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THE WOMEN SOCIAL ENTREPRENEURSHIP IN INDIA

Narendra C. Bhandari, Pace University, New York

ABSTRACT

The women play a very small role in the field of entrepreneurship in India. Their role in social entrepreneurship there is even smaller. Several factors are responsible for this situation. These include, culture, biology, poverty, and lack of education, among others. However, some women are trying to improve this situation.

The objectives of this paper include, defining entrepreneurship and social entrepreneurship; providing examples of women social entrepreneurship in India; their challenges; and suggestions for dealing with those challenges

Key words: Women social entrepreneurship in India, examples of women social entrepreneurs in India, their challenges, and suggestions to deal with those challenges.

INTRODCUTION & OBJECTIVES

India

India, with its more than a billion people, is the second largest populated country in the World, after China. India, the largest democracy in the world, is also facing numerous problems.

It has an unemployment rate of 8.8% (2013). Only 32.6% of its people have access to improved sanitation facilities. According to the World Bank, while India's poverty rate has fallen from 37% in 2005 to 21.9% in 2012, the absolute number of its people living in poverty has actually increased due to the rising population. (Habitat for Humanity, UK, 2019)

Millions of people in India, especially in its rural areas, don't have access to electricity. Instead they use fossil fuels (fire-wood, biomass, kerosene oil) for cooking and lighting. (IEA statistics, 2010, cited in Goyal, 2016).

According to a census report, one in six people in Indian cities live in some 100,000 sprawling slums with conditions unfit for human habitation. (Johnson 2013)

Indian Women

According to the United Nations Development Programme, human development reports 2017, India ranked 130 in a list of 189 countries on Gender Inequality Index (GII). The GII reflects on Indian women's reproductive health, empowerment, and labour.
(UNDP, 2018).

In terms of employment, only 39 percent of Indian women is formally employed, compared to 81 percent of Indian men and 71 percent of Chinese women. Furthermore, India came second to last in a Gender Female Entrepreneurship Index of women entrepreneurs in 17 countries. (Guardian News and Media Limited, 2015).

Clearly, there is a need to promote women entrepreneurship in India.

Objectives

Several individuals (men and women) and organizations (local, national, and international) are trying to help solve India's plethora of problems. The primary purpose of this

research is to discuss the role of women social entrepreneurs in India. Specifically, this article has the following objectives:

1. Define Social Entrepreneurship.
2. Provide examples of women social entrepreneurship in India.
3. Discuss challenges that the women social entrepreneurs in India are facing.
4. Discuss efforts being made to empower women in India.
5. Make suggestions to empower women.

SOCIAL ENTREPRENEURSHIP

Let me first define "entrepreneurship", before defining "social entrepreneurship." According to Joseph A. Schumpeter (1951), an entrepreneur creates value by allocating resources to "new uses and new combinations."

According to Peter Drucker (1985), entrepreneurs, by definition, shift resources from areas of low productivity and yield to areas of higher productivity and yield.

The Government of India has defined women entrepreneurs as an enterprise owned and controlled by women having a minimum financial interest of 51 per cent of the capital and giving at least 51 per cent of the employment generated in the enterprise to women. (Tiwari 2017)

A widely used definition is that entrepreneurship is doing something different and taking a risk.

Let me now define the term, "social entrepreneurship", which broadly speaking, can be classified into two groups: (a) Social entrepreneurship which is primarily socially oriented, and (b) Social entrepreneurship which has both social and economic orientation.

Enterprises with primarily social orientation promote social good without any regard for economic gain. It is like doing charitable work. Socio-economic entrepreneurs, on the other hand, promote social good as they also try to make economic gains to support their work for social good. (see also Goyal et al., 2016).

In either case, these organizations address various kinds of social problems in the areas such as health, education, employment, residence, culture, and environment. (Also see Sivathanu and Bhise 2013; and Bulsara, Gandhi, and Chandwani 2015)

EXAMPLES OF WOMEN SOCIAL ENTREPRENEURS IN INDIA

As India faces a whole host of social problems, social entrepreneurs, including the women social entrepreneurs, continue to rise to the occasion and find out ways to address and solve these problems. Some of them, along with their contribution, are briefly described below.

