

Applying the ecosystem model in a new context? The case of business incubation in Oman

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Abstract

This paper studies entrepreneurship ecosystem development in a context little discussed in the extant literature to date: Oman. Specifically, it focuses on business incubation (BI) initiatives as a policy tool for developing the local, regional, and national systems of supporting entrepreneurship and SME growth. Although BI's are a popular policy measure for ecosystem development, spreading globally from their original conception in the United States around 60 years ago, their universal effectiveness is questioned. We analyse the tenability of BI as an economic development strategy by entrepreneurship ecosystems as a conceptual framework to help us understand the multitudinous cultural, institutional, and governance structures required for success. Specifically, we consider these ecosystem dynamics and their influence on the incubation of SMEs in the novel context of an oil-rich yet transitioning economy such as Oman. Conducting interviews with 22 key informants within a range of ecosystem actors (policy-makers, incubator managers, academics, and entrepreneurs) we find that existing capabilities within the Omani BI programme are not yet fully fit for purpose, highlighting the need to establish developmental priorities for the wider entrepreneurial ecosystem, bottom-up. Finally, we reflect on the wider cultural and institutional constraints highlighted, and suggest potentially fruitful avenues for further research.

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1 | INTRODUCTION

Many countries, including the Sultanate of Oman, provide a range of initiatives and policies to create a supportive environment appropriate for the growth of small and medium enterprises (SMEs). Here, we situate these efforts within the concept of the entrepreneurial ecosystem (EE) development, which is gaining traction within both the academic and policy practice spheres. Amongst these ecosystem development efforts, business incubation (BI) programmes have experienced high growth worldwide as an effective tool for promoting entrepreneurship, supporting nascent businesses, and enhancing economic diversification (Bartlett & Bukvič, 2001; Bøllingtoft & Ulhøi, 2005; Lalkaka & Abetti, 1999; Stokan et al., 2015). Since the first BI unit was introduced over 60 years ago in the United States, more than 7,000 facilities worldwide are now operational (National Business Incubation Association, 2014), with the number growing rapidly particularly in the emerging economies of Asia as more countries consider BI as a policy intervention to increase economic growth (Jamil et al., 2016). However, the provision of incubator space in isolation may not be sufficient for the effective implementation of regional development policies (Hannonö & Chaplin, 2003). Often efforts to create structures supporting business development, such as incubators, accelerators, and science parks, result in “cathedrals in the desert” lacking embeddedness in their regions and localities (Cooke & Clifton, 2005; Pugh et al., 2018). Consequently, the role of “soft” factors for entrepreneurial learning has been stressed (Clifton et al., 2015), as, indeed, have new forms of micro-level work organisation itself (Clifton et al., 2019). Consequently, the focus is shifting towards a value-added incubation process beyond infrastructure alone (Hannonö & Chaplin, 2003; Junaid, 2014; Lalkaka, 2001), or what could be termed “next generation incubators” (Kautonen et al., 2017). In this paper we consider the potential of shifting to a “next generation” and “value added” approach to BI by exploiting interconnections between incubators and the wider environment, institutions, and cultures within which they are embedded, using the EE concept as a tool for doing this.

This search for alternative models or iterations on the business incubator model is partly due to the realisation from cases around the world that the ability or effectiveness to support nascent business varies between BIs (Costa-David et al., 2002; Lalkaka, 2001). Barrow (2001) and Hackett and Dilts (2004) argued that there is variation in the effectiveness of BI when it comes to delivering what clients (incubated firms as start-ups, or young small firms) need; this variation is based on what is termed value-adding capability. Allen and McCluskey (1990) referred to value-added factors as specific methods that an incubator uses to enhance the creation of value in the BI process. Hackett and Dilts (2004) essentially regard as a potential value-adding factor any relevant provision that is over and above basic physical space only. In the literature, value-added is typically correlated with effectiveness (see, for example, Costa-David et al., 2002; Hackett & Dilts, 2004; Lalkaka, 2001; Löfsten & Lindelöf, 2002), and is considered an evaluative approach to differentiate between the traditional BI model and the value-added BI model (Barrow, 2001; Mian, 1996; Vanderstraeten & Matthyssens, 2010). Thus, in this study, any critical factors or methods that influence the effectiveness of BI are referred to as value-added capability (VAC) factors. These factors are activities that add a critical positive difference to BI outcomes (incubated firms’ survival and growth). As such, VAC factors are those which can lead to BI effectiveness. This means that the performance of the BI is effective enough to achieve the expected outcomes (e.g., survival and growth of incubated firms, programme sustainability and growth, and achieving sponsored related objectives) (CSES, 2002; Lalkaka, 2001). Therefore, it is crucial to understand how a VACs model of BI can be developed by exploring the factors influencing VACs within the surrounding business ecosystem. This is the specific gap in our current knowledge about business incubation as a mode of ecosystem development that this paper will fill.

The demonstration of positive impacts of BIs has led many developing countries, specifically oil-rich states, such as Oman, to adopt BI programmes, but often with limited attention being paid to the required alignment at the macro and micro levels. Or in other words, with a lack of attention to BIs' interaction with the wider ecosystem. Nonetheless, BIs' effectiveness in achieving the expected micro and macro impacts varies from one BI to another, based on VAC factors as per above. Using the ecosystem approach to guide us, we can dig deeper into these factors, and their cultural and institutional basis. First, to better analyse BI efforts and their (potential or realised) tenability and success, and secondly to make policy recommendations going forwards as to how incubation strategies can be better aligned to local and regional ecosystem attributes, highlighting the strengths to build on and the weaknesses to be addressed. Ultimately the aim is to build a more supportive and holistic environment for entrepreneurship and SME development.

In this paper we place “context” in a central position, taking the example of Oman as an alternative context to the United States and Northern Europe dominated discussions of ecosystem development in the literature to date. The specificities of the economic, cultural, political, and physical geographies of such a location mean that we cannot necessarily assume that policy (and theoretical concepts) will transfer unproblematically when they have been largely developed and tested or evaluated in core urban regions in the Global North. Oman has been proactively pursuing policy approaches to encourage entrepreneurship and SME development to transition and diversify its economy from nature resource dependency. This has, of course, led to an interest in policy approaches that have proved successful elsewhere before adoption in the Oman context. The tensions or pitfalls of policy transfer across different contexts are already documented (Bok & Coe, 2017; Clifton & Usai, 2019; McCann, 2011), but there continues to be an understandably strong interest in trying to incorporate “best practice” into national and regional approaches.

