

DECEMBER 2017

FSBC Working Paper

Identifying Leading Blockchain Startups on a Worldwide Level

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The blockchain startup ecosystem is unique for the interconnectedness amongst startups from different industries. Startups are in many cases the drivers of innovations. A comprehensive understanding and overview of a particular startup ecosystem can therefore be beneficial to understand which products or services are really demanded by customers.

The uniqueness of the blockchain startup ecosystem

Even though the blockchain technology is still no common knowledge and 50% of the German population hasn't even heard about it (PwC, 2016), the investments by venture capitalists (VCs) in blockchain startups rose from 136.4 million US-Dollar in 2013 to 543.6 million US-Dollar in 2016, resulting in a staggering increase of almost 300% per year (KPMG, 2017).

Although the blockchain technology was first introduced in 2008 by Satoshi Nakamoto, today, blockchain startups are already building their own ecosystems around the blockchain technology. For instance, they integrate their own financing through initial coin offerings with processes and applications of other startups, such as cryptocurrency trading platforms. Being the first startup ecosystem, where startups issue their own digital tokens in form of cryptocurrencies, the blockchain technology offers remarkable new possibilities for startup companies in any industry sector.

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The interconnectedness amongst startups, building upon the blockchain technology, leads to a fast-developing and diverse startup ecosystem.

This paper aims to give an overview of the current situation of the blockchain startup ecosystem by analyzing startups social media impact and activities. Startups, in general, have very innovative business models and play a dynamic role in the economy (Audretsch, 2002). Therefore, the findings of this paper show the current state and innovative developments in the blockchain ecosystem and provide implications which blockchain technology applications, developed by startups, are demanded by customers.

Startup evaluation happens frequently during the financing process by venture capitalists. Venture capitalist firms use criteria such as venture team experience and education to decide whether they will invest in a startup or not (Franke, Gruber, Harhoff, & Henkel, 2008). Startups are incentivized to provide venture capitalists with as much information as possible in order to increase the prospect of being granted with funds (Eckhardt, Shane, & Delmar, 2006). Without having the insider knowledge of a venture capitalist or public accessible data of the startup company, objective information for startup evaluation is difficult to find.

For startups it is essential to build a positive reputation at the beginning of business to ensure their survival (Nicolò, 2015). Social media presence and activities are crucial for companies to build a strong customer relationship and therefore to gain a positive reputation. Given this relation, one way to analyze and evaluate startups is an analysis based on their social media presence and reputation, such as retweets or followers on social media platforms (Larson & Watson, 2011).

In this paper, a comprehensive overview of the current status of the blockchain startup ecosystem should be given. To do this, criteria used by venture capitalists should be applied to social media analysis, i.e. criteria found in literature are used to find success criteria for startups within the social media context. In this way, a social media analysis framework should be developed and applied to blockchain startups in order to find the leading ones in the fast-growing blockchain startup ecosystem.

Overview of the blockchain startup ecosystem

To better understand the blockchain technology and its application areas, an analysis of the rapidly increasing startup ecosystem is beneficial. Large companies normally take a longer time to adopt new technologies in their systems. Startups are founded because an individual has a business idea about how to profitably use a particular new technology or generate a new service. Therefore, they often are the creators of innovations as they adopt new technologies faster than large companies (Audretsch, 2002). For the blockchain technology, this indicates that new applications are often developed by startup companies. Large companies can learn from startups and adopt some of their business models or applications but companies need to know whether a business model is really demanded by the market or whether it is just short trending. By searching for the leading startups in the blockchain startup ecosystem, the business models that are more than just a short trend can be identified.

Due to the factor that the blockchain technology, in general, is very young, most of the companies within the blockchain ecosystem are startup companies. As mentioned previously, the main application of the blockchain technology lays within the financial industry but there is a broad variety of other business models applying the blockchain technology imaginable (Zheng, Xie, & Dai, 2017). Finding these startups is a difficult task; however, a venture capitalist company, specializing in blockchain startups, named Outlier Ventures, created an overview of the blockchain startup ecosystem (Outlier Ventures, 2017). This overview of blockchain startups is updated constantly and grouped by products/ services, industries, and countries. Up to now¹, they have tracked more than 1,250 startups worldwide within the blockchain startup ecosystem.

It is no surprise that most blockchain startups can be found in the finance & insurance sector (35.3%); offer financial services (6.1%) or exchange, trading & investment (11.6%) and payment (7.7%) products as well as digital currencies (2.9%) or digital wallets (4.9%). Therefore, the largest partition of blockchain startups are FinTech² startups. Interestingly, almost half of the blockchain startups are in the information & communication sector (44.1%). About 70% of the startups are within the finance & insurance and information & communication sector, other ecosystems such as electricity,

gas, steam & air conditioning supply (1.7%) are comparatively small. With regard to the products, there is a larger variety within the ecosystem. The highest percentage of products are infrastructure products (13.1%). Other product groups with a relatively high percentage are blockchain consulting (5.2%), provenance & notary (4.1%), governance & transparency (3.8%) and identity & reputation (3.7%). Other product groups account for less than 3% of the overall product groups (Outlier Ventures, 2017).

