to look like (Blank, 2013; Fauchart & Gruber, 2011).

The basic idea of the social startup aims for general wealth. The number of startups which have a focus on fair trade, health and human rights increased in the last years (Mair, 2006). Social entrepreneurship does not solely include non-profit organizations but includes all startups with the substantial aim on the common good. The skills of social entrepreneurs are quite similar to others as they needs “candor, courage, values and customer focus,[…] along with strategy, flexibility, a willingness to plan and the ability to think like a business” (Mair, 2006). Furthermore, the courage to accept social criticism and convert it into a business strength is needed and another vital characteristic is the ability to cherish and share; as it has come to attention that most social entrepreneurs come from a background where charity was substantial. Yet, when it comes to realizing their goals the founders sometimes precede with unsocial measures like confronting politicians and managers dramatically which can be regarded as pure activism (Hockerts, 2006).

The origin of the startup, i.e. founding a startup inside or outside of a large company is another characteristic. Blank does not define the term “large-company” in context of founding a startup. One could assume that a large-company refers to a well-established firm of considerable size in terms of revenue and employees acting on a traditional market. A study of Karlsson and Nordström (2012) argues that managers’ strong belief in a well proven business model limits their ability to act on innovative opportunities which leads to the assumption that strong hierarchical structures hinder innovation. Blank describes the solution: “To ensure their survival and growth, corporations need to keep inventing new business models. This challenge requires entirely new organizational structures and skills” (Blank, 2013). Karlsson and Nordström (2012) constitutes the following thought: “Whether a company should pursue a project inside or outside the company depends on the degree of friction and support the project gets”. As such startups can be founded outside large

corporations or even within, if they receive the necessary support and can free themselves from traditional bureaucratic structures.

Gedeon (2010) describes six dimensions to define entrepreneurship based on essential characterizing questions: "What?", “Who?”, “How?”, “Why?”, ”When?”, and “Where?”. The first dimension can be a “business”, “social”, “academic”, “political”, or “criminal” one. The next dimension is the ‘who’ started the company in respect to the founders characteristics in line with the work described above (Blank, 2013; Karlsson & Nordström, 2012). ‘How’ looks at the product or service the startup offers; for example is it an innovative or imitative product. The ‘Why’ refers to either the small business or the lifestyle entrepreneurship. ‘When’, points to a certain time a startup is founded. The ‘where’-perspective described the geography where the founding took place. Some authors regard this characteristic as relevant (Bürgel, 2000; Gedeon, 2010; Korres, 2003) , whereas others neglect it (Mair, 2006).

Research Objective

Taking the abundant literature on startups and their strategies into account, it appeared necessary to define a framework of categories to successfully allocate, and cluster startups, as the literature review reveals no published framework which is of universal use.

Thus, the objective of this research is to conceptually develop a framework which allows for simple yet helpful clustering startups. The main challenge is to find and homogenize sources that comply with this objective and find similarities between the divergent and dynamic company form of startups. The goal of the framework is to provide novice entrepreneurs with a toolkit to compare their idea or startup to others and derive decisions from it.

Research Approach

As the framework is a conceptual piece of work, the research approach chosen is based on the Design Science Research (DSR) model (Hevner & Chatterjee, 2010) using the Problem-centered Approach (Pfeffers, 2007).

No	Role of Interviewee	Description of Startup	Size (# of Employees)
1	Founder, CEO	Media design work for clients of all sizes	1
2	Founder, CEO	Production of a single product for industrial use.	<20
3	CEO	A middleware for game development to add Artificial Intelligence (AI).	<45
4	Founder, CEO	A time management tool, specialized for the mining and construction industry	<10
5	Co-Founder	Full management of short term rentals, from listing and bookings to linen, cleaning and key exchange – all with Airbnb.	<25
6	CTO	Production of a video chat app.	<55
7	Founder, CEO	A fair trade cola drink - from production to delivery.	<15

Table 1: Interviewee and Startup Description

An integral part of the DSR method is the proof-of-concept. This poses often to be the most difficult issue, specifically with conceptual work. To test our framework we conducted interviews with several start-up companies to see whether (1) the framework works for the heterogeneous group of interviewees and (2) the interviewed entrepreneurs find the framework helpful for their future work and the work of fellow entrepreneurs.

