

DEPARTMENT OF MANAGEMENT

Measuring the Performance of Business Incubators

Johanna Vanderstraeten, Paul Matthyssens & Arjen van Witteloostuijn

UNIVERSITY OF ANTWERP **Faculty of Applied Economics**



Stadscampus
Prinsstraat 13, B.226
BE-2000 Antwerpen
Tel. +32 (0)3 265 40 32
Fax +32 (0)3 265 47 99
<http://www.ua.ac.be/tew>

FACULTY OF APPLIED ECONOMICS

DEPARTMENT OF MANAGEMENT

Measuring the Performance of Business Incubators

Johanna Vanderstraeten, Paul Matthyssens & Arjen van Witteloostuijn

RESEARCH PAPER 2012-012
JUNE 2012

University of Antwerp, City Campus, Prinsstraat 13, B-2000 Antwerp, Belgium
Research Administration – room B.226
phone: (32) 3 265 40 32
fax: (32) 3 265 47 99
e-mail: joeri.nys@ua.ac.be

The papers can be also found at our website:
www.ua.ac.be/tew (research > working papers) &
www.repec.org/ (Research papers in economics - REPEC)

D/2012/1169/012

Measuring the Performance of Business Incubators

Authors

Johanna Vanderstraeten^a, Paul Matthyssens^{a,b}, Arjen van Witteloostuijn^{a,c,d}

^a University of Antwerp, Antwerp, Belgium – ^b Antwerp Management School, Antwerp, Belgium –

^c Utrecht University, Utrecht, the Netherlands – ^d Tilburg University, Tilburg, the Netherlands

Correspondence address

Johanna Vanderstraeten, University of Antwerp, Prinsstraat 13, Z-403, 2000 Antwerp, Belgium

T: 0032 3 265 50 80 – E: johanna.vanderstraeten@ua.ac.be

Short bibliography

Johanna Vanderstraeten is a Ph.D. candidate at the Department of Management (Faculty of Applied Economics, University of Antwerp, Belgium). Her research focuses on strategy, institutional theory, performance and strategic choices in the business incubator context. She published in *International Marketing Review* and presented papers at international conferences such as International Council for Small Business and European Council for Small Business and Entrepreneurship.

Paul Matthyssens is Professor of Strategic Management at the Department of Management (Faculty of Applied Economics, University of Antwerp, Belgium) and the Antwerp Management School (AMS, Belgium). His research focuses on market strategy and strategic innovation in international and business-to-business markets. His work has been published in journals such as *Long Range Planning*, *Industrial Marketing Management*, *Psychology & Marketing*, *Journal of Business & Industrial Marketing*, *Journal of International Marketing*, *International Marketing Review*, *Journal of International Management*, *Advances in Business Marketing & Purchasing*, *Technovation* and *Journal of Purchasing & Supply Management*.

Arjen van Witteloostuijn is Research Professor of Economics and Management at the University of Antwerp in Belgium, Professor of Institutional Economics at the Utrecht University in the Netherlands, and Professor of Organization and Strategy at Tilburg University in the Netherlands. His research interests range from international macroeconomics and personality psychology to industrial economics and law evolution. He has published widely in such international journals as the *Academy of Management Journal*, *Academy of Management Review*, *Accounting, Organizations & Society*, *American Journal of Political Science*, *American Sociological Review*, *Economica*, *Industrial Relations*, *Journal of Economic Behavior and Organization*, *Journal of Economic Psychology*, *Journal of International Business Studies*, *Journal of Management Studies*, *Journal of Public Administration Research and Theory*, *Management Science*, *International Journal of Industrial Organization*, *Organization Science*, *Organization Studies*, *Party Politics*, *Personality and Individual Differences* and *Strategic Management Journal*.

Acknowledgments

This study was conducted with financial support from the Province of Antwerp, Belgium.

Measuring the Performance of Business Incubators

This paper focuses on incubator performance measurement. First, we report the findings of an extensive literature review. Both existing individual measures and more comprehensive measurement systems are discussed. This literature review shows that most incubator researchers and practitioners only use one or a few indicators for performance evaluation, and that existing measurement systems do not recognize the importance of short, medium and long-term results, do not always include an incubator's strategic objectives and are neither easily comprehensible nor accessible. Moreover, there is no link between performance measurement and its influence on incubator employees. To tackle the weaknesses found in existing literature, we suggest to employ Kaplan and Norton's strategy map and balanced scorecard. Based on the results of a qualitative empirical study, we translate these tools to the context of not-for-profit economic development incubators and test their practical usefulness. We call the tools the SMEDI (Strategy Map for Economic Development Incubators) and BSEDI (Balanced Scorecard for Economic Development Incubators). In a concluding section, we discuss the paper's main contributions and limitations, and reflect on a few possible future research avenues.

Key words: business incubator, performance measurement system, performance measure, balanced scorecard, strategy map

Introduction

In the mainstream business and management literature (Giannakis 2007; Hult et al. 2008; Neely et al. 2000) and in various sub-disciplines, scholars seek to develop adequate performance measures and measurement systems. Incubator researchers argue that rigorous evaluation systems are also indispensable in their field (Yu and Nijkamp 2009). Incubators are traditionally linked with economic development (Ratinho and Henriques 2010) and intend to support new firms during their uncertain start-up phases (Aernoudt 2004). For this, they offer office space, shared support services such as administrative and logistic services, business support and networking opportunities (Bergek and Norrman 2008). By stimulating the development of start-up firms, economic development agencies expect to enhance job creation, employment growth (Fonseca, Lopez-Garcia, and Pissarides 2001), and the development of innovative products and services (European Commission 2000; Schwartz and Hornych 2010).

The demand for rigorous and workable evaluation frameworks for business incubators increased significantly over the years (McMullan, Chrisman, and Vesper, 2001). Unfortunately, incubator performance evaluation has been plagued by methodological, theoretical and empirical limitations (Yu and Nijkamp 2009), which makes it extremely difficult to draw meaningful conclusions from current research on incubator performance. Moreover, incubator performance measurement seems to occur in a wide variety of ways. To the best of our knowledge, even a clearly structured overview of what is available in the academic literature in the area of incubator performance measurement is lacking. Consensus as to incubator performance measurement has not yet been reached (Phan, Siegel, and Wright 2005).

To address this gap, this paper first reports the results of an extensive literature review on incubator performance measurement. In so doing, we follow Neely's (2005) suggestion to examine performance measurement at both the individual and the system level. The first involves individual performance measures, whereas the latter refers to a set of measures and their relationship with the environment within which an organization operates. The literature review uncovers current flaws in the incubator performance literature. For example, some performance systems fail to include strategic objectives, do not recognize the difference between short, medium and long-term results, and/or are not easily comprehensible. These flaws underpin the quest for an easily accessible, comprehensible and balanced performance evaluation scheme that translates an incubator's mission, vision and strategy into clear goals and measures.

We argue that Kaplan and Norton's (1992) balanced scorecard provides a framework to host such an incubator performance measurement system because it is a "balanced presentation of both financial and operational measures" (p. 71) that is easily comprehensible and accessible. Moreover, their complementary strategy map tool (Kaplan and Norton 2000) offers a "visual framework [...] that

embeds the different items on an organization's balanced scorecard into a cause-and-effect chain, connecting desired outcomes with the drivers of those results" (pp. 169-170). In this way, a strategy map visualizes how an organization's strategic objectives drive organizational performance.

To illustrate that the strategy map and balanced scorecard can address shortcomings in the incubator performance evaluation literature, we translate both tools to the incubator context. We focus on one strategic incubator type: the not-for-profit economic development incubator. This incubator type aims to stimulate regional development through business creation and development (Aernoudt, 2004). Statistics show that, throughout the world, the majority of the incubators are not-for-profit organizations focusing on economic development. In North America, for example, 94 per cent of the incubators has this focus (NBIA 2009).

We aim to make a twofold contribution to the performance measurement literature in general and the incubator performance literature in particular. Our first contribution is to provide a structured overview of existing performance measures and measurement systems in the incubator domain. As stressed by Yu and Nijkamp (2009) and Phan, Siegel, and Wright (2005), incubator performance measurement is still in its infancy and a literature review is lacking. By providing such an overview, we are able to uncover current shortcomings in a structured and well-documented way. Second, although the strategy map and balanced scorecard are some "of the most widely recognized performance measurement frameworks" (Neely et al., 2000, p. 1122), mainly large companies employ them (Kaplan and Norton 2001). However, Gumbus and Lussier (2006) and Spivey, Munson, and King (2007) argue that these tools are equally valuable in the entrepreneurship domain, dominated by small(er) ventures. A search in twenty top-ranked peer-reviewed journals¹, identified

¹ Academy of Management Review (AMR), Academy of Management Journal (AMJ), Journal of Business Venturing (JBV), Strategic Management Journal (SMJ), Administrative Science Quarterly (ASQ), Organization Science (OSC), Management Science (MS), Entrepreneurship: Theory and Practice (ETP), American Journal of Sociology (AJS), Small Business Economics (SBE), Journal of Management (JM), Harvard Business Review (HBR), Research Policy (RP), California Management Review (CMR), Sloan Management Review (SMR), Journal of

by Fried (2003) as adequate publication outlets for entrepreneurship research, resulted in no papers with “balanced scorecard” or “strategy map” combined with “business incubator”, “incubator”, “business centre” or “technology centre” in the title, abstract or text. Thus, until now, these tools seem not to have been translated to the incubator domain, nor has their usefulness been checked. This paper addresses this gap.

The paper is structured as follows. First, we present the results of our literature review. Then, we provide the methodology of our empirical research. This empirical research serves as the basis for the translation and check for usefulness of the proposed strategy map and balanced scorecard in the incubator context. At the end of the paper, we discuss its main contributions and limitations, and reflect on future research avenues.

Literature review

For the literature review, we selected articles using the search terms: “incubator performance”, “incubator impact”, “incubator assessment”, “incubator effectiveness” or “incubator efficiency” in combination with “measure”, “system”, “model” or “framework”. We only selected articles published in a clearly defined set of publication outlets: that is, peer-reviewed academic journals. Of course, the disadvantage of this approach is that we exclude a potentially very large pool of government and practitioner-related studies. However, this follows logically from our aim to contribute to the development of rigorous, academically rooted, incubator performance measures and measurement systems.

To avoid comparing research results across organizations that are too different, we adopted the incubator definition proposed by Bergek and Norrman (2008). First, we only considered papers about incubators that offer support to small and/or new companies. Second, because the kind of support

offered can vary widely, we clearly delineate which support services the incubator should offer: that is, only studies about incubators that simultaneously offer office space and business support were selected. Business support often occurs through external experts. In this way, external networking is stimulated. Moreover, most incubators that offer office space also organize shared support services such as cleaning services or an Internet connection. Because tenants are physically located close to each other, internal networking is stimulated as well (Bergek and Norrman 2008).