This paper is structured as follows. First, we provide some grounding for our study from recent developments in the Omani business support infrastructure and ecosystem development. Then we review the academic literature pertaining to business incubation, VAC factors, EEs, and transnational policy motilities, which will together make up the theoretical foundations for this paper. Then we present a comprehensive case study of the BI efforts implemented in Oman in the last decade, focusing specifically on the wider ecosystem development and VAC factors we view as crucial in understanding how such policy approaches can lead to the start-up and growth of indigenous businesses. Finally, we reflect on the Oman case, and how it contributes to taking our usual approach to studying ecosystem development out of its Global North comfort zone, adding an underexplored context of how such policies and dynamics function in an oil-rich economy. The study contributes to both theoretical and practical knowledge by developing the VAC factors approach in the context of transforming the current traditional BI model in Oman to a more value-added one. The study has also identified a number of further recommendations, limitations, and future research opportunities to develop business incubation specifically, but more broadly ecosystem development in line with identified VAC factors.

1.1 | Oman—Brief context and economy

The Omani population reached approximately 4.6 million in 2016, doubling from 2003; this population includes around 2 million expatriates. Around half of the population is aged 19 or under, of which 655,000 are students (National Centre for Statistics and Information, Oman). According to the 2013 Global Peace Index report from the Institute for Economics and Peace (IEP), Oman is ranked 45th of 162 countries across the world, and 4th in the Middle East and North Africa (IEP, 2012).

Oman started to export oil in 1967 and today the Omani economy depends heavily on crude oil. GDP has grown rapidly over the last half-century reaching \$81.5 billion by 2015.¹ In 1995 the government announced the establishment of Oman's economic vision for the next 25 years under the title "Economic Vision 2020" (Ministry of National Economy Oman, 2002). The main theme was that the country in 2020 would no longer be an oil-reliant economy (an optimistic target of 9% only as a contribution of oil to GDP was set²). A key tenet of this strategy was to grow the contributions of entrepreneurship and SMEs in general to the Omani economy thus providing viable career opportunities for educated Omanis, whilst also reducing the dependence on expatriate labour. Until 2007 support initiatives for SMEs in Oman were provided by no fewer than four different ministries, with all initially involved directly through different development programmes (i.e., the Ministry of Commerce, represented by the Department of SMEs; the Ministry of Manpower, represented by the "Sanad" youth business support programme; the Ministry of Social Development, represented by the Sources Generating Projects programme; and the Ministry of Agriculture and Fisheries, represented by the Agricultural and Rural Projects programme). Unsurprisingly, a lack of coordination between these ministries resulted in an overlap of ineffective provision and the inability to tackle the real problems faced by SMEs (Al-Shanfari, 2010). Hence, while Oman had an economic vision for 2020 developed in 1995, the government only integrated support services for SMEs in 2007 when a royal decree established The General Directorate for the Development of SMEs, subsequently Public Authority for Small and Medium Enterprises Development (PASMED) in 2013. From a policy perspective, the Omani Economic Vision 2020 primarily emphasised the importance of private sector development, and was criticised for not having a policy framework drawn up for promoting an entrepreneurship culture (Buckley & Rynhart, 2011).

Amongst the policies which have attempted to support small businesses is the Omani public BI programme. This is a relatively recent development, with the first BI programme introduced through the Sanad initiative in 2001, under the supervision of the Ministry of Manpower. The primary objective was tackling unemployment via SME development; Sanad targeted unemployed Omanis aged 18–40, including jobseekers and new graduates interested in starting small businesses. However, Sanad only provided offices or self-employment centres, along with general training services (UNEVOC, 2010). Of particular note here are the two first public BIs in Oman with value-adding services beyond infrastructure. The first of these is the National Business Centre (NBC), previously known as The Knowledge Mine (TKM—opening in 2004 and becoming the NBC in 2012)—a mixed public BI developed with modern support facilities located in the Knowledge Oasis Muscat (KOM) Technology Park. KOM also accommodates Sas BI, a second public BI initiative supervised by the Information Technology Authority (ITA), which specialises in supporting information and communication technology (ICT) enterprises and targeting tech start-ups.

2 | LITERATURE REVIEW

2.1 | The role of business incubators in supporting entrepreneurship and innovation

Although they come in different shapes and sizes, varying in terms of structure, support services, and operational processes, incubators, according to Theodoraki et al. (2018) share a common purpose: to promote entrepreneurship, innovation, the creation of new firms, and economic development. For Klofsten et al. (2016) they are key elements of sustainable EEs (Spigel, 2017). Hayter (2016) describes them as the "entrepreneurship ombudsman," and Kautonen et al. (2017) explain that incubators are a

widely employed instrument of regional innovation policy. Thus, they are key organisations within both entrepreneurship and innovation systems. However, although incubators have become a popular tool developed by governments, universities, and the private sector, for encouraging entrepreneurship and innovation, they have not been met with success everywhere: Benneworth and Charles (2005) are critical of the proliferation of “cathedrals in the desert,” underused by local populations, and taking vast public resources. Moreover, incubators have been credited with enhancing innovation and entrepreneurship ecosystems, and developing successful triple helix structures (Etzkowitz & Leydesdorff, 1997) of university-industry-government interactions in settings as diverse as Brazil (Etzkowitz et al., 2005), and Cambridge, United Kingdom (Casper & Karamanos, 2003). In the literature, incubators are often grouped together with other similar initiatives to support innovation and new businesses such as science parks and accelerators (e.g., Cumming et al., 2019). We are focusing our research on business incubators. We can define these as per Dee et al. (2015), that is, physical spaces, typically available on relatively flexible terms, which provide additional services such as training for entrepreneurs, access to networks, and specialist equipment. Incubators are typically dependent on charging rent or membership fees to residents, often on a monthly basis. By charging rent, rather than taking equity in the businesses they support, incubators can support businesses that are unlikely to scale rapidly. In many cases, incubators are aligned with a university, supporting spin-outs along with other local businesses.

The recognised centrality of such organisations or structures as incubators to broader EE development and governance initially piqued our interest as scholars of regional development and policy, especially in our work on understanding how to support and develop EEs at the regional level (cf. Colombelli et al., 2019; Cumming et al., 2019; Squicciarini, 2009).

2.2 | Business incubators' evolution

The BI concept has spread rapidly around the world and its evolution has been classified by numerous scholars (e.g., Barrow, 2001; Bruneel et al., 2012; CSES, 2002; Hackett & Dilts, 2004; Lalkaka, 2001) into three basic typologies with a corresponding period of development as follows:

- First generation (late 1950s–1980s)—the Infrastructure Economies of Scale period. BIs offered affordable office space and shared general resources (Barrow, 2001; Lalkaka & Bishop, 1996). Physical infrastructure was considered the core value proposition (Allen & McCluskey, 1990; Chan & Lau, 2005). Lack of professional business support services (e.g., coaching, training, mentoring, and other knowledge-based services) led to second-generation BIs.
- Second generation (mid-1980s–mid-1990s)—the Business Support period. BIs extended their value proposition by offering not only infrastructure but also business support services geared towards accelerating the learning curve of entrepreneurs (Hackett & Dilts, 2004; Lalkaka, 2001). Advances in information and communications technologies allowed enterprises to solve operational issues rapidly (Abetti & Rancourt, 2006; CSES, 2002).
- Third generation BIs (mid-1990s–present)—the Networks and Value Chains period (Bruneel et al., 2012; Hansen et al., 2000). The most common characteristic of BIs in this generation is the considerable VACs which allow new firms to grow and build sustainability more rapidly as a result of access to higher capabilities through developing strong networks (Bruneel et al., 2010).