Shri Mahila Griha Udyog

Shri Mahila Griha Udyog Lijjat Papad, widely known as Lijjat. is a cooperative of Indian women that offers several consumer products such as packaged foods, toiletries, and medicines. It was started in Bombay in 1959 by seven women with a meager capital of Rs. 80 (about $15). In 2018, with an employment force of 43,000 women all over India, it had a turnover of more than Rs. 800 crore (over $ 109 million). It is a classic example of women entrepreneurship to empower women. (Wikipedia the Free Encyclopedia, 2019).

Ela Bhatt, Self-Employed Women's Association (SEWA)

Self-Employed Women's Association (SEWA) is a trade union of female workers, based in Ahmedabad, India. With a membership of more than two million women, it is the largest organization of self-employed women.

It was established by Ms. Ela Bhatt, a civil rights leader, and a group of some other women in 1972. Its goals include providing full employment to women; and improving their quality of life, health care, and child care, among others. (Wikipedia 2019)

Sunitha Krishnan, Prajwala

Thousands of women and children are forced into the flesh trade in India every year. Prajwala (eternal fire) is an organisation that was set up by Ms. Sunitha Krishnan and Brother Jose Vetticatil in 1996. It, on the one hand, fights sex trafficking, and, on the other, it also protects and rehabilitates women and children. It provides them a life of dignity and helps them adjust back into the society. It has rescued thousands of victims to-date. (See also Business India 2017; Lakshmi and Kumar, 2014; and Sharma, et al. 2015).

Aditi Gupta, Menstrupedia

Menstruation is an unmentionable subject in India, even offensive to talk about sometimes. Lack of information about menstruation creates notions and behavior that are not healthy for women, especially young girls. Therefore, in 2012, Ms. Aditi Gupta, with her husband, Tuhin Paul, co-founded Menstropedia.com to educate them to separate facts from fictions and to have healthy periods.

Sheetal Mehta Walsh, Shanti Life

Ms. Sheetal Mehta Walsh, with her husband Paul Walsh, co-founded Shanti Life. It empowers and enables vulnerable women in India to achieve secure livelihoods and enhance their personal safety through access to sanitation as a priority."

It provides low interest loans to improve basic sanitation facilities, among others. To ensure that the loans are effective, they deliver them along with appropriate training and education.

Its initial focus is on the states of Maharashtra and Gujarat. (Shanti Life).

Gloria Benny, Make a Difference

Make A Difference was founded by Gloria Benny, Jithin Nedumala, Sujith Varkey, Kavin K K, Santosh Babu, and Jithin John Varghese.

It is helping improve conditions of children in orphanages and shelters across India in several ways, including mentoring and training. (Wikipedia 2019).

Anu Sridharan, NextDrop

In most urban areas in India, people get their tap water every 2-10 days, but no one knows exactly when it would happen. Citizens feel ignored and angry. Enormous time and resources are wasted.

NextDrop, started by Ms. Anu Sridharan, began using real-time data and cell phones to inform people about the status of the water services and the exact time of water availability on a given day in their areas.

Starting in the areas of Hubli-Dharwad and Bangalore, it is saving an enormous amount of time and other resources for millions of people in India. (NextDrop)

Priya Naik, Samhita Social Ventures

Ms. Priya Naik founded Samhita Social Ventures to help people and organizations to come together to helps them in various areas such as poverty reduction, livelihood opportunities, and social justice. Samhita, meaning collective good, brings together people who can bring change in the community and those who have the resources to support them. (Samhita.org)

Naiyya Saggi, BabyChakra

Ms. Naiyya Saggi founded BabyChakra to enable new parents and parents to access local services relating to parenting, maternity, and childcare. It is India's largest pregnancy and parenting platform.

It has hundreds of experts and doctors who can answer different kinds of questions pertaining to health and nutrition. Its Pregnancy Tracker, or Baby Tracker, can answer questions about the various stages of baby's development. (Babychakra.com)

Aditi Avasthi, Embibe

Ms. Aditi Avasthi founded Embibe in 2012. It offers various kinds of educational services for high school and college students to help them prepare for different kinds of competitive exams.

Using its data, technology, and personalized feedback, it helps them prepare to excel in these examinations and the related routines. The students need to excel in these exams to be admitted to the prestigious educational institutions of their choice. (Embibe.com)

Meena Ganesh, Portea Medical

Ms. Meena Ganesh and her husband acquired Portea Medical in 2013. The organization provides various kinds of healthcare services to people in the comfort of their own homes. These services are particularly helpful to the elderly people who don't have the necessary strength go to the hospitals and doctors physically.

Prukalpa Sankar, SocialCops

Different government ministries in India collect data on different sectors and programs without much coordination and unification. As a result, they can't unify their data and make appropriate decisions.

