The Southern African Journal of Entrepreneurship and Small Business Management
ISSN: (Online) 2071-3185, (Print) 2522-7343

A stakeholder approach towards a consolidated framework for measuring business incubator efficacy

Authors:
Rowan L. Trethewey-Mould[1]
Menisha N. Moos[1]

Affiliations:
[1]Department of Business Management, Faculty of Economic and Management Sciences, University of Pretoria, Pretoria, South Africa

Corresponding author:
Rowan Trethewey-Mould,
rowan.mould@gmail.com

Dates:
Received: 10 July 2023
Accepted: 26 Jan. 2024
Published: 29 Mar. 2024

How to cite this article:
Trethewey-Mould, R.L. & Moos, M.N., 2024, 'A stakeholder approach towards a consolidated framework for measuring business incubator efficacy', *Southern African Journal of Entrepreneurship and Small Business Management* 16(1), a776. https://doi.org/10.4102/sajesbm.v16i1.776

Background: Business incubators (BIs) are considered enablers of the entrepreneurial ecosystem, however there remains a lack of consensus as to whether incubators are effective or even as to how incubator efficacy should be measured.

Aim: This study seeks to develop a consolidated framework for measuring the efficacy of BIs using stakeholder theory as its theoretical basis. This study set out to answer the following research questions:

- What is the relevance of stakeholder theory to incubator efficacy measurement?
- What stakeholder groups are relevant to BIs in South Africa?
- What relationships between stakeholder groups and perspectives on BI efficacy exist that would underpin a framework for measuring incubator efficacy?

Setting: Empirical research was conducted with BIs operating within South Africa, with various incubator types, contexts and industry focus included in the study.

Methods: A sample of nine incubator managers were interviewed as part of this exploratory qualitative study, demonstrating the breadth of the incubator industry in South Africa.

Results: A framework comprising two distinct but related perspectives on incubator efficacy is proposed. Further to this, two additional concepts – incubator-stakeholder conflict and restrictive incubator context – were identified.

Conclusion: This study proposes a consolidated framework for measuring the efficacy of BIs, considering a variety of stakeholder perspectives, and may inform policymakers regarding business incubation in the future.

Contribution: This study identifies and defines incubator-stakeholder conflict as a concept, making a theoretical contribution to the field. Additionally, the study proposes a comprehensive stakeholder-based framework proposed for measuring incubator efficacy.

Keywords: business incubation; entrepreneur support organisations; incubator efficacy; consolidated framework; qualitative research; stakeholder theory.

Introduction

Business incubators (BI) have developed substantially since their emergence in the 1950s; however, there remains a significant gap in incubation research in the lack of a consolidated framework with which to evaluate the efficacy of incubators (Dee et al. 2019:1–42; Torun et al. 2018:91–100). Without such a framework, effective comparative analysis is not possible, potentially leading to ineffective policymaking, difficulties in developing best practice and rudderless research.

Incubators operate in diverse and varied contexts, which had guided their categorisation. Incubators have been categorised in a range of categories from public to private, university or a variety of hybrid models (Barbero et al. 2012:888–902; Eveleens 2019:7–45; Hackett & Dilts 2004:55–82). The diversity of contexts in which incubators operate has led to an array of definitions in research; however, there remains an underlying intent that is shared among incubators – to encourage the survival and growth of startups through the provision of linkages and resources (Mian, Lamine & Fayolle 2016:1–12). This underlying intention is crucial to encouraging innovation and new venture creation, which is necessary for sustainable economic development (McAdam, Miller & McAdam 2016:265–287). Researchers have proposed a variety of different measurement systems and approaches (Chan & Lau 2005:1215–1228; Fonseca & Jabbour 2012:122–132; Lyra & Almeida

2018:1–7; Mian 1997a:251–285, 1997b:53; Torun et al. 2018:91–100); however, no consensus has been found with regard to a consolidated framework for measuring incubator efficacy that considers different aforementioned incubator types and a diversity of contexts (Hausberg & Korreck 2020:151–176). Current approaches do not sufficiently address the complex nature of incubator efficacy, as they do not facilitate comparisons across incubator types and contexts. Comparing incubators is particularly important in developing best practice, analysing efficient models for incubators in specific contexts and developing effective policy with regard to business incubation.

Incubators have proliferated in recent years as their popularity as a stimulus for economic development has grown (Ayatse, Kwahar & Iyortsuun 2017:2; Croteau 2019: 1–15; Dee et al. 2019:1–42). Perceived as a positive intervention towards economic development because of their ability to encourage innovation and new venture creation (Miller, McAdam & McAdam 2014:265–287), incubators continue to be proposed as a means of addressing socioeconomic challenges. Incubation as a means of stimulating economic development is of particular importance in the South African context, where incubators are often specifically tasked with regional economic development and fulfilling a key role in addressing the nation's substantial unemployment rate through the development of small-, micro- and medium enterprises (Rogerson 2016:22–29, 2017:1–12; Van der Spuy 2019:1–16).

Literature review

Business incubators

Incubators have grown in popularity as a tool for developing local economies. However, despite being perceived as value creating as a result of their work supporting small businesses, encouraging business growth and thus creating employment (Grimaldi & Grandi 2005:111–121; Harper-Anderson & Lewis 2017:60–77), there remains limited research on the efficacy of incubators to affect long-term socioeconomic change in communities. Filion, Reese and Sands (2019:16) identified that the cost per job created through incubation activities is substantially less than those created through other economic developments tools, such as tax cuts. Nonetheless, the positive effect that incubators can have on job creation is potentially undermined by the potential for incubated businesses to become reliant on incubator support, the well-established failure rate of new ventures and unsustainable incubator business models (Filion et al. 2019:17). This leads to an ambiguous understanding of the benefit of incubators to economic development over the long term. Haugh (2020:172) offers a counterpoint, supporting the view that incubators are indeed effective in aiding economic development, most notably in emerging economies as tools for alleviating poverty, with incubators supported by philanthropic organisations playing a critical role in enabling entrepreneurship in this context. Other researchers concur with this viewpoint with Millette, Hull and Williams (2020:5) suggesting that incubators can play valuable roles in the creation of the circular economy. The authors go on to propose a framework through which incubators encourage circular economy-focused startups as a result of knowledge transfer and innovation. The views of Haugh (2020:172) and Millette et al. (2020:5) are further supported by Mansano and Pereira (2016:30) who found that incubators are crucial to economic development through the commercialisation of the knowledge and technological outputs of universities and research institutes.

Business incubation in South Africa

Incubators emerged in the developed economy of the United States (Mian et al. 2016:2) and have since been adopted as tools for economic development across both developed and developing economies. The scale of the South African incubator landscape is somewhat unclear. Masutha and Rogerson (2014a:49) identified 51 active incubators across a variety of industries, although relying on data supplied by Small Enterprise Development Agency (SEDA) led to an overwhelming number of public incubators in their data set.

Masutha and Rogerson (2014b:65) identified 42 public incubators operating with only nine private incubators identified. The reach of these public incubators was established to be significant, with over 1500 businesses supported in total, in contrast with 800 businesses in the private incubation sector (Masutha & Rogerson 2014b:81). Furthermore, the impact of incubators on job creation was substantial, with public incubators creating 2300 jobs, while the private incubation sector created over 3200 jobs (Masutha & Rogerson 2014b:87). The relative impact of private incubators compared to public incubators makes a strong case for promoting the establishment of private incubators throughout the country and calls into question the efficacy of public incubators in the South African context.

Perspectives on business incubator efficacy

Incubators exist to encourage the growth of early-stage ventures towards achieving objectives that may include economic development, generating a profit or stimulating innovation (Dee et al. 2019:1–42; Miller et al. 2014: 265–287; Theodoraki, Messeghem & Audretsch 2020:1781). Specifically, for the context of this study, a BI is defined as an organisation that exists to support the establishment and growth of new businesses as a core element of their organisational goal (Hausberg & Korreck 2020:151–176). This underlying intention highlights the expectation that incubators can impact the growth of incubated businesses positively. However, incubators maintain a variety of different stakeholder groups, which may involve additional expectations regarding the impact they are able to have on the economic development of their region. This is particularly relevant to government stakeholders as well as to the entrepreneurial ecosystem in which they operate. Thus, an effective incubator is required to balance the expectations placed upon it in terms of business growth and economic

development, as their relevant stakeholders may differ as to which of the two perspectives – economic development or business growth – is deemed most important.

Approaches to investigating incubator efficacy

Vanderstraeten and Matthyssens (2010:7) and Mian (1997a:251–285) identified four key approaches to measure the efficacy of incubators. These include the goal approach, stakeholder approach, system resource approach and the internal process approach. In addition to these four approaches, this study includes the adapted balanced scorecard approach to incubator efficacy measurement by Messeghem et al. (2018:660) as an additional approach to the measurement of incubator efficacy.