Scholars have explicitly emphasised the role of BIs in general as a tool for economic development (Hackett & Dilts, 2004). However, despite similarities of purpose, significant variations do exist across

different BIs. In the literature (Allen & McCluskey, 1990; Barrow, 2001; Gassmann & Becker, 2006; Hackett & Dilts, 2004) differing BI models in terms of their ability to deliver VACs are considered. Consequently, the literature presents two main models of BIs: a traditional model, and a VACs model (Allen & McCluskey, 1990; Grimaldi & Grandi, 2005; Hackett & Dilts, 2004; Hannon, 2004). Moreover, it should be noted that the work of Bruneel et al. (2012) suggests that the above delineation is nuanced, with BI models not necessarily mutually exclusive— that is, that to an extent the generational models co-exist. They find that longer-established incubation facilities have updated their offer over time to include elements associated with more recent generations (such as coaching and mentoring, training). However, where there are significant differences observed these are more likely to be on the demand side of BI (i.e., the extent to which tenants make use of service provision) rather than on the supply of services per se. In addition, Bruneel et al. (2012) find occupants of earlier generation BIs to be on average more established enterprises when they enter (larger, older) and who typically stay longer. This suggests that observed differences are more about shifting demand profiles—which may reflect a transition in developed economies towards a more flexible, outsourced, networked business model with a higher premium on innovation (Gottfredson et al., 2005).

2.3 | The importance of a valued added approach to business incubation

As value creation is considered at the core of business strategy (Ramirez, 1999), the interactions and exchange of resources between BIs and external actors consequently focus on this ability of BIs to create value (Normann & Ramirez, 1993; Ramirez, 1999). Hackett and Dilts (2004, p. 41) refer to BIs as a “value-adding intervention system.” Allen and McCluskey (1990) proposed three outcomes or expected value of BI: occupancy; jobs created; firms graduated. Similarly, Mian (1997, p. 258) argued that BI has four main value categories: (a) programme sustainability and growth; (b) tenant firms' survival and growth; (c) contributions to the sponsor; (d) community-related impacts. A private sponsor's value concern is related to profit through rent, equity, and business development, whereas a public sponsor's value concern relates to job creation, innovation, SME support, and entrepreneurship development. Although significant attention is given in the BI literature to the perceived value-added impact of BIs to their clients, sponsors, and community (Aaboen, 2009; Allen & McCluskey, 1990; Mian, 1996), the question as to how such expected value can best be created through the BI process has received rather less. Junaid (2014) argued that it is necessary to understand how BI works in practice and move away from context-free “black-box” approaches (Hackett & Dilts, 2004), which simply predict incubation outcomes without any real understanding of the BI process.

Demands for financial responsibility, transparency, and accountability amongst BI practitioners globally have increasingly driven the need for BI effectiveness (Brown, 2008; Chan & Lau, 2005; Hackett & Dilts, 2004). In general, evaluative studies (Al-Mubarak & Schröl, 2011; Bhabra-Remedios & Cornelius, 2003; Mian, 1996; Vanderstraeten & Matthyssens, 2010; Voisey et al., 2006) have attempted to establish metrics, ultimately with the goal of identifying BI programme best practice (Lalkaka, 2001). Moreover, policy makers and other stakeholders have sought to measure impact and identify and establish good practice (CSES, 2002). However, often due to the inconsistent criteria applied and varying levels of analysis, consensus regarding the results is hard to discern (McGowan et al., 2011). The literature also shows some contradictory views about the value of BIs to the economy in general. As BI is intended to support entrepreneurs, facilitating the creation and growth of SMEs, governments have employed it to pursue start-ups (Campbell, 1989), job creation (Mian, 1997; Thierstein & Willhelm, 2001), technological innovation, and industrial renewal (Allen & McCluskey, 1990; Allen & Rahman, 1985; Mian, 1996; Smilor & Gill, 1986)—and thus ultimately

regional development outcomes. The success or otherwise of such initiatives has also been something of a vexed question (Campbell, 1989; Tamasy, 2007). More recently a study by Barbero et al. (2012) of ninety public and private incubators showed that economic development goals were not consistently met, calling into question the value of public investments therein (Tavoletti, 2013). As noted above, contradictory evidence can result from conflated levels of evaluation. For instance, comparing a region's economic welfare outcomes with organisational outcomes is problematic and highlights regional policy dilemmas (Lovering, 2001; Uyarra, 2007). Thus, a value-added approach as introduced in this paper may play an important role in better understanding the apparently contradictory results of BI evaluation. With the need to create value by serving the potentially diverse interests of incubatees and their sponsors simultaneously, the BI phenomenon requires more holistic investigation (Aaboen, 2009). Hence, the study of VACs is crucial to better understanding of how BIs can achieve the values or impacts required. In short, a focus on the VACs may help to increase the chances of success for incubation programmes.

2.4 | Ecosystem environment & VACs of business incubation

The BI process can be better understood within a broader environmental system consisting of surrounding ecosystem actors (CSES, 2002; Lalkaka, 2001); BIs do not stand alone, but are part of a dynamic system (Junaid, 2014). An open system continuously interacts with its environment, receiving feedback, gaining new inputs, and learning how its outputs are viewed by outside elements (Acs et al., 2017). Considering a BI as an open system that affects, and is affected by, its surrounding ecosystem, it is necessary to explore how the external context shapes the VACs of BI. The literature presents the importance of providing incubating firms with diverse resources by accessing potential: suppliers; customers; investors (see for example Bøllingtoft & Ulhøi, 2005; Hansen et al., 2000). However, less attention has been given to show how BIs connect with surrounding ecosystem actors and enable such services. Aaboen (2009) argued there is still not much empirical knowledge about how BIs connect with ecosystem actors, such as universities and large corporations.

A BI can be considered as an intermediary or conduit of resources that exist in the ecosystem, to facilitate the formation and development of new enterprises (Barbero et al., 2012; Bøllingtoft & Ulhøi, 2005; Hackett & Dilts, 2008); Aaboen (2009, p. 660) note that “Resources seem to be a central concept of incubators”; these resources influence the capability of BIs to develop the requisite services (Lin et al., 2012). Due to critical resources often not existing in the regional or national context, Tamasy (2007) posited that BIs should not necessarily be publicly funded, as results for producing innovative start-ups typically lagged expectations. Thus, he concluded that regions need to have a favourable context, such as the presence of knowledge spillovers; universities serving as good hosts with strong linkages to the broader economy; and effective mediation to external business organisations that can support entrepreneurship and innovation. Moreover, another important regional resource is the entrepreneurs themselves who can lead knowledge-driven enterprises that are able to survive and grow, rather than depending on rent-seeking businesses that increase the cost of goods and services without eventually increasing supplies or new entrants into a competitive market (Baumol, 1993).

