

A University Business School as an Entrepreneurial Ecosystem Hub

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“What is increasingly recognized is that establishing a high-impact sustainable entrepreneurship ecosystem requires that all stakeholders need to collaborate and contribute.”

Mark Rice, Michael Fetters, and Patricia Greene (2014)

Professors and researchers in entrepreneurship, and innovation

This article assesses the progress of a business school toward achieving the status of an entrepreneurial ecosystem hub with emphasis on the components related to entrepreneurial universities, entrepreneurship education, university business incubators, and university-enterprise-government-civil society collaboration. The objective of a business school serving as an entrepreneurial ecosystem hub, is to stimulate economic development, generate employment, and create innovative technology-based ventures or service businesses. These components are discussed from theoretical and practical viewpoints in order to provide greater understanding of the concepts. An insider action research assessment of the university-affiliated business school was conducted to gauge the progress made in building an embryonic entrepreneurial ecosystem centered upon a business school as a hub. Emphasis is placed on the need to develop strong collaboration among key stakeholders for achieving success in building an effective entrepreneurial ecosystem based on a quadruple helix system, consistent with the lead-in quotation to the article.

Introduction

The aim of this article is to present the key concepts and insights from literature related to the question of building a university entrepreneurial ecosystem centered upon the development of an aspiring university business school as the hub of the ecosystem. The article further examines empirically, the progress of business schools toward the achievement of an “entrepreneurial ideal”, which is described as embracing the triple helix model of university-industry-government collaboration, along with pursuing a third mission of regional/national economic development initiatives (Philpott et al., 2011). The term “entrepreneurial business school” is hereafter used as a proxy for the “entrepreneurial university” to suit the context of a university business school that is independently structured, managed, funded, and staffed, with teaching personnel mainly recruited from business as adjunct lecturers, and with a board of predominantly business sector members.

The concept of an “entrepreneurial ecosystem” is used in this article as an umbrella term to cover the related components of entrepreneurial universities, entrepreneurship education, university incubation, and stakeholder collaboration, with particular focus on university + industry + government + civil society

participation in a quadruple helix system (McAdam & Debackere, 2018). The relatively new notion of an entrepreneurial ecosystem can be viewed as, “the union of localized cultural networks, investment capital, universities, and active economic policies that create environments supportive of innovation-based ventures” (Spigel, 2017). Although research in this field is recent, it has been established that the components of entrepreneurship education, business incubation, and forming partnership arrangements among stakeholders within universities and with external players, are vital to building successful ecosystems (Rice et al., 2014; Guerrero et al., 2016).

The setting for our research is a small developing middle-income country in the Caribbean whose major university’s business school mission is to provide “a world-class, dynamic environment for continuous learning and action aimed at problem-solving and innovative management and business” (Arthur Lok Jack Global School of Business, 2018). The article targets an audience of university administrators that are contemplating the development of entrepreneurial ecosystems and how to establish entrepreneurial universities, incubator sponsors, managers, and graduates who are contemplating launching a technology or service business. As well, it targets potential academic entrepreneurs, especially those

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involved in business schools and technology departments, as well as the wider business and academic communities.

Many theories and definitions are cited in relation to entrepreneurial ecosystems (Isenberg, 2010), entrepreneurial universities, and their third mission of economic development through participation in triple helix collaboration (Zawdie, 2010; Etzkowitz, 2013; Kunttu, 2017), tertiary-level entrepreneurship education (Fayolle & Gailly, 2008), university-based incubation (von Zedtwitz, 2003), and key stakeholder collaboration (Etzkowitz & Leydesdorf, 2000). However, there is no generally agreed upon definition, nor coherent theory that integrates the various elements of an entrepreneurial ecosystem. Rather the tendency is to import policies and practices from successful ecosystems while disregarding the relevant cultural and economic features of the local setting (Mian et al., 2016; Spigel, 2017). Against this theoretical background, this article builds on the core concept of the triple helix of Etzkowitz and Leydesdorff (2000), by applying the extended concept of the 'quadruple helix' of university + industry + government + civil society collaboration (Carayannis & Campbell, 2009; Ranga & Etzkowitz, 2013). The latter brings the community element forward with a collaborative network as the essential role of universities (Breznitz & Feldman, 2012).

The paper's research approach involved: (1) an exploratory phase of identifying, collecting, and analyzing relevant themes from secondary literature on entrepreneurial ecosystems and its related components, in order to gain a deeper understanding of the concepts and their applications; and (2) an empirical phase of tracking the trajectory of our use case business school, on its path toward creating an entrepreneurial ecosystem hub. The published data were sourced from leading online journal databases and from Internet searches, while the empirical data were obtained from an "insider action research" approach, that produced contextual insights into the inner operations of the business school as a nascent entrepreneurial ecosystem hub (Coglan & Brannick, 2005) that were not available to outsiders because of privacy and sensitivity matters (Ollila & Williams-Middleton, 2011). The authors' insider status derives from their respective direct involvement in: the planning, design and conduct of the MBA entrepreneurship education program and business planning workshops, close interaction with MBA students through providing mentorship for project work and coaching practicum (capstone project) teams,

advising on the operations of the business incubator, and building quadruple helix collaboration through undertaking consulting exercises for the corporate and public sectors.