Ms. Prukalpa Sankar and Varun Banka co-founded SocialCops in 2012. It's a technology company that helps officials build accurate data on different levels on important matters like income and savings, access to healthcare, and the quality of infrastructure. This helps them make better decisions.

For example, in 2016, it developed the DISHA Dashboard for 20 government agencies for their various projects. (Yadav 2018)

Sairee Chahal, Sheroes.in

SHEROES is a women's community platform, offering support, resources, opportunities and interactions via Sheroes.com. Its members discuss health, careers, relationships, and prevention of sexual harassment. They share their life stories, achievements and moments. It also

offers a helpline where community members can talk to counsellors on all aspects of their growth journeys.

Over a million women have been directly helped by Sairee's leadership. SHEROES intends to help more than 100 million women in the next five years. (Saireechahal.com)

OBSTACLES AND CHALLENGES FOR WOMEN

It is a blessing to be a woman in India. She is loved as a mother, as a daughter, and as a wife. However, at times, it may also be a curse to be a woman in India. She is not welcome as a daughter because of the dowry her parents need to pay to get her married. She does not have much freedom to do things on her own.

Women in India, especially those who try to become entrepreneurs or social entrepreneurs, face a host of problems and challenges. Here are some of them.

The Motherhood

Only women give births. Naturally, they are seen as mothers first. They, at least initially, also need to spend more time at home to stay with their children. However, the work they do at home is often classified as part of the 'informal sector' or the 'shadow economy'. (Torri and Martinez, 2014.)

Maria Mies labelled this situation as the 'housewifization' of labour, which treats women's work as subsistence work and does not include it in the production of capital. They are paid less than their male counterparts for the similar work; despite the laws against it. (See Carr, Chen, and Jhabvala, 1996; as cited in Datta and Gailey, 2012)

Childhood

Right from their early childhood, girls are taught to be introvert, not to speak much in the front of men, and not to be aggressive. They are often being readied to become brides.

All these discriminatory family and cultural practices against girls, as compared to their male counterparts, make them weak, passive, introvert, and have a low need for success.

Education and Training

According to Ghosh (2002, as cited in Datta and Gailey, 2012), lack of macro-technical skills among women of poorer socioeconomic resources is a primary reason of their subservience to men.

Access to Resources

Because of their family and cultural challenges, as described above, it is difficult for women to start their own business, or even learn entrepreneurial skills, against the wishes of their father/husband.

Even when some women have crossed those hurdles, they face challenges in selecting businesses to pursue, raising funds, producing goods and services, marketing them, and managing them.

Personality

The protective and discriminatory nature of their family upbringing and their unsupportive socio-cultural environment often make the Indian women risk-averse. They lack

the self-confidence to start a business on their own which is often risky by its nature. They are happy and proud to be related to their successful husbands, children, or parents.

WOMEN EMPOWERMENT

Meaning of Empowerment

The meaning of empowerment has been explained using different words by different writers. These include words such as independence, being free, power to make decisions, control over resources, personal strength, self-control, self-reliance, and freedom of choice and action. (See Moser, 1989, Moser 1993; and Rolands, 1997; all as cited in Basargekar, 2009).

In her widely acknowledged article, Kabeer (1999) says that "ability to make choices" is a key element of women empowerment. This in turn, Kabeer states, depends upon three variables: (1) Access to resources, (2) Agency, and (3) Achievements.

According to a study by V Krishnamoorthy and R Balasubramani (2014), "ambition, skills and knowledge, family support, market opportunities, independence, government subsidy and satisfaction are the important entrepreneurial motivational factors" for women.

According to Torri and Martinez (2014), empowering women requires their education, their ownership of resources, and their access to job market.

Role of Microfinance

In 1976, Prof. Muhammad Yunus addressed the socio-economic issues of poverty, under-utilized skills, and women empowerment in Bangladesh by introducing the concept of Grameen Bank. He believed that the women can take micro loans, use their skills to start a small business, pay back loans, and come out of poverty. The Grameen Bank, his Nobel Peace Prize winning initiative, has been copied in many countries including in India. (Sharma, Singla, and Grover, 2015)

Microfinance empowers women by giving them direct access to capital, starting and running their own business, earn their own living, and support their own families. It gives them self-esteem and respect.

According to Naila Kabeer (2001), women's participation in microcredit programmes in Bangladesh also led to their increased involvement in community affairs, reduction in domestic violence, and an overall sense of more power.