Specific contextual characteristics critical to attracting resources for innovation and entrepreneurial activities vary from region to region (Minniti, 2008). In contrast to Tamasy (2007), a European Commission report in 2002 concluded that “public support for the establishment of incubators in Europe will remain critical for the foreseeable future” (CSES, 2002, p. 84). However, Hannon (2004) argued that regional policies need to focus on supporting incubation programmes only where the potential for achieving significant outcomes is realistic. Junaid (2014) argued that BI is impacted by both

the micro-level and the wider macro-context of the regional ecosystem. He thus criticised research divorced from contextual drivers and considered it as hardly applicable, positing that such studies have ignored what Gartner (1985) has identified as the importance of the situation and surrounding environmental influences in understanding the new venture creation process.

To better understand the ecosystem context, Clarysse et al. (2014) considered that any ecosystem largely consists of two broad actors—knowledge ecosystem actors and business ecosystem actors, with the government as facilitator. The knowledge ecosystem actors are represented by universities and research organisations and play a central role in advancing human capital and technological innovation. In contrast, the business ecosystem actors are presented by both large and small established firms that utilise knowledge and innovation for industrial and commercial purposes (Clarysse et al., 2014). Ecosystem actors engage and interact with BIs having different objectives and expectations—governments, universities, and large organisations have the most influence over the goals and development of BIs (McGowan et al., 2011). Junaid (2014) is amongst the first to utilise a social lens to better describe and explain the BI process.

A concept that has frequently been employed when studying, and creating programmes relating to, incubators is that of the Triple Helix (cf. Etzkowitz et al., 2005). This idea focuses on industry, university, and government as the three key actors in the innovation and entrepreneurship system, and their interactions and co-dependencies determine the system function and success (Etzkowitz, 2008; Etzkowitz & Leydesdorff, 1997). The triple helix approach to economic development has been quite often employed, following a Silicon Valley logic of driving regional economic development largely from the science and technology advancements emanating from the university sector, but with varying success in different regional settings (Pugh, 2017). We can see the triple helix, and also arguably the regional innovation systems perspective (Asheim et al., 2011) also closely related to ecosystemic thinking, as predecessors of the EE approach that we employ here. However, we employ the entrepreneurial ecosystems approach because of its potential to focus on entrepreneurship and the early stages of business growth, which are especially relevant when thinking about *incubation* specifically, and also because of the wider range of institutions and actors it considers versus the narrower triple helix perspective. However, our analysis is heavily imbued with triple helix thinking because government, business, and universities are of course highly relevant actors when examining business incubation.

The ecosystem concept refers to the relations amongst actors, policies, and resources with the aim of supporting innovation and entrepreneurial activity (Stam, 2015). Actors in the ecosystem are a heterogeneous group of firms, institutions, venture capitalists, government agencies and educational institutions (Acs et al., 2017). There has been a recent flourishing of interest in this ecosystem perspective, visible in what can be termed the “entrepreneurial ecosystems” literature which focuses specifically on local and regional determinants of entrepreneurial activity and growth, and takes a broad perspective to understand the actors, institutions, and environments within which entrepreneurial activity is taking place. This literature body is too large to comprehensively review here, but overviews of this rapidly developing field are available (Alvedalen & Boschma, 2017; Spigel, 2017; Stam, 2015). A strength of the EE approach is the manner in which it captures the complex range of actors, organisations, and institutional factors relevant when thinking about entrepreneurship at a local or regional level (and arguably even at a national level): a full list of such factors to consider and a visualisation thereof is provided by Isenberg (2011). The possibility of an evolutionary perspective on how ecosystems change is also a potential strength of the approach (Mack & Meyer, 2016). We have drawn on this body of literature to guide our thinking regarding the Oman case, and identify a wider range of actors, organisations, and cultural or institutional factors, beyond the business incubators narrowly defined, to enrich our analysis and understanding of these policy efforts and their perceived success or otherwise.

3 | RESEARCH APPROACH

In this paper, we employ a case study approach to study business incubation in Oman through the conceptual lens of entrepreneurial ecosystems. Guided by the literature review presented in the section above, we identified internal stakeholders from the two existing public BIs in Oman (known as NBC and Sas). It was also necessary to obtain the perspectives of relevant external stakeholders to explore the nature of the VAC factors emanating from the wider ecosystem, and how these factors might be developed and enhanced through the two public BIs' activities (see Figure 1).

The targeted internal stakeholders are managers, current and former incubatees. A range of managers in the two public BIs was interviewed, which included directors, general managers, and line managers. A wide range of external stakeholders was also targeted, such as government policy makers, represented by PASMED and the Research Council (TRC), the latter of which supports industry, including academics from the Sultan Qaboos University (SQU); private SMEs support institutions, start-up funding organisations; and the Industrial Innovation Centre (IIC) (see Table 1). Within a heterogeneous technique of purposive sampling, those respondents who had knowledge of, and experience with, the particular issues to be studied and explored were selected.

We can summarise the data collection process thus; first, a prior request was sent for an interview, and if agreed a consent form was signed by participants. These participants had the right to accept or refuse to have the interview recorded. Interviews lasted between 40 min and 3 hr and were semi-structured in nature, exploring factors influencing the success of BI activities (internal and external to an individual BI) including competencies, resources, objectives, linkages and policies, and by what mechanisms or processes these were manifested. Subsequently, all interviews were transcribed and identified by specific codes to ensure the anonymity of all participants and to better enable the process of analysis. All transcriptions were reviewed against the recordings to ensure accuracy, following which the data were uploaded to the NVivo data management and analysis tool. A process of thematic analysis was adopted (Braun & Clarke, 2006; Kent, 2007). Thematic analysis refers to a search of themes that appear to be important to the phenomenon in question and is considered the most fundamental task in terms of qualitative data analysis (Ryan & Bernard, 2003) and is thus a widely used method for analysing qualitative data. This was followed by the data coding stage, which involved the use of a hybrid process of inductive and deductive thematic analysis (Fereday &

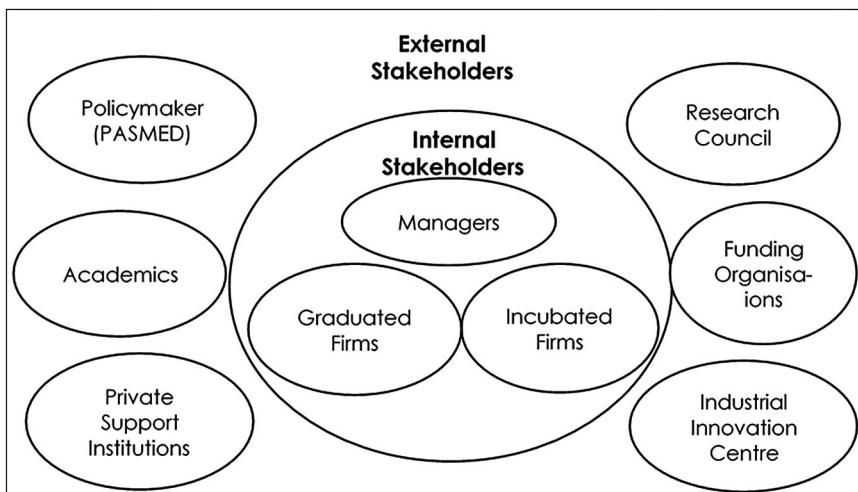


FIGURE 1 Stakeholders within the Omani business incubation ecosystem. *Source:* Authors' own elaboration