The rest of the article contains two major sections with the first examining the main requirements for building entrepreneurial ecosystems distilled from the research. The second section offers an empirical assessment that tracks the progress of the nascent business school toward serving as an entrepreneurial ecosystem hub. The article ends with a discussion of the main conclusions and implications for key stakeholders.

Building University-based Entrepreneurial Ecosystems

There appears to be a consensus that entrepreneurial ecosystems are built on eight specific pillars comprising: 1) access to markets, 2) adequate human resource capacity, 3) appropriate funding from various sources, 4) support mechanisms comprising advisors, 5) networking arrangements, professional services, and incubators or accelerators, 6) a business friendly environment, 7) university entrepreneurship education and training that promotes a culture of entrepreneurship, idea generation, and graduates with a venture orientation, and, 8) a culture that respects research, entrepreneurs, and innovation (World Economic Forum, 2014). Agreement on these ecosystem pillars points to a shift in business perspectives to a focus on people, networks, and institutions, based on the view that "entrepreneurs create new value, organized by a wide variety of governance modes, enabled and confined within a specific institutional context" (Stam, 2015). It is argued that there is no single path to creating an entrepreneurial ecosystem, and that rather the process involves multiple stages that are ill-defined as the university proceeds through them (Rice et al., 2014). It is likewise uncertain whether the concept is applicable to all regions, or more appropriate to regions where support systems already exist (Malecki, 2017). Against this background, the key components of a university-based entrepreneurial ecosystem that are relevant to a nascent entrepreneurial business school are highlighted below.

Entrepreneurial universities

The concept of the entrepreneurial university has three missions (Zawdie, 2010). Teaching was the original function of universities. To this was added research activity as a second mission, with an aim of generating and disseminating knowledge beyond the academy. In

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time, universities came under pressure to generate revenue, which led to the third mission of converting its efforts into economic development activities, such as “technology transfer that support[s] the modernization of low-tech and mid-tech firms” (Zawdie, 2010). The established entrepreneurial university model, which mirrors the business school case in this article, was seen as comprising close interaction with industry and government (triple helix). This meant relatively independent operations, a hybrid organization that deals effectively with the tensions between external interactions and independence for attaining objectives, as well as constant modification of the structure to sustain triple helix relations (Etzkowitz, 2013). Many definitions have been suggested for entrepreneurial universities. One perspective appropriate to this article is the notion that “an institution that creates an environment, within which the development of entrepreneurial mindsets and behaviors are embedded, encouraged, supported, incentivised, and rewarded” (Hannon, 2013). Thus, what is needed at entrepreneurial universities is entrepreneurship education.

Entrepreneurship education

The study of entrepreneurship has gained impetus over the past 20 years and is now common in many institutions of higher learning. The trend points to employing experiential learning techniques, involving experienced entrepreneurs, utilizing lessons from failure, adopting entrepreneurship as a practice, training in opportunity identification, and adapting content to cultural contexts (Blenker et al., 2012; Naia et al., 2014). The role of university-based entrepreneurship in the stimulation of economic activity and enterprise creation is acknowledged, but the role of universities in building entrepreneurial institutions, creating new ventures, and fostering effective triple helix relationships continues to be debated (Davey et al., 2016). In this context, it was emphasized that “entrepreneurship [i]s not only for the chosen few who can identify business opportunities in the market-place, produce a business plan, provide the necessary financial capital and build a new venture” (Blenker et al., 2012). In other words, more people at universities can be doing it and studying it than have tried so far.

Universities are considered as “entrepreneurial” when they adopt an entrepreneurial perspective in teaching and learning that incorporates a blended and interactive approach. Among the main causes is building a creative society as an imperative of the knowledge society (Ratten, 2017). Embedding entrepreneurship studies in

the curricula of universities and business schools is thus increasingly viewed as a means of fostering entrepreneurial behavior and mindsets in business and technology disciplines (Pittaway & Edwards, 2012; De Cleyn et al., 2013). In turn, the responsibilities of entrepreneurs include the need to adopt a problem-solving approach to wider social value creation, act responsibly with investors and key stakeholders, practice environmental sustainability and ethical behavior, recognize the community’s stake in the success of the venture, and provide appropriate rewards for responsible entrepreneurship (Rae, 2010).

University business incubation

The concept of business incubation as a university initiative, dates back to the late 1950s. In the 1980s, the initiative grew into for-profit incubators facilitated by the availability of venture capital, in response to prospects of profitability. The expansion was sustained in the early 2000s, even the economic downturn of 2008 notwithstanding. Several types of incubators emerged according to various categorizes independent commercial, regional, company-internal, university-affiliated, virtual incubators, mixed, technology, social, and basic research (von Zedtwitz, 2003; Aernoudt, 2004). The defining characteristics of early incubators were provision of workstations, office support, accessible funding, startup technical support, and introduction to business networks (von Zedtwitz, 2003). Currently, incubators are considered “a concerted, systematic effort to nurture new firms in the early-stage of their activity in a controlled environment”, and are viewed as a dynamic process which offers “a combination of infrastructure, development support processes and expertise needed to safeguard against failure and steer incubatee firms into a growth path” (Theodorakopoulos et al., 2014). This process has led to a shift in priority to incubator services with access broadband, Wi-Fi, and networked computers, meeting rooms, and even mentoring (Culkin, 2013).