As outlined in Table 1, the goal approach is primarily focused with whether or not an organisation achieves their objectives. This approach is simplistic and easy to implement but does not allow for fair comparison between organisations except for the rare occasions where their objectives are comparable. The stakeholder approach takes a different view and focuses instead on whether the organisation's various stakeholders are satisfied with the results of the activities the organisation undertakes. This has the advantage of considering a breadth of views on the organisation's efficacy, but complications occur where certain stakeholders hold a more salient position over others. The system resource approach is concerned with the organisation's ability to acquire the resources required for their activities, while a potentially useful approach is concerned with understanding organisational efficacy; there is a lack of focus on the value-adding activity, which is the primary focus of incubators. The internal process approach focuses on the internal health and efficiency of the organisation, determining overall efficacy by investigating whether the internal workings of an organisation are sound. However, this approach lacks sufficient focus on whether the organisation is effectively working towards the shared purpose of incubators as identified by Torun et al. (2018:91). The final approach outline is the adapted balanced scorecard approach outlined by Messeghem et al. (2018:660). This approach adapts the existing balanced scorecard approach to the incubator context and considers a breadth of views on incubator efficacy. However, this approach has been limited to nonprofit incubators in literature and does not incorporate the growth of incubated businesses.

Considering the identified gap this study seeks to address is well known (Hausberg & Korreck 2020:160), there have been an increasing number of attempts to propose comprehensive frameworks for evaluating incubator efficacy. A recent attempt by Azadnia et al. (2022:2415) identified a variety of criteria relevant to the Irish incubation ecosystem; however, their approach focused heavily on the performance of the incubators in terms of facilities and infrastructure and by their own admission, identified a need to shift focus towards the efficacy of factors relevant to the incubation activity, such as networks and availability of fundings. Another recent attempt conducted by Games et al. (2021:188) identified the importance of incubated business satisfaction on perceived incubator efficacy; however, the study did not consider the wider impact incubators have on socioeconomic matters, such as job creation, facilitation of the entrepreneurial ecosystem and others. Mian (2021:31) offers an overview of existing measurement frameworks, each with their own drawbacks, yet identifies the need to account for the context in which the incubator operates in order to achieve a meaningful evaluation of the incubator efficacy.

Stakeholder theory

An agreed-upon approach for measuring incubator efficacy that is applicable across incubator typologies does not exist. Despite the many approaches put forward by Vanderstraeten and Matthyssens (2010:7), Mian (1997a:251–285) and Messeghem et al. (2018:660), there remains a gap in the literature for an efficacy measurement approach that is applicable across incubator types and considers a breadth of perspectives on incubator efficacy.

Stakeholder theory is predicated on the perspective that businesses should consider stakeholders as well as stockholders in order to achieve growth (Fiet 2022:36). Stakeholder theory identifies the different role players that impact and are impacted by a business and can include employees, communities, customers and others. Stakeholders can either be primary or secondary, depending on their salience with regards to the organisation. Salience is a

TABLE 1: An overview of approaches to measure incubator efficacy approach.

Approach	Focus	Advantages	Drawbacks	Literature
Goal approach	Achieving objectives	Easy to implement	Difficult to make comparisons across contexts	Mian (1997a:251–285); Vanderstraeten and Matthyssens (2010:7)
Stakeholder approach	Stakeholder satisfaction	Considers a breadth of views on efficacy	May favour one stakeholder over another	Mian (1997a:251–285); Vanderstraeten and Matthyssens (2010:7)
System resource approach	Ability to acquire resources	Focuses activity on acquisition of resources	Lacks focus on value-adding activity	Mian (1997a:251–285); Vanderstraeten and Matthyssens (2010:7)
Internal process approach	Internal health and efficiency	Ensures sufficient focus on organisational processes	Lacks focus on achieving purpose outlined by Torun et al. (2018:91)	Mian (1997a:251–285); Vanderstraeten and Matthyssens (2010:7)
Adapted balanced scorecard approach	Holistic overview	Considers multiple perspectives on incubator efficacy	Lacks sufficient focus on incubated business growth. Focus on nonprofit incubators	Messeghem et al. (2018:660)

measure of power or influence as well as urgency with regard to the business and is dependent on how management prioritises competing stakeholder claims.

Applying stakeholder theory to the concept of incubator efficacy, one is required to identify, consider and measure the needs of the most salient stakeholders relevant to the incubation organisation, in order to obtain a clear understanding of the incubator's efficacy. In essence, the satisfaction of stakeholders with the organisation's activity dictates how effective the organisation is perceived to be. Considering the power, legitimacy and urgency each stakeholder or stakeholder group wields, allows for a thorough understanding of the expectations placed upon the incubators and thus the means of achieving stakeholder satisfaction, which in turn dictates the perceived level of efficacy under the stakeholder theory approach.

Because of the multifaceted nature of BIs, in that they serve incubated businesses and funders as clients, they are inherently linked to several stakeholders, thus creating the complex environment in which these organisations operate. These stakeholders can be identified across three different levels, including the incubated businesses, the incubator and entrepreneurial ecosystem as identified by Hausberg and Korreck (2020:151–176). However, there is a need to include governments as a primary stakeholder, considering the impact incubators are perceived to have on economic development. These stakeholder groups and the two perspectives on incubator efficacy identified above form the basis of the conceptual model in the following section.

Conceptual model

As discussed in the section on literature review, incubator efficacy is a complex concept that is influenced by a range of stakeholders who may have contrasting or even conflicting perceptions as to the efficacy of an incubator and who maintain varied levels of saliency with regards to the incubator. The perspectives on incubator efficacy and the varying stakeholders are mapped out in Figure 1, creating a conceptual model that underpins this study.

In Figure 1, the relationships between the different incubator stakeholder groups and the specific focus areas under each perspective of incubator efficacy, as identified in the literature review, are shown. Each focus area includes several specific elements that impact upon the efficacy of the incubator with regards to that focus area. Under the business growth perspective, the first focus area is the financial growth of incubated businesses. Financial growth in this context refers to increased revenue, increased profitability or growth in the number of employees of businesses receiving incubator support. Financial growth of the business is a key driver for entrepreneurs entering these programmes, often seeking increased revenues and profitability (Al-Damen 2021:42; Lukeš, Longo & Zouhar 2019:25–34). The second focus area is the provision of resources. This refers to the incubator's ability to provide resources to the businesses it is supporting and includes the provision of physical resources, such as a shared working space, business knowledge delivered through incubator training, access to the incubator network, perceived legitimacy as a result of being included on the incubator programme and financial capital. These resources outline the role of incubators as resource hubs, linking incubated businesses to resources it may provide – such as a shared workspace or training programmes – or those available through the incubator's network – such as financial capital, mentors and the expertise of the network itself (Breivik-Meyer, Arntzen-Nordqvist & Alsos 2020: 228–249; Van Weele et al. 2020:984–1015). The ability to create linkages between incubated businesses and these resources is a critical success factor for incubators, as identified by Alpenidze, Pauceanu and Sanyal (2019:1–13). The third focus area is the entrepreneurial experience, referring to the specific benefits derived by the entrepreneur who is involved in the incubator programme. These benefits include legitimacy, the development of an entrepreneurial network and the credibility of the entrepreneur, which may increase the business' potential for growth (Soetanto & Jack 2016:25–40).

Incubated businesses, focused on the business growth perspective of incubator efficacy, are shown to consider each focus area as relevant to their determination of incubator efficacy. Likewise, incubators themselves deem each focus area as relevant to the efficacy of their programme because incubated businesses evaluate these elements when determining efficacy.

With regard to the economic development perspective, there are again three focus areas that are relevant to incubator efficacy. The first focus area is the impact on the entrepreneurial ecosystem. As an enabling actor within entrepreneurial ecosystems, incubators are required to consider their contribution to the ecosystem at large (Qian 2018:170). This is achieved through the growth of businesses within their portfolio – as opposed to individual business growth under the business growth perspective (Ferreiro-Seoane, Rodríguez-Rodríguez & Vaquero-García 2018:553; Torun et al. 2018:93). This may raise the profile of the ecosystem, increase the provision of resources that the ecosystem can access and stimulate the creation of new ventures that may contribute to the overall innovativeness of the ecosystem (Thomas, Sharapov & Autio 2018).

The second focus area is the contribution of the incubator to enable the open innovation paradigm. Again, fulfilling an enabling role by promoting knowledge flows, the efficacy of the incubator is determined by its ability to enable access to funding, training, mentorship a network of incubator partners and networking within the incubator itself (Belitski & Heron 2017:163–177; Busch & Barkema 2020:1–36; Pustovrh, Rangus & Drnovsek 2020:1–9; Theodoraki et al., 2020:1–14).