Characteristics of a leading startup

The definitions of leading startups vary depending on the point of view. Various factors influence the success of a young enterprise or enterprises in general. The prospect whether a startup will be successful or not includes highly unpredictable factors. These factors can be fluctuating with economic conditions, resource constraints, changing political conditions, disrupting technologies and competition, and many more (Leidecker & Bruno, 1984). Even for companies being within a relatively stable environment, having a solid customer base, innovative products, and no financial problems, there is always a risk of failure. As these factors affect all enterprises at some point, other factors need to be found to explain why some young enterprises are more successful than others and can be regarded as the leading ones within their ecosystem.

In order to find the leading enterprises within a particular startup ecosystem, factors, that are easily observable, objective, and applicable to a high number of companies, need to be found. Financial measures would be such factors but within the first years after the birth of a new enterprise, the firms are often struggling to become profitable and only a third ultimately reaches the goal of profitability (Reynolds, 2016). This means, that other factors than only financial measures need to determine the success of a company in the early stages. Young firms exist because some people, at least their founders and the startup team, believe in the success of the firms and hope that they will scale in the next years in order to move beyond the startup phase, which is defined by passing through the break-even point, stabilizing sales, and thus confirming that the business is durable (Milanesi & Pesce, 2013).

Before the rise of social media, the highest survival chance had a young firm that first became successful, spread word of mouth within their cluster, being a particular niche or geographical area, and expand to a broader customer base later on (Pe'er & Keil, 2013). Whether they become successful and survive the first year is difficult to predict for persons without insider knowledge of the respective niche or branch of industry; and even for those, with the required insider knowledge, it is still an extremely challenging task (Cooper, 1993).

In today's globally connected world, startups are able to attract a broader customer base through the usage of social media. Additionally, the reach of each startup on social media platforms is relatively easy to quantify. When potential customers are interested in the business model of a new enterprise, they can get the latest updates and news of the startup through their subscription in form of following or liking the social media page of the company of their interest. Whether a startup can be regarded as a leading one within their ecosystem, might, therefore, be predictable by the size of their social media influence which is an indicator of how many people believe in the success of the company. As funding is a critical step at some point of the startup process and venture capitalists are the main fund-raising entities for startups, the criteria for funding decisions used by venture capitalists also indicate a positive prospect for the ventures' future success (Shepherd, Ettenson, & Crouch, 2000).

Evaluation of startup companies

Startup evaluation and the decision whether a startup is a candidate for external financing or not, happen frequently during the selection process of venture capitalists. As there is no operative history of the performance of a young firm, adverse selection³ is likely to happen and therefore, there is always a risk related to an investment in a startup company (Mishra & Zachary, 2014). Hence, the main task of a venture capitalist is to evaluate startups strategically upon their perception of future success in order to minimize the risk of failure and the coherent loss of capital (Shepherd, Ettenson, & Crouch, 2000).

New ventures are often reliant on external financing at a certain point of their companies' expansion (Gompers & Lerner, 1999). Therefore, they are willing to provide potential investors with as much information as possible. The problem here is, that venture capitalists do not select potential ventures to invest in on the basis of the founder's perceptions of the market and company performance. In order to overcome these information asymmetries, investors try to seek as much objective information as they can gather (Eckhardt, Shane, & Delmar, 2006). As already mentioned, due to the nonexistent or short operative history of the young firm, using common corporate finance methods, such as multiples, for company evaluation and valuation is not applicable. For the valuation process, venture capitalists use qualitative criteria, rather than solely quantitative criteria.

Criteria for startup evaluation and social media analysis framework

To find the leading blockchain startups within the blockchain startup ecosystem, a framework was designed and applied to an initial database of blockchain startups. First, the theoretical background is applied to the most important social media platforms for companies, Twitter, Facebook, and LinkedIn (Social Media Examiner, 2017), then a framework is designed, later applying it to the initial database. Following this procedure, Table 1 gives an overview of the relevant criteria from literature and their application to social media.

The framework uses the criteria from Table 1 and organizes them in a way that they can be applied to a high number of startups. Figure 1 gives an overview of the framework.

