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ACCELERATORS AS A TOOL TO SUPPORT STARTUP VENTURES: ASSESSING THEIR PERFORMANCE AND SUCCESS FACTORS. LITERATURE REVIEW

ABSTRACT

Accelerators are rapidly proliferating around the world. Often confused with incubators but are rather the private sector versions of them, accelerators are regarded as the key contributor to the success rate of innovative business startups and entrepreneurship ecosystem. The current paper aims to provide an overview of currently available literatures on accelerators. It covers discussions on accelerators such as their definitions and functions, value propositions and business models in comparison with other startup assistance initiatives such as incubators. The latter part concentrates on research on accelerator performance and discovers that intervention of accelerators is relatively positive. Researchers agree that performance measurement must take into account of different foci and objectives of different types of accelerators. Although little empirical study has been done on accelerators due to newness of the phenomenon the paper finds that knowledge gap in accelerator phenomenon is narrowing given results of intense efforts held recently by research institutions.

Keywords: accelerators, incubators, startups, innovation ecosystem

JEL codes: O31, O32

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Introduction

Accelerator is a rapidly growing phenomenon across the globe. There is a claimed global presence of around 400 accelerators as of 2015 (Rose, Grof, 2016). There were around 57 accelerators in European countries in 2014 (Clarysse, Yusubova, 2014). Although it is hard to tell the exact numbers of accelerators as opinions diverge they seem to be gaining support everywhere. According to the Global Accelerator Report 2015 more than $191 million was invested into 8,800 startups around the globe in 2015 (Rose, Grof, 2016). The U.S. Small Business Administration via its Growth Accelerator Fund Program awarded $4.4 million to 80 accelerators in 2015 alone (Ortmans, 2016). In 2015 the Aspen Network of Development Entrepreneurs and Emory University invested $2.3 million to the Global Accelerator Learning Initiative (GALI) in partnership with a consortium of public and private funders earmarked for rigorous research on performance of accelerators (Aspen Network of Development Entrepreneurs). The question is what are the accelerator programs like and why are they getting so popular? Are they effective?

The current paper aims to provide an overview of literatures currently available on accelerators. It covers conceptual issues such as definitions and functions of accelerators, their value propositions and business models as compared to other startup assistance initiatives such as incubators. The latter part concentrates on research on accelerator performance and puts emphasis on further research needs.

1. Accelerator Concept and Definition

The term "incubator" and "accelerator" often gets mixed up. Although the concepts vary there is a confusion about their differences. Accelerators may be viewed as a new form of business incubation yet rather, the private sector versions of them, if to be related.

According to the National Business Incubation Association (NBIA) there are approximately 7000 incubators worldwide (NBIA). Countries and regions have embraced incubators for several decades as a local economic development. They helps startup companies with an array of needed resources and services. Despite this popularity, incubators are criticized, for example, for its never ending exit (Bruneel, Ratinho, Clarysse, Groen, 2012) and too much dependence on public funding. Even their efficacy is questioned. A recent study at the Kauffman Foundation that analyzed

more than 35 academic articles about business incubators found that the difference in performance specifically of survival rate between incubated and un-incubated businesses was marginal (Fetsch, 2015).

Simply put, accelerators are a new way of innovative business support initiative. As the name suggests, they help entrepreneurs develop viable businesses quicker in the modern economic context. The first business accelerator "Y combinatory" was pioneered by Paul Graham in 2005 in the USA with the idea to transform new ventures ecosystems. Since then, a great number of business accelerators has been established. For some, accelerators have become "the new business school", "a proven way to quickly grow a startup by learning from experts, finding great mentorship and connecting to a powerful network. They provide resources that reduce the cost of starting a company and the early capital a team needs to get their venture off the ground or to achieve key early milestones" (Global Accelerator Network, 2016).

Yet accelerators are not exempt of problems. The Seed Accelerator Rankings Project (SARP) expresses concerns over the emergence of too many groups titling themselves 'accelerator'. Research on accelerators has not kept pace with ever increasing accelerator phenomenon to their performance and inform policy makers how to improve accelerator models, develop solid public policy and support innovative businesses.