Specifically for incubator performance measurement *systems*, we added two additional paper selection requirements. First, papers should develop an “original” measurement system. We did not consider papers using frameworks developed in earlier research. In that case, we evaluated the original model. Second, Tangen (2004) explains that in a measurement framework “several separate performance measures which correspond to diverse perspectives [...] are considered independently” (p. 729). Thus, while evaluating performance measurement *systems*, we did not consider papers with only one perspective, such as Abduh et al. (2007), who solely focus on tenant satisfaction.

We adopted the following selection path. First, we checked three academic search engines: Web of Science (part of the ISI Web of Knowledge database), EbscoHost (Business Source Premier) and Elsevier ScienceDirect.² Moreover, we searched for articles based on existing incubator literature reviews (such as Aernoudt 2004; Bhabra-Remedios and Cornelius 2003; Hackett and Dilts 2004) and our own incubator article database. Finally, we read the papers from these selections and identified additional articles on the basis of their literature lists.

As explained by, for example, Johnston, Brignall, and Fitzgerald (2002), Neely et al. (2000) and Neely 2005), performance research shifted its attention from traditional cost-accounting principles

² In Web of Science, the following citation databases were consulted: social science citation index and conference proceedings citation index: social science and humanities. In Elsevier ScienceDirect, both journals and books were considered. In each of the three academic search engines, all available years were searched.

toward more “balanced” sets of measures that deal with more than financial indicators alone. Criticism on the sole use of financial performance measures led to the development of different approaches to measure organizational effectiveness. According to Daft (2009), these can be subdivided into the goal, stakeholder, system resource and internal process approaches. Each approach takes into account a different aspect of organizational effectiveness. Table 1 provides an overview of the underlying ideas of these approaches. We also summarize the main conclusions for existing incubator literature on individual performance measures in this table.

TABLE 1 ABOUT HERE

Neely (2005) and Simons (2000) stress that it is insufficient to only look at individual performance measures. According to Tangen (2004), researchers and practitioners should develop a performance measurement *framework* instead of only using individual measures. An “ideal” measurement system takes into account the following output prerequisites (Tangen, 2004): the framework supports strategic objectives, has an appropriate balance, guards against sub-optimization, has a limited number of performance measures, is easily accessible, and has performance measures with comprehensible specifications. Table 2 summarizes the definition of each of these prerequisites.

TABLE 2 ABOUT HERE

We only found four incubator performance measurement *systems* published in academic peer-reviewed journals. Important to note is that the ultimate goal of the selected papers is not always to contribute to incubator performance assessment. Löfsten and Lindelöf (2001), for example, provide an incubation process framework and O’Neal (2005) maps success elements. Two studies (Mian 1997; O’Neal 2005) do not only provide a conceptual framework, but also apply this in the context of one or several case studies. Two evaluation models focus on university-based technology incubators,

one on technology incubators without any specific link to the university, and one on business incubators in general. Although economic development incubators account for the main share of incubators (NBIA 2009), none of the frameworks focus on this incubator type. In what follows, we evaluate the four measurement systems using Tangen's (2004) output prerequisites.

The first prerequisite advocates that the performance measurement system should *support the incubator's strategic objectives*. Our analysis reveals that O'Neal (2005) does not provide an explicit link to strategy. Even though he argues that an incubator's goal is to reduce "infant mortality among new ventures" (p. 11) and indicates three result areas (that is, companies, products and people), it is unclear which objective(s) the incubator aims at in these areas. The other papers emphasize the importance of strategic objectives, and refer explicitly to management goals (Löfsten and Lindelöf 2001), meeting targets (Voisey et al. 2006) and the fact that the business incubator should act upon the university's expectations when establishing its goals, objectives or strategy (Mian 1997).

Tangen's (2004) second prerequisite is that the frameworks should have an *appropriate balance*. This means that the measurement framework must involve various areas of expected results, stakeholders and organizational levels. Tangen (2004) also stresses that frameworks should recognize the difference between short, medium and long-term results. Incubator researchers such as Schwartz and Göthner (2009a; 2009b) recognize the importance of an appropriate balance, and explain that "the employment of sole indicators is insufficient to capture the performance of business incubators" (2009b, p. 9).

When examining the frameworks found in existing literature, we observed that the importance of an appropriate balance is recognized by looking at various areas of expected results, stakeholders and organizational levels. For example, Löfsten and Lindelöf (2001) suggest to include the tenant, incubator and community level. Mian (1997) also relates to these three levels, and adds the

university to this. Voisey et al. (2006) examine the incubator and tenant level, and O'Neal (2005) refers to tenants, people and products. The areas of expected results that the measurement frameworks suggest are very diverse. For example, Löfsten and Lindelöf (2001) recognize the importance of tenant and incubator growth and profitability, and community-related impacts. O'Neal (2005) looks at job creation, economic impact, employee characteristics, financial measures and intellectual capital of the incubator's tenants. However, none of the studies provide a possible timeframe to stress the differences between short, medium and long-term results.

The third prerequisite is lowering the risk of *sub-optimization*. Although this can be done by taking into account the impact of performance systems on employees, none of the assessment frameworks explicitly explains which activities incubator employees should undertake or how they should act. From a balanced measurement perspective, not taking into account incubator employee behavior comes as a surprise because it are the incubator employees who provide the services to tenants and it are the incubator employees who are in daily contact with the tenants.

Furthermore, Tangen (2004) advocates using *a limited number of performance measures*. Our analysis reveals that three out of the four performance frameworks reviewed here suggest a substantial list of performance measures. These are comparable in length. Mian (1997), Voisey et al. (2006) and O'Neal (2005) suggest 23, 19 and 17 measures, respectively, with some of these measures having subdivisions. For example, Mian (1997) subdivides tenant and graduate employment into number and type of employment. The fourth measurement framework (Löfsten and Lindelöf 2001) favors the use of a limited number of general performance areas (that is, tenant survival and growth, program growth and sustainability, and community-related impacts). However, this framework does not specify which measures could be used to evaluate these performance areas.

An analysis of the fifth prerequisite – the *assessment frameworks' accessibility* – shows that some of the performance measures suggested are difficult to obtain. Mian (1997), for example, refers to measuring the incubator's impact on the university environment. However, due to the large number of interested parties in the university's ecosystem (such as students, professors and technology transfer centers), this will involve a very time-intensive and complex data-collection process. None of the papers provide information as to how to present the information obtained. Moreover, great differences exist in framework complexity. While the frameworks of O'Neal (2005) and Voisey et al. (2006) are straightforward and easy to understand, the other frameworks are more complex.

With regard to the sixth prerequisite, the development of *comprehensible specifications* of performance measures, our analysis indicates that none of the frameworks emphasizes the importance of the pre-identification of progress and performance "markers", interpretation and follow-up of the results. Specific targets and timeframes lack in all the studies, and none of the frameworks provide information concerning with which frequency data should be collected.

In conclusion, this literature review reveals a number of fundamental gaps in the existing incubator evaluation literature. To address these, we will argue that the balanced scorecard (Kaplan and Norton 1992) and strategy map (Kaplan and Norton 2000) can be used. Particularly the fact that these instruments emphasize the translation of long-term strategic goals into short-term objectives, measures and targets adds to the efficient and effective functioning of an organization (Kaplan and Norton 1992; 1993; 2008). These tools do not only underscore the organization's financial results, but also the importance of customers, internal business processes, and innovation and learning. Setting clear goals, educating employees and communicating the goals to those who are implementing them are all key for strategy execution. Business units and departments are often involved in the development of a strategy map and balanced scorecard. In this way, possible problems for the practical execution of these measurement tools have already been tackled in the

development process. This results in measures and targets that are easily obtainable and understandable. Ideally, an organization draws up a yearly evaluation report to examine its performance. The strategy map and balanced scorecard are built up in such a way that potential problem areas can easily be targeted. Table 3 summarizes the main shortcomings in the incubator literature, and shows how each of these can be targeted by Kaplan and Norton's (1992, 2000) strategy map and balanced scorecard.

TABLE 3 ABOUT HERE

Methodology

Developing a strategy map and balanced scorecard requires having insights into the organization's strategic objectives, goals, customers, financial perspectives, internal processes and context (Gumbus and Lussier 2006; Kaplan and Norton 1992, 2000). Given this broad perspective, a qualitative research design is appropriate (Yin 1990), reducing the distance between theoretical constructs and practice (Siggelkow 2007). Thus, the empirical research shows that the strategy map and balanced scorecard are not only theoretical constructs that might be able to fill the gaps in the existing incubator performance literature, but that these tools can indeed be translated to a real incubator setting.

To illustrate this, we developed a pair of tailor-made tools referred to as BSEDI (= Balanced Scorecard for Economic Development Incubators) and SMEDI (= Strategy Map for Economic Development Incubators). For this, we followed Kaplan and Norton's (1992) suggestion to employ a mixed-method, executing successive interviews and workshops with senior managers. We worked in a number of different waves. First, we constructed an intermediary SMEDI and BSEDI based on (a) nine in-depth interviews with incubator managers and (b) three focus groups with incubator managers and external experts. Subsequently, we presented these intermediary tools during a

discussion and presentation meeting. Finally, we evaluated and finalized the tools during nine additional in-depth interviews with incubator managers. Figure 1 gives an overview of this mixed-method design, as well as the discussion topics central in each of the research stages.

FIGURE 1 ABOUT HERE

In total, four researchers worked on the data-gathering process. That way, we followed Mathison's (1988) suggestion to work in a team of researchers to address researcher bias (Bøllingtoft 2007), improve research validity (Mathison 1988), and assure research dependability and confirmability (Lincoln and Guba 1985). The first two researchers conducted the interviews, the third researcher took the lead in the focus groups, and the third and fourth researcher had a consulting role. So, the first two researchers were able to conduct the actual fieldwork. Thanks to a more bird's eye view, the third and fourth researcher were able to provide guidance when necessary. During the data-gathering and analysis process, various intermediate meetings between the researchers were scheduled. We checked the credibility of our interpretations through member checks, a research method introduced by Lincoln and Hupta (1985) and Hirschman (1986). For this, we sent out a summary of in-depth interviews to the participants and asked for their approval, organized focus groups, presented our results during a formal presentation and discussion afternoon, and conducted a second interview round. In so doing, we could present, discuss and double check intermediary interpretations at various moments during the empirical study.