A research into seven microfinance projects in India, conducted by ICICI and UNDP, concluded that these projects were successful in building savings, reducing migration in search of employment, bringing gender issues on the common platform and reducing economic vulnerability and dependence on moneylenders. They, however, were not able to reach the poorest of the poor people. (See Basargekar 2009; and Torri and Martinez, 2014)

The microfinance program also has its problems. In spite of its huge success, the micro-finance programs are not able to reach the poorest 20 per cent of the population. (Torri and Martinez, 2014).

Karnani (2009), questioning the value of microfinance programs, suggested that overall India should reallocate its resources away from microfinance and support instead larger firms in labor intensive industries. This would help lessen poverty, as it is happening in China, Korea, Taiwan, and other developing countries.

Institutional and Organizational Efforts

Several organizations and institutions have been established to recognize, support, and empower women, women entrepreneurship, and women social entrepreneurship in India. Some of these are presented below.

For the first time, India's Eleventh Five Year Plan (2007-12) acknowledged that women are not only equal to men as citizens, but they are also agents of economic and social growth. (Lavanya, 2010, cited in Sharma, Singla, and Grover, 2015).

India has a separate Ministry of Women and Child Development to promote social and economic empowerment of women; and to promote children's development, care and protection. (Government of India, Ministry of Women and Child Development, 2006).

The British Council, in partnership with Diageo, has established the "Young Women Social Entrepreneurship Development Programme" to promote social enterprise expertise among women in India. (British Council, 2015, cited in Sharma, Singla, and Grover, 2015).

The Federation of Indian Women Entrepreneur was established in 1993 to promote networking among different organizations of women entrepreneurs in India.

Federation of Ladies Organization was established in 1983 to promote women entrepreneurship and women empowerment.

Women's India trust (WIT) was established in 1968 by Kamila Tyabji. Its objective is to help export items produced by Indian women to various countries.

Consortium of Women Entrepreneur of India (CWEI) was established in 2001. It helps women find methods of production, marketing, and finance.

There are several other local, statewide, national and international organizations to empower women in India.

The women cooperatives provide a variety of services in the areas such as financing, water supply, sanitation, housing, schools, and health.

About 65 million people live in slums in India. Dharavi (near Mumbai) is the largest slum area in the country. However, over the years, with the help of cooperatives, and others, its residents have established thousands of successful small businesses. (Datta and Gailey, 2012; and Tripathi and Agarwal, 2013)

CONCLUDING THOUGHTS

The women business owners are making important contributions to India's socio-economic health and pride. Various efforts are being made to promote and empower them. All these efforts are laudable and helpful. However, much more is needed to empower them and to recognize them as equal partners in India's economic and social advancement.

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CULTIVATING THE ENTREPRENEURIAL MINDSET IN TODAY'S SMALL LIBERAL COLLEGES & UNIVERSITIES

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ABSTRACT

Due to numerous problems in higher education, universities are struggling for sustainable answers. Higher education is undergoing tremendous changes. Small liberal arts colleges are the most susceptible to market forces. Disruptive change has a dangerous consequence to traditional institutions. The results of disruptive change for organizations produces unpredictability and uncertainty of outcomes in the environments. This article explores how an entrepreneurial mindset in faculty can help stimulate innovation and creativity in the constant, changing environment in higher education. In analyzing the current crises in higher education, this paper describes a set of strategic implications that will aid universities planning to create sustainability education programs. The result of this investigation is significant because the results can better assist administrators, faculty and practitioners on how to inject the entrepreneurial mind-set in young business professionals in order to produce sustainability education for small liberal arts colleges and universities.

Keywords: Liberal Colleges, Entrepreneurship, Faculty, University Governance, Organizational Behavior, Leadership

INTRODUCTION

Higher education is under tremendous pressure to better meet the needs of students and the workforce needs of local communities. Traditional liberal arts colleges are being called upon specifically to provide education that considers the traditional goal of knowledge enlightenment while also providing education with utility (Spinnelli, 2019). Related to notion of education utility is Moody's (2018) assertion that traditional liberal arts colleges primary focus is on general academic programs and personal growth for students instead of professional training like engineering and science found in state universities. This focus requires an approach that encourages innovation, critical thinking, and collaboration in addition to skills and behaviors that meet the labor needs of local communities (Moody, 2018).