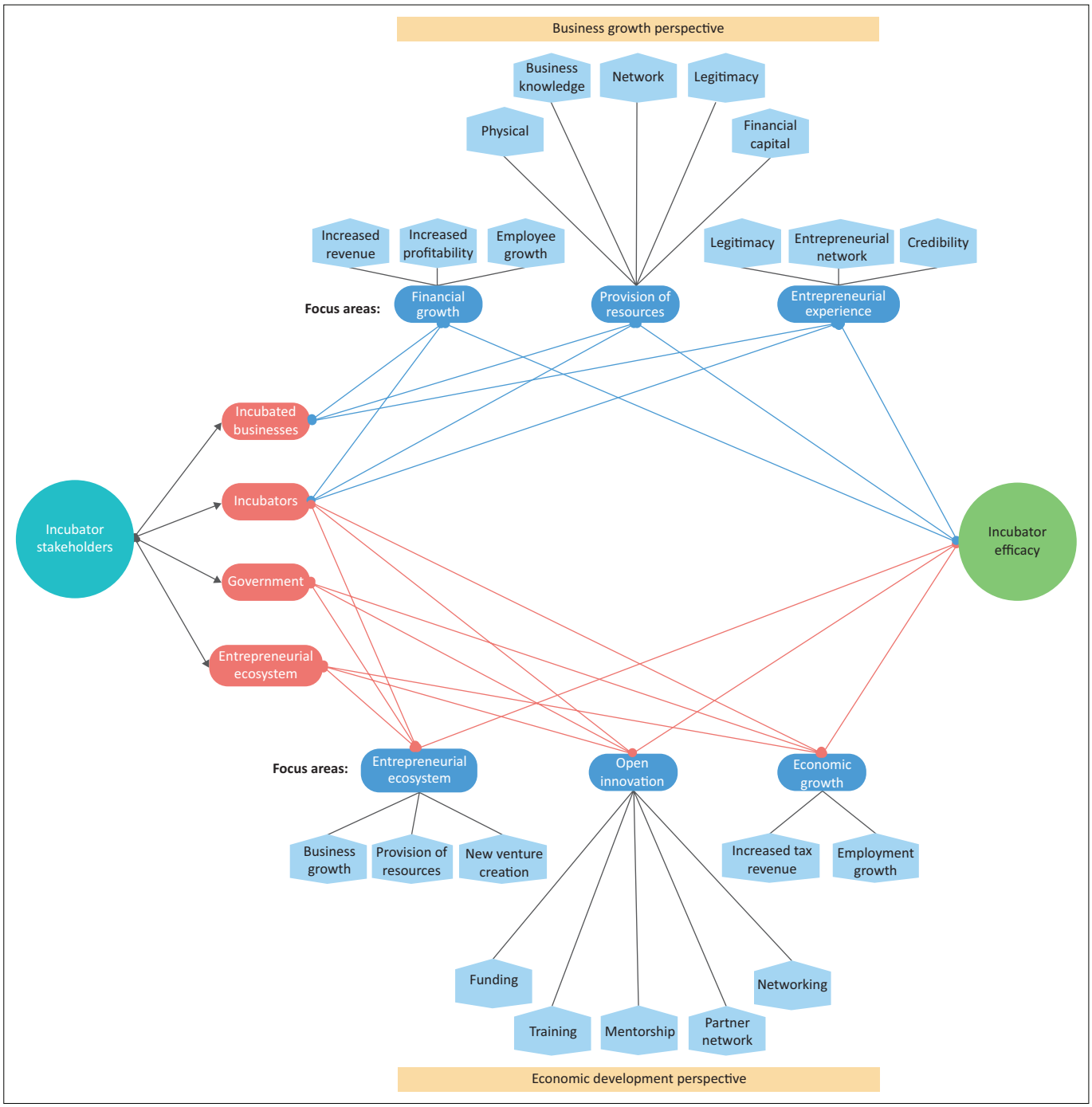

FIGURE 1: A conceptual model of incubator efficacy.

The third focus area concerns the incubator's contribution to overall economic growth. This is considered in terms of the incubator's ability to contribute to employment growth and an increase in tax revenue as a result of new venture creation or business growth (Ferreiro-Seoane et al. 2018:562; Lukeš et al. 2019:3; Madaleno et al. 2018:15; Meyer & Meyer 2017:429–441).

Government stakeholders, the entrepreneurial ecosystem and incubators are considered to maintain an economic development perspective on incubator efficacy. Government stakeholders seek to deliver economic growth, while the entrepreneurial ecosystem seeks to strengthen its ability to enable entrepreneurship – both are seen to be impacted by the efficacy of the incubator in delivering with regard to the entrepreneurial ecosystem, open innovation and economic development already discussed. Incubators are required to maintain an economic development perspective in addition to the business growth perspective discussed earlier. This is a result of the stakeholder theory, which states that (applied to business incubation) an incubator's efficacy is determined by the stakeholders' satisfaction with their activity and results.

Although two distinct perspectives of incubator efficacy apply, as shown in Figure 1, there are several specific elements, such as employment growth and networks, that

are shared between both perspectives. These shared elements indicate that the potential impact of effectively delivering these elements could maintain a multiplier effect, because of the value being derived across the different perspectives.

Research methods and design

Research aim

This study seeks to develop a consolidated framework for measuring the efficacy of BIs using stakeholder theory as its theoretical basis. This will be done by investigating stakeholder perspectives on incubator efficacy, using the business growth and economic development perspectives on incubator efficacy.

Research questions

This study set out to answer the following research questions:

- What is the relevance of stakeholder theory to incubator efficacy measurement?
- What stakeholder groups are relevant to BIs in South Africa?
- What relationships between stakeholder groups and perspectives on BI efficacy exist that would underpin a framework for measuring incubator efficacy?

Research methodology

Qualitative research is preferred as it allows for an in-depth and rich study of the phenomenon, offering an opportunity for developing a thorough understanding of the relevant concepts and the relationships that exist between them. Qualitative research is described as a process of generating ideas and improved understanding of the relationships between ideas through '… comparing, contrasting, and categorising [*sic*]' (Fischer & Guzel 2022:260). Considering this study sets out to propose a consolidated framework for measuring incubator efficacy that accounts for the relationships between different stakeholder groups and the relevant perspective on incubator efficacy, qualitative research that explores these relationships is deemed most appropriate. A key benefit of qualitative research over a conceptual study is that it is empirical research that is necessary to contribute meaningfully to the understanding of business incubation.

As stakeholder theory forms the theoretical basis of this study, considering the diversity of incubator stakeholders relevant to incubator efficacy, the most appropriate research design for this study is an exploratory qualitative research design. This study aims to explore how the identified stakeholders perceived incubator efficacy and the relative importance of these stakeholders in terms of the saliency of the stakeholder groups, aligned with stakeholder theory, in order to propose a consolidated framework for measuring incubator efficacy. Thus, adopting an exploratory qualitative study that explores the opinions of multiple parties related to a specific topic (Plano Clark & Creswell 2015:289) is deemed appropriate for the purposes of this study.

Population and sampling strategy

According to Hennink and Kaiser (2022:3), saturation in empirical qualitative studies can be reached within a range of 9–17 interviews when examining a mostly homogeneous population, which is a population that generally shares common traits or characteristics. For the purposes of this study, an overall sample size of 15 organisations was targeted, with each organisation represented by one participant. Crampton (2019) found an overall population of 70 incubation organisations in South Africa, including a variety of incubator types and models. This is the most recent comprehensive list of South African incubators and has been cited by several researchers (Dittrich 2019:3; Hewitt & Van Rensburg 2020:9; Rankeng 2020:24). This study found that despite several incubators listed by Crampton (2019) being seemingly inactive, there are 78 active incubators in South Africa. This number was determined by analysing the Crampton (2019) list, SEDA's database of incubators and exploring additional directories of South African business support organisations. Considering this relatively small population, a target sample of 15 organisations represents 19.23% of incubation organisations' population and meets the estimated sample size required to reach saturation as outlined by Clarke and Braun (2013:48) and Hennink and Kaiser (2022:3). During the data collection process, recruitment of participants proved to be difficult. Several organisations declined to participate, mirroring the difficulties in accessing data found by Hausberg and Korreck (2020:170). In addition, a moratorium on engaging in research projects imposed by a large public incubation organisation further complicated the data collection activity.

Although a target sample of 15 organisations was set, in practice this study managed to recruit 10 organisations to participate in the study. This represents 12.8% of the identified population of 78 active incubators. The profiles of all participants are summarised in Table 2.

Research instrument

Semi-structured interviews are the most common form of qualitative research and allow the researcher to raise issues that had not necessarily been foreseen or to adapt the questioning style, order and language to suit the context in which the interview is taking place (Clarke & Braun 2013:78). Because of the perceived heterogeneity of incubators, it was determined that semi-structured interviews were most appropriate for the purposes of this study.