Two researchers conducted the first nine semi-structured incubator manager interviews. The tasks were divided as follows: the first interviewer conducted the actual interview and focused on the interview itself (through, e.g., making eye-contact and nodding). This interviewer made superficial interview notes, which were mainly useful for interview-structuring purposes. The second interviewer focused on writing down interview notes, and checking whether all questions were

asked. This second researcher only posed questions when the first interviewer accidentally skipped one of the questions. The interview protocol focused on the incubator's strategy, its functioning, and its internal and external influences. All interviews were tape-recorded and written out. We sent a summary of the written-out document to the interviewees, asking for their approval. Interviewees had the possibility to make comments. When questions remained unclear, interviewees were contacted (by telephone or e-mail) for additional information.

In total, nine incubator managers and five external experts participated in the focus groups. As can be seen in Figure 1, the first focus group took place in June 2009, before we conducted the individual in-depth interviews. During this focus group, four incubator managers, one external expert and two researchers were present. The discussion involved the incubator landscape and internal/external influences on an incubator's strategy. The second focus group took place after we executed six out of nine in-depth interviews with incubator managers. Five external experts, one incubator manager and three researchers participated in this focus group. Intermediary analyses were discussed and the incubators' external context was further elaborated. After we had completed the first nine in-depth interviews with incubator managers, a third focus group was organized to reach final consensus between incubator managers and external experts. Eight incubator managers and three external experts were present. Again, intermediary results were presented and discussed. During this focus group, we elaborated upon both the incubators' internal and external contexts.

After we had executed the first nine in-depth interviews, we presented a working (that is, intermediary) version of the SMEDI and BSEDI tools during a presentation and discussion meeting. The nine incubator managers and five external experts who also participated in the focus groups and ten other incubator experts were present. After this more general presentation setting, we discussed the intermediary SMEDI and BSEDI during a second wave of semi-structured in-depth interviews with the nine incubator managers who also participated in the first interview round. Here, the focus was

on the practical applicability and usefulness of the intermediary SMEDI and BSEDI. In line with the literature review, Tangen's (2004) output prerequisites were used to check the practical applicability, usefulness and accessibility of the intermediary SMEDI and BSEDI. Thus, interviewees explained whether they agreed with the long-term strategic objectives, whether the intermediary SMEDI and BSEDI had an appropriate balance, whether the viewpoint of incubator employees was sufficiently taken into account, whether the number of measures was adequate, and whether the measurement tools were accessible and comprehensible. Based on the results of this second interview round, a final SMEDI and BSEDI were developed. To assure consistency, one of the principal researchers who conducted and followed up on all earlier interviews and focus groups, also conducted the interviews of the second interview round.

Results

As explained in the methodology section, the first data-gathering wave focused on the construction of an intermediary SMEDI and BSEDI. During the second interview round, these intermediary tools were discussed with incubator managers. In what follows, we first present the results related to the strategy map. Then, the results related to the balanced scorecard are discussed.

Strategy Map for Economic Development Incubators (SMEDI)

The second interview round revealed that some components of the intermediary SMEDI needed to be restructured, were incomplete or were missing. For example, because small incubators often have difficulties in attaining financial sustainability, interviewees suggest to execute a commercial side-activity such as a call center or renting out business sites to larger companies outside the incubator. Such a commercial side-activity can generate additional profit flows that can be used to invest in the incubator. In this way, this activity can help the incubator to attain financial sustainability.

An example of a component that turned out to be incomplete is the Total Quality Management system of the internal business processes perspective of the efficiency pillar. The second interview round revealed that such a system is not the only way to work efficiently. Other systems might work as well. For example, some of the incubator managers suggest employing an ISO system instead. Therefore, we broadened this component to “a process that assures a lean and efficient organization”. Moreover, the second interview round made clear that such a system can equally well be used to assure high quality – a component necessary to create value. Thus, this component was also brought into the internal business processes perspective of the value creation pillar.

Appendix 1 provides an overview of how the intermediary SMEDI was perceived by the incubator managers. The table summarizes whether they agreed with the proposed aspect or whether they suggested amendments such as restructuring or completing the aspects. In so doing, Appendix 1 provides the basis for the final SMEDI, which we will discuss below.

The empirical analysis relating to the SMEDI tool reveals that, notwithstanding their not-for-profit focus, *financial sustainability* is key for these incubators. Interviewees indicate that major thrusts to obtain financial sustainability are rent from tenants, offering paid services, pursuing cost advantages and receiving income from subsidies and/or sponsorship. Moreover, smaller incubators only receiving income from rent and paid services often have difficulties to attain financial sustainability. To resolve this, interviewees suggest developing a commercial side activity that assures profit flows to the incubator. As explained above, examples are a call center or renting out business sites to larger companies outside the incubator. Because such a commercial activity has little to do with the incubator’s main activities, we visualize this suggestion separately from the four vertical building blocks in the final SMEDI. Moreover, for the very same reason, we do not further unravel this aspect into medium-term objectives.

To attain the four financial pillars indicated above, an incubator needs to pursue *long-term strategic goals*. First, working on full capacity is necessary to assure sufficient income from rent. Thanks to a structurally stable tenant portfolio with an optimal mix of young starters and companies in later development stages, incubators can minimize the risk of losing too many tenants at once. Incubators predominantly having companies in the same incubation stage face the risk that these companies will reach their final incubation stage around the same time. Second, income from paid services is only possible when the incubator is able to create sufficient value for its tenants. Third, in times of scarcity, subsidy and sponsorship organizations feel constraints on their budgets. Therefore, incubators feel the pressure to reduce costs. Moreover, subsidy and sponsorship organizations apply more and more a commercial logic whereby they expect something in return for their funding. More specifically, they expect that the incubator facilitates and stimulates entrepreneurship and successful business development in the local or regional area.

The long-term strategic objectives need to be aligned to the incubator's internal organization and to its external environment. As explained, Kaplan and Norton (1992; 2000) suggest taking into account internal business processes, innovation and learning, and the customer perspective. For each long-term strategic objective, the SMEDI visualizes the appropriate medium-term strategic goals. First, the long-term strategic objective "*structurally stable tenant portfolio*" implies the need to develop a structurally stable tenant portfolio, requiring tenants in different development phases. Thus, new companies need to be eager to enter the incubator and existing tenants should be willing to stay for the whole incubation period. The empirical analysis reveals that incubators can attain such a stable tenant portfolio by offering a continuous learning environment. For this, periodic changes in the tenant portfolio are necessary because they assure a continuous stream of new viewpoints and possibilities for knowledge transfer. Interviewees emphasize the relevance of a continuous stream of new tenants, and thus of collaboration and learning possibilities.

To assure such an optimal tenant portfolio, a professional selection and graduation process that is continuously upgraded is required. This stimulates cross-fertilization, and broadens the networks of new and existing tenants. Moreover, referring tenants to contacts within the incubator's own network may be particularly interesting when an incubator cannot fully meet a potential tenant's needs. That way, future contacts with this tenant are secured.

The second long-term strategic objective is *"value creation"*. From a customer perspective, it is important to offer proactive and in-depth services. Tenants expect the incubator to offer services adapted to their development stage. To be able to offer such services and strengthen these permanently, the following internal business processes are needed. First, incubators must have a proactive follow-up system that allows them to know in which phase their tenants currently are. Knowing this, they can offer adequate services for each development stage of their tenants.

Second, an internal system that organizes networking with external experts is useful. In fact, it turns out to be very difficult for an incubator to offer in-depth services to tenants active in a wide variety of sectors because for this incubator employees need to have in-depth knowledge about each sector. Thanks to external networking, external partners can offer services the incubator does not have in-depth knowledge about. Third, a knowledge management system is recommended. In such a system, relevant tenant/sector-specific knowledge, and knowledge linked to key administrative and logistic services are stored and offered to tenants. Fourth, a process that assures high quality is pivotal for a service provider such as an incubator. As said, this can be assured through systems such as a Total Quality Management or ISO system.

The third long-term strategic objective is *"efficiency"*. The pressure to work in a more efficient way requires a permanent search for explicit formats and standardized procedures as well as a focus on potential synergies with external experts and incubators to offer services that are only

sporadically needed. This seems obvious but is difficult to realize in an organization that has a very reactive mindset (“serving each customer upon simple request”) and that has limited staff (“no time for reflection on existing processes”).

The fourth long-term strategic objective is “*entrepreneurship and business development*”. From a customer perspective, it is important to create a platform for the establishment and development of start-ups and small businesses. Supporting entrepreneurs to establish and develop their business can, of course, be done by offering incubator services to tenants. This has been discussed extensively in the context of the other three pillars. However, an entrepreneurship-related platform should move beyond only offering services to tenants. Incubators have to organize activities for a wide variety of interested parties, both inside and outside the incubator. Examples are organizing business plan competitions, seminars or workshops.

A second component of the internal business processes perspective is the offering of relocation support to graduates. By offering such support, the incubator can try to find a location close to the incubator. In this way, graduates can continue to participate in local economic development. To attain the stimulation and establishment of entrepreneurship and business development, the incubator should continuously seek for new and innovative ways to do this. In so doing, the incubator can become an important player in the local entrepreneurship domain. Searching for new and innovative activities can be done by attending (international) entrepreneurship conferences, where incubators and/or entrepreneurship centers display their best practices.

Figure 2 visualizes the final SMEDI.

FIGURE 2 ABOUT HERE

Balanced Scorecard for Economic Development Incubators (BSEDI)

As explained, we translate the four strategic pillars of the SMEDI into short-term measures and thresholds and visualize this in the final BSEDI. While discussing an intermediary version of the BSEDI, we found that some measures needed to be slightly adapted to become feasible, others needed to be left out and replaced by new ones, and some measures were incomplete. For example, the intermediary BSEDI suggested to count the number of support services that the incubator executes for tenants, but counting all services would be administratively such a hassle that this is simply not feasible. Similar comments resulted regarding the number of complaints. Incubator managers said that complaints are often related to rather basic logistic services such as lamps or heatings that are not working. These problems are often resolved on the spot; so counting all complaints would be completely pointless. Rather, it makes much more sense to follow up on the questions and solicitudes that are raised during individual or group meetings, and to make sure that all decisions are clearly communicated to the tenants.

Another example of a measure in the intermediary BSEDI that turned out not to be feasible was the measure of tenant satisfaction. A yearly questionnaire seemed unpractical for the incubators. Incubator managers believe that this is too time-consuming for tenants and that results are often not very helpful because only a handful of tenants participate. Because most incubators do not have a high number of tenants and, as a consequence of this, because they have personal relationships with all of them, other information-gathering strategies are more appropriate. For example, incubator managers suggest to periodically organize team meetings instead.