The broader range of student and community expectations of traditional liberal arts colleges occurs during a period in which the value and delivery of education are increasingly being challenged. In addition, more than 100 colleges and universities United States have closed (Spinnelli, 2019). With growing pressures centered on the merit of college education against student debt and job readiness, many people are questioning the value of higher education as a

means of suitable employment or even a viable option to efficiently impact a student's quality-of-life (Lederman, 2017). Next businesses, government officials, and the general public complain about the number of unprepared college graduates produced by today's colleges and universities. According to a Pew Research study, 61% of Americans believe that the higher education system in the United States is going in the wrong direction (Brown, 2018). This may partly account for declines in college enrollment among traditional-age students. Across most of the United States, some projections show 450,000 fewer students in the years beyond 2025 (Pearson, 2019). According to Economist Nathan Grawe from Carleton College in Minnesota, the college-going population will drop by 15% between 2025 and 2029 and continue to decline by another percentage point or two thereafter. As a result, there will be 25,000 fewer faculty positions (Pearson, 2019). Dr. Clayton Christensen conveyed doubt about the future of traditional universities; arguing that in15 years from now half of U.S. universities may be in bankruptcy (Lederman, 2017). Liberal arts colleges and universities may be at greater risk due to their focus.

This article explores how an entrepreneurial mindset in today's liberal colleges can serve as a key driver in stimulating innovation and creativity in a constant, changing external environment that impacts higher education. This research, as shown in Figure 1, focuses on four variables which are entrepreneurship, strategy, structure, and culture. Across the globe, universities are being challenged to change processes due to the financial pressures and demands from government officials. According to the National Center for Education Statistics, there are 4,298 institutions which consist of 1,626 public colleges, 1,687 private nonprofit schools, and 985 for-profit schools in 2017. However, the number of academic institutions continue to shrink in the nation (Moody, 2019). In the United States, there is even general agreement between both political parties that today's higher education is moving in the wrong direction (University Industry Innovation Network, 2015). In one study, 73% of Republicans and 52% of Democrats have a negative view of higher education (Brown, 2018). Contributing to the urgent need to change, college administrators observe that higher education institutions are repeating outdated approaches to delivering education (Brown, 2018). Given these glooming predictions, a different mindset is suggested.

Figure 1

Cultivating an entrepreneurial mindset will infuse innovative thinking tied to difficult problems and serve as a foundation to explore new revenue streams to universities that utilize student tuition as the principle income for these academic institutions. An additional benefit of implementing an entrepreneurial mindset is developing a culture that is acutely aware of the needs and expectations of students in a digital economy that seeks enlightened learners with needed skills (Turner, 2015) The Entrepreneurial Mindset can be defined as a set of attitudes, skills and behaviors that help students to succeed academically, personally and professionally that include initiative and self-direction, empathy, risk-taking, flexibility and adaptability, creativity and innovation, critical thinking and problem solving (Turner, 2015).' Just as entrepreneurs seek to solve problems and address needs, college professionals with an entrepreneurial mindset are not content with the status quo. In fact, they see problems as opportunities to reenergize the development and delivery of instruction within the higher education industry (Turner, 2015).

Academic institutions would benefit from increased opportunities for innovation during disruptive change. Phil Weilerstein, President of VentureWell noted:

> *There are a number of realities facing 21st century workers and educators preparing them for the workforce. Employees now have multiple roles. Problems are more complex and require sophisticated solutions. Successful entrepreneurs and intrapreneurs need a mix of skill sets–technical, psychological or emotional, and relational…Higher ed needs to respond by developing the skills that future workers and entrepreneurs need* (Venturewell.org, 2017).

METHOD(S)

The collection and critical analysis of secondary data from relevant publications were used to evaluate the feasibility of a new university model based on an entrepreneurial mindset. In addition, an extensive review of the literature was conducted to focus on the level of scale and depth of colleges and universities experience implementing the entrepreneurial mindset. Recommendations are developed using strategic analysis which include Porter's Five Forces and PESTEL.

REVIEW OF LITERATURE: ENTREPRENEURIAL MINDSET

Entrepreneurs possess worthwhile qualities that can benefit an organization. In addition, entrepreneurship was used to jumpstart many economies across the world, as posited by Green, Dwyer, Farias, Lauck, and Mayfield (2019). At the heart of entrepreneurship is pursuing opportunities with a vision. The ability to envision future possibilities that are desirable and feasible without knowing the outcome is the essence of entrepreneurship (Keh, Foo & Lim, 2002). Entrepreneurs move into action where they see a need or an opportunity that will benefit the organization. These traits and behaviors lead to breakthrough and new ways of delivering education within higher education (Dewett, 2006).