Data analysis

According to Clarke and Braun (2013:174), thematic analysis has recently become a more widely respected, accepted and utilised method of analysing qualitative data. The strength of the thematic analysis lies in its flexibility, allowing the method to be used across a variety of research questions or objectives. Themes can be identified ahead of the data analysis (known as a 'top-down' approach) or identified

TABLE 2: Overview of participant profiles.

Participant	Incubator type	Incubator context	Source of funding	SEDA-affiliated	Industry focus	Accelerator	Included in study	Interview length
Participant 1	Not-for-profit	Rural	Government	Yes	Agriculture	No	Yes	57:47
Participant 2	Not-for-profit	Township	Government	Yes	General/ICT	No	Yes	25:48
Participant 3	University	Urban	Government or University	No	Digital	No	Yes	41:08
Participant 4	University	Urban	Government or University	Yes	Hi-Tech	Yes	Yes	30:22
Participant 5	Private, for-profit	Urban	Private	No	Software-as-a-service	Yes	No (audio recording failure)	36:16
Participant 6	Public	Urban	Government	Yes	Various	No	Yes	31:04
Participant 7	Public	Rural	Government or private	Yes	Mining supply chains	No	Yes	34:28
Participant 8	Not-for-profit	Urban	International donors	No	Social enterprises	No	Yes	30:21
Participant 9	Public	Rural	Government	No	Biofuels	No	Yes	25:27
Participant 10	Not-for-profit	Urban	Private	No	Media or film	No	Yes	36:16

ICT, information and communication technologies; SEDA, small enterprise development agency.

within the data (known as a 'bottom-up' approach). However, it is often the case that researchers use a hybrid of both methods in analysing the data relevant to a qualitative study (Clarke & Braun 2013:178). In this study, a hybrid approach was used, where themes identified in the literature and proposed in the conceptual model in Figure 1 were imposed upon the data to some extent while also allowing for themes to emerge. This was deemed appropriate, as adopting a hybrid approach allows for the contextual differences evident in the South African context rather than attempting to fit a 'square peg into a round hole'.

Using the thematic analysis method, transcripts of the semi-structured interviews conducted with participants were analysed using Atlas TI. This method enabled patterns and themes to be identified within the data, allowing for a more holistic comprehension of the phenomenon being studied.

Trustworthiness

To improve the trustworthiness of this article, the authors employed a number of techniques. Proving credibility, this study sought to triangulate the data collected, employing a stratified sampling method and a well-established data collection technique in the form of semi-structured interviews. A detailed description of the context in which the study takes place is provided to improve transferability to other contexts. Furthermore, the study's processes with regard to research design and data collection and analysis are included to improve dependability. This is aligned with Lietz and Zayas (2010:195) and Polit and Beck (2013:590) who outlined the requirements for proving trustworthiness in qualitative research.

Ethical considerations

An application for full ethical approval was made to the University of Pretoria Faculty of Economic and Management Sciences Research Ethics Committee and ethics consent was received on 12 April 2022. The ethics approval number is No. EMS220/21. This is a thorough process that ensures that the research being conducted within the faculty is sufficient regarding the ethical requirements imposed upon such a study, thus ensuring the rights, values and interests of the participants and the researcher are protected.

Results

This section outlines and analyses the results of the nine interviews conducted. Participants were asked questions according to a discussion guide but were given space to discuss the topic at length. Participants were asked about the stakeholders deemed relevant to their incubator, the two perspectives of incubator efficacy put forward in the conceptual model and the perceived relationships that exist between them. All participants identified the stakeholders present in the conceptual model, as well as additional stakeholders, which led to the model being adapted before presented as a consolidated framework at the end of this section. Participants from a variety of incubator types and locations participated in this study. As a result of technical difficulties, one participant's interview was not used in the study. However, participants were coded at the time of the interviews being conducted; thus Participant 10 is quoted below despite only nine participants being included in the study. The following sections discuss the results of the empirical study, after which a detailed discussion on the implications of the results follows.

Incubator influence on business growth

The impact of incubation programmes on the growth of incubated businesses emerged as a major theme through the analysis process. Business growth is identified as a key objective by seven of the study's nine participants. A number of key factors emerged relevant to encouraging incubated business growth such as the ability of the incubator to aggregate resources, as identified by all nine participants, provide access to incubator networks and facilitating networking between incubated businesses, as identified by Participants 4 and 8, and developing the entrepreneurial mindset of incubated business owners, as highlighted by Participant 2. Participant 8 highlighted the importance of the incubator's impact on business growth sharing this view, describing an incubator's objectives by stating:

> 'I would say the objective would be to develop or grow businesses, to those that are starting we should assist them to, to grow or

develop to move from the startup phase to be commercially viable or even somewhat sustainable.' (Participant 8)

Enabling networking between entrepreneurs can facilitate additional opportunities within the incubator itself. This view is evident considering the perspective of Participant 8:

'… [*H*]ow do we help these small businesses connect with each other person to help each other go operationally and financially and then the other one is really how do we help them.' (Participant 8)

These factors – ensuring business growth and sustainability through the development of entrepreneurial skills, enabling access to incubator resources and networks and encouraging an increase in revenue generated – are collected under the theme of 'incubator impact on business growth' and highlight the impact incubators can have on elements related to growing a startup or small business. This study confirms that incubated businesses are indeed a stakeholder of incubators and, more significantly, are primarily focused on the business growth perspective of incubator efficacy, as outlined earlier in this study. This is supported by the notion that incubated businesses engage in incubation programmes in order to achieve business growth through accessing resources, gaining credibility or collaborating with other businesses and institutions (Bøllingtoft & Ulhøi 2005:274; Hausberg & Korreck 2020:151–176).

Incubator influence on economic development

During the data analysis, a clear theme emerged regarding an incubator's ability to encourage economic development. This was a commonality across the sample, with eight of the nine participants pointing to economic development as an important objective for their incubators. Participant 3 looks at the impact of incubation on a national scale, stating:

'I think a lot of incubators focus on "what does it mean for the country rather?" And I think, again, from my perspective, that right now is what is the real goal of incubators should be. It should serve the economy in general.' (Participant 3)

Agreeing with the above, Participant 4 outlines how economic development is a shared objective across all incubator types, stating:

'… [*E*]conomic growth, if that's the shared objective economic growth, I think we differ on how to achieve those objectives, but we all I think we are in agreement. Our objective is to grow the economy.' (Participant 4)

This perspective is echoed by Participants 6, 7, 8 and 9. Participant 10 sums up the impact incubators can have on economic development by stating:

'… [*B*]usiness incubators empowering entrepreneurs because once was entrepreneurs graduates out of the business incubator space, they then can see this and create job opportunities, pay wages and salaries. Where now, we can start to see a whole lot of impact being made to you know, just business support and startups graduating …, creating more jobs. This is going to see business incubators contributing to the economic growth of, I guess the country in the province and the local municipality districts.' (Participant 10)

Participants across the sample acknowledged the perceived role they play in encouraging economic development, particularly through new venture creation and employment growth. The focus on job creation as a means of economic development is not unique to Participant 10, with all participants agreeing that it is a crucial measurement of their efficacy as an incubator. Participant 2 offers an ecosystem view, stating that job creation and business sustainability are common goals across a wide range of ecosystem role players. Encouraging employment growth is not only seen as an incubator objective but also a key objective for the government in terms of their incubation strategy. It appears that despite noble objectives, these strategies are not always effective. Participants 1, 6 and 7 questioned the efficacy of these objectives, highlighting how these measures can be politicised and may not be practical in reality.

These elements – increasing employment, increasing tax revenue, creating new ventures and increasing the survival rate of new businesses – contribute to economic development and are relevant to the theme of incubator impact on economic development. This study confirms that governments are stakeholders of incubator, in line with the findings of Rogerson (2017:1–12) and Van der Spuy (2019:16) who identified that different sectors of government focus on economic development and Li et al. (2020:14) who posit that supportive government policies are a critical success factor in creating an incubator-friendly environment. Furthermore, this study identifies that government stakeholders are primarily focused on the economic development perspective on incubator efficacy. This is supported by Ferreiro-Seoane et al. (2018:553) who identified incubators as a means of increasing tax revenue through new venture creation, and Al-Mubaraki and Busler (2015:17) and Madaleno et al. (2018:15) who highlight the employment growth opportunities incubators can potentially provide.