Appendix 2 provides an overview of all components from the intermediary BSEDI and how the second interview round impacted on it. So, Appendix 2 provides the basis for the final BSEDI. We discuss the final BSEDI in what follows.

To measure indicators relating to the *financial perspective* of the BSEDI, the incubator can measure income from rent, income from paid services, and income from subsidies and/or sponsorship. Income from rent can be evaluated by examining total cash flows, but also by assessing the incubator's occupancy rate. It is suggested that the incubator should try to reach an occupancy rate of 85 per cent, and to receive most income from rent to avoid to be too dependent on income from paid services. On top of that, cost analyses must be undertaken and operational costs should not exceed rent incomes. A yearly audit of the balance sheet and annual report is suggested. During such audits, cost-cutting deserves special attention. Moreover, the profitability of the commercial side-activity needs to be evaluated. The incubator has to make sure, though, not to be completely dependent on this source of income because the main activity should be incubation. A maximum side income of 10 per cent the total income seems reasonable.

One of the measures involving the *customer perspective* is tenant satisfaction. As explained, periodically (for example, half-yearly) tenant meetings are appropriate. Such meetings can be organized in groups or individually. The first has the advantage that complaints or suggestions coming from a large number of tenants are uncovered in only one meeting. The latter has the advantage that individual needs can be discussed in greater detail.

The following two measures examine *how* the incubator stimulates knowledge transfer. First, the number of organized contact moments between tenants can be counted. Examples are tenant presentation seminars, formal discussion groups, receptions or team-building activities. Given the fact that all kinds of meetings can stimulate knowledge transfer, incubators should try to organize this on a monthly basis. Second, the architectural infrastructure of an incubator is of utmost importance for facilitating "accidental" contact. Tenants should come across each other as much as possible. This can be stimulated by offering pleasant gathering rooms where tenants can meet. Objectively measuring such accidental contacts is not an easy job. One of the incubator managers

suggests comparing the incubator's communal surface with the total individual office space. Offices should be kept relatively small in comparison with the available communal spaces. The incubator manager who suggested this indicates that the total communal surface should be at least as large as the total individual office space.

As explained above, a third measure is following up on the questions and solicitudes that are raised during individual or group meetings. We suggest to make short minutes of these meetings, and to make sure that the incubator's decision with regard to each issue is clearly communicated to the tenants. Finally, the creation of an entrepreneurship and business development platform can be evaluated by listing the number of networking events, such as seminars, workshops and business plan competitions that are organized, the number of participants, their affiliation and the topics of these events. Listing the number of events shows how active the incubator is in creating an entrepreneurship and business development platform. This measure has already been mentioned above (that is, the number of organized meetings/contact moments), and only needs to be broadened to include external parties as well. The number of participants and their affiliation indicates whether the incubator is able to reach sufficient entrepreneurs both inside and outside the incubator. Finally, making a list of the topics of the events reveals whether the incubator is able to reach both entrepreneurs not yet having a venture and those already running a business but seeking for business development after the initial founding stage.

For the *internal business processes perspective*, it is necessary to measure tenant satisfaction about internal processes such as the selection process, the incubator's knowledge about company development phases or the accessibility of external experts. As explained, this can be done through systematically organizing individual or group meetings, rather than a questionnaire, and following up upon these via reporting, decision-making, and communication.

The second performance measure here is reporting whether the incubator employs a balanced selection process. More specifically, the incubator should examine the company's market, team and financial characteristics before deciding whether this business can enter into the incubator. Closely related to this, the incubator needs to employ clearly defined graduation criteria. A company must leave the incubator once its business reaches a pre-defined development phase and/or a pre-defined incubation period has passed. Concerning the latter, it is common that ventures can stay for about five years in the incubator.

To measure external networking, the incubator could count the number of external experts affiliated to the incubator. Moreover, their areas of expertise can be mapped to make sure that tenants have access to a wide variety of experts. Such a mapping and counting exercise cannot only be applied to examine the incubator's performance, but can also be used to provide tenants with a structured overview of the available expert network.

Resource sharing with other incubators can be measured by counting the number of fellow incubators the focal incubator has close connections with. The incubator could subdivide its incubator partners into privileged partners and member organizations. With the first, resource sharing and referring possible tenants occur frequently, whereas with the latter contact happens only sporadically. Incubators willing to work as efficiently as possible should have at least one incubator with which they work closely together for resource sharing, as this can considerably increase scale advantages.

Additionally, to sustain high quality, incubators should set up a process that assures high quality. As explained, examples are a Total Quality Management or ISO system. Moreover, proper evaluation markers associated with these systems need to be traced and tracked by the incubator. Finally, as to measures relating to the internal business processes perspective in the context of the

entrepreneurship and business development pillar, it is useful to – as suggested above – list the number of networking events (such as seminars, workshops and business plan competitions) that the incubator organizes, the number of participants, their affiliation and the topics of these events (see the customer perspective).

The last perspective involves the *innovation and learning*. Measuring whether the incubator continuously tries to improve its processes, services offered or ways to establish and develop new companies and small businesses can be done by counting the number of networking events such as conferences, workshops and seminars incubator employees participate in. Incubator employees who participate in such events are able to continuously improve their business knowledge. In turn, this helps them to innovate their processes and services. Moreover, participating in incubator conferences, where best practices in stimulating entrepreneurship and business development are presented, can facilitate the search for new and innovative ways to establish and develop start-ups and small businesses. The incubator's innovation and learning can also be examined by asking tenants how innovative the incubator is. As explained above, this can be done through organizing half-yearly individual or group meetings. Finally, continuously seeking for new ways to improve efficiency can be done by examining whether the incubator has an efficiency system in place. As already suggested above, the proper evaluation markers associated with these systems should be employed by the incubator.

Figure 3 visualizes the final BSEDI.

FIGURE 3 ABOUT HERE

Conclusion

In this paper, we first summarized current shortcomings in incubator performance measurement literature. To address the gaps that emerged from this literature review, we translated Kaplan and Norton's (1992; 2000) strategy map and balanced scorecard to the incubator context and developed a Strategy Map for Economic Development Incubators (SMEDI) and a Balanced Scorecard for Economic Development Incubators (BSEDI). These balanced tools integrate various incubator performance measurement perspectives and link an incubator's long-term strategic goals, medium-term objectives and short-term measures. Thanks to a yearly evaluation of the SMEDI and BSEDI, feedback loops are assured. Moreover, measures such as the number of times incubator employees participate in events make sure that incubator employee behavior is incorporated. Because we were able to go back to the incubator managers and discuss the practical usefulness of a working version of the SMEDI and BSEDI, it was possible to detect measures that are difficult to obtain. Other – more feasible – measures were suggested. As such, we were able to offer an easily obtainable, accessible and comprehensible incubator performance measurement toolkit with clear performance markers that meets Tangen's (2004) output prerequisites for performance measurement systems.

Contributions

We aim to offer three main contributions to theory and practice. First, incubator performance measurement is a topic that receives much attention in the academic literature (see, for example, Amezcua 2010), but is far from reaching a state of consensus (Phan, Siegel, and Wright 2005). Our literature review provides a structured overview of existing performance measures and measurement systems. By doing so, we aim to disentangle the jumble of different measurement methods that circulate in the incubator literature.

Second, incubator researchers agree that incubator performance measurement is not easy (Sherman 1999). This manifests itself in the large and diverse set of possible individual performance

measures and the limited number of integrated performance systems found in the academic literature. As we summarized in our concluding section of the literature review, Kaplan and Norton's (1992, 2000) strategy map and balanced scorecard are two measurement tools that are able to theoretically address the issues associated with the current incubator performance literature. Moreover, their practical usefulness has not only been proved by earlier research (for example, Gumbus and Lussier (2006) for small businesses and Kaplan and Norton (2001) for large companies), but is revealed by our own empirical research, too.

The fact that the incubators in this empirical study did not yet implement a balanced scorecard or strategy map can mainly be attributed to a lack of resources to develop these tools. Most incubators have a clear lack of staff and one of their main preoccupations is financial sustainability (von Zedtwitz 2003). This complicates the development and implementation of new frameworks and processes such as the SMEDI and BSEDI. However, alternative solutions can be sought. An example is collaborating with universities or coordinating incubator organizations to develop these tools. This is in particular important for smaller incubators (that is, smaller than 30.000 ft² or 2.787 m²) because they often have financial problems (Zablocki 2007). By developing a SMEDI and BSEDI, we aim to provide not-for-profit economic development incubators the possibility to relatively easily adapt these tools to their specific context.

Third, the SMEDI and BSEDI are not only useful for the incubator's internal use. Coordinating organizations, sponsors and subsidy organizations can equally use these tools to evaluate which incubators are performing well and which need to receive guidance. Organizations such as the European Commission or the NBIA (National Business Incubation Association) provide incubators with tools and information that can help them to improve their functioning. For example, the European Commission (2002) wrote a benchmarking report about European incubators explaining how these incubators function and how they are organized. This report allows incubators to

benchmark their own features with the characteristics of European incubators. Another example is the NBIA's Summit for Advanced Incubation Professionals. This event aims to offer a platform for experienced incubation leaders to interact and to discuss best practices (NBIA 2012). Organizations such as the European Commission or the NBIA can use the SMEDI and BSEDI to evaluate the performance of the incubators they are working with. It might help them in forming an overview of the functioning and performance of these organizations. This can guide them in resource-allocation decisions (Tornatzky, Sherman, and Adkins 2002).

Limitations and Future Research

In the current study, there are two limitations that deserve special attention. Each of these limitations suggest opportunities for future research. First, the suggested SMEDI and BSEDI are two frameworks that need to be adapted to the specific situation of each not-for-profit economic development incubator. The specific filling-in of each SMEDI and BSEDI component should thus be changed accordingly. For example, incubators that only host companies that are active in a specific sector or industry need to change their service offering accordingly (Schwartz and Hornyk 2008). Incubators should use sector-specific development markers to know which services tenants need during their development process. Consequently, incubator employees must have sector-specific knowledge. They should not only attend conferences and seminars focusing on general business expertise, but also seek for events involving company development in the incubator's sector. In this way, they can develop in-depth knowledge about tenant development processes and the incubator services needed (for example, Chan and Lau 2005).