TABLE 1 Interviewees

Position	Interviews
<i>Omani Public BI managers</i>	
Sas general manager	1
Sas director	1
NBC general manager	1
NBC general vice manager	1
NBC line manager	2
<i>Incubated firms</i>	
Incubated firm owners	4
<i>Policy makers (PASMED)</i>	
General manager	1
Line manager	2
<i>Policy makers-research council (TRC)</i>	
Vice-chairman	1
Line manager	1
<i>Academics (SQU)</i>	
Lecturer	2
IP manager	1
<i>Funding public authority (Rafd)</i>	
General manager	1
Line manager	1
<i>Supporting industry-Injaz-Oman</i>	
CEO	1
<i>Industry innovation centre (IIC)</i>	
Director	1
Total	22

Muir-Cochrane, 2008). It is a process whereby the patterns recognised within the data and the emerging themes become the main categories for the analysis of that data. Thus, the hybrid approach allows for the deductive a priori codes to be picked out as themes from interview questions; this approach also facilitates drawing new themes directly from data using inductive coding. When we undertook the coding and analysis, we focused on identifying the VACs that were emanating from the ecosystem, and trying to understand, from the various stakeholder's perspectives, how these were influencing the processes of business incubation in Oman.

4 | ANALYSIS

In this paper we restrict our focus to the external (ecosystem) factors impacting the success of BI activities; for the sake of completeness, however, Figure 2 maps the full range of factors (internal and external) we can identify from the interview respondents as influencing the BI process. The external BI mechanisms highlight the critical role played by strategic ecosystem actors in enhancing the VACs

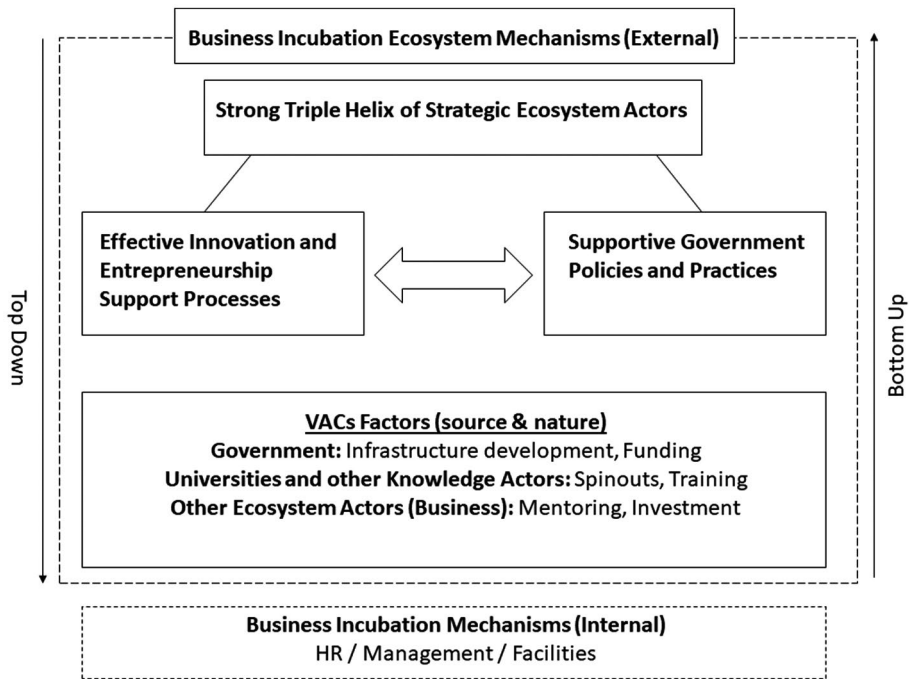


FIGURE 2 The VACs Factors Framework for the External BI Mechanism Analysis. *Source:* Authors' own elaboration

of BIs in improving the survival and growth prospects of incubated firms. External mechanisms result from network interactions between strategic ecosystem actors and BIs. These relationships facilitate the flow of resources based on a value-added approach; indeed, this explains the logic of resource exchange (funding, knowledge, physical and human capital) between strategic ecosystem actors and BIs. Thus, this serves as the framework for analysis in the reporting of the empirical findings below. As outlined in Section 2.4, triple helix thinking underpins the more focused concept of the entrepreneurial ecosystem; hence we position a Strong Triple Helix of Ecosystem Actors as the first pillar of the framework. This then proceeds to Supportive Government Policies and Practices followed by Effective Innovation and Entrepreneurship Support Processes, which in turn form the two main headings of the analytical sections below. Finally, the Established VACs Factors are cross-cutting points of reference for the discussion identified by the interview respondents—therefore, the text below is a synthesis of the interview findings presented around these themes, with additional illustrative verbatim quotes. In other words, we move from a meta-analysis of the interview data, via the thematic analysis and subsequent coding, to the presentation of illustrative quotes.

4.1 | Effective innovation and entrepreneurship support processes in enabling BI

A critical role is played by the strategic ecosystem actors that encompass supportive government, knowledge providers, and business stakeholders. The ecosystem ideally functions under the principle of an active triple helix in which BI mechanisms create and strengthen mutually beneficial activities between government, academia, and industry. However, from the analysis of the data presented in this study, it appears specifically that two support processes are vital—namely the innovation support

process and entrepreneurial support process. The analysis shows that these processes, incentivised by policies from a supportive government, play an important role in establishing VACs for BIs. As a result, the support of both processes plays an important role in the success or otherwise of the wider BI ecosystem. In any given case, BI mechanisms may not be effective if either the entrepreneurial support process or the innovation support process does not function in the ecosystem. The innovation support process can be defined as the translation of research and related activities into the needs of business by initiating supportive incentives, not only related to knowledge actors specifically but to all related government and business actors. This includes national innovation policy; R&D support policy; intellectual property policy; funding policy, incentives to attract businesses; incentives for academics and for knowledge transfer policy such as university IP support. On this general point, an industry innovation expert made the following comment regarding the overarching challenges facing the ecosystem:

Developing an entrepreneurship and innovation ecosystem is a huge challenge for the government now, and if you talk about developing human capital, for example, and then diversifying the economy, then you are talking about a far more complicated dimension that you need to go into global competitiveness. Therefore, currently Oman is far behind in the readiness of moving in that direction.