Continuing, a willingness to take risks can also lead to some higher education institutions being more desirable to students (Hitt & Ireland, 2017). Entrepreneurial mindsets influence creativity and autonomy for staff and faculty (Dewett, 2006). Chavous suggests, "[w]hile all campus members have important roles, faculty members can make unique and powerful impacts on their college/university environments. Faculty shape student experiences in and out of the classroom." Consequently, creative and autonomous faculty can ignite entrepreneurial mindsets in students by allowing them to pioneer innovative solutions (Dewett, 2006). Essentially, colleges and universities that consider the entrepreneurial mindset as a philosophy and range of pedagogical practices may serve as a catalyst for organizational growth by **s**pearheading innovation across campus by impacting faculty, administration, and student and ultimately alumni, corporate donors, and other supporters to advance the institution.

In addition to creating and deploying organizational strategies for positive returns to the institution, college and university professionals develop tools and services that support students'

role as major community stakeholders (Hess & McShane 2016). The educational entrepreneur is different than the traditional entrepreneur (Brown & Cornwall, 2000). Brown and Cornwall (2000) hold that college and university professionals with an entrepreneurial mindset seek and discover new innovations to create change. Further, the authors hold that traditional organizations restrict creativity within the confines of the classroom; whereas, entrepreneurial driven educational organizations will cultivate and develop creativity throughout an educational system.

The presence of the entrepreneurial mindset in practice is needed to both create business models and actively participate in implementing changes that can drive transformational change (Battilana, Leca & Boxenhaum, 2009). Entrepreneurs can also help institutions survive by using existing resources and creating plans to increase wealth and profitability (Hitt & Ireland, 2017). While there are benefits to entrepreneurship, there are also associated risks with entrepreneurial business practices; therefore, it is critical that higher education institutions that pursue practices related to the entrepreneurial mindset have goals that align with university goals (Keh, et al., 2002; OECD Glossary of Statistical Terms, 2003). The fear of failure or being less risk averse, is a commonality that college professionals that practice behaviors consistent with the entrepreneurial mindset have with other entrepreneurs (Kihlstrom & Laffont, 1979). For educational entrepreneurs, risk or aversion to threat, comes from their ability to see needs in the environment, make disruptions to the norm, and provide new opportunities (Brown & Cornwall, 2000).

STRATEGY

Traditional arts colleges have a history of developing and encouraging new ways of thinking across disciplines and working to integrate discrete content areas into a comprehensive approach to delivering information. In pursuing a multi-disciplined approach, students educated within traditional liberal art colleges are able to expand their perspectives and gain unique insight into problems and comprehensively challenge assumptions. In addition, traditional liberal arts colleges have a long history of addressing problems in a non-linear, non-prescriptive manner that encourage students to develop innovative ways to discover new information and challenge old ideas, consistent with the entrepreneurial mindset (Higdon, 2005).

In developing and promoting entrepreneurial mindsets within the small number of universities that explicitly pursue this approach, traditional liberal arts college students are encouraged to seek ideas and form relationships and alliances in an effort to expand their individual thinking and problem-solving skills (Higdon, 2005). From a whole-person perspective traditional liberal art college are consistently seeking ways for students to achieve higher-order thinking and to apply this thinking to problems that they encounter, consistent with the entrepreneurial mindset (Higdon, 2005). Early considerations of the entrepreneurial mindset within liberal art colleges shows that liberal arts students were encouraged to develop characteristics fundamental to entrepreneurial thinking, which include recognizing connections and patterns across disciplines, challenging conventional ways of thinking, and recognizing connections that underlie explicit connections. In addition, students that possess an

entrepreneurial mindset are encouraged to expand their circles and approach the value of their knowledge and contributions from a utilitarian perspective (Higdon, 2005).

Although the entrepreneurial mindset is receiving increased attention that encourages students to think in new, innovative ways while improving their life skills, there is little evidence to support its widespread consideration and implementation at a significant level within traditional liberal arts colleges. There is sufficient evidence that major universities continue to consider and implement practices related to the entrepreneurial mindset across disciplines (Bilen, Kisenwether, Rzas, & Wise, 2013). The most common approach is for business schools to create and build entrepreneurial mindsets within business and STEM students in an effort to gain new insights into product development, encouraging experimentation, and to promote student inquiry and comfort with ambiguity (Bilen et al. 2013).

