



THE UNIVERSITY
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Blockchain as a Principle?

**A Case Study to Investigate
Berlin's Entrepreneurial Ecosystem
Around Blockchain And Value-Driven Entrepreneurship**

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Abbreviations

EE	Entrepreneurial ecosystem
ESO	Entrepreneurial support organisation
ETH	Three-letter-code for Ether, the cryptocurrency of Ethereum
FinTech	Financial technologies
ICO	Initial coin offering
KfW	Kreditanstalt für Wiederaufbau
SEC	U.S. Securities and Exchange Commission
SME	Small and medium enterprises
US	United States [of America]
VC	Venture capital

1 Introduction

“Even Silicon Valley could not become itself today if it tried.”

Isenberg (2010, p. 3)

Geographical regions all around the world strive towards innovative ecosystems, yet underlying strategies often remain fuzzy. The innovation (eco)systems literature is criticised as conceptually ambiguous (Oh et al., 2016; Ritala and Almpantopoulou, 2017). Entrepreneurial ecosystems (EE) as a recent area of interest (Alvedalen and Boschma, 2017), differ in focusing not on firms but on entrepreneurs, their knowledge, and their network (Stam and Spigel, 2017). According to Spigel (2017), EE are “the union of localized cultural outlooks, social networks, investment capital, universities, and active economic policies that create environments supportive of innovation-based ventures”.

Within the domain of FinTech, this essay aims to investigate Berlin’s EE specifically for blockchain. This focus is necessary, firstly, due to the large size of Berlin’s FinTech EE and, secondly, for Berlin’s wider FinTech EE is heavily influenced by its blockchain EE which is among the largest worldwide. Moreover, since blockchain is a rather new phenomenon, research on its EE is particularly needed.

Blockchain – best known for the cryptocurrency Bitcoin, one of its applications – is an emerging technology (not only) within FinTech. Blockchain is “an open, distributed ledger that can record transactions between two parties efficiently and in a verifiable and permanent way” (Iansiti and Lakhani, 2017). Blockchain can be seen as “the first native digital medium for value” and is thought to reduce cost and complexity of financial transactions significantly (Tapscott and Tapscott, 2016).

Following Aspen’s (2013) guidelines, the geographic unit of analysis is Berlin, Germany and the depth of analysis restrained to a partial asset identification. The primary domains of interest are finance, support, human capital, and culture; if they focus on blockchain technology.

The structure is as follows. Section 2 presents the results along with their theoretical background. Subsequently, these results are discussed and reflected in section 3.

2 Results: Berlin’s Blockchain ESOs at a Glance

This chapter analyses Berlin’s blockchain EE for its entrepreneurial support organisations (ESO) which were identified through desk research. In adaption from Spigel (2016), an ESO is included if it is targeted at blockchain entrepreneurs, serves the Berlin area, and it is an institution itself. A total of 67 ESO for blockchain were identified (Appendix A). For the limited scope of this essay as well as the high growth rate of the Berlin blockchain EE, this list should not be treated as exhaustive.

Harrington’s Ecosystem Inventory Framework

Harrington (2016) explains the emergence of an EE through a mixture of top-down and bottom-up initiatives. Economic development, on a macro-level, illuminates predominantly the role of public policy. On a meso-level, venture development describes the ability of a business to flourish. Micro-level entrepreneurial development is aimed towards individuals.

Figure 1 presents how ESO in Berlin EE's for blockchain fit into Harrington's (2016) framework.