Incubator influence on entrepreneurial ecosystem

The incubator's impact on the entrepreneurial ecosystem emerged as a substantial theme, with six of the nine participants explicitly highlighting their role in enabling the entrepreneurial ecosystem in the interviews. Participant 7 describes their role as follows:

'So, our programme and I always say that we are not there to run SME businesses. We are there to create an ecosystem. We are there to facilitate opportunities and facilitate and create a inkage …' (Participant 7)

Participant 2 concurs with this perspective, stating:

'So, I think that's the role that they are playing currently in our incubator, but we have various other stakeholders that also play a very similar role as well, you know, because obviously, we want to be that centre of you know, where everybody can have access to it and that's what we wanting to do.' (Participant 2)

This role as an enabler of the entrepreneurial ecosystem requires making linkages between various opportunities

within the ecosystem and the incubated businesses. This could take the form of linking funding and marketing opportunities to incubated businesses, as outlined by Participants 4 and 9. This perspective is shared across the sample, with all nine participants explicitly referring to the facilitating of linkages between incubated businesses and market and funding opportunities in the entrepreneurial ecosystem, as a key role their incubators play. This role includes facilitating access to information, in particular innovation knowledge flows within the wider entrepreneurial ecosystem, as highlighted by Participants 4 and 8.

The combination of facilitating linkages to market and funding opportunities, enabling innovation knowledge flows as well as the entrepreneurial ecosystem, forms part of the theme 'incubator impact on entrepreneurial ecosystem'. This study reinforces the role that incubators play within entrepreneurial ecosystems and that the ecosystem in which they operate is considered a stakeholder of incubators. Furthermore, this study identifies that the ecosystem stakeholder is concerned primarily with the economic development perspective of incubator efficacy, as a result of the incubators' ability to affect economic development, which strengthens the overall ecosystem.

Incubator influence on communities

An emerging theme from the analysis is that of incubator impact on communities. Incubators fulfil a role within the entrepreneurial ecosystem; however, they also play a role within the communities in which they are based. Although not a view shared across the sample, Participants 2, 8 and 10 specifically highlight the importance of their impact on their local communities in the interviews, ranging from training programmes to upskill unemployed youth, as identified by Participant 2, to enabling access to resources for community members, as outlined by Participant 8. Incubators have taken on an intermediary role in their communities, allowing for varied views and opinions to be aggregated into a shared objective. Participant 8 identifies this ability stating:

> 'It's like also identifying opportunities for innovation in the communities that they work. What I remember someone made a comment last week around already how already was able to pull different voices and different lenses and bring it together into sort of a shared objective, if that makes sense.' (Participant 8)

Furthermore, incubators may also extend their role as a resource hub for businesses by enabling the communities they operate in to access technology and innovation they otherwise may not have been able to, as identified by Participant 9.

Although not as prevalent across the sample as other themes mentioned earlier, this theme offers insight into what may be an evolving area of focus for South African incubators, identifying a new stakeholder relevant to incubators in the specific communities in which they operate. The focus of these communities – improving employment rates and upskilling the communities – suggests a focus on the economic development perspective of incubator efficacy, as outlined earlier in this study.

Restrictive incubation environment

A significant theme emerged from the analysis process that focused on the impact that the environment in which incubators operate has on their perceived efficacy. This theme consists of two subthemes: incubator resource scarcity and prohibitive incubation context.

Six of the nine participants highlighted the difficulty incubators face in accessing sustainable funding for incubator operations. The consensus is that there is an over-reliance on government-provided funding, with the amounts available from government being insufficient to recruit a substantial team – with incubator managers often fulfilling many other roles as highlighted by Participant 8 or offer long-term security and sustainability to the incubation organisation. This results in incubator managers seeking to supplement funding through additional donor funding or income generation, highlighted by Participant 2, or approaching private sector funds that may not be aligned with the incubator's mission. These practices are done to 'keep the lights on' and distract from the core mission of supporting early-stage businesses. Participant 2 highlights this issue:

> 'They forget that they should actually also look at creating sustainability for the incubator itself. So, you're not generating revenue for the incubator that they also don't rely on, on government funding. It's pointless you know an incubator, you know, teaching how to become sustainable, but yet they not sustainable.' (Participant 2)

The funding-poor environment incubators face is further complicated by a lack of available talent possessing incubator management competencies, as highlighted by Participants 1, 2 and 8. These elements constitute the concept of incubator resource scarcity.

In addition to the resource scarcity faced by incubators, incubation managers operate their programmes in a heavily prohibitive incubation context, facing substantial challenges to the effective delivery of incubation programmes. These challenges are widespread and were highlighted across the participants in this study, regardless of incubator type. Of the nine participants, five pointed directly at a lack of policy or legislative support for incubators in South Africa as a substantial factor impacting on the incubation environment in the country. In addition to the assumed legislative failings identified earlier, a perceived lack of a high-quality pipeline of small businesses entering incubation programmes poses another challenge to incubator managers. Of the nine participants, five highlighted this as a relevant issue. Participant 4 describes this issue:

> 'So, incubators don't necessarily get the quality of businesses that they would like to get which then means that they don't have the opportunity to make the most impact and then it also impacts the type of money that they attract.' (Participant 4)

The lack of high-quality businesses entering incubators has a knock-on effect on the incubator's ability to raise funding for operations, as identified by Participants 1 and 4. The lack of quality businesses entering incubation programmes severely

affects the efficacy of the programme, which in turn restricts the efficacy of the incubator. In addition to a lack of talent and the restrictive legislative environment, the difficult business environment facing incubators and their incubated businesses is a common factor identified by incubator managers as a challenge facing their operations, with Participants 1, 4, 6, 7, 8 and 10 identifying substantial barriers facing both incubators and incubated businesses in navigating the South African business landscape because of substantial red-tape and difficulties ensuring access to markets.

This study aggregates these environmental issues into the concept of restrictive incubation environment as a concept that impacts on the overall perceived efficacy of incubators.

Incubator-stakeholder conflict

A consistent theme emerged from the data analysis – the prevalence of significant discontent among incubator managers and the objectives and expectations placed upon them by their stakeholders. A range of issues was highlighted in the interviews that spoke of the breadth of their discontent and disagreement with stakeholders. This theme 'incubator-stakeholder conflict' and two subthemes were identified – funding requirements and expectations and the influence of government. Incubator-stakeholder conflict is the umbrella term used to encompass the disagreement evident between incubator managers and stakeholders. The conflict lies primarily between incubators and their funders, yet also with the relevant government stakeholders.

While analysing the data, it became clear that funders can play a primary role in defining the scope of an incubator's activity, with Participant 1, a nonprofit incubator funded by the national government, stating:

> 'So basically, you know, an answer to a question in terms of how one defines an incubator, to a degree, it is in terms of what the funder themselves actually describes in terms of your requirements.' (Participant 1)

The extent to which the funders influence the incubator's scope is clear, with Participant 1 going to such lengths as to say that the very definition of an incubator relies on what the funders prescribe. The extent to which the funders' desired outcomes – in the case of Participant 1, the creation of formalised jobs – are disconnected from the realities small businesses face when starting and growing is evident in the above quote. This disconnect seemingly contributes to the discontent and conflict that exists between incubators and their stakeholders. The perspective that funders dictate and define the scope of an incubator's activities is shared by Participants 3, 4, 5 and 7. Funders are perceived as prescriptive, dictating not only the focus of an incubator's activities and the outcomes an incubator is expected to produce, but also can extend their reach to dictate the content and eligibility criteria related to the incubation programmes.

The substantial role that funders play in determining an incubator's scope, scale, model and other activities, often prescribing the specific activities the incubator should undertake or types of businesses that should be recruited onto incubation programmes, reinforces their role as a primary stakeholder of incubator organisations. However, government funders are already represented under the government stakeholder group. Thus, an additional stakeholder group is required – that of private sector funders. This is more appropriate than a generic 'funders' stakeholder group as many incubators rely on both public and private sector funding, which may come with contrasting expectations and requirements. The 'balancing act' that incubator managers are seen as having to perform in order to keep both private and public sector funders satisfied suggests that the source of funding that incubators access to funder operations moderates the relationship the incubator maintains between the business growth and economic development perspectives of incubator efficacy. For example, an incubator that is funded through government agencies would be expected to maintain more of a focus on the economic development perspective of incubator efficacy, whereas an incubator funded through a private venture capital firm may instead focus almost entirely on the business growth perspective.

Another subtheme identified under the 'incubator-stakeholder conflict' umbrella concerns the influence that government has on the incubators within South Africa and how incubator managers perceive their influence. There emerged substantial discontent among incubator managers with regard to government stakeholders because of a perceived lack of understanding of both effective incubation activities and the expectations government place upon incubators. Participants 1 and 7 were particularly vocal in their criticism of the government's activities in attempting to encourage incubation through mechanisms such as the Small Enterprise Development Agency and the Department of Small Business Development. Participant 1 highlights this issue:

> 'I think you know, there's, there's a disjunctioning [*sic*], they don't understand business. They don't understand business, they don't understand the SME environment. Treasury and the Department [*of Small Business Development*] and the [*Small Enterprise Development*] Agency are totally out of touch with what it requires to run a business in this country.' (Participant 1)

Despite this, most incubator managers see opportunities for rectifying the situation through increased collaboration with government agencies, as opposed to a 'top-down' strategy implemented through existing channels. Participants 2, 6 and 7 identified the benefits of increased collaboration with government agencies, in particular offering support to incubator managers to improve their efficacy. Participant 7 stated:

> 'And also if you look at from a from an incubation point of view, we've always said this to both the private and public; incubation is not something that an entity can do on their own. If it's to really work, government has to be involved. The municipalities have to be involved.' (Participant 7)

However, this increased collaboration is seen as being unlikely because of a perceived unwillingness to engage with incubators by government agencies. The perceived breakdown of the desired symbiotic relationship between the government and incubators is an immense barrier to effective incubation and a major contributor to incubator-stakeholder conflict.