Part of the barrier in identifying more explicit instances of the entrepreneurial mindset being developed, implemented, and nourished within students across a wider range of disciplines relates to traditional, non-business faculty relating the entrepreneurial mindset to business, and more specifically to entrepreneurship (Nadelson et al., 2018). Conversely speaking, there are instances where characteristics behaviors, and approaches related to the entrepreneurial mindset are encouraged and taught yet faculty members are unaware of its relation to the construct of entrepreneurial mindset (Bilen et al, 2013; Nadelson et al., 2018).

STRUCTURE

Traditional liberal arts colleges possess formal structure with identified roles and responsibilities. Yet, the structure of many universities varies depending on their history, mission, and institutional type. For most liberal arts colleges in the United States, the foundation for their structure can be traced to the founding of Harvard College in 1636. Public colleges and universities followed suit (Education.stateuniversity.com, 2019). In general, inherent within the structure of a traditional liberal arts college is a governing body. For example, private colleges may have a large board of trustees while public research universities may be managed by a system-wide governing board.

Overall, there is a reliance on bureaucratic organizational structures; academic institutions, whether public or private, incorporate key authority structures, including a governing board, a president or chancellor, a cohort of administrative leaders, and an academic senate (Education.stateuniversity.com, 2019). With that said, decision-making tends to be bureaucratic, hierarchical process including a central administration and academic senate made of faculty; this combination of organizational structure and processes determine organizational behavior (Education.stateuniversity.com, 2019).

In the academic structure, many universities operate with ‘shared governance.’ In higher education, shared governance relates to structures and processes through which faculty, professional staff, administration, governing boards and often students and staff participate in the decision-making of an academic institution (Suny.edu, 2019). According to The American Association of University Professors (AAUP) (n.d.), shared responsibility among the different components of institutional government and specifies areas of primary responsibility for

governing boards, administrations, and faculties should exist. While the administration and governing board of the institution are compelled to consider the campus governance body's resolutions and recommendations, they are not required to accept or implement them. After the submission of resolutions, the CGL should work with the administration to assure their acceptance. If conflict arises, ongoing negotiations should be conducted to arrive at the best possible result. Thus, rejection of resolutions or recommendations should occur rarely and then only for specific compelling reasons which should be communicated to the governance body. Rejection of resolutions, however, is NOT the best possible result and should be only a last resort (Suny.edu, 2019).

Due to changing external factors including changing student demographics, rising costs, and government regulations, universities are considering their organizational structures. In fact, the rapid demand for continuing education and online learning programs by colleges and universities in particular has challenged traditional notions about delivery of postsecondary education (Education.stateuniversity.com, 2019). Departmental structures can be inflexible and inhibit creative responses to changing market expectations (Stokes & Slatter, 2016). Cowen (2018) maintained that universities must shift a different governing model that is nimble, flexible, and inclusive. In developing this new model, Cowen argued that trustees, presidents, faculty, students, and staff must accept their new roles of collaboration.

CULTURE

Traditional liberal arts universities were built upon the premise that an informed and engaged citizenry contributes constructively to society, actively engaging their communities and promoting public discourse (Christie, Diupe, O'Rourke, & Smith, 2017). In pursuing this aim, liberal arts universities pursue a generalist approach to curriculum developing and instruction (Christie et al., 2017). This approach fosters intellectual development over a more specialized approach to education, positioning students to informed civic leaders.

Faculty of traditional liberal art universities are accustomed to teaching beyond their disciplines. Additionally, faculty within liberal arts universities are also accustomed to working with undergraduate and graduate students. An examination of the evidence finds that although liberal arts faculty employ and promote behaviors consistent with the entrepreneurial mindset, few of these institutions are actively promoting the entrepreneurial mindset (Bilen et al., 2013; Shinn, 2004). Behaviors consistent with the entrepreneurial model include promotion of inquiry, collaboration, and demonstrating tenacity and grit to solve unique problems (Higdon, 2005; Nadelson et al., 2018).

ANALYSIS AND RESULTS

As the research indicates, today's liberal arts universities are undergoing tremendous pressures from outside forces. In utilizing strategic analysis, the researchers can evaluate the competitive context in which an organization exist; a better investigation of the strategic challenges such as values, opportunities, and capabilities can also be observed (Harris & Lenox,

2013). Like profit making businesses, universities must deal with competitors that offer similar services in the market. Perreault, Cannon, and McCarthy (2019) maintained that organizations must seek a sustainable competitive advantage that has a marketing mix that customers see as better than a competitor's offering and cannot be quickly duplicated. Given this reality, the research evaluated the generic liberal arts college utilizing the following PESTLE Analysis (See Table 1).