There is a growing body of research on university-led incubators that are considered catalysts for the development of sustainable university-based entrepreneurial ecosystems, while cases of incubation initiatives in small developing countries universities are generally neglected (Dahms & Kingkaew, 2016). Therefore, this article represents a significant contribution in this area by updating and adding to previous work (Allahar & Brathwaite, 2016). Incubators are consistently viewed as entrepreneurial development services that seek to enlarge the pool of

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new business ventures and to address their vulnerability in the early stage of development (Isabelle, 2013). More specifically, the common purpose of university incubators operating within an entrepreneurial ecosystem was described as being “to promote entrepreneurship, innovation, the creation of new firms, and economic development” (Theodoraki & Messegem, 2018). New ventures often emerge as university spinoffs, which are somewhat rare, but still contribute to the commercialization of technology and engage the inventor in the development process (Pattnaik & Pandey, 2014).

Stakeholder collaboration: From triple to quadruple helix model

The success of innovation systems is based on strong linkages among academia/universities, industry, and state/government, whose interactions form the triple helix model of collaboration (Etzkowitz & Leydesdorff, 2000). With the emergence of “knowledge economies”, the effectiveness of triple helix collaboration in delivering the expected amount of innovation and economic development was questioned. This led to the addition of a fourth helix, comprising the media, creative industries, culture, values, life styles, and art, extending the concept to a quadruple helix system (Carayannis & Campbell, 2009; Leydesdorff, 2012). These actors constituted part of the wider community engaged in creating “new knowledge, technology and innovation meeting both economic and societal needs” (Kolehmainen et al., 2016). In this regard, the extension of the triple helix to the quadruple helix, was meant to acknowledge the critical role of the general public and community for achieving the knowledge objectives and innovation policies (McAdam & Debackere, 2018). This happens through a more intensive field of collaboration within a regional development network focused on knowledge-intensive development (Kolehmainen et al., 2016).

This article argues that strengthening the existing stakeholder collaborative efforts, is critical to the development of a nascent entrepreneurial ecosystem hub. The successful case of iMinds was described as an initiative to link university research to business needs, and to develop a climate conducive to progressive startups and new ventures (De Cleyn, 2013). This climate represents a new model of an entrepreneurial ecosystem that involves open collaboration with key stakeholders, “intensive cooperation and interaction, human and social capital development, spillover effects, and mutual reinforcement” (De Cleyn, 2013),

that is, one that mirrors the operation of quadruple helix interrelationships.

Assessment of an Embryonic Entrepreneurial Ecosystem Hub

Institutional context

The University of the West Indies (UWI) is part of the Caribbean regional multi-campus university system that emerged in 1948 as a traditional British-style institution. Initially, the university offered traditional degrees in the natural sciences, humanities, social sciences, medicine, engineering, and law. In the 1990s, a business school was established that focused on graduate business studies.

This section traces the progress of the UWI-Arthur Lok Jack Global School of Business (B-school) in its pursuit of creating an ideal entrepreneurial business school to serve as the case of an embryonic entrepreneurial ecosystem hub in Trinidad. While the B-school is part of the overall UWI system, it operates as a semi-autonomous school that offers standard MBA programs, a relatively wide range of specialized masters programs, and a recently introduced undergraduate program in International and Sustainable Business. Ostensibly, these programs provide a platform for developing management professionals and potential entrepreneurs in various fields. An empirical assessment of the entrepreneurial ecosystem hub’s development follows.

Developing an embryonic entrepreneurial ecosystem

It is a relatively long-term undertaking to build a university-based entrepreneurial ecosystem. Such an ecosystem undergoes a dynamic process that Rice (2014) estimates to require at least 20 years for full development. This position was supported by Brown and Mason (2017) who described entrepreneurial ecosystems as “highly variegated, multi-scalar phenomena”, which is reflected in the fact that every ecosystem is unique and displays distinct “idiosyncrasies and characteristics which are spatially, relationally and socially embedded”.

This article examines the case of an embryonic entrepreneurial ecosystem built on an aspiring entrepreneurial business school, and recognizes that there is no consensus on whether an entrepreneurial ecosystem is an aspiration or a status that is only attainable by some university business schools, thus implying degrees of ‘ecosystemness’ (Malecki, 2017). While there is no acknowledged template for building a

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successful entrepreneurial ecosystem, relevant guidelines were offered comprising of senior leadership vision and engagement, faculty and administrative leaders, commitment to teaching, research and building the ecosystem elements, creating or participating in wide global networks of partners, developing an effective organizational structure in support of entrepreneurial initiatives, curriculum development, networking, and business incubation, promoting continuous innovation as a cultural norm, unrelenting pursuit of financial resources, and attention to succession planning for long-term success (Rice et al., 2014).