Table 1

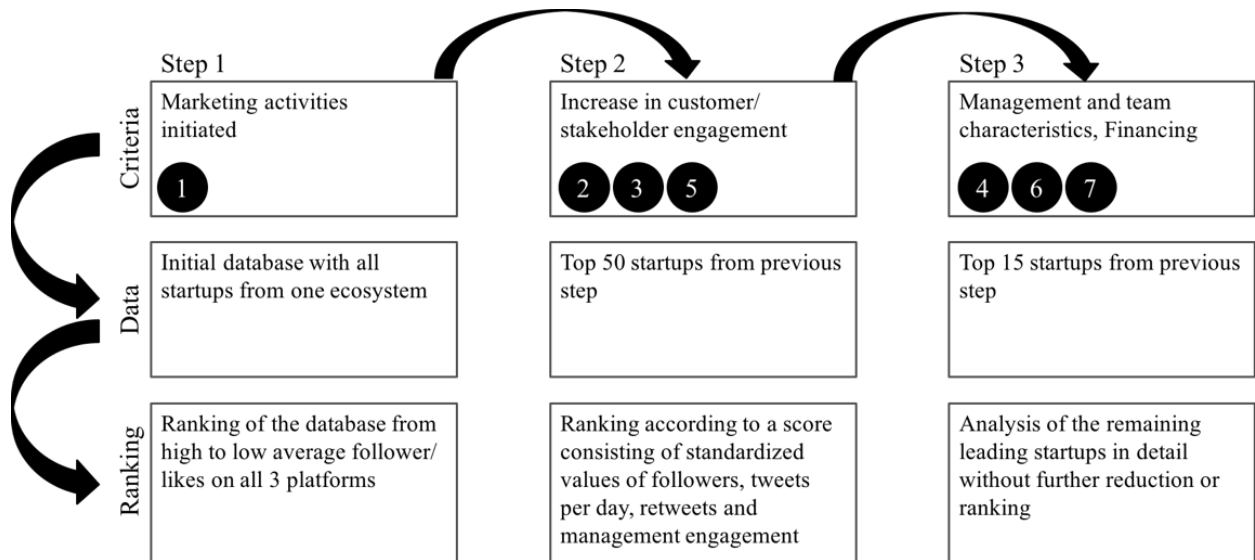
Criteria for startup evaluation and social media analysis framework

Criteria	Literature	Application to social media	Measurement
Marketing activities initiated	Eckhardt, Shane & Delmar (2006), Sterne (2010), Wong, Kuruzovich & Lu (2017)	Startup promotes itself and its products regularly on social media platforms (Twitter, Facebook, and LinkedIn) – likes, shares of posts and followers	1. Average number of followers/ likes on platforms 2. Average tweets per day
Startup management; founder experience and leadership skills	Macmillan, Siegel & Narasimha (1985), Franke, Gruber, Harhoff & Henkel (2008), Gartner, Starr & Bhat (1999), Eckhardt, Shane & Delmar (2006)	Analysis of LinkedIn and Crunchbase profiles of startup management team – previous experience and education	3. Management has an account on LinkedIn – networking activities are initiated 4. Experience of Management can be found on LinkedIn or in Crunchbase
Customer/ stakeholder believe in startup	Shepherd, Ettenson & Crouch (2000), Milanese & Pesce (2013)	Customers/ stakeholder follow startup on social media platform and retweet the startup's posts on Twitter in order to promote them	5. Retweets of posts on Twitter
Startup team characteristics	Macmillan, Siegel & Narasimha (1985), Milanese & Pesce (2013)	Startup team should be as diverse as possible, can be approximated by searching for the team on LinkedIn	6. Diversity of startup team – employees have different backgrounds, e.g. marketing, finance, software development, legal, sales
Funded by external capital provider, e.g. venture capitalists or business angel investors	Shepherd, Ettenson & Crouch (2000), Gompers & Lerner (1999)	Volume of funding and number of investors	7. How well is the startup backed with external capital; thus, increasing volume of funding and how many investors have invested

This figure can be read as follows: beginning with the first step, criteria are applied to the data, resulting in a ranking (or for the last step, a result), which is then taken to the next step where the same procedure starts from the beginning. The numbers in the circles match the criteria from the previous table (see Table 1).

Figure 1

Analysis framework



In the first step, the first criterion is applied to the initial database. All startups are reviewed to find their corporate social media sites. For each startup, it is noted whether it has an account on Twitter, Facebook, and LinkedIn, or not. Also, the number of followers on Twitter, likes on Facebook, and followers on LinkedIn are noted for each startup. Due to the usually high number of startups in the initial database, this is a practical approach in order to find the startups with the highest reputation and potential customer/ stakeholder base within social media.