Discussion

The aim of this study as mentioned earlier is to develop a consolidated framework for measuring the efficacy of BIs using stakeholder theory as its theoretical basis. This section will include a discussion of each research question, as well as the consolidated framework this study set out to propose.

This study set out to answer the following research questions:

1. **What is the relevance of stakeholder theory to incubator efficacy measurement?**

This study outlined stakeholder theory as its theoretical basis and set out to determine whether it was indeed relevant to the context of incubation in South Africa. All of the study's participants identified the importance of the relevant stakeholders to their organisations, including the substantial influence stakeholders have on incubator strategy, operations and programming. Furthermore, stakeholders were stated to influence the efficacy of incubators directly, through influencing the resources available to incubators, the pipeline of suitable businesses entering the incubator's programmes, the availability of the requisite talent to run the incubator successfully, and the legislative and socioeconomic environment in which incubators operate. This echoes Fiet (2022:36) who suggests that stakeholders as well as stockholders need to be considered in order to achieve growth. This study reinforces and supports stakeholder theory as a sound approach to incubator efficacy measurement in the emerging economy context that South African incubators operate in. This echoes Fiet (2022:36) who suggests that stakeholders as well as stockholders need to be considered in order to achieve growth, as well as Alsos, Hytti and Ljunggren (2011:6080), McAdam et al. (2016:3), McAdam and Keogh (2006:105) and Mian (1997a:256) who applied stakeholder theory to incubator efficacy measurement in different contexts.

2. **What stakeholder groups are relevant to business incubators in South Africa?**

This study identified four primary stakeholder groups relevant to incubators in the literature review, namely:

- Incubator managers
- Incubated businesses
- Government
- Entrepreneurial ecosystem

The results of this study confirmed and reinforced the role that these stakeholders play, with various participants independently identifying each of the named stakeholder groups, as well elaborating on the complex relationship the incubator maintains with them. This view is supported by Hausberg and Korreck (2020:151–176) who identified the four primary stakeholder groups of incubators. A number of participants highlighted the importance of developing a strong entrepreneurial ecosystem and the role they see incubators playing within it. Furthermore, a consensus arose among the participants as to the importance of government stakeholders – both as funders of incubators and as the primary influencers of the environment that incubators operate in, having an effect on the availability of incubator resources, as well as influencing the 'picture of success' applied to incubation in South Africa. In particular, a specific theme arose regarding conflict between incubators and stakeholders, highlighting the detrimental effects of poor relationships between incubators and their stakeholders. In addition to the four named stakeholders, this study identified two additional stakeholder groups:

- Private sector funders
- Communities

These additional stakeholder groups offer a broader perspective on incubator efficacy.

3. **What relationships between stakeholder groups and perspectives on business incubator efficacy exist that would underpin a framework for measuring incubator efficacy?**

This study identified two distinct perspectives on incubator efficacy in the literature – the business growth and economic development perspectives. These perspectives encompass the specific elements of incubator efficacy that stakeholders may focus on when determining whether they perceive an incubator as effective or not. Further to this, this study identified – from literature and empirical research – what relationships exist between the identified stakeholder groups and the two perspectives on incubator efficacy. Thus, the stakeholder groups may be categorised according to their propensity to focus on either the business growth perspective or economic development perspective, specifically in the South African context. A caveat is required with regard to the incubator managers who balance both perspectives. The stakeholders are categorised as follows:

- Business growth perspective:
  - Incubated businesses
  - Incubator managers
- Economic development perspective:
  - Government
  - Private sector funders
  - Entrepreneurial ecosystem
  - Communities

The unique environment in which South African incubators operate is particularly evident with regard to private sector

funders. The emergence of the private sector as a significant funder of incubation activities is perceived by participants in this study as being a result of the South African governments' Broad-Based Black Economic Empowerment (BBBEE) legislation that requires investment into enterprise and supplier development initiatives. As BBBEE legislation restricts noncompliant private sector businesses from engaging in business with the government, there is a perceived economic motivation behind the provision of funding for incubators supplied by the private sector. However, as compliance to access business opportunities with the government is the primary driver for the private sector providing incubator funding, and BBBEE legislation seeks to affect economic development through enterprise and supplier development initiatives outlined in the legislation, the private sector is thus considered to maintain an economic development perspective on incubator efficacy, as opposed to a business growth perspective.

Consolidated framework

This study set out to propose a consolidated framework with which to measure the efficacy of incubators. Building on the conceptual model presented earlier, this study proposes the framework, constructed using the identified stakeholder groups, the two distinct perspectives on incubator efficacy and the relationships between them. These relationships are graphically outlined in Figure 2.

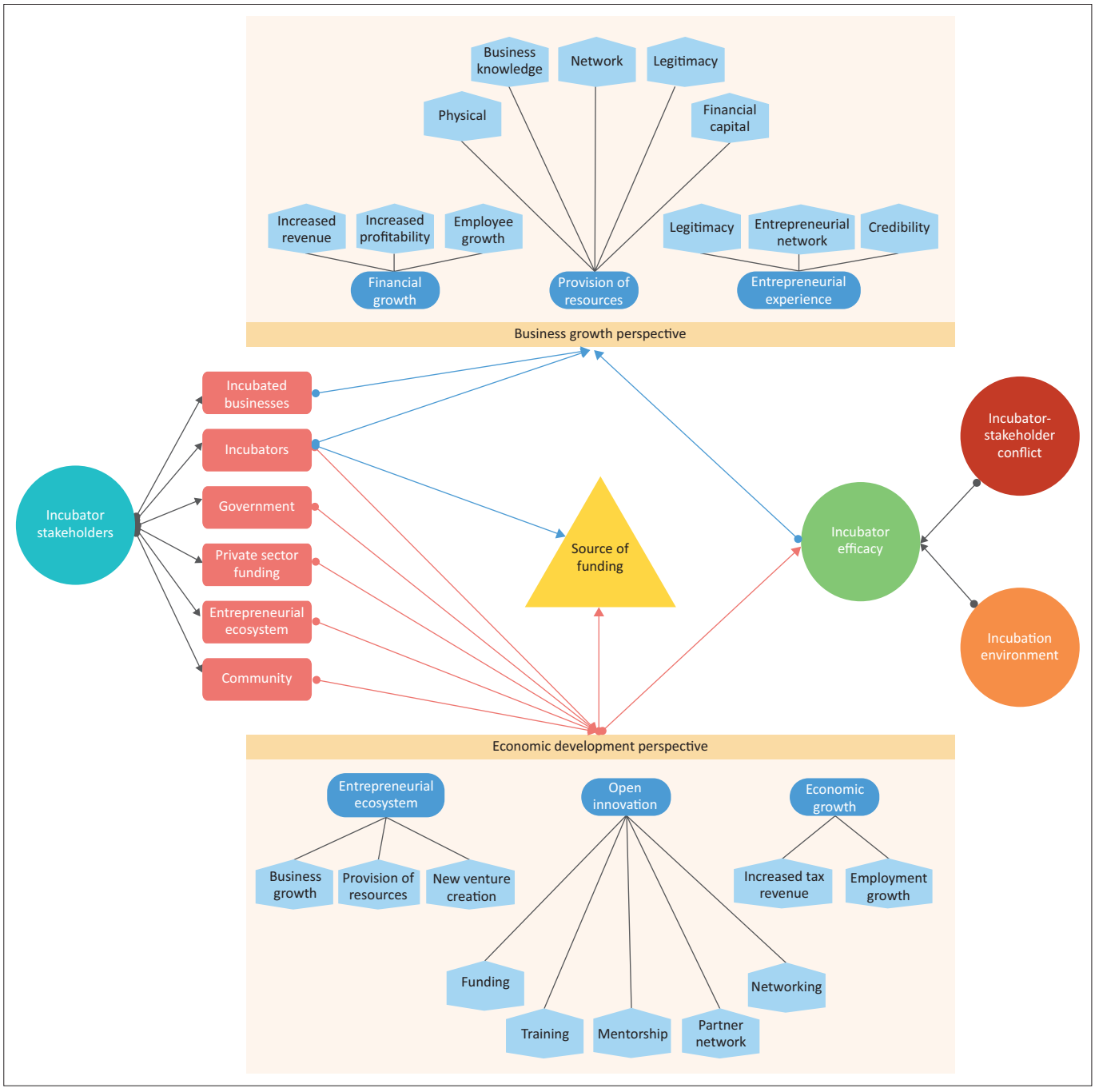

FIGURE 2: A consolidated framework for measuring incubator efficacy.