Utilizing these guidelines to assess the stages of development of an entrepreneurial ecosystem hub, the authors, as ecosystem insiders, were able to engage key stakeholders, including managerial and administrative staff, adjunct lecturers, financial planning personnel, and corporate clients in discussions on the future of the business school as a hub. Engagement with key stakeholders provided specific insights that are highlighted below. The B-school's senior leadership, which includes one of this paper's co-authors, strongly supports the promotion of entrepreneurial training, and that the extension of training to the wider community needed to be intensified.

The lack of a critical mass of researchers together with reduced corporate funding support is witnessing a reduction of research publication incentives. However, an endowment fund has been created that requires more proactive fund-raising efforts. A curriculum development committee at UWI was established whose mandate is to build an entrepreneurial culture within the B-school. This includes the issue of positive leadership, which is often referred to in research on ecosystems development. Significant measures were taken in this case to introduce new leadership with an entrepreneurial orientation. Overall, the development of the ecosystem lacks momentum. This can be attributed to difficult local economic conditions, current management restructuring, inadequate commitment of key stakeholders, and a current ongoing review of operational processes of the business incubator.

Tracking the business school's transition toward an entrepreneurial ecosystem hub

The progress of an entrepreneurial business school can be measured from different perspectives. These

include development stage analysis (Guerrero & Urbano, 2012), the hard-soft mix in entrepreneurial teaching and learning (Philpott, et al., 2011), the existence of a unified culture for supporting stakeholder involvement and quadruple helix interactions, motivation incentives, as well as resources devoted to developing entrepreneurial leadership capabilities (Coyle, 2014), and a framework for entrepreneurial self-assessment (OECD, 2012). This latter framework was applied in recent assessments of entrepreneurial universities (Williams & Kluev, 2014; Sperrer et al., 2016), and the indicators itemized below, are applied in assessing the current case:

1. *Leadership*: Entrepreneurship is a major aspect of the business school strategy; high-level commitment exists, and the B-school is a driving force for entrepreneurship development in the university community.
2. *Organizational capacity*: A wide range of funding sources are tapped both to ensure a sustainable financial strategy, and to provide staff incentives and rewards in support of the entrepreneurial agenda.
3. *Entrepreneurship development*: The B-school's structure stimulates the development of entrepreneurial mindsets and innovative approaches to teaching.
4. *Pathways to entrepreneurial action*: Entrepreneurial activity is encouraged through support in moving from idea to action, providing mentors, and establishing incubators.
5. *Business school relationships*: The B-school links research, entrepreneurship education, industry, and community activities to improve the knowledge ecosystem.
6. *Internationalization*: The entrepreneurial strategy incorporates an international perspective in teaching, participating in networks, and global exchanges.
7. *Impact*: The business school assesses its impact on entrepreneurship teaching, learning, and startup support at regular intervals.

Applying these indicators to the current case resulted in

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the following assessment:

- Deficiencies exist in the leadership structure of the B-school, whereas top-level commitment was evidenced in pursuing entrepreneurship education, training, and research as strategic priorities. This is reflected in the increasing entrepreneurship content of its programs, the range of consultancy services provided to the public and private sectors, as well as developing and maintaining a web page for disseminating staff research publications.
- Funding for startups remains a major challenge, one exacerbated by economic strictures within the country that negatively impact the provision of staff rewards and incubator funding, and thus limit entrepreneurial action in some areas.
- Orienting the entrepreneurship curriculum to experiential teaching and learning approaches, emphasizing mentorship, building institutional alliances with local and external organizations, and researching MBA programs in the Caribbean helps in fostering entrepreneurial mindsets (Allahar & Sookram, 2018).
- Global thinking has been introduced to the curricula of all relevant programs, wherein an internationalization perspective is applicable that is reflected in its hosting of the annual *Distinguished Leadership and Innovation Conference*, which attracts international experts and leaders in entrepreneurship and innovation.
- Implementing tracer studies of graduates can assist in assessing the outputs and impacts of the ecosystem.

State of entrepreneurship education and training

Universities are considered entrepreneurial when they adopt an entrepreneurial perspective in teaching and learning that incorporates a blended and interactive approach, with an aim of building a creative society as an imperative of the knowledge society (Ratten, 2017). The B-school incorporated entrepreneurship education in its initial MBA elective on entrepreneurship and innovation (Allahar & Brathwaite, 2017). Specific components of the entrepreneurship curriculum were subsequently included in specialized masters programs. The teaching method followed the trend towards experiential learning and entrepreneurship as everyday practices. It also acknowledged a student audience comprising professionals and managers, and the

assertion that “entrepreneurship education that is not based on everyday practice ... is unlikely to generate the desired outcome, be it new venture creation, growth or social change” (Blenker et al., 2012). Increasingly, the need to embed entrepreneurship studies in the curricula of universities and business schools is emphasized as a means of fostering entrepreneurial behavior and mindsets in business and technology disciplines (Pittaway & Edwards, 2012; De Cleyn et al., 2013; van Weele, 2018). However, in projecting the future of entrepreneurship, Kuratko and Morris (2018) argue that entrepreneurship education will not be about the mechanics of starting up and growing new ventures, or opportunity identification and implementation techniques. Rather, it will be about empowering and transforming students through encouragement to dream big along with the tools to realize their dreams, while at the same time being “allowed to fail”.