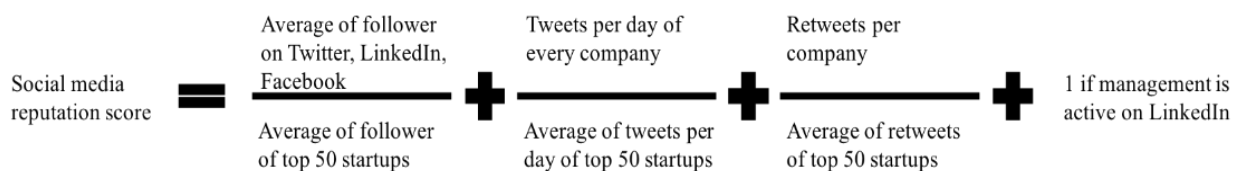
After the first step, the startups are ranked, and the best 50 startups, ordered by the average number of followers/ likes on the three social media platforms, are taken to the next step. In the second step, criteria 2,3 and 5 (see Table 1) are used to further evaluate the startups and to calculate a score (see Figure 2) that consists of standardized values of the average number of followers/ likes on the social media platforms, tweets per day, retweets on Twitter of the past 200 tweets, as well as a dummy variable that is either '1', if the management has an account on LinkedIn and is therefore active on the platform, or '0', if the management has no account. The average number of followers on the social media platforms, the tweets per

day, and retweets are collected for each startup and afterwards, each of the values is divided by the respective mean of the top 50 startups.

The last step is an in-depth analysis of the leading 15 startups within the ecosystem. After the score is calculated within the previous step, the startups are ranked according to this score and the top 15 are taken to the next step. Now, the remaining criteria 4, 6 and 7 (see Table 1) are applied to the database. Since the goal is not to provide a ranking anymore, the criteria can be more qualitative. For each startup, notes are taken about their founder's and management's experience, the skills of the startup team and the team's diversity. In order to gain an understanding of the business model and the products of the leading startups, additional information like offered products, year founded, the country where the startup is located, and a short description of the business model are collected. With this information, implications can also be drawn back to the whole ecosystem of startups e.g. in which countries and sectors the leading startups are active, as well as which products or services are demanded by customers. In this way, the leading startups of an ecosystem can be found and analyzed according to the success criteria of the literature on startup success factors. The framework should be applicable to every startup ecosystem as it is not exclusively designed for the blockchain startup ecosystem.

Figure 2

Social media reputation score formula for startups



Results of the study: List of leading blockchain startups worldwide

With more than 1,200 blockchain startups in the initial list, the blockchain startup ecosystem is, in relation to the novelty of the technology, well established. As venture capitalist's investments in the technology are steadily growing, it can be estimated that the ecosystem is still growing and has not reached its peak yet (KPMG, 2017).

The first list contains information on Twitter, Facebook, and LinkedIn activities of the startups. An interesting finding is, that less than half of the startups are active on all of the three platforms (508 out of 1,216 startups). 62% of the startups (755 out of 1,216 startups) are active on at least two of the platforms and 75% of the startups are active on at least one of the three platforms (909 out of 1,216 startups). Considering all startups and all platforms, the average number of followers/ likes per startup is 2,334. This number also includes the startups without any activity on the platforms. As the highest number of followers/ likes on all platforms is 118,334, there is very widespread.

Ranking of top 50 blockchain startups

The top 50 startups are reduced to top 48 startups because two startups from the news and press sector were eliminated. This is due to the fact that this paper aims to identify the leading blockchain startups and these startups should, therefore, have their main business build on the blockchain technology. Also, the blockchain project of one startup⁴ is no longer in operation and therefore excluded from further analysis. For the remaining 47 startups, the information described in the database sector were collected and analyzed.

Interestingly, with regard to the activity on all platforms, almost all startups are active on the three most important platforms. One startup is only active on Twitter and four startups are active on only one or two platforms. The platform, on which these startups are not active, is in all four cases LinkedIn. The rest is active on all of the three social media platforms. In some cases, the values within one criterion are spread extremely wide.

Especially the criterion ‘Tweets per day’ has an extreme spread of up to 46.16 tweets per day, down to only 0.01 tweets per day, with an average of 3.35. Therefore, the startup with the highest value has a standardized value of 13.76. This extreme high value makes the startup also the one with the highest score overall.

The spread of the criterion ‘Total cumulative retweets’ is not that high but a spread can be recognized here, too. The highest number of cumulative retweets is 30,661, making this startup’s retweets almost 7 times higher than the average amount of 4,385 retweets. The smallest number of retweets is 13 retweets.

With regards to the criterion ‘Management is active on LinkedIn’, almost all startups have an active management on LinkedIn. Only four out of the 48 startups have no active management on LinkedIn. Interestingly, two of the four startups, that are only active on one or two platforms, also have a management that is not active on LinkedIn. Deriving the total score, calculated with all standardized values, the highest score a startup has is 15.69 and the lowest is 0.84 with an average score of 3.92. Table 2 presents the top 50 blockchain startup, ordered by their respective score.