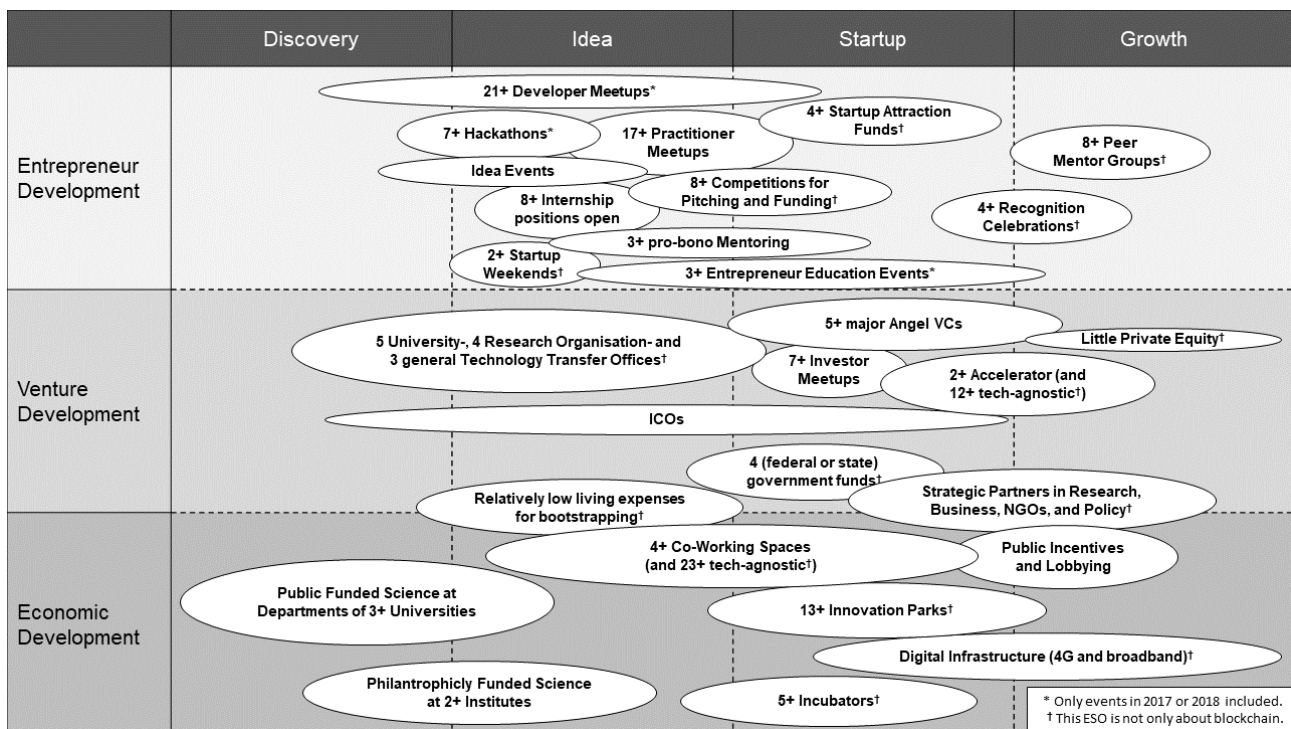


Figure 1: Harrington's (2016) Framework

Motoyama's and Knowlton's Classification Per Type of Primary Support

To study the interactions of organisations more in-depth, Motoyama and Knowlton (2017) apply social network theory to EE. They found that the efficacy of entrepreneurs depends on how ESO interact among themselves and with entrepreneurs. Figure 2 classifies ESOs of Berlin's blockchain EE.

Type	Broad				Functional			
	Mentoring	Finding Talent	Connect	Financial	Refine Business Model	Practice Pitching	Due Dilligence	Space/ Incubation
Organisations								
KfW Bank				X				
Fraunhofer FOKUS	X			X				
Blockchain Meetup Berlin (and other meetups)	X	X	X	X				
Bundesblock	X		X					
Blockchain For Research	X		X					
BlueYard (and other VCs)	X	X		X	X			
BlockchainHub	X		X		X			
Full Node (and other spaces)		X	X					X
TU/HU/FU Berlin	X	X	X	X	X	X		X
Seedcloud Accelerator	X	X	X	X	X	X		X
Berlin Startup Academy	X	X	X	X	X	X	X	X

Figure 2: Motoyama and Knowlton's (2017) Classification

3 Discussion: How Berlin Enables Blockchain Entrepreneurship

This chapter discusses the results with Spigel's (2017) attributes of Entrepreneurial Ecosystems. Based on previous work from Isenberg (2011a, 2011b) and others who propose domains of EE, Spigel (2017) identifies three fundamental attributes – cultural, social, material – to evaluate an EE. EE analyses frequently focus on material attributes; however, these material attributes are built on social attributes which, in turn, are grounded in the cultural attributes of an EE, Spigel (2017) argues. These attributes are not a unilateral hierarchy, nor do they operate in isolation. Instead, their interaction and reciprocal effects should be the focus of an EE analysis (Spigel, 2017; Figure 3).