The proprietor of an incubated firm addressed this point from a different perspective, citing the constraints at the firm level which are preventing the effective functioning of the ecosystem:

Interactions are like only saying “hello.” You can say it once a week. However, a real meeting for business discussion and evaluation, in the last seven months there was only one. That is because they [the incubator staff] are much dispersed.

Turning to the entrepreneurial support process, this can be thought of as that which facilitates the development of a knowledge start-up and venturing climate, which is able to promote and speed up the commercialisation of innovation through business model experimentation and new market development. The entrepreneurial process is encouraged and developed by initiating incentives and support policies. For instance: establishing early-stage funding policies (e.g., seed funding; concept and prototype funding and early-stage government grants schemes); developing an investors' cluster; establishing university spin-out support policy; developing the supporting infrastructure (e.g., space and professional service providers and developing a human resource that includes knowledge-based entrepreneurs, engineers, and other professionals). In fact, both processes need to be supported in parallel, and if one process exists and the other does not or is weak, effectiveness in supporting the growth and survival of incubated start-ups' firms will be hard to achieve. Thus, this active triple helix in turn reinforces the development of effective innovation support and entrepreneurial support processes as a virtuous circle. As the IIC expert noted:

We do not have a national strategy to support innovation, and therefore now it is not part of the mandate of any ministry, it is not part of a mandate of any company or establishment within the private sector. It is not part of a mandate of all academic institutions in Oman. So, innovation is still the missing element in Oman.

In summary, a strong triple helix between strategic ecosystem actors (government bodies, universities, and large firms) would enable innovation and entrepreneurship support processes to be more effective through providing a variety of required policies, infrastructure, technical, and professional services which

in turn influence the VACs of BIs. Under the right conditions, this becomes a virtuous circle of self-reinforcing support activity. However, barriers to this were noted such as those by a research council member who described the academic institutions in Oman as operating very traditionally, lacking an institutional mandate in which to embark on innovation:

Academic institutes in Oman are also operating a very different model; it is a very traditional model where you set up a university to educate, perform some research, but usually, the innovation agenda is not in the mandate of any university in Oman so far. So now this takes ages to convince academic institutions to contribute and play their role as we have seen in in other countries. Again, to change that you need a national strategy.

Furthermore, a weak triple helix view from the government actors themselves increases the challenge of coordination. Concerns were raised here by the SQU academic expert about the weak coordination between public entities when discussing innovation projects in Oman, in this case, the Innovation Park Muscat (IPM), managed by TRC:

I said to the policymaker and executive bodies of innovation in TRC that you cannot do it without us (academia) and we cannot do it either without you. So, keeping us away from their plan is not right because otherwise it will be only a matter of renting property- because innovation needs technical support, which is the most complicated stage.

These viewpoints illustrate that having an effective innovation support process is a complex matter, involving different actors and stakeholders in a coordinated manner, which has thus far not materialised in Oman. The first stage would be to dedicate efforts towards innovation policy as a priority, and the second stage would be to set up triple-helix style interactions to involve the various key actors required (notably, universities as well as business incubators).

Overall, this section has highlighted the role of support from triple helix actors in creating a strong ecosystem within which business incubation sits; in the Omani ecosystem there are disconnects evident at present. The triple helix needs to be better functioning so that the BI system develops its capabilities and is able to perform its role more successfully.

4.2 | Supportive government policies and practices? Incubators in Oman as “cathedrals in the desert” in a struggling ecosystem

Having outlined above how the ecosystem is failing to support the business incubators in the ways that it has the potential to, attention is now turned to the lack of policy support and the wider cultural or institutional lack of support for entrepreneurship and innovation. In analysing the contemporary Omani approach to business incubation, we focused on three main areas: the nature of the public BI initiatives in Oman, the aim of the BI initiative, and its capabilities. We are especially interested here in the latter point—capabilities—and how these are shaped and nurtured by the wider ecosystem. Overall, we found that incubators were standing somewhat as “cathedrals in the desert” (OECD, 2005), not as well supported by the wider ecosystem as they could be. Our research pointed to government strategy and policy as a key explanatory factor for this lacking interconnection between the internal and external factors of the business incubators. To elaborate, there was no specific policy found which focused on BIs in the Oman Vision 2020. Business incubation initiatives had emerged as a more bottom-up process, leading to a post hoc rationalisation whereby business support practitioners “on the ground”

were having to convince the top hierarchical level (i.e., Government Ministers) of the importance of these initiatives and to obtain buy-in while dealing with operational challenges. To illustrate this point, a BI manager made the comment below:

Incubators are still in their early stages in Oman. We talk about the first incubator which started in 2004, and at that time it was a new concept, and until today, there are many people who do not know what an incubator is.

Similarly, a manager within a different BI added the following view:

I think there is a misunderstanding about the concept of the incubation programmes and unfortunately when the management in government look at the incubation programmes as a real-estate organisation for leasing or renting spaces for start-ups, then we are missing the importance of such a place and its services.

This lack of a supportive ecosystem for incubation cannot be blamed on the government and policy side alone: there are wider cultural and institutional constraints within the innovation and entrepreneurship ecosystem. Nevertheless, government and policy do, indeed, have a role in shifting or developing the culture around innovation and entrepreneurship, and in Oman it is clear that this side has been neglected to date. The general aim of the Omani public BI programme is to support the national strategic goal of tackling unemployment through supporting the private sector (start-ups and small Omani enterprises) and diversifying the Omani economy. However, the findings showed that a significant part of the *de facto* mission of the incubators is to create awareness and building an entrepreneurship culture within the whole of society from a wider perspective. This was articulated by one of the BI managers:

I would say two-thirds ... is the incubation process, and one-third is supporting and empathising with the entrepreneurial culture in Oman, because I do not believe we have a strong one ... So, we need to spread several messages to several segments within the community. We are not talking about the entrepreneurs only. We are talking about the whole society, injecting culture within kids in the schools, families and parents. It is the whole society.

Thus incubators encounter barriers to their work because there is a general lack of awareness and appreciation within Omani society of the value of entrepreneurship; in the past, people have not been required to turn to entrepreneurship to make a living and could largely rely on the government for jobs. Affecting wider cultural and institutional change in people's perceptions and values is of course a huge challenge and beyond the bounds of what individual incubators and managers are able to do. The Omani public BI programme is still not mature, and the lack of a favourable context for entrepreneurship and innovation has increased the challenges in creating effective outcomes. Thus far, incubators have not fully engaged in this "softer" cultural change task, and instead have focussed on tangible or "hard" infrastructure, an issue within incubation approaches that have found to be problematic in other contexts, such as Wales (United Kingdom) (Kautonent et al., 2017; Pugh et al., 2018). One of the interviewed BI managers speaking favourably regarding these resources:

The facilities here are very satisfying for me. I saw an example in the US. I went to different countries, such as Bahrain, and I guess our facilities are the best among those I have seen; the state-of-the-art design, everything is available.

Another manager also argued that physical infrastructure is not an issue, but hinted that this is not the whole picture:

...However, that is easy because it is a financial matter. What we have thought of are the tangible things. I do not think Oman has a problem with tangible things related to infrastructure...