Table 2

Ranking of top 50 startups

Name	Country	Follower	Tweets p.d.	Retweets	Score
Xapo	Hong Kong	80,945	46.16	314	15.69
Trestor	India	355,002	0.43	30,661	11.92
Steemit	USA	36,279	23.2	1,229	8.58
Waves	Russia	43,361	3.08	22,071	7.41
Ripple	USA	115,012	3.32	18,264	7.38
Blockchain	UK	292,870	2.80	6,047	6.34
Ethereum	Switzerland	218,975	1.43	9,904	6.03
Dogecoin	Sweden	218,928	0.27	10,314	5.77
Coinbase	USA	308,522	1.18	4,056	5.58
DigiByte	USA	55,594	2.76	11,291	4.99
Unocoin	India	208,237	4.83	509	4.78
BitTorrent	USA	231,715	1.63	2,879	4.62
Dash	USA	66,107	1.55	10,733	4.62
BitPay	USA	110,265	6.35	1,702	4.46
Coins.ph	Philippines	274,906	0.96	190	4.27
Poloniex	no HQ	95,872	0.83	10,766	3.73
ShapeShift	Switzerland	75,746	5.00	1,182	3.57
Lisk	Germany	43,136	1.90	6,671	3.55
BitStamp	UK	102,206	0.66	4,533	3.32
BTCC	China	40,114	3.65	3,421	3.30
Goldmoney	Canada	54,559	2.36	4,423	3.30
Kraken	USA	68,583	0.38	5,769	3.16
Magnr	UK	39,719	1.66	5,114	3.09
LocalBitcoins	Finland	54,110	3.88	1,401	3.05
HolyTransaction	Luxembourg	36,177	3.69	2,128	2.97
BitFinex	Hong Kong	50,114	0.73	4,777	2.84
Coinsecure	India	34,774	3.35	1,455	2.70
Paxful	USA	112,779	1.23	532	2.69
BitFury	Netherlands	45,430	2.35	2,188	2.69
Golem	Poland	42,220	0.94	4,178	2.68
Bitcoin Indonesia	Indonesia	58,102	3.22	192	2.62
Augur	USA	45,096	1.53	2,867	2.59
Fidor Bank	Germany	37,128	3.75	261	2.57
BitLanders	USA	43,960	3.44	302	2.56
GoCoin	Singapore	94,772	0.62	1,569	2.56
BitFlyer	Japan	41,315	1.83	2,466	2.55
Genesis Mining	Hong Kong	79,132	1.23	997	2.44
Trezor	Czech Rep.	38,240	2.35	1,313	2.41
Brave	USA	42,136	1.96	1,390	2.35
Emercoin	no HQ	82,138	0.09	1,631	2.28
Monero	no HQ	42,648	1.47	5,633	2.18
Cex.io	UK	37,453	2.58	15	2.17
CoinMarektCap	USA	56,535	0.59	1,265	2.07
Foxbit	Brazil	43,122	1.48	359	1.98
Circle	USA	37,646	0.97	551	1.82
Gluwa	South Korea	52,147	0.02	13	1.57
Mercado Bitcoin	Brazil	80,830	1.27	405	1.34
Litecoin	no HQ	64,567	0.09	558	0.84
Average		93,525.5	3.36	4,385.2	3.92

Overview of the top 25 blockchain startups

The top 25 blockchain startups are all highly active on the three social media platforms. Therefore, they can be regarded as the leading blockchain startups within the social media context. In the last step of the framework, they are also analyzed upon their manager's experience, products, funds, and business model.

With regard to the industry, in which the startups are active in, 10 out of 15 startups are operating within the finance & insurance sector. It is not surprising that most of the startups are from this sector as it has the highest share of all sectors for the overall blockchain startup ecosystem. But as only 35.3% of all startups from the initial list are operating within the finance & insurance sector, the two third share of this sector within the leading startups is significantly higher.

More than one-third of the startups are located in the United States. This is not surprising as it is nearly the same percentage of overall startups. More interestingly, within the database of all startups, the second highest percentage of startups is from the United Kingdom, but only one of the top 15 is located in the UK. Four out of the 15 startups are located in Asia with two startups coming from India. None of the leading startups are located in China, Canada, or Germany which are the countries with the highest number of blockchain startups after the UK and the USA. The other European top startups are located in Sweden, Switzerland, and Russia.

The oldest two of the top startups were founded in 2011, being very early for blockchain startups as Bitcoin was released just two years earlier. These two startups are in the sector of finance & insurance and operate with Bitcoin. The youngest three startups within the leading ones were founded in 2016. Gaining such a high reputation in social media, one year after the start of the firm, is extremely fast and therefore remarkable.