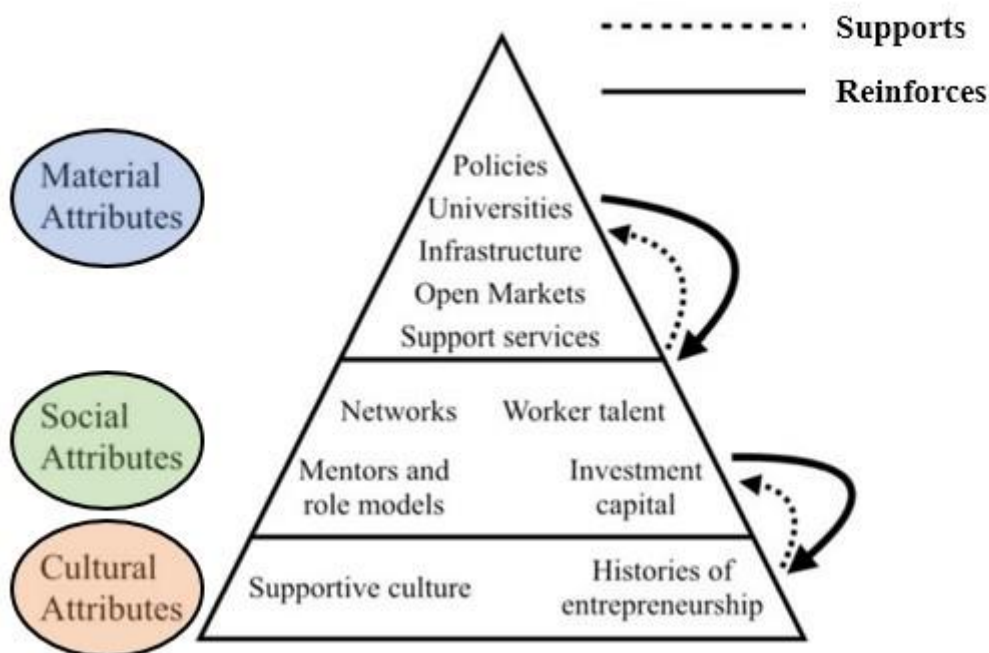


Figure 3: Spigel's (2017) Ecosystem Attributes

3.1 Material Attributes

Germany's **policies** are comparably tolerant towards the blockchain industry. While the regulator calls announced to evaluate ICOs on a case-by-case basis (Milano, 2018), their practice is seen as less rigorous than the SEC's, their US-American counterpart. Moreover, the German state recognises blockchain-based currencies as legal tender (De, 2018) which drives their adoption. The blockchain industry's voice is represented by Bundesblock, and lobby organisation based in Berlin.

In terms of **universities**, Berlin's blockchain EE can utilise the technology transfer office of five major universities (FU, HU, TU, HTW and Beuth; see Appendix B) and four research organisations, most importantly Fraunhofer FOKUS, which all also provide mentoring and partly also funding.

Besides well-enough infrastructure and local support services, Berlin also provides access to major **open markets**. Not only domestically within Germany, but more importantly to the EU single market.

All these material attributes are supported by rich interactions of a social level, which is as follows.

3.2 Social Attributes

Aspiring founders find quite some **funding sources from public bodies**. Some funds cover only living costs, while others fund labour costs or general operating costs (see Appendix B). The ERP-Gründerkredit by KfW, for instance, lends money from 2.07% annually specifically for founders.

A higher yielding funding source is **venture capital (VC)**, even though Berlin's investors are relatively risk-averse (Verhoog, 2016). Five investors (see Appendix B) specifically target blockchain ventures.

These VCs chose Berlin's blockchain EE as it is highly tech-savvy and heavily involved in the development of the underlying protocol layer. Other EE for blockchain, such as London's or New York's, tend to focus more on the higher, more practical layers of the technology stack (George, 2018).

O'Leary of BlueYard VC states that they prefer such kind of ground-layer protocols over higher-layer applications (see Interview quote in Appendix E), which is why Berlin's blockchain EE manages to attract investment comparably well.

While these VCs may act as **mentors**, blockchain entrepreneurs can expect further support from a variety of other ESOs (see Appendix B). BlockchainHub, led by Shermin Voshmgir, is Berlin's driving force in blockchain research and contributes with its insights; similarly does Blockchain For Research.

Moreover, incubators (Berlin Startup Academy) and blockchain accelerators (Seedcloud) not only mentor founders, but also provide space as well as business plan refinements and pitch trainings.

Crucially, all these ESOs build upon Berlin's **worker talent**, partly graduating from Berlin's five major universities with more than 180.000 students enrolled (dpa, 2017). However, despite its strong academic backing, the wider Berlin EE faces a lack of local, well-trained labour. Therefore, startups in Berlin recruit more than 40% of their employees from abroad (Kritikos, 2016). Moreover, Kritikos (2016) found that German bureaucracy, which is slow-moving federal law, bars startup progress.

An important part in connecting entrepreneurs and finding talent play Berlin's groups on meetup.com. With nine meetup groups of more than 1.000 members, Berlin's blockchain EE is rich in interaction. These groups reach from developer meetups and practitioner groups to investment circles. Moreover, blockchain-specific co-working spaces such as Full Node support the ecosystem with physical space.

However, today's social interactions in the blockchain EE have been shaped by Berlin's history.