This point was developed more explicitly by one academic respondent:

Of the incubators here in Oman, they are as well-instructed as those across the whole world. However, we do not have a fully-developed ecosystem, and I mean not so much the financial system, but cultural gaps.

So a key question our findings raise is how to shift the incubation approach in Oman from one that is focussed more on hard infrastructure and on the internal workings of the incubators, to one that is more outward looking to the wider ecosystem beyond and is also aligned to the need for broader cultural and institutional change around supporting entrepreneurship and innovation. Or in other words, how can Oman transform its incubators from “cathedrals in the desert” to buildings at the heart of the innovation and entrepreneurship community.

5 | DISCUSSION: SHIFTING THE PRESENT OMANI INCUBATION MODEL TO A MORE VALUE-ADDED ONE: POLICY RECOMMENDATIONS

Here we are interested in moving on from the finding of a weak ecosystem and incubators as cathedrals in the desert, to exploring how this can be addressed and making recommendations to do so. Exactly, how can the Omani incubation approach be better supported by, and better connected to, the wider entrepreneurship and innovation ecosystem? We suggest that using the concept of VACs we can better understand the transformations that need to take place to render business incubation more effective in driving wider innovation and entrepreneurship ecosystem development.

We argue, from the best practice models derived from studying established incubation approaches in the United States and the United Kingdom, that in an ideal business incubation case, the strategic ecosystem actors play a prominent role in enhancing the effectiveness of BIs. However, in the case of the Omani public BI programme, which operates under a weak innovation and entrepreneurship context, the government role is considered dominant. In order to enhance business incubation in Oman, we highlight here three external mechanism contributions (i.e., pertaining to the wider ecosystem) that need to be addressed in order to render the Omani BI system more effective.

5.1 | Enhancing the role of strategic ecosystem actors

From the analysis we present above, we found the role of the wider ecosystem actors in supporting and enabling business incubation, and in creating a wider cultural and institutional setting in which these approaches can thrive, to be key. Omani business incubators cannot currently thrive and achieve their goals of supporting innovation and entrepreneurship through functioning in an isolated mode and focusing only on their internal functions and infrastructure. Thus, the key policy recommendation is

to start addressing the wider ecosystem on a policy and strategy level, making sure efforts to develop innovation and entrepreneurship are, indeed, linked-up.

We can find tangible examples globally of efforts to develop the EE concept into policy actions, particularly in terms of co-ordinating support for the wider EE, currently being operationalised. It is worth pointing out that these efforts, though labelled ecosystem approaches, look quite different and focus on different elements of business and entrepreneurship support. For example, efforts are taking place by publicly funded actors in Scotland to develop the entrepreneurial ecosystem on a country-wide level (Scotland Can Do, 2018). Another example of EE-inspired approaches can be seen by the German development agency in their guide on mapping ecosystems (Kreuzer et al., 2018). This agency has conducted mapping in different countries, such as India (GIZ, 2012), Colombia (Melo & Magdalena, 2016), and Mexico (Melo & Magdalena, 2016b). Also, the OECD has shown considerable interest in the concept (e.g., Mason & Brown, 2014), and has recently conducted EE analyses in several countries such as the United Kingdom (OECD, 2019a), and Poland (OECD, 2019b). These mapping exercises are not, however, specifically related to the role of incubators as is our focus here, but are given as an example of how EE oriented approaches are actually being incorporated in policy efforts internationally. What is interesting is the range of different contexts in which these efforts are being developed, suggesting that it could, indeed, be a promising direction for emerging or transitioning economies as well as more established developed economies in Europe and North America.

The difficulty in making recommendations based on best practice cases within the research on business incubators is that too often studies, often based in high-growth Global North settings, assume that a preferable and supporting ecosystem exists at the regional level, which in cases such as ours is not a valid assumption. The business ecosystem that exists in Oman, for example, is actually very different from what we find in the United Kingdom or United States. We need a better understanding within the research community on business incubation as to how this mechanism operates in diverse regional and national settings, and in settings where the local ecosystem may not be favourable. This throws up valid questions about the wisdom or efficacy of trying to replicate approaches developed in high-tech clusters in the global North internationally to a wide range of contexts. In the policy (and theory) transfer process we need to be more attuned to context and capabilities, and matching our efforts and approaches to what already exists.

Despite this difficulty, and being sensitive to proposing one size fits all solutions erroneously, we attempt to provide some tangible suggestions as to how the policy-makers in Oman could move forwards to strengthen their ecosystem around the incubators that exist. Of course, starting from scratch when such a huge investment has been made would be unwise, so the suggestion is to better establish how the existing supports can be tailored and embedded into the local system. Some form of bottom-up “audit” is required, to assess what the particular needs—but also existing strengths—of the Omani entrepreneurial ecosystem are. We suggest something akin to the entrepreneurial discovery process, currently being carried out across Europe as part of the large-scale smart specialisation roll out, could be a potentially useful exercise here (Foray et al., 2011). In this process, policy-makers engage with local businesses, third sector, and communities from the bottom-up to establish what their priorities and future direction should be, rather than “picking winners” from the top down, which has been found to have limited success (ibid). The other benefit of the entrepreneurial discovery process approach is that there is a wealth of research currently being undertaken across Europe, thus providing quick lessons as to the benefits and pitfalls of the approach that may be instructive for Oman (e.g., Crawley & Hallowell, 2020; Gianelle et al., 2020; Valdmaa et al., 2020).

5.2 | Developing network and resource exchange functions with external/ecosystem actors

Moving to a more specific recommendation, beyond wider ecosystem support, we see a need for the BIs in Oman to become more outward-looking, less focussed on internal processes and infrastructure. Specifically, we see a need to develop network and resource exchange functions with external actors in the entrepreneurship and innovation ecosystem. Through better resource and network exchanges, BIs will be better able to attract strategic ecosystem actors and receive critical input resources from them, for the development of new innovations and new ventures. Incubators in Oman need to be better at meeting the needs and expectations of external ecosystem actors, in order to position themselves as key players, part of a two-way process of exchange of resources, people, and ideas, placed at the heart of regional innovation and entrepreneurial ecosystems (Aaboen, 2009; Allen & McCluskey, 1990; Junaid, 2014; Lalkaka, 2001; McGowan et al., 2011; Mian, 1996). To develop these flows of knowledge and resource between the incubators and the wider ecosystem actors, we suggest the triple helix model as a useful concept. This concept allows us to visualise the main actors in the ecosystem and the links between them. Specifically, using this concept we can suggest the development of three main paths for the flow of knowledge, resources, and people - between incubators and government; between incubators and knowledge actors (i.e., universities and research institutes); and between incubators and the business community (as per Clifton et al., 2010). From a policy perspective, focusing on enabling these three corridors of exchange between the incubators and the wider ecosystem goes some way to answering both “why” and “how” questions posed regarding the use of public interventions and public funds in supporting incubation activities, especially in the early stages (e.g., Hackett & Diltz, 2008; Hannon, 2004; Hannon & Chaplin, 2003; Tamasy, 2007). Therefore, the role of government is crucial to support the simultaneous establishment of value-exchange capabilities and appropriate institutional networks.

