

## STUDY ON HOW STARTUP ASSISTANCE ORGANIZATIONS EVALUATE NEW VENTURE SUPPORT PROGRAM PERFORMANCE

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### Abstract

Startup assistance organizations have become more and more important to the survival and development of new ventures in the dynamic and extremely competitive business environment of today. Within this paper, the authors analyze the up-to-date theoretical literature and empirical studies from the past six years which deal with the way startup assistance organizations measure the performance of their new venture support programs. The main goal is to get an in-depth understanding of the metrics these organizations use to measure performance and set the premises for further research concerning the impact of knowledge and competency based networks on the performance of new ventures.

**Keywords:** Startup assistance organization, Performance, Metrics, New Ventures

**JEL Classification:** M13 (O3, L2)

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### Introduction

The dynamic and extremely competitive business environment of today challenges the survival and development of new ventures, especially in high-growth industries. This reality has consequently driven the extensive development, during the last decade, of startup assistance organizations (SAO), which act as networks based on knowledge and competency for the ventures they support. In order to better understand to what extent such organizations affect the performance of startups it is important to investigate what type of metrics SAOs use to evaluate the success of their members. This is a debated subject in the academic environment, as well as in the business world, as such organizations start to gain traction and influence in shaping the venture and investment environment.

The objective of this paper is to identify best practices of how SAOs measure performance of the startups they support. These metrics are important as to understand how SAOs understand and evaluate performance.

The article presents, at first, the key concepts used and delimits them within the conducted research. The main part of the article consists in an up-to-date analytical review of

benchmark theoretical literature and empirical studies from the past 6 years dealing with SAOs. Finally, the authors present a synthesis of the most important metrics taken into consideration in evaluating startup performance within SAOs.

### **Startup Assistance Organizations – what are they and why should their performance be measured?**

For the scope of this paper we define startup assistance organizations as all types of organizations and programs which support entrepreneurs to bring their products or services to the market (Dempwolf, Auer, & D'Ippolito, 2014) and we take into consideration business incubators and business accelerators. The criteria used to select these SAOs is: duration; access to a network; synergy potential within the program; level of competition among participants / participant teams within the program.

Considering the main objective of these organizations, historically researchers identified three generations with different main goals (Barrehag, et al., 2012). The objectives evolve along with the economic and social focus of the business environment, from industrialization towards digitalization. As these goals evolve, so did their organization form. (Ceașu, Marquard, Irmer, & Gotesman, 2017). The first SAO was founded in 1959 in New York by Joseph Mancuso, as a framework to assist and support new ventures to grow and develop (Barrehag, et al., 2012).

The concept of business accelerator derives from the business incubator. The first was founded in 2005 by Paul Graham in Cambridge, Massachusetts (YCombinator).



**Figure no. 1: Evolution of SAO goals**

*Source: Authors' own contribution based on Barrehag et al. (2012)*

Today's focus on innovation and identification of synergies creates a very demanding and competitive environment for developing start-ups. In this context, SAOs play an important role, especially business accelerators. The main differences between business incubators and business accelerators refer to the selection process, the duration of the support program, type of support offered and investment, as it can be seen in Table 1.

A significant difference among the two types of SAO is the cost and investment structure, considering that business incubators do not usually have funds to invest in the ventures, whereas the business accelerators invest up to \$25000 and, also, take equity in the supported ventures. Besides the investment volumes and high exposure these SAOs receive nowadays, the way they are connected to the business and investment world and the whole accelerating program raises debates, both in the research, as well as in the business community.

**Table no. 1: Business incubators vs. business accelerators**

SAO Type	Business Incubators	Regulation
Participants	<ul style="list-style-type: none"> <li>• All types, including science-based businesses (such as biotech, nanotechnology, clean energy, etc.)</li> <li>• All ages and genders, including those with previous experience in an industry or sector</li> </ul>	<ul style="list-style-type: none"> <li>• Technology-based ventures (web-based, apps, cloud-based, software, etc.)</li> <li>• Ventures which do not require significant immediate investment or proof of concept</li> <li>• Mostly young people, technology enthusiasts, gamers and hackers</li> <li>• Focus on small teams, not on individuals</li> </ul>
Selection process	<ul style="list-style-type: none"> <li>• Competitive selection, often from the local community</li> </ul>	<ul style="list-style-type: none"> <li>• Highly competitive open selection, from wide regions, national or even global level</li> <li>• New ventures are assisted in batches or "classes"</li> </ul>
Duration	<ul style="list-style-type: none"> <li>• 1 to 5 years (average of 33 months)</li> </ul>	<ul style="list-style-type: none"> <li>• Generally, 3 to 6 months</li> </ul>
Type of support offered	<ul style="list-style-type: none"> <li>• Access to management and specialized intellectual property consulting</li> <li>• Access to networks of experienced entrepreneurs</li> <li>• Support entrepreneurs gain skills</li> <li>• Facilitate external financing</li> </ul>	<ul style="list-style-type: none"> <li>• “Fast-test” validation of ideas</li> <li>• Opportunities to create a functioning prototype and identify initial customers</li> <li>• Connecting entrepreneurs to business consulting and experienced entrepreneurs</li> <li>• Programmed events, intensive mentoring and business skill workshops</li> <li>• Hosting for the web or mobile apps</li> <li>• Assistance in preparing investor pitches or negotiations</li> </ul>
Investment	<ul style="list-style-type: none"> <li>• Usually does not have own funds to invest directly</li> <li>• More frequently than not, does not take equity</li> </ul>	<ul style="list-style-type: none"> <li>• Invests \$18000 to \$25000 in teams of co-founders</li> <li>• Takes equity in every investee (usually 4 to 8 percent)</li> </ul>