The research results indicate that the experiential entrepreneurial program introduced its new undergraduate course by incorporating practical workshops about how to register a business, pitch and raise funds for the respective ventures. A student-team approach is standard to learning in B-school programs, with coaches assigned to each team developing sustainable ventures. Graduate students, working in teams of three persons to complete their capstone projects, have the option of preparing a comprehensive business plan based on an approved opportunity, or to work with a designated organization or company to undertake a diagnosis of key problems, and participate in the implementation of key solutions. However, the process of embedding entrepreneurship education in all university programs is lagging and our assessment shows that follow-up action is essential.

Business incubation as an ecosystem catalyst

In 2012, the B-school established a virtual incubator (BizBooster), as a non-profit subsidiary company designed to operate on the basis of networked online services targeting both university graduates internally, and startups or existing SMEs as external clients. The overriding objectives were economic development, job creation and social impact, which are consistent with international comparisons, and with a standard menu of business support services, including mentorship. The incubator operates under the guidance of an independent board of private businesspersons and dedicated management staff that orchestrate the processes. The incubator is linked to the national incubator system, which does not function effectively largely because the other incubators are all dependent

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on government funding, and thus subject to the vagaries of national income flows. A sample of businesses generated within BizBooster cover a range of activities, including a mix of services, manufacturing, and technological pursuits such as mobile applications, aquaponics ICT services, 3-D manufacturing, and developing an e-commerce facility for exporting artisanal products.

Traditionally, the success of incubators is judged by the number of firms that graduate and move to operations in the open business environment. Further, these types of businesses are assessed for meeting their main venture creation objectives in terms of the sectors targeted, while recognizing that incubators vary between service-type business and technology-based ventures. More recently, it was argued that the above success indicators were limiting and should also include: approved business plans prepared, business models developed, prototypes created, applications for patents or intellectual property protection, marketing surveys undertaken and analyzed, and proposals submitted to financial institutions, venture capitalists, or SME funds (Kuratko & Morris, 2018). University incubators are increasingly being considered as catalysts for creating sustainable university-entrepreneurial ecosystems. This highlights the role of incubators in the third mission of entrepreneurial universities (Theodoraki & Messeghem, 2018). A relevant observation by Dahms and Kingkaew (2016) is that university incubators need not focus exclusively on technology-related ventures because non-technology programs such as business schools can also deal with non-tangible services, as well as technology transfer activities.

Our investigation of BizBooster operations revealed moderate success in attracting innovative businesses. This situation is linked to challenges with securing business funds from grants, angels, and venture capital. As a result, the B-school is now pursuing the establishment of an investment facilitation platform to address the funding challenges. The platform intends to draw upon available concessionary financing for business development currently being offered by multilateral development agencies in the region, as well as participants in its network of support institutions. The B-school recognizes that this approach requires significant time, effort, networking capacity, feasibility analyses, and technical knowhow. Nevertheless, the viability of BizBooster depends on success in these areas.

In this context, the B-school is undertaking a restructuring of incubator management and operational processes, and will adopt the following best practices: formulate and adopt an 'incubation charter' that includes an investment portfolio and provides guidelines for client selection and investment practices, emphasize the importance of day-to-day management in dealing with residual risk by providing coaching and startup support services, optimize the benefits from industry experience and expertise, both internal and external networks, and incubator team's skills, and tap into the synergy created through coaching, interactions among startups, and internal value chain creation (von Zedtwitz, 2003). B-school acknowledges that BizBooster has not been meeting its objectives, hence a restructuring exercise is in progress. Focus is being placed on extended mentoring services, evidenced by the launch of the Alumni Mentoring Program 2019.

Quadruple helix stakeholder collaboration

With pressure to accelerate development in many economies, the triple helix actors were added to by a fourth 'helix' of civil society players, thus generating a quadruple helix system of collaboration (McAdam & Debackere, 2018). Strengthening the entrepreneurial ecosystem, ensuring survival of the entrepreneurial B-school, and sustainability of the incubation facility, ultimately depend on the value of quadruple helix collaboration, especially in a developing business environment.

Our assessment of the status of quadruple helix collaboration at UWI revealed that the B-school's link with the university as its main internal stakeholder remains firm. This is demonstrated by the University Principal's continuing service as chair of the school, as well as in the provision of administrative services for examinations, curricula development, and related academic requirements. The university-industry link is sustained by the fact that the majority of lecturers are adjunct staff from business and industry. This has facilitated the implementation of industry-based internships for students. Further, B-school is involved with industry and businesses through consulting work on organizational issues, executive training and customized courses, and research conducted on areas such as competitiveness, cluster development, and business strategy formulation. In this connection, B-school serves as the national-local partner for Global Entrepreneurship Monitor, and the World Economic Forum's Global Competitiveness Report.