5.3 | Innovation and entrepreneurship as critical context pillars for BI effectiveness

We can summarise our findings thus: the ecosystem within which a business incubator is located has a high degree of influence on its success and effectiveness in supporting the development of innovation and new ventures. This has been found elsewhere (Bøllingtoft & Uhløi, 2005; Hansen et al., 2000), and our qualitative research with actors within the Omani ecosystem confirms that it is, indeed, also the case in Oman, as could be expected. The issue in Oman is that the innovation and entrepreneurship context is weak, and this severely hampers the potential of incubators to deliver value. In short, the BI is an open system that affects, and is affected by, its surrounding ecosystem. This means that policy must focus on developing the innovation and entrepreneurial ecosystem, enhancing the culture around these to enable the incubator to function fully. Individual incubators alone are not going to be able to change the culture and institutional practices and attitudes around innovation and entrepreneurship: this needs to be driven on a much wider scale. To be specific, in the Omani case the double reliance on the natural resource sector and the public sector as major employers and wealth generators has led to a severely weakened innovation and entrepreneurship ecosystem, despite stated long-term development goals. The culture of having a “job for life” in the government needs to be replaced by an entrepreneurial-oriented culture that invigorates, supports, and celebrates success in these areas, and makes business start-up a viable and attractive option. More public resource and energy needs to be spent on innovation and entrepreneurship support processes. Currently, critical input resources

needed for the ecosystem to thrive (e.g., knowledge-based entrepreneurs; ideas from academics; funds for early-stage high-tech start-ups; venture capital; and sophisticated R&D sectors) are hard to reach. Consequently, the BI process results in weak input resources and adopting a largely real-estate approach, which is limited in generating effective outcomes, for example, the survival and growth of graduated firms.

6 | CONCLUSIONS

The analysis we present here has found that business incubators in Oman, though they are receiving public support, are currently functioning sub-optimally and like “cathedrals in the desert” (as per: Benneworth & Pinheiro, 2015; Cooke & Morgan, 1992; Morgan, 1997) with few links to the wider milieu at regional or national levels. As such we have made some suggestions about how these links can be enhanced through better knowledge and resource exchange between key actors, using the EE concept as a way to understand how these flows and inter-relations should take place. However, the key issue is the weakness of the wider ecosystem in Oman, and that significant time and resource will be required to galvanise it. However, this is clearly key if the Omani economy is to successfully transition away from its reliance on natural resources for wealth generation, and the public sector as the major employer. For a more sustainable economy going forwards, significant efforts will be required to strengthen the EE in Oman, and BIs are a key part of this. However, BIs cannot affect wider cultural and institutional change alone: they must be part of a wider and multi-faceted effort to support entrepreneurship, knowledge creation, and application.

Through using the concept of VACs, situated within the EE perspective, we have been able to analyse the wider ecosystem within which business incubators operate, and identify key reasons why incubators in Oman are struggling to produce the new ventures and innovation expected, and as observed in other contexts most notably the United Kingdom and the United States. Typically, they are too internally and infrastructure-focussed, and are weakly connected to the wider ecosystem, which in turn is underdeveloped. So, this is the direction of travel required, to become “next generation” (cf. Kautonen et al., 2017) incubators at the heart of the innovation and entrepreneurship ecosystem rather than underused and undervalued cathedrals in the desert. To reinforce this, the BI programme in Oman requires a more nuanced evaluation regime given its potentially contradictory aims (start-up numbers, survival rates, employment growth, but also enterprise promotion and cultural change more generally) and differentiated levels of analysis (firm/BI/whole economy). Moreover, we should acknowledge that a fully developed EE will include certain actors not captured in the present study—private venture capitalists, legal specialists, and the like. While these perspectives may add value, such actors are currently rare given the top-down nature of the Omani BI model. It would, however, be a useful exercise to include them in follow-up work, particularly as the ecosystem develops.

This paper has exposed some of the difficulties of transferring a policy approach to a very different context. We need to develop a better understanding of how BIs function in practice and move away from a black-box approach which predicts incubation outcomes largely free of any contextual understanding as per Hackett and Dilts (2004). Moreover, the perceived impact of BIs in the Global North has encouraged (intentionally or otherwise) a context-free “copy and paste” of programmes, often taking place without the alignment of domestic ecosystems, or an understanding of the readiness and willingness of strategic ecosystem actors (government, university, and industry) to support BI processes effectively. This suggests some generalisability of the findings we present here, particularly in relation to other countries which have experienced a similar “resource curse” to Oman (Badeeb et al., 2017; Frankel, 2010; Mehrra, 2009), that is, an endowment of exportable natural resources

which then has a negative impact on other sectors in the economy. It also positions our results as distinct from other Global South economies in that for Oman material resources per se are not a constraint. This is also the case for human capital as the (domestic) population is highly educated—at least in terms of formal skills, entrepreneurial capabilities being another matter. This is not to say that incubators cannot work or should not be pursued in Global South contexts, or in Oman specifically, but more to highlight the need for context specificity and to ensure they are well attuned and adjusted to the local ecosystem; what it really needs, and what its strengths are. Moreover, we should acknowledge that the inter-relationship between entrepreneurial actors and the context they are situated within is itself evolutionary rather than static (Johnston et al., 2018).

We argue that a policy approach imbued with an ecosystemic perspective is necessary in order to understand and address these wider cultural and institutional factors which seem to be hampering the success of BI efforts in Oman. Our analysis does not suggest that transplanting a BI approach to Oman cannot work, or never will, but that this needs to be carried out in a more holistic and contextually related manner which better addresses the wider ecosystem and the institutions that support entrepreneurship and business growth: at present the BI approach in Oman is not functioning optimally and thus has unrealised potential. This highlights a problem for policy and the use of public resources, which could be achieving a greater return on investment if the linkages to the wider ecosystem and interconnections forged between different actors were improved. Incubation approaches are often resource-intensive (cf. Pugh et al., 2018) and if they are not well embedded into the region and delivering benefit for a wide range of entrepreneurial actors, alternative uses of public funds should be considered. The Omani government is not at present operating in a constrained financial environment, but as its own strategy acknowledges this will inevitably change. Therefore, now is the time for critical questions regarding how developing BIs in Oman can best deliver value for public money in the long term.

DATA AVAILABILITY STATEMENT

Data are not available due to ethical/commercial restrictions- due to the nature of this research, participants of this study did not agree for their data to be shared publicly, so supporting data are not available.

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ENDNOTE

1 <https://www.imf.org/en/Countries/OMN>.

2 A recent article in the Times of Oman suggests the present figure is still over one-third of total GDP <https://timesofoman.com/article/1851505/Business/Petroleum-activities-contributed-37-to-GDP-in-2018>.

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