Second, the SMEDI and BSEDI focus on the incubator's functioning. Although the entrepreneurship and business development pillar refers to the creation of a support platform, we did not examine the incubator's role in the regional entrepreneurial ecosystem. The importance of such an entrepreneurial system should, however, not be underestimated. Cooke (2005), for example,

reports that the number of articles about regional innovation systems expanded considerably in the last two decades and that new papers about this topic are published monthly. To examine the regional entrepreneurial ecosystem, future researchers can draw on the results of prominent researchers such as Etzkowitz and Leydesdorff (2000), Kotkin and DeVol (2001), Sweeney (1995) and Brännback et al. (2008). Etzkowitz and Leydesdorff (2000) are the founders of the triple helix model, a widely adopted regional innovation system that stresses interactions among universities, industries and government. As a reaction to this top-down model, Brännback et al. (2008) suggest a bottom-up model that places the entrepreneur and the innovator in the center of a double helix model. That people are the basis of a region's competitive advantage has also been stressed by Kotkin and DeVol (2001), who explain that regions (cities) able to "access, create and utilize human capital" (p. vi) can become highly competitive environments. Sweeney (1995) emphasizes that interactions among people with similar value systems are necessary to generate new ideas. It are not only universities, governments and industries that are at the basis of entrepreneurial innovation generation, but also personal value systems. Future researchers might examine which entrepreneurial system works best for incubators and how the different actors should interact to optimize the system's performance as a whole.

Bibliography

- Abduh, M., C. D'Souza, A. Quazi, and H.T. Burley (2007). "Building Futures or Stealing Secrets?: Entrepreneurial Cooperation and Conflict within Business Incubators," *Managing Service Quality*, 17 (1), 74-91.
- Adkins, D. (2001). *A Report for the Japan Association of New Business Incubation Organizations (JANBO): Summary of the U.S. Incubator Industry*. Athens, OH: National Business Incubation Association.
- Aernoudt, R. (2004). "Incubators: Tool for Entrepreneurship?," *Small Business Economics*, 23, 127-135.
- Aerts, K., P. Matthyssens, and K. Vandenbempt (2007). "Critical Role and Screening Practices of European Business Incubators," *Technovation*, 27 (5), 254-267.
- Amezcuca, A.S. (2010). *Boon or Boondoggle? Business incubation as entrepreneurship policy*. Unpublished dissertation, Syracuse University.
- Avnimelech, G., D. Schwartz, and R. Bar-El (2007). "Entrepreneurial High-tech Cluster Development: Israel's Experience with Venture Capital and Technological Incubators," *European Planning Studies*, 15 (9), 1181-1198.
- Barney, J. (1991). "Firm resources and sustained competitive advantage," *Journal of Management*, 17 (1), 99-120.
- Bhabra-Remedios, R.K., and B. Cornelius (2003). "Cracks in the Egg: improving performance measures in business incubator research," paper presented at the 16th annual conference of the *Small Enterprise Association of Australia and New Zealand*, Ballarat, Australia, September.
- Bergek, A., and C. Norrman (2008). "Incubator Best Practice: a Framework," *Technovation*, 28, 20-28.
- Bøllingtoft, A. (2007). "A critical realist approach to quality in observation studies," in: Neergaard, H. and Ulhøi, J.P. (Eds.), *Handbook of Qualitative Research Methods in Entrepreneurship*, Edward Elgar, Cheltenham, UK, 406-433.
- Bøllingtoft, A., and J.P. Ulhøi (2005). "The Networked Business Incubator—Leveraging Entrepreneurial Agency?," *Journal of Business Venturing*, 20 (2), 265-290.
- Brännback, M., A. Carsrud, N. Krueger, and J. Elfving (2008). "Challenging the triple helix model of regional innovation systems: A venture-centric model," *International Journal of Technoentrepreneurship*, 1 (3), 257-277.
- Cameron, K. (1980). "Critical Questions in Assessing Organizational Effectiveness," *Organizational Dynamics*, Autumn, 66-80.
- Chan, K.F., and T. Lau (2005). "Assessing Technology Incubator Programs in the Science Park: The Good, the Bad and the Ugly," *Technovation*, 25 (10), 1215-1228.
- Colombo, M., and M. Delmastro (2002). "How effective are technology incubators? Evidence from Italy," *Research Policy*, 31 (7), 1103-1122.
- Cooke, P. (2005). "Regional asymmetric knowledge capabilities & open innovation. Exploring 'globalisation 2': a new model of industry organization," *Research Policy*, 34, 1128-1149.
- Costa-David, J., J. Malan, and R. Lalkaka (2002). "Improving Business Incubator Performance Through Benchmarking and Evaluation: Lessons Learned from Europe," paper presented at the 16th International Conference on Business Incubation, Toronto, Canada. April.
- Daft, R.L. (2009). *Organization Theory and Design*. Mason, OH: South-Western College Pub.
- Etzkowitz, H. (2002). "Incubation of incubators: innovation as a triple helix of university-industry-government networks," *Science and Public Policy*, 29 (2), 115-128.
- Etzkowitz, H., and L. Leydesdorff (2000). "The dynamics of innovation: from national systems and 'Mode 2' to a triple helix of university-industry-government relation," *Research Policy*, 29, 109-123.
- European Commission (2000). *Mededeling van de Commissie aan de Raad en het Europees Parlement: Innovatie in een Kenniseconomie*. Brussels: European Commission.
- European Commission (2002). *Benchmarking of Business Incubators*. Brussels: Centre for Strategy and Evaluation Services.
- Fonseca, R., P. Lopez-Garcia, and C.A. Pissarides (2001). "Entrepreneurship, Start-Up Costs and Employment," *European Economic Review*, 45 (4/6), 692-705.
- Ford, J.D., and D.A. Schellenberg (1982). "Conceptual Issues of Linkage in the Assessment of Organizational Performance," *Academy of Management Review*, 7 (1), 49-58.
- Fried, V. H. (2003). "Defining a forum for entrepreneurship scholars," *Journal of Business Venturing*, 18 (1), 1-11.
- Fry, T.D. (1995). "Japanese Manufacturing Performance Criteria," *International Journal of Production Research*, 33 (4), 933-954.
- Giannakis, M. (2007). "Performance Measurement of Supplier Relationships," *Supply Chain Management: An International Journal*, 12 (6), 400-411.

- Gumbus, A., and R.N. Lussier (2006). "Entrepreneurs use a balanced scorecard to translate strategy into performance measures," *Journal of Small Business Management*, 44 (3), 407-425.
- Haapasalo, H., and T. Ekholm (2004) "A profile of European incubators: a Framework for Commercializing Innovations," *International Journal of Entrepreneurship and Innovation management*, 4 (2/3), 248-270.
- Hackett, S.M., and D.M. Dilts (2004). "A Systematic Review of Business Incubation Research," *The Journal of Technology Transfer*, 29 (1), 55-82.
- Hackett, S.M., and D.M. Dilts (2008). "Inside the Black Box of Business Incubation: Study B – Scale Assessment, Model Refinement, and Incubation Outcomes," *The Journal of Technology Transfer*, 33, 439-471.
- Hirschman, E.C. (1986). "Humanistic inquiry in marketing research: philosophy, method, and criteria," *Journal of Marketing Research*, 23 (August), 237-249.
- Hsu, P.-H., J.Z. Shyu, H.-C. Yu, C.-C. Yuo, and T.-H. Lo (2003). "Exploring the interaction between incubators and industrial clusters: The case of the ITRI incubator in Taiwan," *R&D Management*, 33 (1), 79-90.
- Hult, G.T.M., D.J. Ketchen, D.A. Griffith, B.R. Chabowski, M.K. Hamman, B.J. Dykes, W.A. Pollitte, and S.T. Cavusgil (2008). "An assessment of the measurement of performance in international business research," *Journal of International Business Studies*, 39 (6), 1064-1080.
- Johnston, R., S. Brignall, and L. Fitzgerald (2002). "'Good Enough' Performance Measurement: a Trade-Off between Activity and Action," *Journal of the Operational Research Society*, 53, 256-262.
- Jungman, H., J. Okkonen, T. Rasila, and M. Seppä (2004) "Use of Performance Measurement in V2C Activity," *Benchmarking: An International Journal*, 11 (2), 175-189.
- Kaplan, R.S., and D.P. Norton (1992). "The balanced scorecard: Measures that drive performance," *Harvard Business Review*, January-February, 71-79.
- Kaplan, R.S., and D.P. Norton (1993). "Putting the balanced scorecard to work," *Harvard Business Review*, September-October, 134-147.
- Kaplan, R.S., and D.P. Norton (1996a). "Using the balanced scorecard as a strategic management system," *Harvard Business Review*, January-February, 75-85.
- Kaplan, R.S., and D.P. Norton (1996b). "Linking the balanced scorecard to strategy," *California Management Review*, 39 (1), 53-79.
- Kaplan, R.S. and D.P. Norton (2000). "Having trouble with your strategy? Then map it," *Harvard Business Review*, September-October, 167-176.
- Kaplan, R.S., and D.P. Norton (2001). "On balance," *CFO*, February, 73-78.
- Kaplan, R.S., and D.P. Norton (2005). "The balanced scorecard: Measures that drive performance," *Harvard Business Review*, July-August, 172-180.
- Kaplan, R.S., and D.P. Norton (2007). "Using the balanced scorecard as a strategic management system," *Harvard Business Review*, July-August, 150-161.
- Kaplan, R.S., and D.P. Norton (2008). "Mastering the management system," *Harvard Business Review*, January, 63-77.
- Kotkin J. and R.C. DeVol (2001). *Knowledge-value cities in the digital age*. Milken Institute.
- Lalkaka, R. (1996). "Technology Business Incubators: Critical Determinants of Success," *Annals of the New York Academy Sciences*, 798, 270-290.
- Lincoln Y.S., and E.G. Guba (1985). *Naturalistic Inquiry*. Beverly Hills, CA: Sage.
- Löfsten, H., and P. Lindelöf (2001). "Science Parks in Sweden – Industrial Renewal and Development," *R&D Management*, 31 (3), 309-322.
- Löfsten, H., and P. Lindelöf (2002). "Science Parks and the growth of new technology-based firms - academic-industry links, innovation and markets," *Research Policy*, 31, 859-876.
- Mathison, S. (1988). "Why triangulate?," *Educational Research*, 17 (2), 13-17.
- McMullan, E., J.J. Chrisman, and K. Vesper (2001). "Some Problems in Using Subjective Measures of Effectiveness to Evaluate Entrepreneurial Assistance Programs," *Entrepreneurship: Theory and Practice*, Fall, 37-54.
- McAdam, M., and W. Keogh (2006). "Incubating Enterprise and Knowledge: a Stakeholder Approach," *International Journal of Knowledge Management Studies*, 1 (1/2), 103-120.
- Mian, S.A. (1994). "US university sponsored technology incubators: an overview of management, policies and performance," *Technovation*, 14, 8, 515-528.
- Mian, S.A. (1997). "Assessing and Managing the University Technology Business Incubator: an Integrative Framework," *Journal of Business Venturing*, 12, 251-285.
- NBIA (2009). "What are the different types of incubators," accessed on December, 12, 2010, http://www.nbia.org/resource_library/faq/#4.