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The overall conclusion is that the channels of collaboration are growing steadily. For future progress, greater efforts are required to strengthen interrelations and deepen collaboration among all participants in the quadruple helix system.

Conclusions and Implications

The article sought to provide insight into the concept of university-based entrepreneurial ecosystems. These are based on developing entrepreneurial universities, incorporating entrepreneurship education in the curricula, establishing university-led business incubators as new venture development tools, and extending stakeholder collaboration in the form of a “quadruple helix” system. The authors undertook an empirical assessment of a university-based business school aiming to serve as an entrepreneurial ecosystem hub as case study, based on insider action research to gauge progress towards the ecosystem goals.

The main conclusions reached are as follows:

- The building of an effective university entrepreneurial ecosystem is a long term undertaking that demands sustained attention because of how universities operate in silos counter to effective collaboration.
- The development of an entrepreneurial business school, especially in the context of a small developing country, represents a major challenge because of sparse funding, human resource capacity, fully committed leadership, and an underdeveloped entrepreneurial culture.
- The imperative of embedding entrepreneurship education in the curriculum of business schools has gained slow acceptance (within the UWI system).
- Support for incubation projects has been reluctant. This is exemplified by inadequate financial resources and quality management. A solution is to strengthen stakeholder interrelationships by extending them to a quadruple helix collaboration through the inclusion of civil society.
- Ecosystem weaknesses may lead to unacceptable levels of quality for graduating innovative ventures.

These conclusions point to a need for promoting greater collaboration among participants developing the B-school as an ecosystem hub. A systematic review of the research emphasized that collaboration between university and industry was the decisive factor in stimulating innovation (Sjöö & Hellström, 2019). Strengthening key stakeholder collaboration, particularly in the context of a quadruple helix arrangement, as proposed in the article, therefore suggests specific actions that should be pursued vigorously. Primary among these are:

1. Commencing a program for mobilizing resources to support the human resource capacity of the B-school, and to secure adequate funding for incubator operations,
2. Creating an incentive structure that favors collaboration rather than operating in silos, promotes the host university’s educational structure, and offers a scope that increases peoples’ propensity to collaborate with each other,
3. Strengthening the ecosystem infrastructure and contributing to building an appropriate regulatory framework for the constituent elements of the ecosystem,
4. Creating informal relationships that facilitate boundary-spanning activities that arise from joint projects among the actors in the quadruple helix system, and drawing on shared experiences from previous collaborative efforts,
5. Fostering a culture of collaboration that extends beyond the borders of academia, in a way that produces role models, start-ups, spinoffs, and innovative ventures, and thus strengthens universities’ entrepreneurial mission.

To sum up, we believe that the development of more intensive and extensive collaboration among partners and participants is achievable, and that pursuing the action items suggested above will go a long way to improving peoples’ collaborative results in building a university-based entrepreneurial ecosystem hub.

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References

- Allahar, H. & Brathwaite, C. 2016. Business Incubation as an Instrument of Innovation: The Experience of South America and the Caribbean. *International Journal of Innovation*, 4(2): 71-85.
<http://dx.doi.org/10.1177/0950422216718764>
- Allahar, H. & Brathwaite, C. 2017. Entrepreneurship Education for Executive MBAs: The Case of a Caribbean Business School. *Industry & Higher Education*, 31(5): 305-317.
<http://dx.doi.org/10.1177/0950422217718764>
- Allahar, H. & Sookram, R. 2018. Globalization of MBA Studies and Transnational Educational Institutions in the Caribbean. *Industry and Higher Education*, 32(5):290-301.
<http://dx.doi.org/10.1177/0950422218792156>
- Arthur Lok Jack Global School of Business. 2018. *About*. Accessed March 10, 2018: <http://www.lokjackgsb.edu.tt>
- Blenker, P., Frederiksen, S. H., Korsgaard, S., Müller, S., Neergaard, H. & Trane, C. 2012. Entrepreneurship as Everyday Practice: Towards a Personalized Pedagogy of Enterprise Education. *Industry and Higher Education*, 26(6): 417-430.
<http://dx.doi.org/10.5367/ihe.2012.0126>
- Breznitz, S. M. & Feldman, M. P. 2012. The engaged university. *Journal of Technology Transfer*, 37: 139-157. <http://dx.doi.org/10.1007/s10961-010-9183-6>
- Brown, R. & Mason, C. 2017. Looking Inside the Spiky Bits: A Critical Review and Conceptualisation of Entrepreneurial Ecosystems. *Small Business Economics*, 49:11-30.
<http://dx.doi.org/10.1007/s11187-017-9865-7>
- Carayannis, E. G. & Campbell, D. F. J. 2009. 'Mode 3' and 'Quadruple Helix': Toward a 21st Century Fractal Innovation System. *International Journal of Technology Management*, 46(3/4): 201-234.
- Coghlan, D. & Brannick, T. 2005. *Doing action research in your own organization*. London, UK: Sage.
- Coyle, P. 2014. How Entrepreneurial Leadership can Engage University Staff in the Development of an Entrepreneurial Culture. *Industry and Higher Education*, 28(4): 263-269.
<http://dx.doi.org/10.5367/ihe.2014.0215>
- Culkin, N. 2013. Beyond being a Student: An Exploration of Student and Graduate Startups (SGSUs) Operating from University Incubators. *Journal of Small Business and Enterprise Development*, 20(3): 634-649.
<http://dx.doi.org/10.1108/JSBED-05-2013-0072>
- Dahms, S. & Kingkaew, S. 2016. University Business Incubators: An Institutional Demand Side Perspective on Adding Features. *Entrepreneurial Business and Economic Review*, 4(3): 41-56.
<http://dx.doi.org/10.15678/EBER.2016.040304>