The results of this study identified three additional contributions to the proposed framework: firstly, the source of incubator funding as a moderator of the relationship between incubator managers and the two perspectives on incubator efficacy – as discussed, the source of funding (whether private or public) influences the extent to which incubators focus on one perspective over the other; secondly, the impact of incubator-stakeholder conflict on perceived incubator efficacy and finally, the impact of the incubation environment on incubator efficacy. These factors influence the overall perceived efficacy of incubators regardless of incubator type and/or source of funding. These elements paint a broader picture of the overall efficacy of incubators.

Conclusion

This study aimed to propose a consolidated framework for measuring incubator efficacy across incubator types and contexts. The sample of the study included a variety of incubator types and contexts, enabling the framework to be applied widely in the South African context. The findings of this study identified the relationships that exist between the stakeholder groups and the two perspectives on incubator efficacy identified in the literature. Additionally, this study identified two additional stakeholders – private sector funders and communities – and the relationships that exist between them and the two perspectives, in addition to identifying the moderating role that the source of funding for incubator operations has on the degree to which incubator managers focus on one perspective over another. These relationships form the basis of the proposed framework, building on the conceptual model constructed from the literature.

Furthermore, this study identified two additional concepts that impact on the perceived efficacy of incubators – incubator-stakeholder conflict and the incubation environment. These concepts affect the overall perceived efficacy of incubators regardless of the context in which the incubator operates, the type of incubator or the source of funds.

Limitations

This study focused specifically on incubators in the South African context; thus, similar studies conducted elsewhere may lead to differing results. Generalisation is difficult because of the vastly different contexts incubators operate in other countries and economies.

Future research

This study proposed a consolidated framework for measuring the efficacy of incubators in the South African context. Future research avenues include validating the framework quantitatively in the South African context, as well as exploring the validity of the framework in other contexts.

Acknowledgements

Competing interests

The authors declare that they have no financial or personal relationships that may have inappropriately influenced them in writing this article.

Authors' contributions

R.L.T.-M. conceptualised the topic, conducted the investigation and wrote the article. M.N.M. provided feedback, discussion and supervision throughout the research process.

Funding information

This research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors.

Data availability

The data supporting the findings of this study are securely filed with the authors in accordance with the relevant ethical protocols that guided the study.

Disclaimer

The views and opinions expressed in this article are those of the authors and are the product of professional research. It does not necessarily reflect the official policy or position of any affiliated institution, funder, agency, or that of the publisher. The authors are responsible for this article's results, findings, and content.

References

Al-Damen, R.A., 2021, 'Business incubator and its impact on business success: A case study of Jordan Enterprise Development Corporation (JEDCO)', *Journal of Management and Sustainability* 11(1), 1–35. https://doi.org/10.5539/jms.v11n1p35

Al-Mubaraki, H.M. & Busler, M., 2015, 'The importance of business incubation in developing countries: Case study approach', *International Journal of Foresight and Innovation Policy* 10(1), 17–28. https://doi.org/10.1504/IJFIP.2015.070054

Alpenidze, O., Pauceanu, A.M. & Sanyal, S., 2019, 'Key success factors for business incubators in Europe: An empirical study', *Academy of Entrepreneurship Journal* 25(1), 1–13.

Alsos, G.A., Hytti, U. & Ljunggren, E., 2011, 'Stakeholder theory approach to technology incubators', *International Journal of Entrepreneurial Behavior & Research* 17(6), 607–625. https://doi.org/10.1108/13552551111174693

Ayatse, F.A., Kwahar, N. & Iyortsuun, A.S., 2017, 'Business incubation process and firm performance: An empirical review', *Journal of Global Entrepreneurship Research* 7(2), 1–17. https://doi.org/10.1186/s40497-016-0059-6

Azadnia, A.H., Stephens, S., Ghadimi, P. & Onofrei, G., 2022, 'A comprehensive performance measurement framework for business incubation centres: Empirical evidence in an Irish context', *Business Strategy and the Environment* 31(5), 2437–2455. https://doi.org/10.1002/bse.3036

Barbero, J.L., Casillas, J.C., Ramos, A. & Guitar, S., 2012, 'Revisiting incubation performance', *Technological Forecasting and Social Change* 79(5), 888–902. https://doi.org/10.1016/j.techfore.2011.12.003

Belitski, M. & Heron, K., 2017, 'Expanding entrepreneurship education ecosystems', *Journal of Management Development* 36(2), 163–177. https://doi.org/10.1108/JMD-06-2016-0121

Bøllingtoft, A. & Ulhøi, J.P., 2005, 'The networked business incubator – Leveraging entrepreneurial agency?', *Journal of Business Venturing* 20(2), 265–290. https://doi.org/10.1016/j.jbusvent.2003.12.005

Breivik-Meyer, M., Arntzen-Nordqvist, M. & Alsos, G.A., 2020, 'The role of incubator support in new firms accumulation of resources and capabilities', *Innovation* 22(3), 228–249. https://doi.org/10.1080/14479338.2019.1684204

Busch, C. & Barkema, H., 2020, 'Planned luck: How incubators can facilitate serendipity for nascent entrepreneurs through fostering network embeddedness', *Entrepreneurship Theory and Practice* 46(4), 884–919. https://doi.org/10.1177/1042258720915798

Chan, K.F. & Lau, T., 2005, 'Assessing technology incubator programs in the science park: The good, the bad and the ugly', *Technovation* 25(10), 1215–1228. https://doi.org/10.1016/j.technovation.2004.03.010

Clarke, V. & Braun, V., 2013, 'Successful qualitative research: A practical guide for beginners', *Successful Qualitative Research* 1, 1–400.

Crampton, N., 2019, *The definite list of South African incubators for start-ups*, Entrepreneur South Africa, Irvine, CA.

Croteau, M., 2019, 'Measuring the performance of business accelerators and incubators: Lessons from Ontario', in *ISPIM conference proceedings,* The International Society for Professional Innovation Management (ISPIM), Ottawa, April 2019, pp. 1–15.

Dee, N., Gill, D., Lacher, R., Livesey, T. & Minshall, T., 2019, *A review of research on the role and effectiveness of business incubation for high-growth start-ups*.

Dittrich, R.P., 2019, 'The effectiveness of the Vukuzakhe programme in developing merging contractors: A case of KZN Department of Transport', Doctoral dissertation.

Eveleens, C.P., 2019, 'Interfering with innovative entrepreneurship: How business incubation impacts the performance of start-ups', Doctoral dissertation, Universiteit Utrecht.

Ferreiro-Seoane, F.-J., Rodríguez-Rodríguez, G. & Vaquero-García, A., 2018, 'Public investment in business incubators, is it better than doing nothing? *International Journal of Entrepreneurship and Small Business* 33(4), 553–574. https://doi.org/10.1504/IJESB.2018.090355

Fiet, J.O., 2022, *The theoretical world of entrepreneurship*, Edward Elgar Publishing, Cheltenham.

Filion, P., Reese, L.A. & Sands, G., 2019, 'Progressive economic development policies: A square PED in a round hole', *Urban Affairs Review* 57(5), 1410–1441. https://doi.org/10.1177/1078087419886362

Fischer, E. & Guzel, G.T., 2022, 'The case for qualitative research', *Journal of Consumer Psychology* 33(1), 259–272. https://doi.org/10.1002/jcpy.1300

Fonseca, S.A. & Jabbour, C.J.C., 2012, 'Assessment of business incubators' green performance: A framework and its application to Brazilian cases', *Technovation* 32(2), 122–132. https://doi.org/10.1016/j.technovation.2011.10.006

Games, D., Kartika, R., Sari, D.K. & Assariy, A., 2021, 'Business incubator effectiveness and commercialization strategy: A thematic analysis', *Journal of Science and Technology Policy Management* 12(2), 176–192. https://doi.org/10.1108/JSTPM-03-2020-0067

Grimaldi, R. & Grandi, A., 2005, 'Business incubators and new venture creation: An assessment of incubating models', *Technovation* 25(2), 111–121. https://doi.org/10.1016/S0166-4972(03)00076-2

Hackett, S.M. & Dilts, D.M., 2004, 'A systematic review of business incubation research', *The Journal of Technology Transfer* 29(1), 55–82. https://doi.org/10.1023/B:JOTT.0000011181.11952.0f

Harper-Anderson, E. & Lewis, D.A., 2017, 'What makes business incubation work? Measuring the influence of incubator quality and regional capacity on incubator outcomes', *Economic Development Quarterly* 32(1), 60–77. https://doi.org/10.1177/0891242417741961