*Source: Authors’ own contribution based on Atkins, 2011 (National Business Incubation Association) & Miller & Bound (2011)*

Given the investment volumes and the high exposure of SAOs nowadays, there is much debate in the academic research community, as well as in the business environment, regarding the impact of these organizations on the new ventures’ performance. In order to

evaluate this performance, the first step is to better understand which metrics SAOs use in order to assess their own performance.

### **Methodology**

To achieve this, the authors of this article conducted a literature review of benchmark theoretical literature and empirical studies from the past six years. The research has taken into consideration articles published in international journals indexed in international databases and studies conducted by renowned international institutions. The article selection has been conducted by taking into consideration the following criteria:

- Keywords: startup assistance organizations (SAOs), business accelerators, business incubators, performance, metrics;
- Publishing date: after 2011 (inclusive).

The reviewed literature has been broken down in two groups function of the type of metrics used to evaluate performance: during the program or post-graduation. This differentiation has been made for two reasons. First, to group the identified metrics and be able to compare them. Secondly, to facilitate the reader to better understand the presented data.

### **Literature review synthesis on metrics used during the program**

It can be noticed that the metrics group used by SAOs during their programs are mostly quantitative and focus more on the structure and design of the support program itself. These metrics can themselves be organized in three categories: cohort relevant metrics; business relevant metrics, and pre-graduation investment relevant metrics.

The *cohort relevant metrics* refer especially at number of applicants, admission rate, actual number of participants, participants' retention rate, number of graduating ventures, level of program occupation (Tseng, 2011; Dempwolf et al., 2014; Theodorakopoulos et al., 2014; White, et al., 2014; DEEPCenter, 2015; Bliemel, et al., 2016). These are relevant to the SAO performance as they offer the basis for the evaluation for all further metrics.

The *business relevant metrics* identified by researchers refer to business relevance and sustainability, number of gained customers within the program, sales and employment growth during the program, level of skill and competencies development, number of interactions within and outside of the SAO ecosystem, rate of failing ventures within the program (Tseng, 2011; Tavoletti, 2013; Dempwolf et al., 2014; Theodorakopoulos et al., 2014; Valliere et al., 2014; Bliemel, et al., 2016). Auditing and analyzing the type of business relevant metrics that a SAO uses can be a first step to evaluate its impact on the ventures it supports.

The pre-graduation investment metrics refer to aspects such as number of investors at demo day, amount of funding received by ventures, number of failed or successful investments, level of investment received per venture during the program (Dempwolf, et al., 2014; Theodorakopoulos, et al., 2014). This set of metrics is relevant to assess the SAO performance, as it measures their ability to connect assisted ventures to relevant funding and to support them in achieving investments during the program.

**Table no. 2: Performance assessment metrics during the SAO program**

<b>Authors</b>	<b>Performance assessment metrics - During the program</b>
Tseng, 2011	Failure rate of small businesses Relevance Sustainability
Guidelines - Metrics & Milestones, 2013	Medium-term impact: No. applicants & No. admitted ventures No. graduating ventures Class size
Tavoletti, 2013	Potential for early international growth Ability to create options
Dempwolf et al., 2014	Short-term: No. applicants & No. participants No. investors at demo day % of ventures receiving next-stage funding % of ventures acquired % of failed ventures No. investments & Size of investment / venture No. gained customers
Theodorakopoulos et al., 2014	Occupancy No. graduating ventures Survival rate Level of funding received / venture Sales growth / venture Employment growth / venture
Velliers et al., 2014	Knowledge transfer Development of skills and competencies Changes in beliefs, attitudes and intentions Stakeholder satisfaction for participants and others
White et al., 2014	No. participant retention No. participant graduates No. jobs created No. of new products launched
DEEPCenter, 2015	No. applicants Admission rate No. supported startups
Bliemel et al., 2016	No. interactions within & beyond ecosystem

Source: Authors' own contribution

**Research synthesis on metrics used after the end of the program**

The metrics used to evaluate the performance of SAO programs after the venture cohort graduates the program can also be categorized in three types:

- Venture survival relevant metrics;
- Post-graduation investment relevant metrics, and
- Impact relevant metrics.

The metrics used to evaluate the aftermath of the program are mostly, also, quantitative, but start to have a qualitative dimension, especially the ones referring to impact.