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- Davey, T., Hannon, P. & Penaluma, A. 2016. Entrepreneurship Education and the Role of Universities in Entrepreneurship: Introduction to the Special Issue. *Industry and Higher Education*, 30(3): 171-182.
<http://dx.doi.org/10.1177/0950422216656699>
- DeCleyne, S. H., Gielen, F. & Coppens, J. 2013. Incubation Programs from Public Research Organizations as Catalysts for Open Business Ecosystems. *Technology Innovation Management Review*, April 2013: 29-34.
- Etzkowitz, H. 2013. Anatomy of the Entrepreneurial University. *Social Science Information*, 52(3): 486-511.
<http://dx.doi.org/10.1177/0539018413485832>
- Etzkowitz, H. & Leydesdorff, L. 2000. The Dynamics of Innovation: From National Systems and "Mode 2" to a Triple Helix of University-Industry-Government Relations. *Research Policy*, 29:109-123.
- Fayolle, A. & Gailly, B. 2008. From Craft to Science Teaching Models and Learning Processes in Entrepreneurship Education. *Journal of European Industrial Training*, 32(7): 569-593.
- Gartner, W. B. 1985. A Conceptual Framework for Describing the Phenomenon of New Venture Creation. *Academy of Management Review*, 10(4): 696-706.
- Guerrero, M. & Urbano, D. 2012. The Development of an Entrepreneurial University. *Journal of Technology Transfer*, 37: 43-74.
<http://dx.doi.org/10.1007/s10961-010-9171-x>
- Guerrero, M. & Urbano, D. 2016. Entrepreneurial Universities: Emerging Models in the New Social and Economic Landscape. *Small Business Economics*, 47(3): 551-563.
<http://dx.doi.org/10.1007/s11187-016-97554>
- Hannon, P. D. 2013. Why is the Entrepreneurial University Important? *Journal of Innovation Management*, 1(2): 10-17.
- Isabelle, D. A. 2013. Key Factors Affecting a Technology Entrepreneur's Choice of Incubator or Accelerator. *Technology Innovation Management Review*, February 2013:16-22.
- Isenberg, D. J. 2010. The Big Idea: How to Start an Entrepreneurial Revolution. *Harvard Business Review*, June: 40-50.
- Kolehmainen, J., Irvine, J., Stewart, L. et al. 2016. Quadruple Helix, Innovation and the Knowledge-Based Development: Lessons from Remote Rural and Less Favoured Regions. *Journal of the Knowledge Economy*, 7:23-42.
<http://dx.doi.org/10.1007/s13132-015-0289-9>
- Kuntu, L. 2017. Educational Involvement in Innovative University-Industry Collaboration. *Technology Innovation Management Review*, 7(12): 14-22.
- Kuratko, D. F. & Morris, M. H. 2018. Examining the future trajectory of entrepreneurship. *Journal of Small Business Management*, 56(1): 11-23.
<http://dx.doi.org/10.1111/jsbm.12364>
- Lahikainen, K., Kolhinen, J., Ruskovaara, E. & Pihkala, T. 2019. Challenges to the Development of an Entrepreneurial University Ecosystem: The Case of a Finnish University Campus. *Industry and Higher Education*, 33(2): 96-107.
<http://dx.doi.org/10.1177/0950422218815806>
- Leydesdorff, L. 2012. The Triple Helix, Quadruple Helix ..., and an N-Tuple of Helices: Explanatory Models for Analyzing the Knowledge-Based Economy. *Journal of the Knowledge Economy*, 3: 25-35.
<http://dx.doi.org/10.1007/s13132-011-0049-4>
- Malecki EJ. 2017. Entrepreneurship and entrepreneurial ecosystems. *Geography Compass*, e12359, 1-21. Accessed 12 October 2018:
wileyonlinelibrary.com/journal/gec3.
- McAdam, M. & Debackere, K. 2018. Beyond Triple Helix Toward Quadruple Helix Models in Regional Innovation Systems: Implications for Theory and Practice. *R&D Management*, 48(1): 3-6.
- Mian, S., Lamine, W. & Fayolle, A. 2016. Technology Business Incubation: An Overview of the State of Knowledge. *Technovation*, 50-51: 1-12.
<http://dx.doi.org/10.1016/j.technovation.2016.02.005>
- Naia, A, Baptista, R., Januário, C. and Trigo, V. 2014. A Systematization of the Literature on Entrepreneurship Education. *Industry and Higher Education*, 28(2): 79-96.
<http://dx.doi.org/10.5367/ihe.2014.0196>
- Ollila, S. & Williams-Middleton, K. 2011. The Venture Creation Approach: Integrating Entrepreneurial Education and Incubation at the University. *International Journal of Entrepreneurship and Innovation Management*, 13(2): 161-178.
- Organization for Economic Cooperation and Development (OECD). 2012. *Guiding Framework for Entrepreneurial Universities*. European Commission. Accessed June 10, 2019:
<https://www.oecd.org/.../EC-OECD%20Entrepreneurial%20Universities%20Framework.pdf>
- Pattnaik, P. N. & Pandey, S. C. 2014. University Spinoffs: What, Why, and How? *Technology Innovation Management*, December 2014: 44-49.
- Philpott, K., Dooley, L., O'Reilly, C. & Lupton, G. 2011. The Entrepreneurial University: Examining the Underlying Academic Tensions. *Technovation*, 31: 161-170.
- Pittaway, L. & Edwards, C. 2012. Assessment: Examining Practice in Entrepreneurship Education. *Education + Training*, 54(8/9): 778-800.
<http://dx.doi.org/10.1108/00400911211274882>
- Rae, D. 2010. Universities and Enterprise Education: Responding to the Challenges of the New Era. *Journal of Small Business and Enterprise Development*, 17(4): 591-606.
<http://dx.doi.org/10.1108/14626001011088741>
- Ranga, M. & Etzkowitz, H. 2013. Triple Helix Systems: An Analytical Framework for Innovation Policy and Practice in the Knowledge Society. *Industry and*