Scheduling Interviews with entrepreneurs proves to be extremely difficult. This type of interview partners shows an above-average workload (including working long hours and weekends) and often a heavy travel schedule. We were lucky and eventually found eight entrepreneurs who agreed to talk to us. Interviews lasted on average about 20 minutes and were conducted personally or via skype. We used a semi-structured interview guideline with few but very structured open questions.

Our interview partners were from Germany, Israel and Australia. Brief demographics and a short description of the respective startup is provided in Table 1 below.

Framework for Categorizing Startups

Based on the literature review and update during interviews with entrepreneurs we derive the following framework for categorizing startup companies (see Figure 1). The framework comprises of 5 distinctive categories which are explained in the following.

Figure 1: framework for categorizing startup companies

Multiple ways of allocation and clustering startups exist as discussed above. However, none of them is generally accepted in academia or practice. Analysis of the literature points to the insight that every framework developed serves a very specific purpose. The framework presented here does not have a specific purpose apart from being a guideline to classify startup companies in an easy and orderly way.

We provide five distinct clusters to categorize startup companies. The essential characteristics are:

- size by number of employees, which also includes growth ambitions or limitations,
- Type of work / service / product spectrum, and
- characteristic identity of the founder / CEO as introduced by (Fauchart & Gruber, 2011).

The first cluster is referred to as **Freelancer**. This is basically a setting where one person is being the complete startup who works on a hired basis. The second one is called **SME's Startup**, a startup with the intention to stay a small or medium sized business; the third one is an **Expansible Startup** and describes a company that is designed to scale – to serve a large community; fourthly the **Social Startup**, an entrepreneurial company that is founded for a mutual benefit; and the last one is a **Corporate Startup**, founded by an entrepreneur or

majorly funded by an existing company. These types are derived from the startup's characteristics to build a framework.

Comparison of the New Framework to Existing Ones

This section compares the existing frameworks to the model introduced in this paper and evaluates it.

Gedeon's lexicon (Gedeon, 2010) delivers categories of entrepreneurial companies in a more granular way. When analysing the different dimensions the subcategories describe entrepreneurship in detail. Yet, considering the fact that these terms are from different dimensions it needs to be evaluated with care. Another issue that occurs is that in some cases the categories from one dimension are not mutually exclusive.

Another approach to create clusters is to consider the six types announced by Blank, "Lifestyle", "Small-Business", "Scalable Startup", "Buyable Startup", "Social Startup", "Large Company Startup", which appears to cover a majority of entrepreneurial business. Yet, when analysing and allocating companies to the terms, they are not mutually exclusive and the chosen terminologies leave room for speculation. During our interviews, three interviewees allocated their companies to the two categories Scalable- and Buyable Startup which shoud not happen. Another aspect is that the terms come from different dimensions. Whereas the Lifestyle and Social Startup category is a question of the entrepreneur's attitude; Small-, Scalable-, and Buyable Startups reflect the size of a company; and Large Company Startups relate to the origin. The terms can be used when defining the right dimensions though. Allocating and comparing the category names to Gedeon's Lexicon terms and taxonomy results in the following: The phrase Social Startups is comparable to the Social Entrepreneurship that is in the Taxonomy of "What?", which asks the type of value created by the company. Large Company Startups is similar to Corporate Entrepreneurship that can be found in the "Who?" section; a question of ownership and origination of founding. Lifestyle Startups or described in the lexicon as Lifestyle Entrepreneurship allocates to "Why?" which asks for the founder's goal for the company. The Small- Business Startup is once located in the "Why?" section, as Small Business Startup, but can also be found in the "Who?" part where it could join with Family Business Entrepreneurship. The remaining two terms, Scalable – and Buyable Business do not allocate directly to Gedeon's Lexicon, yet could join the category section of "Why?" as Blank declares the intention for these two types is to grow big without following traditional business paths (Blank, 2013; Gedeon, 2010).

During the interviews we saw that size is a very important category for the founders, specifically if they are not aiming for global market dominance but voluntarily want to restrict themselves. This does apply to the social stratus but also to SMEs and freelancers. Size of the company is measured by employees rather than any other financial figure such as turnover or market share. The different sizes of the market cannot be transferred to categories as their characteristics are difficult to delimit. A similar situation occurs regarding to a delimitation process from a financial perspective. Startups could acquire capital from different finance companies which leads to an inconsistent delimitation.