3.3 Cultural Attributes

Today, Berlin's blockchain EE is home to a range of businesses (see Appendix C) and people (see Appendix D). The EE learned from major failures – most prominently the Ethereum-based application The DAO. In a spectacular turn of events in June 2016, The DAO was hacked and lost 3.6m ETH (about 2.2bn GBP, as of today), leading to a major crisis within the community (Siegel, 2016). Some of The DAO's developers as well as developers of the Ethereum protocol resided in Berlin. Moreover, the wallet service Parity, Berlin-based and build upon the Ethereum protocol as well, fell victim to a bug which accidentally destroyed about 110m GBP worth of innocent user's ETH (Pearson, 2017).

However, the community registered tremendous success stories too. IOTA, the world's 10th biggest cryptocurrency by market cap as of today (Upadhyay, 2018), is based in Berlin; and so is Gnosis which had one of the fastest ICOs in history by raising 12m USD in just 10 minutes (Suberg, 2017). Moreover, Berlin-based developers contribute to Ethereum, BigChainDB, Polkadot, Lisk and others.

As pointed out by Spigel (2017), the reciprocal effects not only of material but also of social and cultural attributes play an important role in building an EE and its prevalent culture. Roundy (2016)

elaborates on such reciprocal effects as 'narratives' among entrepreneurs, for instance historical accounts, past success stories, or a shared, future vision. Beyond the successes just mentioned, Berlin's blockchain community – coined by anarchist and libertarian values – builds upon their shared vision of a self-governing technology outside the control of firms and the state. These characteristics were crucial in Berlin's adoption of Bitcoin and subsequent developments as a EE for blockchain.

Over time, the Berlin area gathered more thought-leaders, developers, and venture capital and organically evolved into a "cryptocurrency capital" (Voss and Bulkeley, 2018). The process behind Berlin's rise is not yet fully understood, as the literature on how EE come into existence over time remains limited (Alvedalen and Boschma, 2017; Spigel, 2017).

Mason and Brown (2014) find three types of EE in which entrepreneurial ventures thrive where they benefit from established corporates, entrepreneurial recycling, and/or information-rich environments. According to O'Leary (2014), VC at BlueYard, a third wave of entrepreneurship recently emerged within Berlin's wider EE which has "a large share of serial entrepreneurs" and blockchain technology – already in 2014 – as a major theme. At the same time, economies of urbanisation are thought to have played a crucial role in connecting early Bitcoin enthusiasts and skilled blockchain developers.

4 Conclusion

Berlin is one of Europe's major EE, ranked Berlin second by value of startup investments only behind London (EY, 2017). A particular and growing role play blockchain technology. This essay argues that Berlin's blockchain EE evolved naturally from the Berliners' values, as these align well with the blockchain ethos of decentralised structures that are not controlled by governments (Akhtar, 2018; Voss and Bulkeley, 2018).

The Guardian documented as early as 2013 that Bitcoin was widely accepted among local Berlin tradespeople as a means of payment (Connolly and Grandjean, 2013) – only five years after Bitcoin's theoretical inception (Nakamoto, 2008) and years before today's hype and get-rich-schemes.

In the light of growing criticism on social media addiction and quitting Facebook employees who question their firm's will to do good for the world (Martinez and Antonio Garcia, 2017; Titcomb, 2017), such value-driven enthusiasm among tech entrepreneurs could well have positive spillover-effects on Berlin's wider EE, and could turn out to be a major success story for Berlin and its lack of talent.

4.1 Limitations

It is important to note that this essay is exclusively based on desk research. Moreover, this essay is based on a one-time count-based metric, even though EE research should ideally be longitudinal (Malecki, 2018). Thus, results should be treated with caution and undergo further empirical validation.

4.2 Outlook

Interestingly, blockchain itself could fundamentally transform EEs for blockchain – and beyond.

Traditionally, EE highly value geographical boundaries which include human capital, networks, and institutions (Alvedalen and Boschma, 2017; Spigel, 2017). Despite the rise of digital technologies, geographical closeness the digital companies are still created locally (Sussan and Acs, 2017). And yet, the geographical level of analysis of EE is unclear (Stam and Spigel, 2017).

With blockchain technology itself, the geographical aspect could even become irrelevant. Recent projects such as Aragon, Colony, District0x, DAOstack, or BoardRoom build the infrastructure for so-called decentralised autonomous organisations (DAO) that enable decentralised collaboration in digital jurisdictions, forming a new kind of organisation (Epstein, 2017; Lisicka, 2017; Neuman, 2017).

While many of Spigel's (2017) attributes seem feasible for a digital DAO ecosystem – DAOs for legal frameworks and human capital in combination with crowdsourcing for support services, MOOCs for knowledge, and ICOs for funding – many details remain unclear.

It remains for future research to evaluate the potential of DAOs to further digitise EEs.

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