- NBIA (2012). "NBIA's Sixth Summit for Advanced Incubation Professionals," accessed on February 14, 2012, <http://www.nbia.org/events/summit2012/>.
- Neely, A. (2005). "The Evolution of Performance Measurement Research – Developments in the Last Decade and a Research Agenda for the Next," *International Journal of Operations & Production Management*, 25 (12), 1264-1277.
- Neely, A., J. Mills, K. Platts, H. Richards, M. Gregory, M. Bourne, and M. Kennerly (2000). "Performance Measurement System Design: Developing and Testing a Process-Based Approach," *International Journal of Operations & Production Management*, 20 (10), 1119-1145.
- O'Neal, T. (2005). "Evolving a Successful University-Based Incubator: Lessons Learned from the UCF Technology Incubator," *Engineering Management Journal*, 17 (3), 11-25.
- Patton, D., and S. Marlow (2011). "University technology business incubators: helping new entrepreneurial firms to learn to grow," *Environment and Planning C: Government and Policy*, 29, 911-926.
- Phan, P.H., D.S. Siegel, and M. Wright (2005). "Science Parks and Incubators: Observations, Synthesis and Future Research," *Journal of Business Venturing*, 20 (2), 165-182.
- Ratinho, T., and E. Henriques (2010), "The role of science parks and business incubators in converging countries: evidence from Portugal," *Technovation*, 30, 278-290.
- Rice, M.P. (2002). "Co-Production of Business Assistance in Business Incubators: an Exploratory Study," *Journal of Business Venturing*, 17 (2), 163-187.
- Schwartz, M. (2009). "Beyond incubation: an analysis of firm survival and exit dynamics in the post-graduation period," *Journal of Technology Transfer*, 34, 403-421.
- Schwartz, M., and M. Göthner (2009a). "A Multidimensional Evaluation of the Effectiveness of Business Incubators: an Application of the PROMETHEE Outranking Method," *Environment and Planning C: Government and Policy*, 27, 1072-1087.
- Schwartz, M., and M. Göthner (2009b). "A Novel Approach to Incubator Evaluations: The PROMETHEE outranking procedures," *IWH-Discussion Papers*, January, no.1.
- Schwartz, M., and C. Hornych (2008). "Specialization as strategy for business incubators: An assessment of the Central German Multimedia Center," *Technovation*, 28, 436-449.
- Schwartz, M., and C. Hornych (2010). "Cooperation patterns of incubator firms and the impact of incubator specialization: Empirical evidence from Germany," *Technovation*, 30, 485-495.
- Sherman, H. (1999). "Assessing the Intervention Effectiveness of Business Incubation Programs on New Business Start-Ups," *Journal of Developmental Entrepreneurship*, 4 (2), 117-133.
- Siggelkow, N. (2007). "Persuasion with case studies," *Academy of Management Journal*, 50 (1), 20-24.
- Simons, R. (2000). *Performance Measurement and Control Systems for Implementing Strategy: Text & Cases*. Upper Saddle River, NJ: Prentice Hall.
- Skinner, W. (1986). "The Productivity Paradox," *Harvard Business Review*, July-August, 55-59.
- Smilor, R.W. (1987). "Commercializing Technology through New Business Incubators," *Research Management*, 30 (5), 36-41.
- Spivey, W.A., J.M. Munson, and A. King (2007). "Implementing the balanced scorecard to achieve strategic management objectives: The case of the small engineering consultancy," *Proceedings PICMET conference (Portland International Center for Management of Engineering and Technology)*, Vols. 1-6, 119-124.
- Studdard, N.L. (2006). "The Effectiveness of Entrepreneurial Firm's Knowledge Acquisition from a Business Incubator," *International Entrepreneurship Management Journal*, 2, 211-225.
- Sweeney, G. (1995). "Systems of innovation," in *Regional and local development*. Ed. G. Sweeney. Dublin: Built Environment Research Centre.
- Tamásy, C. (2007). "Rethinking Technology-Oriented Business Incubators: Developing a Robust Policy Instrument for Entrepreneurship, Innovation, and Regional Development," *Growth and Change*, 38 (3), 460-473.
- Tangen, S. (2004). "Performance Measurement: From Philosophy to Practice," *International Journal of Productivity and Performance Management*, 53 (8), 726-737.
- Tornatzky, L., H. Sherman, and D. Adkins (2002). *A National Benchmarking Analysis of Technology Business Incubator Performance and Practices*. USA: NBIA.
- Voisey, P., L. Gornall, P. Jones, and B. Thomas (2006). "The Measurement of Success in a Business Incubation Project," *Journal of Small Business and Enterprise Development*, 13 (3), 454-468.
- von Zedtwitz, M. (2003). "Classification and Management of Incubators: Aligning Strategic Objectives and Competitive Scope for New Business Facilitation," *International Journal of Entrepreneurship and Innovation Management*, 3 (1/2), 176-196.

- Westhead, P., and D.J., Storey (1994). *An Assessment of Firms Located On and Off Science Parks in the United Kingdom*. London: HMSO.
- Yin, R.K. (1990). *Case study research: design and methods*. Applied Social Research Methods Series, Vol. 5, Beverly Hills, California, USA: Sage Publications.
- Yu, J., and P. Nijkamp (2009). "Methodological challenges and institutional barriers in the use of experimental method for the evaluation of business incubators: Lessons from the US, EU and China," paper presented at the *Atlanta Conference on Science and Innovation Policy – ACSIP*, art. n° 5367841.
- Yuchtman, E., and S.E. Seashore (1967). "A System Resource Approach to Organizational Effectiveness," *American Sociological Review*, 32 (6), 891-903.
- Zablocki, E.M. (2007). "Formation of a business incubator," in: Krattiger, A., Mahoney, R.T., Nelsen, L., et al., (Eds.), *Intellectual property management in health care and agricultural innovation: a handbook of best practices*, MIHR, Oxford, UK and PIPRA, Davis, USA, 1305-1314.

Table 1
Literature review – Incubator performance measures and effectiveness approaches

Effectiveness approach	Underlying idea*	Incubator literature	
		Main conclusions	Example references
Goal approach	The degree of realization of an organization’s objectives. The closer the organization meets its goals, the more effective it is	Wide variety of strategic incubator objectives	Aernoudt (2004), von Zedtwitz (2003)
		Independently from these objectives, an incubator’s ultimate goal should be firm survival and growth	Aerts, Matthyssens, and Vandenbempt (2007), Lalkaka (1996)
		No univocal way to measure “growth”. Examples: sales growth, profitability growth, growth in number of employees	Colombo and Delmastro (2002), Löfsten and Lindelöf (2002), Westhead and Storey (1994)
		No univocal way to measure “success” and “failure”. Examples: termination of a company’s operations with minimal losses can be a success story for the incubator but is often referred to as a failure, are mergers/acquisitions a failure or a success?	Avnimelech, Schwartz, and Bar-El (2007), Hackett and Dilts (2008), Schwartz (2009)
		The importance of the tenant development process is recognized in incubator literature, but an explicit link between incubator performance and tenant development milestones lacks	Chan and Lau (2005)
Stakeholder approach	The extent to which all the organization’s strategic constituencies are at least minimally satisfied. Strategic constituencies are all groups of individuals who have some stake in the organization. The closer the organization meets stakeholder satisfaction, the more effective it is	Incubator researchers acknowledge that an incubator is part of a wider entrepreneurial ecosystem. However, there is no consensus on which stakeholders should be taken into account when assessing an incubator’s performance. In general, there are two viewpoints:	Etzkowitz (2002), Hsu et al. (2003)
		1. Incorporating the wide stakeholder community. Some researchers go very far and even include for example citizens	McAdam and Keogh (2006), Mian (1997)
		2. Stakeholder limitation. No consensus with regard to the “most important” stakeholder. Examples: tenants, venture capitalists, government	Abduh et al. (2007), Chan and Lau (2005), Haapasalo and Ekholm (2004), Jungman et al. (2004), Ratinho and Henriques (2010), Sherman (1999)

		Depending on the stakeholders taken into account, other performance measures are stressed. Examples: government agencies aim for positive socio-economic spillovers, universities aim for the commercialization of technological ideas	Rice (2002), Patton and Marlow (2011)
System resource approach	The extent to which an organization acquires its needed resources. The more success an organization has in competing for (and acquiring) scarce resources, the more effective it is	Resources necessary for incubators: office space, shared services such as administrative and logistic support, business support and networking Also other resources such as financial means and public support are stressed Often, the importance of resources has been examined by counting the amount of services. Examining which resources result in a sustained competitive advantage (Barney, 1991) has not yet been done	Bergek and Norrman (2008), Bøllingtoft and Ulhøi (2005), Costa-David, Malan, and Lalkaka (2002), Mian (1997), Studdard (2006), Tamásy (2007) Mian (1994), Zablocki (2007) Chan and Lau (2005), Smilor (1987)
Internal process approach	The extent to which an organization is internally healthy and efficient. The “healthier” an organization operates, the more effective it is	Incubator researchers acknowledge the importance of the incubation process but were not yet able to fully unravel this process. It is still a “black box”.	Adkins (2001), Costa-David, Malan, and Lalkaka (2002), Lalkaka (1996), Hackett and Dilts (2008)

* Adapted from Cameron (1980), Daft (2009), Ford and Schellenberg (1982), and Yuchtman and Seashore (1967)

Table 2
Performance measurement system output prerequisites

Output prerequisite	Explanation (Tangen, 2004)
Support strategic objectives	The system should support the organization's strategic objectives and should be flexible enough to allow for strategic changes
Have an appropriate balance	The system should have an appropriate balance and should incorporate <ul style="list-style-type: none"> • Short- and long-term results • Different types of performance (for example; cost, quality, delivery, flexibility and dependability) • Various perspectives (such as the customer, the shareholder, the competitor) • Various organizational levels (for example; global and local performance)
Guard against sub-optimization	The system should guard for the "productivity paradox" (Skinner 1986) ^a . Avoiding sub-optimization can be done by establishing a clear link between the company's top (strategy) and bottom (what should employees do to reach these strategic goals)
Have a limited number of performance measures	The system should not constitute of too many performance measures. This could result in ignoring data or information overload
Be easily accessible	The system should provide information "at the right time, to the right person" (p.728). The necessary information should be easily obtainable, it should be presented in an accessible way and it should be easily understandable
Consist of performance measures that have comprehensible specifications	The system performance measures' purpose should be clearly defined. It should be clear who will use and act upon the performance measure. This implies that appropriate targets and timeframes for target reaching should be developed

^a Skinner's (1986) "productivity paradox" refers to the fact that poor performance measures might have negative impacts on employee behavior. Fry (1995) argues that performance measures can greatly impact an employee's behavior.