With regards to the financing of the startups, most of the leading startups are financed by venture capitalists. Two of the startups are financed through equity crowdfunding⁵ and one is financed by one private investor. The highest financing is 217.21 million US Dollar from 34 investors for one

startup. This number is significantly greater than the funds of any other of the leading startups. For five of the leading startups, no information could be found. This might be because these startups are not financed at all or are financed through the so-called Initial Coin Offering (ICO). This kind of financing increased rapidly in the first half of 2017⁶ and regarding the blockchain sector, it even surpassed traditional financing through venture capitalists. The advantage of an ICO is that every startup can issue a unique cryptographically token by themselves in order to underpin value to the efforts they undertake. Everyone can then participate in trading and exchanging the token of these new digital economies (Burke, Van Ammers, Lundy, Dhaliwal, & Murphy, 2017). As many of the leading startups have already issued their own digital currency, this is another relevant point when it comes to the financing of blockchain startups.

Interpretation of the results and implications on blockchain startup ecosystem

The findings of the social media analysis provide interesting insights into the current blockchain startup ecosystem. Most of the leading blockchain startups are FinTech startups, located within the sector of finance & insurance and many of them offer cryptocurrencies. This might be because the blockchain technology became popular in 2008 with the invention of Bitcoin as the first blockchain technology application (Nakamoto, 2008). The startups in this area are on average older and had, therefore, a longer time to build their social network and a good reputation.

In addition to blockchain startups in the financial sector, startups that provide information and communication services, are well represented on the list of leading startups. They are in general younger than startups in the financial sector. This might be due to the rising usage of the blockchain technology for a variety of enterprise and consumer applications. With Ethereum as one of the leading blockchain startups and provider of a platform as well as a programming language which enables developers to build their own blockchain applications, the infrastructure for many other blockchain startups that build their application on Ethereum was laid. So far, none of the Ethereum based startups are on the list of leading startups but this might change within the next year as the Ethereum network is

growing fast. The transactions on the Ethereum network grew from approximately 40,000 to 240,000 daily transactions from Q2 2016 to Q2 2017 (Etherscan, 2017).

Eight of the leading 15 blockchain startups are financed with external equity by venture capitalists or business angel investors. Two are financed by equity crowdfunding, signalling that many people believe in the success of the startup. Five of the leading blockchain startups are neither financed by venture capitalists nor by crowdfunding. They might finance themselves through an initial coin offering. As more than a third of the startups are backed by external capital, meaning that external parties believe in the success of the startup and therefore invest in it, the social media analysis framework shows viable results.

With regards to the geographic location of the leading startups, it is no surprise that more than a third is located in the United States. Especially for high-tech startups as for example blockchain startups, the area near the Silicon Valley offers a perfect environment. Many investors are located in this area and the density of well-educated employees is extremely high (Fields & Cohen, 1999). For a young firm, becoming successful and growing seems to be easier in this geographic area. Two of the 15 leading startups are from India. This is interesting as India is still an emerging country with a less developed infrastructure. With many young people with a high education in information technologies and programming skills (Confederation of Indian Industry, PeopleStrong, Wheebox, UNDP, AICTE, 2016), India is a country where the blockchain technology brings a huge benefit to the whole economy. A study by ASSOCHAM-EY⁷ (2017) found, that 19% of the Indian population is still unbanked. The two Indian blockchain startups base their business model upon this banking infrastructural problem and seem to find a positive resonance in the population of the developing country.

The founders of many leading blockchain startups are often involved with Bitcoin from the beginning in 2008. The success of the startup companies might, therefore, be due to the management's experience with the technology and understanding of the advantages of blockchain based applications. Some founders might also know other founders of successful blockchain startups for a long time, leading to the possibility of sharing

information and knowledge with each other, as well as integrating each other's applications in their own systems.

Mature corporations, especially banks, can learn from blockchain startups that the technology is highly demanded by customers as an alternative to fiat money. Some financial institutions might fear the blockchain technology as a disruptive innovation which causes a loss of customers. But as the startup ecosystem has not reached its peak yet and new, innovative companies are founded every day, there is still time for financial institutions to react towards the trend and adopt the blockchain technology. Integrating the technologies of startups and cooperating with them might also be a possibility for large banks or financial institutions to stay innovative and realize the technological advantages of the blockchain technology. The decision, whether to invest in the blockchain technology, or not, requires the institutions to watch the new market and the customer demand in this market (Christensen, Anthony, & Roth, 2004).

The same applies to other industries. Companies in industries in which the technology is underrepresented by startups, for example in logistics and retail, might be able to profit from early adopter benefits when they implement the disruptive innovation. A cooperation with startup companies might also be useful for mature firms to profit from the blockchain technology and adopt blockchain applications in their business model.