The category types indicate a startup's focus and motivation; the derived characteristics of the entrepreneur. It seems likely that a startup will keep concentrating on one particular primary goal, influenced by the founder's mindset. However, it is not guaranteed that when a strategic change or fundamental personal altering occurs that the startup still allocates to the same category or even swaps it, as the category reflects the intention of the entrepreneurial firm.

When reviewing the cluster Corporate Startup it becomes apparent that it is a delimited category. If the entrepreneurial company becomes a scalable business, it will still be a corporate startup as a large company is still a major shareholder of it (Bulut, 2008).

Expansible Startup characteristics create a good delimitation for this category. Considering the sole intention of scaling, using a few people to serve a large community, this creates a uniqueness for startups. It could occur that a startup has a scalable intention, but is not profit oriented, in which case it wouldn't be allocated to this category and instead would be allocated to the Social Startup category. Entrepreneurial firms with mandatory intentions using expansible business models are allocated to this term, which delimits it from any other category type of the model.

Considering the Social Startup term with the main characteristic to create a mutual benefit. This business can have a business model that complies to SME's, or an Expansible Startup, yet the intention of non-profit or generating a common wealth is its primary goal which distinguishes this category from the other.

The SME's Startups are delimited by the means of the maximum company size. Switching from this term to any other is unlikely, as of the clear key characteristics; it would involve a dramatic change to the startup's intention, to the market of the startup's product, or to the environment.

When assessing the cluster Freelancer it becomes apparent that this is often an interims state as firms are founded by only one person but change the cluster when they grow. In an allocation process it can happen that a startup that allots to this type will switch to either a small business startup or to an Expansible Startup category. Yet, this has to do with a change of the startups intention that is caused by a founder's change of mind. When starting as a freelancer it can occur that working in a certain business will force the founder to increase the workforce to keep up with the competition or to realize a product. Yet, as the interview showed: "the intention of a 'true freelancer' is to stay 'free' in regards to working on one's own terms."

Limitations

This research is based on the mentioned literature and the conducted interviews. A structure for the conversations, and the research methods defined above, ensure a maximum of heterogeneity for the results. The expressions by the interview partners in comparison to the significance for the startup industry is not guaranteed. As mentioned in the introduction of categories, defining delimited border between startup organizations is intricate. But when looking at similarities, it allows one to draw boundaries and for categorization. The research limited by the number of conducted interviews and the fact that no real corporate startup did participate. Another aspect is the fact that all interview partners were male, this could cause a distorted picture and could lead to false assumptions. The limited time schedule of an entrepreneur or founder limits their availability for interviews which may lead to incomplete information. As in many cases the interviewee and interviewer had no previous relations the conversation was built on trust; especially, in Israel this led to the reserved answers which could indicate they weren't answering the questions in detail.

Further Research

During the interviews it became apparent that for all types of startup outsourcing is of high relevance. All founders outsourced one or more services; in one case it appeared to be even a core competency (for performance reasons). Consequently, research on outsourcing in the startup domain could prove to be a fruitful engagement.

Additionally, the path of success –as perceived by the founder- seems interesting. It requires more research on the definition of the specific type of "startup-founding-success" to dig deeper into the perceived intentional success component of founders' set of motivational characteristics.

Conclusion

The beginning of this research points out the dearth of delimited categories in existing literature; thus, the topic of defining terms to cluster startups remains relevant to research and practice. Unlike other research, and models that try to define term by the business types or the founder's types, or from a singular perspective, the suggested framework focuses on clustering based on the intentions of the founders of a startup.

The categories developed in this framework use a distinguished terminology. The category types are derived from the terms and characteristics used in literature. Additionally, the framework was challenged and further developed during interviews with a number of founders and/or CEOs of actual startup companies. The outcome was a framework which proved to be useful to practice and –due to the delimited nature of its description- helpful for academia. However, it needs to be noted that a startup may switch from one category to another during its phases of development or if it's fundamental intention (i.e. the one of the founder) changes.

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