Table 3
Overview gaps in existing literature and link to a possible solution

Gap in existing incubator literature	Suggested solution: Strategy map and balanced scorecard
<p>Balanced and integrated measurement tools</p> <ul style="list-style-type: none"> - Often unclear why a particular evaluation measure (and hence stakeholder) is highlighted - Few measurement systems offer clear links between the various performance perspectives - Lack of long-term, medium-term and short-term measures 	<ul style="list-style-type: none"> - The strategy map and balanced scorecard are two tools developed to answer the quest for balanced performance measurement. Four perspectives are taken into account: financial results, the customer, internal business processes and innovation and learning - The strategy map and balanced scorecard are designed to offer clear links among the four perspectives - The strategy map offers long-term strategic objectives and translates them into medium-term goals. Moreover, these medium-term objectives are translated into short-term measures in the balanced scorecard - The strategy map looks at various long-term strategic goals. These should be on several organizational levels, such as the clients, the organization and the community
<p>Strategic objectives</p> <ul style="list-style-type: none"> - Large amount of incubator types and hence strategic incubator objectives. Any performance measurement evaluation framework should take this into account - A link between individual measures and strategy often lacks 	<ul style="list-style-type: none"> - The strategy map provides a structured overview of how to link an organization's strategy to each of the four perspectives - The balanced scorecard can be used as a strategic management system that links "long-term strategic objectives with short-term actions" (Kaplan and Norton, 1996, p.75). Processes in place are translating the organization's vision, communicating and linking the various performance aspects, business planning and feedback and learning. Thus, there is a clear link between long-term strategic plans, resource allocation and budgeting processes
<p>Incubator employees</p> <ul style="list-style-type: none"> - The viewpoint of incubator employees is often forgotten. Implications on incubator employees are not recognized 	<ul style="list-style-type: none"> - The strategy map and balanced scorecard force managers to translate the organization's vision in such a way that it also has meaning to those who realize the vision in practice - The strategy map and balanced scorecard force managers to set clear goals, educate employees and orderly communicate goals and performance measures
<p>Obtainability, Accessibility and Comprehensibility</p> <ul style="list-style-type: none"> - The proposed evaluation measures are often difficult to obtain - Performance evaluation systems are sometimes complex and not that easily understandable 	<ul style="list-style-type: none"> - Because the various business units and departments are involved in the development process of a strategy map and balanced scorecard, hands-on information about the feasibility of the proposed measures is taken into account. Difficulties in obtaining information are thus reduced to a minimum in the development phase - The balanced scorecard offers measures for four perspectives and visualizes these in a structured way. This helps to make these tools easily understandable - The strategy map and balanced scorecard are two tools that proved to be easily understandable. They have been applied by both big and small companies
<p>Feedback loops</p> <ul style="list-style-type: none"> - Lack of feedback loops 	<ul style="list-style-type: none"> - The goal of the strategy map and balanced scorecard is to help managers know whether their strategy is being implemented and also provide them with sufficient information to better understand why (not). The links between the different perspectives allow an organization to encourage double-loop learning
<p>Performance markers</p> <ul style="list-style-type: none"> - Lack of performance markers 	<ul style="list-style-type: none"> - The balanced scorecard offers clear thresholds. Defining thresholds allows organizations to know whether minimum goals or met
<p>Timeline</p> <ul style="list-style-type: none"> - Unclear with which frequency data should be gathered 	<ul style="list-style-type: none"> - The strategy map and balanced scorecard are two tools that ideally should be filled in yearly

Sources: own literature review, Gumbus and Lussier (2006), Kaplan and Norton (1992, 1993, 1996a, 1996b, 2000, 2005, 2007)

Figure 1
Methodology

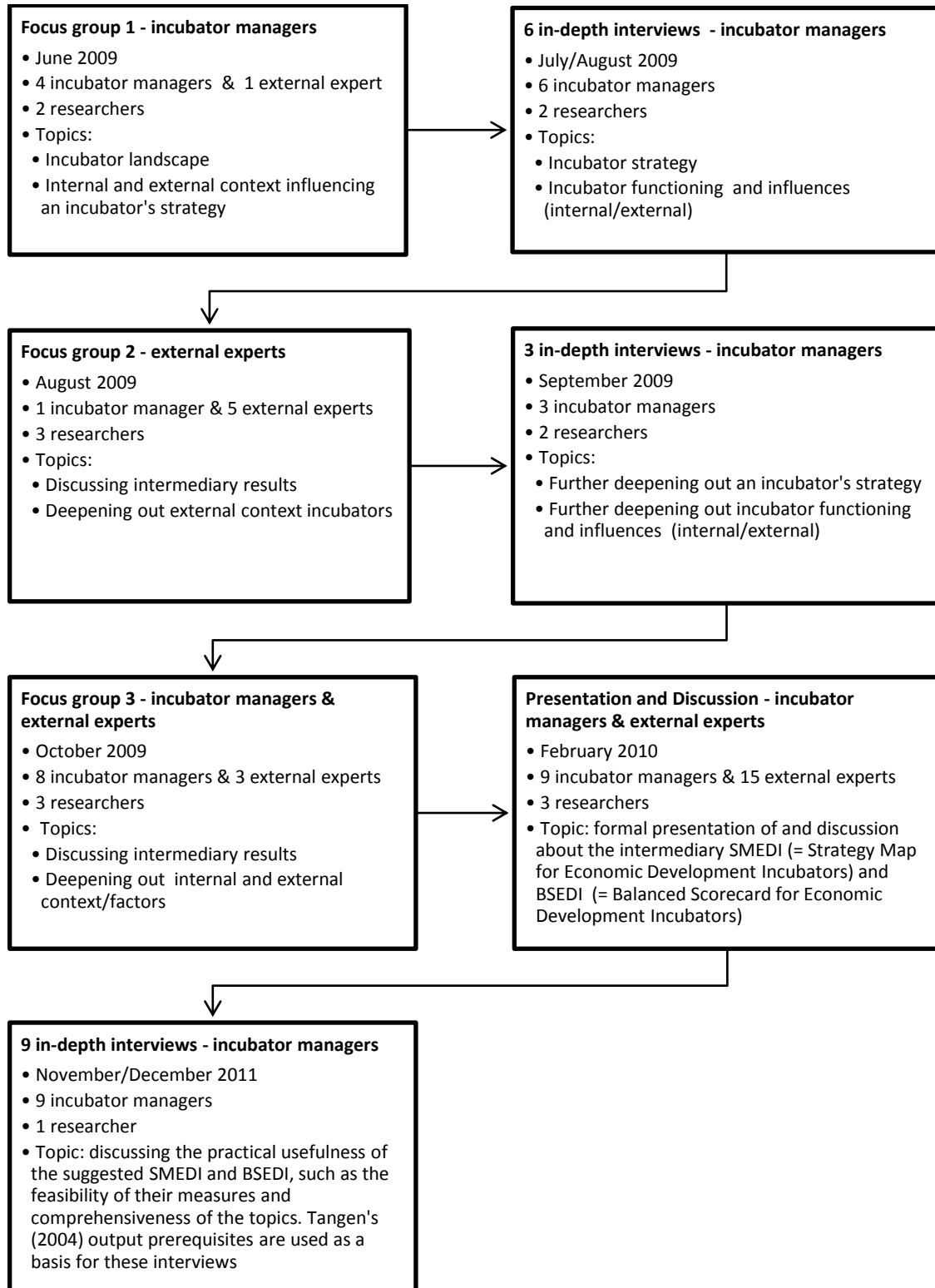


Figure 2
SMEDI – Strategy Map for not-for-profit Economic Development Incubators

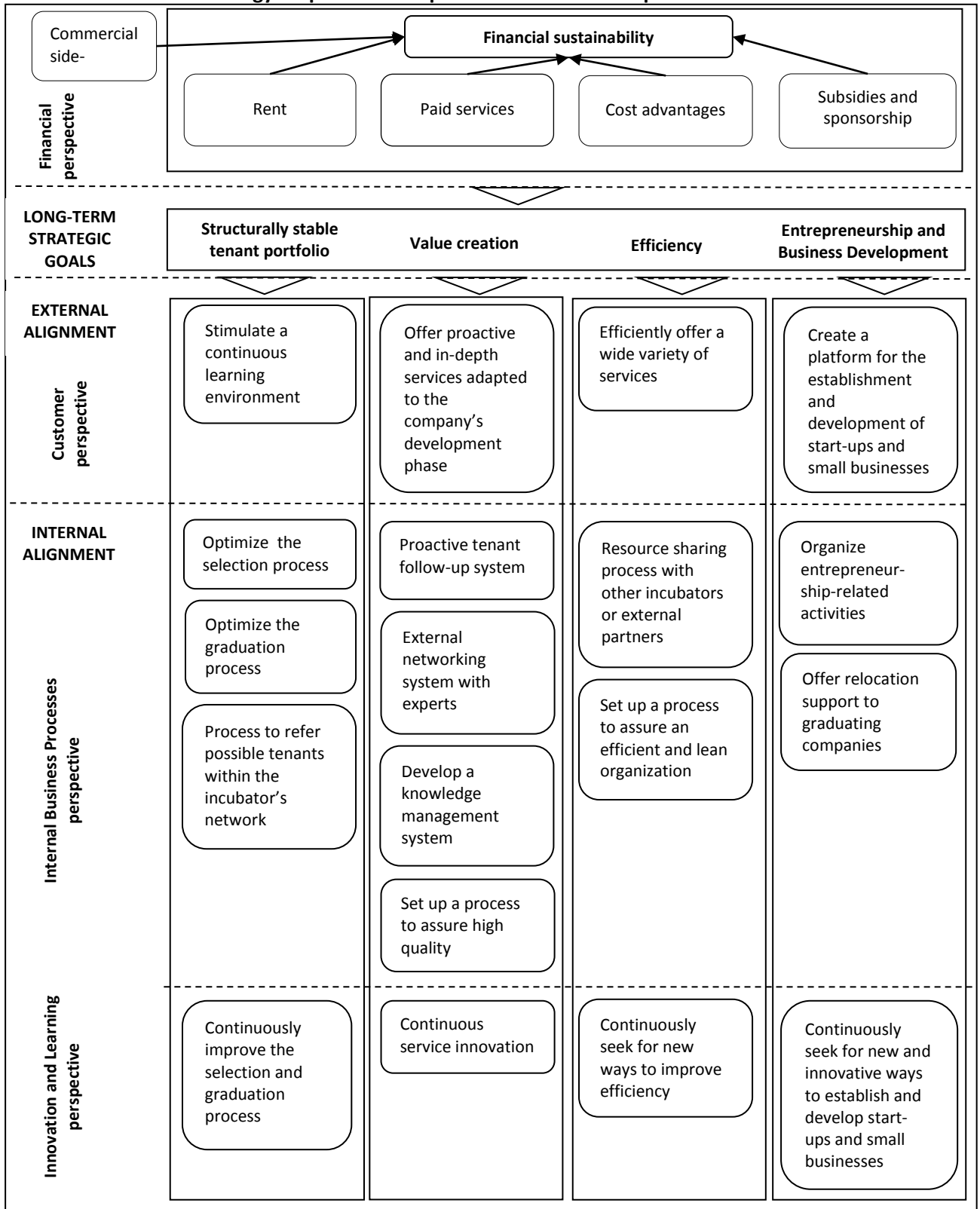


Figure 3

BSEDI and Thresholds – Balanced Scorecard for not-for-profit Economic Development Incubators