Initial studies on accelerators were mostly conceptual and focused on defining accelerators and clarifying their roles among other similar initiatives and programs (Caley, Kula, 2013; Miller, Bound, 2011; Isabelle, 2013; Kim, Wagman, 2012). It was essential to have a robust definition of accelerators for further empirical studies to compare accelerators' performance and outcomes.

Fishback, Gulbrasnon, Litan, Mithell, Porzig (2007) defined accelerators as **"**organizations offering a suite of professional services, mentoring and office space in a competitive program format". Miller, Bound (2011) featured several characteristics of an accelerator as follows: 1) an open but competitive application process; 2) provisions of pre-seed investment, typically in exchange for equity; 3) a focus on small teams (generally including up to 4 members) rather than individual mentoring; 4) time-limited support that includes programmed events and intensive mentoring; 5) cohorts of startups rather than individual companies.

Based on these operational characteristics Cohen, Hochberg (2014) provided a more widely shared definition of an accelerator as "*a fixed-term,* cohort-based program, including *mentorship and educational components*, that culminates in a public pitch event or *a demo day.* Having a systematically defined start up as-

sistance organizations Dempwolf, Auer, D'Ippolito (2014) modified this definition as "business entities that make seed stage investments in promising companies in exchange for equity as part of" a fixed-term, cohort-based program, including mentorship and educational components, that culminates in a public pitch event, or demo day. It must be noted that this definition was given to innovation accelerators based on their structural characteristics. Obviously, there are different types of accelerators differing in objectives and characteristics.

Some accelerators specialize in specific industries while others act in different platforms. The corporate accelerators operate either internally, outsourced or partnered (Tomkins-Bergh, 2015).

Clarysse, Wright, Van Hove (2015) proposed a framework that categorized accelerators as ecosystem builders, investors and matchmakers depending on strategic focus and organizational designs of accelerators. Dempwolf et al. (2014) developed a taxonomy of startup assistance organizations and categorized them as: 1) incubators and venture development organizations; 2) proof-of concept centers and; 3) accelerators. They subdivided the accelerators into social accelerators, university accelerators, corporate accelerators and innovation accelerators based on the founder's motivation and business model.

To make the distinctions of accelerators among other similar initiatives Dempwolf et al. (2014) described value propositions and business models of accelerators as presented in Table 1 below.

Table 1. Value Proposition of Accelerators

Customer market	They focus on a stage of new product development (transition from invention to a commercial product) and serve 3 distinct markets: – New and potential startup businesses – Venture capitalists and other investors – Existing firms
Activities	They offer bundles of services to their customer markets – Brokerage services (e.g. demo days) – Mentoring and technical assistance services (e.g. HR management) – A combination of cash and in-kind contributions (e.g. office space)
Rewards	To startups – Acquisition of specialized knowledge – Additional seed capital – Ongoing proof of concept – Benefit in networking and search for capital To VC investors and existing firms – Reduction of real and opportunity costs associated with the search for new investment opportunities and due diligence necessary to validate investment prospects

Value experience	Social capital created among the parties through accelerators' brokerage function
Alternatives and Differentiation	**Differentiation** Specialization in technology industry Unique combination of brokerage, mentoring and funding activities **Alternatives** "null option" as business incubators and other institutional alternatives lack coordination and have specific limitations

Source: Dempwolf et al. (2014).

Distinctively, accelerators serve three ambitious markets: startup businesses with high growth potential, venture capitalists and investors seeking diversification of their portfolios of high-potential companies, and existing firms aiming for market expansion. While meeting the essential needs of customers through a range of dynamic activities accelerators create unique social capital among the parties. Accordingly, it is pointed out that no alternative options exist for accelerators as "they constitute a unique combination of brokerage, mentoring and funding activities". They emphasize that other institutional alternatives, business incubators for instance, lack coordination and have specific limitations in comparison with accelerators creating niche market for accelerators.

The Business models of accelerators are distinctive in several features. First of all, most of the accelerator programs are short and limited, run for about 3–6 months, which saves time and resource for all involved parties. They predominantly operate in technology-specific industries with revenue assumptions built around rapid growth and large scale markets. Accelerators provide seed funds for participant startups and take equity percentages (5–8%) to make a profit. They work with a cohort of several startups at a time for synergy and resource maximizing.