Haugh, H., 2020, 'Call the midwife! Business incubators as entrepreneurial enablers in developing economies', *Entrepreneurship & Regional Development* 32(1–2), 156–175. https://doi.org/10.1080/08985626.2019.1640480

Hausberg, J.P. & Korreck, S., 2020, 'Business incubators and accelerators: A co-citation analysis-based, systematic literature review', *The Journal of Technology Transfer* 45, 151–176. https://doi.org/10.1007/s10961-018-9651-y

Hennink, M. & Kaiser, B.N., 2022, 'Sample sizes for saturation in qualitative research: A systematic review of empirical tests', *Social Science & Medicine* 292, 114523. https://doi.org/10.1016/j.socscimed.2021.114523

Hewitt, L.M. & Van Rensburg, L.J.J., 2020, 'The role of business incubators in creating sustainable small and medium enterprises', *The Southern African Journal of Entrepreneurship and Small Business Management* 12(1), 9. https://doi.org/10.4102/sajesbm.v12i1.295

Li, C., Ahmed, N., Qalati, S.A., Khan, A. & Naz, S., 2020, 'Role of business incubators as a tool for entrepreneurship development: The mediating and moderating role of business start-up and government regulations', *Sustainability* 12(5), 1822. https://doi.org/10.3390/su12051822

Lietz, C.A. & Zayas, L.E., 2010, 'Evaluating qualitative research for social work practitioners', *Advances in Social Work* 11(2), 188–202. https://doi.org/10.18060/589

Lukeš, M., Longo, M.C. & Zouhar, J., 2019, 'Do business incubators really enhance entrepreneurial growth? Evidence from a large sample of innovative Italian start-ups', *Technovation* 82–83, 25–34. https://doi.org/10.1016/j.technovation.2018.07.008

Lyra, R.M. & Almeida, M.F.L., 2018, 'Measuring the performance of science and technology parks: A proposal of a multidimensional model', *Journal of Physics: Conference Series* 1044, 012042. https://doi.org/10.1088/1742-6596/1044/1/012042

Madaleno, M., Nathan, M., Overman, H.G. & Waights, S., 2018, *Incubators, accelerators and regional economic development*, IZA Discussion Paper No. 11856, SRRN, viewed 23 August 2023, from https://ssrn.com/abstract=3261715.

Mansano, F.H. & Pereira, M.F., 2016, 'Business incubators as support mechanisms for the economic development: Case of maringá's technology incubator', *International Journal of Innovation* 4(1), 23–32. https://doi.org/10.5585/iji.v4i1.51

Masutha, M. & Rogerson, C.M., 2014a, 'Business incubation for small enterprise development: South African pathways', *Urban Forum* 26, 223–241. https://doi.org/10.1007/s12132-014-9242-4

Masutha, M. & Rogerson, C.M., 2014b, 'Small business incubators: An emerging phenomenon in South Africa's SMME economy', *Urbani Izziv* 25, S47–S62. https://doi.org/10.5379/urbani-izziv-en-2014-25-supplement-004

McAdam, M., Miller, K. & McAdam, R., 2016, 'Situated regional university incubation: A multi-level stakeholder perspective', *Technovation* 50–51, 69–78. https://doi.org/10.1016/j.technovation.2015.09.002

McAdam, R. & Keogh, W., 2006, 'Incubating enterprise and knowledge: A stakeholder approach', *International Journal of Knowledge Management Studies* 1(1–2), 103–120. https://doi.org/10.1504/IJKMS.2006.008848

Messeghem, K., Bakkali, C., Sammut, S. & Swalhi, A., 2018, 'Measuring nonprofit incubator performance: Toward an adapted balanced scorecard approach', *Journal of Small Business Management* 56(4), 658–680. https://doi.org/10.1111/jsbm.12317

Meyer, N. & Meyer, D.F., 2017, 'An econometric analysis of entrepreneurial activity, economic Ggowth and employment: The case of the BRICS countries', *International Journal of Economic Perspectives* 11(2), 429–441.

Mian, S.A., 1997a, 'Assessing and managing the university technology business incubator: An integrative framework', *Journal of Business Venturing* 12(4), 251–285. https://doi.org/10.1016/S0883-9026(96)00063-8

Mian, S.A., 1997b, *Technology business incubation: Learning from the US experience*, p. 53, Unclassified OCDE/GD (97) 202, Organisation for Economic Co-operation and Development, Paris.

Mian, S., Lamine, W. & Fayolle, A., 2016, 'Technology business incubation: An overview of the state of knowledge', *Technovation* 50–51, 1–12. https://doi.org/10.1016/j.technovation.2016.02.005

Mian, S.A., 2021, 'Whither modern business incubation? Definitions, evolution, theory, and evaluation', in S.A. Mian, M. Klofsten & W. Lamine, (eds.), *Handbook of research on business and technology incubation and acceleration*, pp. 17–38, Edward Elgar Publishing, Cheltenham.

Miller, K., McAdam, M. & McAdam, R., 2014, 'The changing university business model: A stakeholder perspective', *R&D Management* 44(3), 265–287. https://doi.org/10.1111/radm.12064

Millette, S., Hull, C.E. & Williams, E., 2020, 'Business incubators as effective tools for driving circular economy', *Journal of Cleaner Production* 266, 121999. https://doi.org/10.1016/j.jclepro.2020.121999

Polit, D.F. & Beck, C.T., 2013, 'Is there still gender bias in nursing research? An update', *Research in Nursing & Health* 36(1), 75–83.

Plano Clark, V.L. & Creswell, J.W., 2015, *Understanding research: A consumer's guide*, viewed n.d., from http://repository.vnu.edu.vn/handle/VNU_123/90019

Pustovrh, A., Rangus, K. & Drnovšek, M., 2020, 'The role of open innovation in developing an entrepreneurial support ecosystem', *Technological Forecasting and Social Change* 152, 119892. https://doi.org/10.1016/j.techfore.2019.119892

Qian, H., 2018, 'Knowledge-based regional economic development: A synthetic review of knowledge spillovers, entrepreneurship, and entrepreneurial ecosystems', *Economic Development Quarterly* 32(2), 163–176. https://doi.org/10.1177/0891242418760981

Rankeng, N., 2020, 'An aggregator business model for enterprise and supplier development in the transport industry', Doctoral dissertation, University of Johannesburg.

Rogerson, C.M., 2016, 'Re-energising business incubation policy in South Africa: Learning from international experience', in *Celebrate a century of geography: Proceedings of the 11th biennial conference of the Society of South African Geographers*, Sun Media, Stellenbosch, September 25–28, 2016, pp. 22–29.

Rogerson, C.M., 2017, 'Business incubation for tourism SMME development: International and South African experience', *African Journal of Hospitality, Tourism and Leisure* 6(2), 1–13.

Soetanto, D. & Jack, S., 2016, 'The impact of university-based incubation support on the innovation strategy of academic spin-offs', *Technovation* 50–51, 25–40. https://doi.org/10.1016/j.technovation.2015.11.001

Theodoraki, C., Messeghem, K. & Audretsch, D.B., 2020, 'The effectiveness of incubators' co-opetition strategy in the entrepreneurial ecosystem: Empirical evidence from France', *IEEE Transactions on Engineering Management* 69(4), 1781–1794. https://doi.org/10.1109/TEM.2020.3034476

Thomas, L.D., Sharapov, D. & Autio, E., 2018, 'Linking entrepreneurial and innovation ecosystems: The case of AppCampus', in S. Alvarez, E.G. Carayannis, G. Dagnino & R. Faraci, (eds.), *Entrepreneurial ecosystems and the diffusion of startups*, pp. 35–65, Edward Elgar Publishing, Cheltenham

Torun, M., Peconick, L., Sobreiro, V., Kimura, H. & Pique, J., 2018, 'Assessing business incubation: A review on benchmarking', *International Journal of Innovation Studies* 2(3), 91–100. https://doi.org/10.1016/j.ijis.2018.08.002

Vanderstraeten, J. & Matthyssens, P., 2010, 'Measuring the performance of business incubators: A critical analysis of effectiveness approaches and performance measurement systems', in T. Lonier, Ph.D (ed.), *ICSB World Conference Proceedings: 1, International Council for Small Business (ICSB)*, Washington, DC, USA/Conference host city: Cincinnati, Ohio, USA. 24-27 June 2010.

Van der Spuy, S.J.H., 2019, 'The state of business incubation in the Northern Cape: A service spectrum perspective', *The Southern African Journal of Entrepreneurship and Small Business Management* 11(1), a271. https://doi.org/10.4102/sajesbm.v11i1.271

Van Weele, M.A., Van Rijnsoever, F.J., Groen, M. & Moors, E.H., 2020, 'Gimme shelter? Heterogeneous preferences for tangible and intangible resources when choosing an incubator', *The Journal of Technology Transfer* 45, 984–1015. https://doi.org/10.1007/s10961-019-09724-1