A University Business School as an Entrepreneurial Ecosystem Hub

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- Higher Education*, 27(3): 237-262.
<http://dx.doi.org/10.5367/ihe.2013.0165>
- Ratten, V. 2017. Entrepreneurial Universities: The Role of Communities, People, and Places. *Journal of Enterprising Communities: People and Places in the Global Economy*, 11(3): 310-315.
<http://dx.doi.org/10.1108/JEC-03-2017-0021>
- Rice, M. P., Fetters, M. L. & Greene, P. G. 2014. University-Based Entrepreneurship Ecosystems: A Global Study of Six Global Institutions. *International Journal of Entrepreneurship and Innovation Management*, 18(5/6): 481-501. Sperrer, M. Muller, C. & Soos, J. 2016. The Concept of the Entrepreneurial University Applied to Universities of Technology in Austria: Already Reality or Vision of the Future? *Technology Innovation Management Review*, 6(10): 37-44.
- Spigel, B. 2017. The Relational Organization of Entrepreneurial Ecosystems. *Entrepreneurship Theory and Practice*, 41(1): 49-72.
<http://dx.doi.org/10.1111/etap.12167>
- Stam, E. 2015. Entrepreneurial ecosystems and regional policy: a sympathetic critique. *European Planning Studies*, 23(9): 1759-1769.
- Sjöö, K. & Hellström, T. 2019. University-Industry Collaboration: A Literature Review and Synthesis. *Industry and Higher Education*, 33(4): 275-285.
<http://dx.doi.org/10.1177/0950422219829697>
- Theodoraki, C. & Messeghem, K. 2018. A Social Capital Approach to the Development of Sustainable Entrepreneurial Ecosystems: An Explorative Study. *Small Business Economics*, 51(1): 153-170.
<http://dx.doi.org/10.1007/s11187-017-9924-0>
- Theodorakopoulos, N., Kakabadse, N. K. & McGowan, C. 2014. What Matters in Business Incubation? A Literature Review and a Suggestion for Situated Theorising. *Journal of Small Business and Enterprise Development*, 21(4): 602-622.
<http://dx.doi.org/10.1108/JSBED-09-2014-0152>
- von Zedtwitz, M. 2003. Classification and Management of Incubators: Aligning Strategic Objectives and Competitive Scope for New Business Facilitation. *International Journal of Entrepreneurship and Innovation Management*, 13(2): 176-196.
- Williams, D. & Kluev, A. 2010. The Entrepreneurial University: Evidence of the Changing Role of Universities in Modern Russia. *Industry and Higher Education*, 28(4): 1-10.
<http://dx.doi.org/10.5367/ihe.2014.0212>
- World Economic Forum. 2014. *Entrepreneurship Ecosystems around the Globe and Early Stage Company Growth Dynamics*. Geneva, Switzerland: WEF. Accessed January 6, 2017: www.weforum.org
- Zawdie, G. 2010. Knowledge Exchange and the Third Mission of Universities. *Industry and Higher Education*, 24(3): 151-155.