As summary of the discussion on similarities and differences between incubators and accelerators Torun (2016) made the following analytic work based on publications available in this area. See Table 2.

Table 2. Differences between Incubators and Accelerators

	Characteristic	Incubators	Accelerators
1	2	3	4
Structure	Legal Status Manager Profile	Mostly non-for-profit Mostly professionals and academicians	Mostly for-profit Mostly entrepreneurs or angel investors
	Cohort Structure	No	Yes
	Aim	Economic growth and job creation	Return on investment

1	2	3	4
	Goal	Maturation of companies	Fast test validation of businesses/ innovation
	Program Duration Ventures	3–4 years Mostly tenants	3–4 months Portfolio companies
Selection	Selection	Varies	Competitive
	Scale of Region	Local community	Regional, national, global
	Technology Focus	Mixed	Mostly ICT-web
	Team Focus	Individuals and teams	Only teams
	Scale of Target	Companies and ideas	Only companies
Services	Office Facilities Mentoring Technical Assistance	Yes Yes Yes	Varies Yes Yes
	Education Graduation Support	Yes Mostly yes	Varies Varies
Finance	Seed Funding	No	Yes
	Equity Stake	No	Yes
	Rental Fees	Yes	Mostly not
	Public Funds	Yes	Mostly not
	Intellectual Property Conditions	Varies by organization's IP policies	Varies by equity agreement
Networking	Networking with Investors Networking with Customers	Varies No	Yes Yes
	Demo Day Cohort & Alumni Networking	No Varies	Yes Yes

Source: Torun (2016).

2. Criticism of Accelerators

Accelerators, like incubators, are subject to criticism. Sparks (2013) claims that success of accelerators are "perceived" not proven being cautious about viability of accelerators. There are also specific challenges related to research on accelerators. According to the SARP both accelerators and startups are reluctant to provide information on performance because they could be used against them by competitors. Konczal (2012) adds a number of statistics problems such as missing or inaccurate data, limited population and sample sizes of startups.

3. Research on Performance/Success of Accelerators

Measuring success of an accelerator is a challenge as opinions diverge on what success is like for an accelerator. Researchers agree that for measuring performance of accelerators one must take accelerator subtypes and objectives into consideration (Clarysse et al., 2015; Dempwolf et al., 2014). For instance, indicators like job creation and equitable access to services may not be the prime indicators for a private funded innovation accelerators.

Hallen, Bingham, Cohen (2014), Hannigan, Winston-Smith (2013) and Cohen, Hochberg (2014) provided early stage empirical studies. They assessed impact of accelerators on startup companies using key performance indicators such as raise of venture capital and exit of accelerated companies to non-accelerated ventures. The results led to the proposition that the top programs successfully achieve their goals. In agreement, Radojevich-Kelley, Hoffman (2012) having explored 5 of the top accelerators in the USA concluded that accelerator companies have higher success rates for their graduates. The Global Accelerator Learning Initiative (GALI) recently conducted similar study and discovered that accelerated ventures raised almost eight times the investment money than non-accelerated companies (Ortmans, 2016). Clarysse et al. (2015) explored internal systems of 13 accelerators in European region and developed a framework that could provide a basis for evaluation of accelerator performance.

Based on two recent reports available on measuring performance of accelerators (Baird, Bowles, Suaraph, 2013; Caley, Kula, 2013). Dempwolf et al. (2014) proposed the following metrics for measuring performance of accelerators.

Table 3. Performance Measurement Metrics

Time Horizon 5584	Accelerator Metrics	Startup Metrics
Short- term (program duration plus 6 months)	Number of applications Number of participants (cohort size) Number of investors at demo day Percentage receiving next-stage funding Percentage acquired Percentage failed	Operational status (operating, closed, acquired) Number and size of financial investments, number of investors Number of customers gained
Long term (expected cash-out in 3–7 years)	Sources of funding (series or portfolio) Performance distribution (cohort or portfolio) IRR (cohort or portfolio) Network metrics (partnerships etc)	Sales of revenue Number of employees Rate of return to investors Stock prices (if applicable)

Source: Dempwolf et al. (2014).