Financial perspective

Measures

- Income from rent
- Income from paid services
- Income from sponsorship/subsidies
- Income from a commercial side-activity

- Costs analyses

- Occupancy rate
- Yearly audit from the balance sheet and annual report

Thresholds

- At least 70 percent of income
- Maximul 30 percent of income
- Only for large investments
- Maximum 10 percent of income (the incubator should not be dependent on this income post)
- Operating costs should not exceed rent incomes
- At least 85 percent
- At least break-even, wist preferably (small) profit marges that can be used for future investments

Internal Business Processes perspective

Measures

- Tenant satisfaction: individual our group meetings
- Follow up all questions/solicitudes raised during individual or group meetings
- Balanced selection process: team, financial and market characteristics
- Clearly defined graduation criteria

- Map the areas of expertise of the external experts
- Number of external experts affiliated to the incubator
- Number of privileged and member incubators

- Number of organized meetings/contact moments between and among tenants and external entrepreneurs/companies
- Number of participants and their affiliations in networking events such as seminars and workshops
- Topics of the networking events such as seminars and workshops organized for tenants and external companies/entrepreneurs

Thresholds

- Half-yearly
- All concerns should be followed up and decisions should be communicated to tenants
- All three characteristics should be taken into account
- Pre-defined development phase has been reached
- Pre-defined incubation period has passed
- Wide variety of areas of expertise
- At least one expert in each area
- At least one privileged incubator partner
- Monthly
- Half of the participants should be external companies/entrepreneurs
- Half of the topics should focus on business initiation, the other half on business development

Customer perspective

Measures

- Tenant satisfaction: individual our group meetings
- Number of organized meetings/contact moments between and among tenants and external entrepreneurs/companies
- Architectural infrastructure of the incubator: compare the incubator's communal surface with the total individual office space
- Follow up all questions/solicitudes raised during individual or group meetings
- Number of participants and their affiliations in networking events such as seminars and workshops
- Topics of the networking events such as seminars and workshops organized for tenants and external companies/entrepreneurs

Thresholds

- Half-yearly
- Monthly
- Communal space should be at least as large as the total individual office space
- All concerns should be followed up and decisions should be communicated to tenants
- Half of the participants should be external companies/entrepreneurs
- Half of the topics should focus on business initiation, the other half on business development

Innovation and Learning perspective

Measures

- Number of events such as conferences and workshops incubator employees participate in
- Tenant satisfaction: individual or group meetings
- Follow up all questions/solicitudes raised during individual or group meetings
- Does the incubator have an efficiency system in place
- Does the incubator use the evaluation markers of this efficiency system

Thresholds

- Twice a year for each incubator employee
- Half-yearly
- All concerns should be followed up and decisions should be communicated to tenants
- The incubator should have an efficiency system in place
- The procedures belonging to this system should be employed

Appendix 1
Changes made to the intermediary SMEDI

	Agreement	Restructure	Incomplete	Add
Financial perspective				
- Rent	√			
- Paid service	√			
- Cost advantages	√			
- Subsidies and sponsorship	√			
- Commercial side-activities				√
Long-term Strategic Objectives				
A. Structurally stable tenant portfolio pillar				
Customer perspective				
- Stimulate collaboration among tenants			√ → Replace by "stimulate a continuous learning environment"	
Internal Business Processes Perspective				
- Optimize the selection process	√			
- Optimize the graduation process	√			
- Offer relocation support to graduating companies		√ → Bring to the Internal Business Processes perspective of the Entrepreneurship and business development pillar		
- Process to refer potential tenants within the incubator's network		√ → Bring from the Internal Business Processes perspective of the efficiency pillar to the Internal Business Processes perspective of the structurally stable tenant portfolio pillar		
Innovation and Learning Perspective				
- Continuously develop business support expertise		√ → Bring to the Innovation and Learning perspective of the value creation pillar and incorporate in the component "continuous service innovation"		
- Continuously improve the selection and graduation process				√
B. Value creation pillar				
Customer perspective				
- Offer proactive and in-depth services adapted to the company's development phase	√			
Internal Business Processes Perspective				

- Insights into tenant development processes		√ → Incorporate the component “the offering of flexible services” of the Customer perspective of the efficiency pillar in this component	√ → Replace by “proactive tenant follow-up system”
- External networking system with experts	√		
- Continuous service innovation		√ → Bring to Innovation and Learning Perspective of the value creation pillar	
- Set up a process to assure high quality		√ → Bring from the Customer perspective of the efficiency pillar to the Internal Business Processes perspective of the value creation pillar	
- Develop a knowledge management system		√ → Bring from the Innovation and Learning perspective to the Internal Business Processes perspective (both from the value creation pillar)	
Innovation and Learning Perspective			
- Develop a knowledge management system		√ → Bring to Internal Business Processes Perspective of the of the value creation pillar	
- Continuous service innovation		√ → Bring from the Internal Business Processes perspective to the Innovation and Learning perspective (both from the value creation pillar) → Incorporate the “continuously develop business support” component from the Innovation and Learning perspective of the structurally stable tenant portfolio pillar → Incorporate the “up-to-date infrastructure” component from the Internal Business Processes perspective of the efficiency pillar	

C. Efficiency pillar

Customer perspective

- Offer flexible and qualitative services		√ → Subdivide and bring to the Internal Business Processes perspective of the value creation pillar. The components become: “proactive tenant follow-up system” and “set up a process to assure high quality”	
---	--	---	--

- Efficiently offer a wide variety of services

√

Internal Business Processes Perspective

- Resource sharing process with other incubators or external partners	√	√ → Incorporate the “develop an ongoing knowledge sharing process” component of the Innovation and Learning perspective of the efficiency pillar	
---	---	--	--

- Total Quality Management system

√ → Replace by “set up a process to assure an efficient and lean organization”

- Up-to-date infrastructure

√ → Bring to the value creation pillar and incorporate in the “continuous service innovation” component of the Innovation and Learning perspective

- Process to refer possible tenants within the incubator’s network

√ → Bring to the Internal Business Processes perspective of the structurally stable tenant portfolio pillar

Innovation and Learning Perspective		
- Develop an ongoing knowledge sharing process		√ → Bring to the Internal Business Processes perspective of the efficiency pillar and incorporate in the “resource sharing system with other incubators or external partners” component
- Continuously seek for new ways to improve efficiency		√
D. Entrepreneurship and business development pillar		
Customer perspective		
- Create a platform for the establishment and development of start-ups and small businesses	√	
Internal Business Processes Perspective		
- Organize entrepreneurship-related activities	√	
- Offer relocation support to graduating companies		√ → Bring from the Internal Business Processes perspective of the structurally stable tenant portfolio pillar to the Internal Business Processes perspective of the entrepreneurship and business development pillar
Innovation and Learning Perspective		
- Continuously seek for new and innovative ways to establish and develop start-ups and small businesses	√	

Appendix 2
Changes made to the intermediary BSEDI

Measures	Agreement	Not feasible → Slightly change measure	Not feasible → Leave out	Incomplete	Add
Financial perspective					
- Income from rent	√				
- Income from paid services	√				
- Cost analysis	√				
- Income from subsidies/sponsorship	√				
- Occupancy rate	√				
- Income from commercial side-activity					√
- Yearly audit of the balance sheet and annual report					√
Customer perspective					
- Tenant satisfaction: yearly questionnaire		√ → Tenant satisfaction: individual or group meetings			
- Number of partnerships between tenants			√ → Leave out		
- Number of organized meetings/contact moments (for example, company presentations, informal receptions)				√ → Both for tenants and companies/ entrepreneurs outside the incubator. Moreover, other possibilities are team building activities for tenants, formal discussion groups, seminars and workshops	
- Architectural infrastructure: compare the incubator's communal surface with the total individual space					√
- Number of support services executed for tenants			√ → Leave out		
- Number of (resolved) complaints			√ → Leave out		
- Follow up questions/ sollicitudes raised during individual/ group meetings					√
- Follow-up the performance of (graduated) tenants and compare this with sectoral/regional data			√ → Leave out		
- Number of participants and their affiliations in networking events such as seminars and workshops					√
- Topics of the networking events such as seminars and workshops organized for tenants and external companies/entrepreneurs					√

Internal Business Processes perspective		
- Tenant satisfaction: yearly questionnaire	√ → Tenant satisfaction: individual or group meetings	
- Follow up questions/ solicitudes raised during individual/ group meetings		√
- Balanced selection process: team, financial and market characteristics	√	
- Clearly defined graduation criteria	√	
- Number of times external experts assist tenants	√ → Leave out	
- Map the areas of expertise of the external experts		√
- Number of external experts affiliated to the incubator		√
- Number of yearly developed or updated services	√ → Leave out	
- Profit share coming from new or updated services	√ → Leave out	
- Number of times incubators use each other's resources and refer possible tenants to each other	√ → Leave out	
- Number of privileged and members incubators		√
- Number of new start-ups in the incubator's region	√ → Leave out	
- Number of organized meetings/contact moments (for example, company presentations, informal receptions)		√
- Number of participants and their affiliations in networking events such as seminars and workshops		√
- Topics of the networking events such as seminars and workshops organized for tenants and external companies/entrepreneurs		√
Innovation and Learning perspective		
- Number of knowledge centers	√ → Leave out	
- Number of networking events such as conferences, workshops or seminars incubator employees participate in		√
- Tenant satisfaction: yearly questionnaire	√ → Tenant satisfaction: individual or group meetings	
- Follow up questions/ solicitudes raised during individual/ group meetings		√
- Does the incubator have an efficiency system in place		√
- Does the incubator use the evaluation markers of this efficiency system		√