Implications. The blockchain startup ecosystem is at a point at which Bitcoin based startups still dominate the scene but other business models are emerging. With other cryptocurrencies entering the market, trading platforms become popular, creating some kind of “parallel world” to regular fiat money. The market for cryptocurrencies and their inherent trading and exchange still has not reached the peak. With ICOs becoming extremely popular as a source of external financing for blockchain startups since the beginning of 2017 (Burke, Van Ammers, Lundy, Dhaliwal, & Murphy, 2017), more tokens will be issued in the future, resulting in an increasing demand for cryptocurrency storage, exchange, and trading platforms. The network of new tokens, that are issued during ICOs, cryptocurrency trading platforms, and digital wallets are highly demanded by customers and therefore the main application area of the current blockchain startup ecosystem.

Blockchain startups show some form of interconnectedness, especially in the area of blockchain FinTech startups. The startup Poloniex, for example, builds its business upon the DigiByte blockchain. Litecoin, Dogecoin, Ether and other cryptocurrencies are, in turn, traded on the Poloniex platform. With the increasing popularity of ICOs, which will result in more tokens being issued by startups, this interconnectedness will expand even further. This is true not only for FinTech startups, as startups in any industry sector can finance themselves through an initial coin offering as an alternative to other sources of external financing.

Startups, that solve infrastructural problems or inefficiencies, with a profound business model and a management, that has either experience in other high-tech firms, or in the financial sector, dominate the blockchain startup ecosystem. Especially in developing countries, where people seek for alternatives to the centralized and in most cases inefficient governmental and infrastructural conditions, blockchain startups, that solve these issues through decentralized applications, earn a high market share and good reputation on social media platforms. Trestor, for example, has the highest number of likes or followers over all social media platforms of all analyzed blockchain startups. It can therefore be assumed, that a high number of the Indian population believes in the success of the blockchain based alternative to fiat money.

The blockchain technology is expected to revolutionize more than just the financial industry (Underwood, 2016). Within the list of leading blockchain startups and also within the top 25, most of the blockchain startups are active in either the financial industry or have some kind of trading or exchange platform for cryptocurrencies. This might be due to the fact that other application areas of the blockchain technology are relatively unknown within the wide mass of the population and people do not see the advantages that the technology brings for them or do not understand the business models of the blockchain startups. If more blockchain startups have a good social media representation this might change because customers get educated and learn about the advantages of the blockchain technology, spread word of mouth, and the startups' social media pages earn higher reputation.

In addition to startups from the financial area, enterprise blockchain startups and startups, that offer blockchain-based alternatives to applications, which would normally be centralized, are drawing attention to the customers. Their relatively low ranking in the social media analysis might be due to the fact that blockchain is still relatively unknown within the population and people might not understand the benefits of the technology. With the development of Ethereum and its coherent possibilities for new blockchain applications, more startups might develop blockchain applications that are not related to finance and financial services.

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- ASSOCHAM. (24 07 2017 г.). ASSOCHAM India. Получено 13 09 2017 г., из 19 per cent of Indian population is still unbanked: ASSOCHAM-EY: <http://www.assocham.org/newsdetail.php?id=6397>
- Audretsch, D. (2002). The Dynamic Role of Small Firms: Evidence from the U.S. *Small Business Economics*, 13-40.
- Burke, J., Van Ammers, A., Lundy, L., Dhaliwal, E., & Murphy, G. (01 09 2017 г.). Outlier Ventures. Получено 03 09 2017 г., из Community Token Economies (CTE): https://gallery.mailchimp.com/65ae955d98e06dbd6fc737bf7/files/bac56b9b-7152-40ab-97f6-267cbfe1f9db/Community_Token_Economy_Whitepaper_1.0.1_2017_09_01.01.pdf
- Christensen, C., Anthony, S., & Roth, E. (2004). *Seeing What's Next? : using the theories of innovation to predict industry change*. Boston: Harvard Business School Publishing Corporation.
- Confederation of Indian Industry, PeopleStrong, Wheebox, UNDP, AICTE. (13 11 2016 г.). India Skills Report 2017. Получено из UNDP in India: <http://www.in.undp.org/content/india/en/home/library/poverty/india-skills-report-2017.html>
- Cooper, A. C. (1993). Challenges in Predicting New Firm Performance. *Journal of Business Venturing*, 241-253.
- Eckhardt, J., Shane, S., & Delmar, F. (02 2006 г.). Multistage Selection and the Financing of New Ventures. *Management Science*, 52(2), 220-232.
- Etherscan. (10 09 2017 г.). Etherscan. The Ethereum Block Explorer. Получено 11 09 2017 г., из Ethereum Transaction Chart: <https://etherscan.io/chart/tx>
- Fields, G., & Cohen, S. (1999). Social Capital and Capital Gains in Silicon Valley. *California Management Review*, 108-130.
- Franke, N., Gruber, M., Harhoff, D., & Henkel, J. (2008). Venture Capitalists' Evaluation of Start-Up Teams: Trade-Off, Knock-Out Criteria, and the Impact of VC Experience. *Entrepreneurship Theory and Practice*(32), 459-483.
- Gartner, W., Starr, J., & Bhat, S. (03 1999 г.). Predicting new venture survival. *Journal of Business Venturing*, 14(2), 215-232.
- Gompers, P., & Lerner, J. (1999). *The Venture Capital Cycle*. MIT Press.
- Hanna, R., Rohm, A., & Crittenden, V. (2011). We're all connected: The power of the social media ecosystem. *Business Horizons*.
- KPMG. (2017). Statista. Получено из Volumen der weltweiten Venture Capital-Investitionen in Bitcoin- & Blockchain-Technologien von 2013 bis 2016 (in Millionen US-Dollar): <https://de.statista.com/statistik/daten/studie/667479/umfrage/weltweite-venture-capital-investitionen-in-bitcoin-und-blockchain-technologien/>
- Larson, K., & Watson, R. (2011). *The Value of Social Media: Toward Measuring Social Media Strategies*. Shanghai: Online Communities and Digital Collaborations.
- Leidecker, J., & Bruno, A. (1984). Identifying and using critical success factors. *Long Range Planning*, 23-32.
- Macmillan, I., Siegel, R., & Narasimha, P. (1985). Criteria used by venture capitalists to evaluate new venture proposals. *Journal of Business Venturing*(1), 119-128.
- Milanesi, G., & Pesce, G. (2013). Technology-based Startuo Valuation using Real Options with Edgeworth Expansion. *Journal of Finance and Accounting*, 1(2), 54-61.
- Mishra, C., & Zachary, R. (2014). Venture Financing, Adverse Selection, and Risk and Return. *The Theory of Entrepreneurship*, 143-169.