They also reviewed and compiled a list of currently available types of data sources on accelerators and stressed out that most of them were not necessarily designed for the purposes of public policy or academic research.

The Seed Accelerator Ranking Project (SARP) is one of the exceptions. In the past few years they have measured and ranked relative success of accelerator programs. In 2016 they ranked 150 accelerators using criteria such as to meet the definition of accelerator "a fixed term, cohort-based program with a mentorship and education component that culminates in a public pitch event, or demo day"; to have graduated at least one cohort and have at least 10 alumni, and to be based in the U.S. The leading indicators of entrepreneurial success were: Valuation (mean and median valuation of all portfolio startups); Qualified Exit (issue of an IPO, acquisition for an amount greater than $5M); Qualified Fundraising (raise of an aggregate of at least $200k); Survival (survival at 12, 24 and 36 months out from program end); Founder satisfaction (survey, recommendation of all graduates, NPS). Table 4 presents tiering of top programs based on overall index scores.

Table 4. Tiering: based on clustering of overall index scores

Tiering	TIER PROGRAMS (alphabetical within tier)
Platinum	500 Startups, Alchemist, Amplify LA, Angelpad, Chicago New Venture Challenge, MuckerLab, StartX, Techstars, Y Combinator
Gold	Brandery, Capital Innovators, Dreamit, Generator, Healthbox, MassChallenge, Surge
Silver	Alphalab, Betaspring, HealthWildcatters, Iron Yard, Lighthouse Labs, Plug and Play, Zero to 510

Source: SARP (2016).

Similarly, there are a few platforms like the Global Accelerator Network (GAN) that holds together the most respected accelerators around the world. The question is what makes these accelerators successful? Yet little study has been performed to provide an answer.

Clarysse, Yusubova (2014) conducted the earliest study on assessing operations of accelerators in European context in the cities of Paris, London and Berlin. They identified three main success factors of accelerators (namely, participant selection process and criteria, business support services, and networks) and emphasized the need for institutional legitimacy for success.

Although there is still need for more empirical research on accelerators, much progress has been observed. Torun (2016) having reviewed 35 papers on accelerator phenomena concluded that "the maturity level of literature on accelerators has started to be appeared" and he is not alone being optimistic about the narrowing knowledge gap on accelerators (Ortmans, 2016).

4. Further research needs

Having conducted research on accelerators researchers have helped identify further research needs. Clarysse, Yusubova (2014) for example, emphasized the need for expanding the study on success factors in other geographical regions. They also recommended that research should focus on one sector or technology to shed more light on specialized accelerators. Similarly, Dempwolf et al. (2014) advises to explore the acceleration process across national priority industries like advanced manufacturing. Researchers emphasize the need to compare research findings with different environments. The recent GALI research revealed that other factors in a different ecosystem influence local accelerator performance and this requires further studies (Ortsman, 2016). Other recommended areas of research include potential benefits of accelerators to the mentors, and angels, and the "how" of networking process.

Finally, there is still need for more empirical research on accelerators progress but the results of recent research efforts may not be ignored. Torun (2016) having reviewed 35 papers on accelerator phenomenon concluded that "the maturity level of literature on accelerators has started to be appeared" and he is not alone to be positive about the narrowing knowledge gap on accelerators (Ortmans, 2016).

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AKCELERATORY JAKO NARZĘDZIE WSPIERANIA PRZEDSIĘWZIĘĆ: OCENA ICH DZIAŁANIA I CZYNNIKI SUKCESU. PRZEGLĄD LITERATURY

Streszczenie

W artykule przedstawiono coraz to szybciej zmieniającą się i rosnącą rolę tzw. akceleratorów. Na wstępie zaprezentowano definicje tego pojęcia oraz koncepcje funkcjonowania akceleratorów, ich plusy i minusy. Niewątpliwym wnioskiem wypływającym z rozważań autorki jest konieczność dalszych badań nad tym zjawiskiem.

Słowa kluczowe: akceleratory, inkubatory, start-upy, otoczenie innowacyjne