The metrics relevant to *venture survival* take into consideration indicators such as venture profitability, revenue, positive cash-flow or sales after program graduation, number of jobs created, internal rate of return, number of employees, survival rate three to six months after graduation (Barrehag et al., 2012; Guidelines - Metrics & Milestones for Successful Incubator Development - A White Paper, 2013; Dempwolf, Auer, & D’Ippolito, 2014; DEEPCenter, 2015; Knott & Haguewood, 2016; Rostarova & Rentkova, 2016). These metrics show to what extent the graduating ventures are sustainable in an uncontrolled business environment. This is relevant for evaluating the ability of the SAO to efficiently transfer knowledge and competencies to the assisted ventures.

The next type of identified metrics are the *post-graduation investment relevant metrics*. These refer mainly to the ability of the ventures to successfully obtain a profitable exit or gain follow-on investments (Chang, 2013; Wise & Valliere, 2014; DEEPCenter, 2015; Bliemel et al., 2016).

**Table no. 3: Performance assessment metrics after the SAO program**

Authors	Performance assessment metrics – After the end of the program
Barrehag et al., 2012	Product-centric KPIs, in order to clarify company profitability (German Silicon Valley Accelerator) Absorption of early investment (Springboard) No. company failures after program graduation (Startupbootcamp) No. companies who received an early investment (seed investment, angel investment, etc.) (Startupbootcamp) Accuracy of forecasted results (betaFACTORY)
Chang, 2013	No. graduate ventures to raise additional capital No. graduate ventures to exit successfully No. graduate ventures still operating after 3 to 5 years No. additional funding rounds after graduation / venture
Guidelines - Metrics & Milestones, 2013	Long-term impact: Revenue No. jobs created Social impact Shareholder return No. successful exits
Dempwolf et al., 2014	Long-term Sources of funding /no. funding sources Performance distribution Internal rate of return Network metrics (partnerships, etc.) Sales or revenue / venture No. employees Rate of return to investors Stock prices (if applicable)

Wise & Valliere, 2014	% of successful exits, post-graduation % of unsuccessful exits, post-graduation
DEEPCenter, 2015	Total follow-on investments Average amount of funding per venture Investment over venture life span Job creation Survival rate No. companies still active No. companies acquired
Global Best Practices Report on Incubation and Acceleration, 2015	% of ventures acquiring funding 6 months from graduating % of survival rate, post-graduation
Bliemel et al., 2016	Follow-on funding Exits (& multiples) Reputation Global (niche) impact Ecosystem development Growing and sustainable startups (startups' revenues, positive cash-flow and jobs)
Knott & Haguewood, 2016	Survival rate % of deal flow for venture firms % of investment failure rate % of investment success Investment period Prospect acceptance Overall returns
Rostarova & Rentkova, 2016	Investment value / year Return on investment / year Payback time Internal rate of return

Source: Authors' own contribution

This set of metrics also takes into consideration the investment absorption rate of the graduating ventures (Barrehag, et al., 2012), shareholder return (Guidelines – Metrics & Milestones, 2013), investment failure rate and investment success rate (Knott & Haguewood, 2016). The post-graduation investment relevant metrics show, on the one hand, the extent to which the assisted ventures gained exposure to achieve independently subsequent funding. On the other hand, they can be used to measure the SAO performance with respect to building a relevant and synergistic investment ecosystem for its alumni ventures.

The last indicators set refers to impact relevant metrics and evaluate aspects such as social impact, reputation of both graduated ventures and that of the accelerator, development of the ecosystem around the SAO, network synergies (Guidelines – Metrics & Milestones, 2013; Dempwolf et al., 2014; Bliemel et al., 2016). As it can be noticed, they evaluate qualitative aspects of the SAO. Even though this metrics set might be more difficult to assess, it has potentially a high impact on the perception of the SAO and its performance.

### Conclusions

The topic of SAOs impact on new venture performance remains a debated subject within both the academic and the business community as more and more such organizations are founded and there is, up to this point, to the knowledge of the authors, no unanimously accepted benchmark or best practices guide in this area. This up-to-date literature review concerning the way SAOs evaluate their programs' performance brings the research in this new field a step closer to better understanding how and if the assistance and support process of these organizations has a real, measurable impact on new ventures.

The main findings of this paper refer to the classification of sets of metrics used and reported by SAOs in evaluating the performance of their programs. The metrics identified during the literature review were grouped into metrics used during and after the SAO program. Both metrics categories take into consideration investment relevant indicators. Within the metrics category used during the SAO program there are also sets of indicators evaluating cohort and business relevant aspects, whereas within the metrics category used after the end of the SAO program are considered indicators evaluating venture survival and impact relevant aspects.

The main contribution of this paper is the setting of an up-to-date measuring basis of new venture performance within SAOs. Further empirical research is needed to analyze and evaluate the extent to which these metrics provide a relevant image of the SAOs' program performance, and therefore of the performance of the new ventures.

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