- Nakamoto, S. (11 2008 г.). Bitcoin.org. Получено 28 08 2017 г., из Bitcoin: A Peer-to-Peer Electronic Cash System: <https://bitcoin.org/bitcoin.pdf>
- Nicolò, D. (2015). Towards a theory on corporate reputation and survival of young firms. *Procedia Economics and Finance*(22), 296 – 303.
- Outlier Ventures. (08 2017 г.). Blockchain Angels. Получено 28 08 2017 г., из The Blockchain Startup Tracker curated by Outlier Ventures: <https://www.blockchainangels.eu/startups/charts/>
- Pe'er, A., & Keil, T. (2013). Are all startups affected similarly by clusters? Agglomeration, competition, firm heterogeneity, and survival. *Journal of Business Venturing*, 354–372.
- PwC. (07 2016 г.). Statista. Получено 28 08 2017 г., из Kennen Sie den Begriff "Blockchain"?: <https://de.statista.com/statistik/daten/studie/654948/umfrage/umfrage-zum-kennntnisstand-zur-blockchain-technologie-in-deutschland/>
- Reynolds, P. (2016). Start-up Actions and Outcomes: What Entrepreneurs Do to Reach Profitability. *Foundations and Trends® in Entrepreneurship*, 443-559.
- Shepherd, D., Ettenson, R., & Crouch, A. (02 2000 г.). New Venture Strategy and Profitability: A Venture Capitalist's Assessment. *Journal of Business Venturing*(15), 449–467.
- Social Media Examiner. (05 2017 г.). Statista. Получено 21 08 2017 г., из Welche Social Media Plattform ist für Ihr Unternehmen am wichtigsten?: <https://de.statista.com/statistik/daten/studie/463928/umfrage/wichtigste-social-media-plattformen-fuer-marketingverantwortliche/>
- Sterne, J. (2010). *Social Media Metrics: How to Measure and Optimize Your Marketing Investment*. Wiley.
- Underwood, S. (11 2016 г.). Blockchain Beyond Bitcoin. *Communications of the ACM*, 59(11), стр. 15-17.
- Wong, F., Kuruzovich, J., & Lu, Y. (2017). Entrepreneurs' Activities on Social Media and Venture Financing. *Proceedings of the 50th Hawaii International Conference on System Sciences*. Hawaii.
- Zheng, Z., Xie, S., & Dai, H.-N. (2017). An Overview of Blockchain Technology: Architecture, Consensus, and Future Trends. *IEEE 6th International Congress on Big Data* (стр. 557-564). Honolulu: IEEE Computer Society.

¹ <https://www.blockchainangels.eu/startups/charts/>, last checked on 10th September 2017.

² Short term for financial technology, relating to any technological innovation in the financial sector.

³ The entrepreneur knows more about his new product and business than the venture capitalist who wants to finance the company and might therefore claim that the product is better than it actually is

⁴ Project Maelstrom⁷ of the company Bit Torrent, which was a blockchain based web browser.

⁵ A broad group of people fund the startup company in return for a small piece of ownership of that business.

⁶ Due to technological maturity and innovations in Ethereum.

⁷ Study conducted by the Associated Chamber of Commerce of India in cooperation with Ernst & Young.