Table 1. PESTEL ANALYSIS - Liberal Arts Colleges

P (Political)	E (Economical)	S (Social)	T (Technological)	L (Legal)	E (Environmental)
Government Regulation/Oversight (i.e. Student Employment, University Cost) International Influences as It Relates to Immigration Partisan-Divisive	Cost of Higher Education Cost-Benefit of Pursuing An Education Earning Power versus Affordable	Changing Demographics Small Number of Traditional Students From High School Growing Cynicism About the Worthy of An Education Public Perception About A Liberal Arts Education	Rapid Advancement of Technology (i.e. AI, Robotics) Need to Frequently Update Equipment	Employee Rights Immigration	Waste Reduction/Minimization Paperless Technologies Green Initiatives

5.1.1 Political: The current political landscape is not supportive of the status quo in education. In the United States, there is even general agreement between both political parties that today's higher education is moving in the wrong direction (University Industry Network, 2015). In one study, 73% of Republicans and 52% of Democrats have a negative view of higher education (Brown, 2018).

5.1.2. Economic: As the rising cost of higher education continues to cause students to increase debt, government agencies are putting more pressure on academic institutions. According to Chronicle (2019) analysis, Americans now owe nearly 1.5 trillion in student-loan debt. Additionally, 11% of all student debt was in serious delinquency. This debt is hurting college students' future earning power.

5.1.3 Social: Many individuals in society question the direction of higher education and even the value of education. According to a Pew Research study, 61% of Americans say the education system in the United States is going in the wrong direction (Brown, 2018).

5.1.4 Technological: Advantage technology and the Internet have made education more accessible and affordable to many. In addition, technology has made online education scalable (Iny, 2015).

5.1.5 Legal: The legal rights of adjunct faculty are being considered given the reshaping of university structures. Due to the tight budgets, many institutions are hiring adjuncts instead of permanent faculty. In fact, 56% of full-time and part-time faculty members at four-year-public public institutions and 66% of those at four-year private nonprofit institutions were not on the tenured track in 2017 (Simonton, 2019).

5.1.6 Environmental: Students enrolled in traditional liberal arts universities are increasingly aware of sustainability efforts. Accompanying this awareness are students that seek to contribute to substantiality efforts within the colleges via service-learning initiatives or community outreach efforts (Brown, 2018).

Porter's Five Forces is strategic tool that determines the level of competition. In this application, the five primary forces are evaluating which are (1) rivalry among current competitors, (2) threat of new entrants, (3) substitutes and complements, (4) power of suppliers, and (5) power of buyers (Harris & Lennox, 2013). When evaluating the current climate of liberal arts colleges and universities, Sears (2019) showed that the current competitive environment is unfavorable.

Figure #2

STRATEGIC IMPLICATION

In preparing today's liberal arts university, administrators and senior executives of these institutions need to infuse an entrepreneurial mind-set in their faculty. As U.S. universities operate with disruptive forces, some institutions are considering entrepreneurial behavior in their organizations (Education.stateuniversity.com, 2019). Entrepreneurs possess worthwhile qualities that can benefit an organization. Green, Dwyer, Farias, Lauck, and Mayfield (2019) argued the quality of entrepreneurship has been used to jumpstart many economies across the world. Due to the complex problems associated with higher education, there is an opportunity to explore the entrepreneurial mindset to infuse innovative thinking. Having a mentality of an entrepreneurial mindset can be beneficial for a variety of industries (Tominson, n.d.). Below are the key strategic implications:

Leaders need to model the way in entrepreneurial mindset. Peter Star, Dean of the College of Arts and Sciences at American University explained "...when you are tuition dependent, that particular motor for growth has been ratcheted down. It means the deans need to be far more entrepreneurial. creative, and inventive at a time of financial constraint. I would say it's austerity for American University at this point." (as cited in The Chronicle of Higher Education, 2019, p. A4). Nathan Meller, CEO of C3 Brands (2019) further suggested that senior leadership is critical to implement a growth mindset. Over two-thirds of a sample group employed key leaders in their organizations to communicate, teach, and the role-model growth mindset throughout their organizations.

Important to note is that as a leadership construct among, the entrepreneurial mindset and its often-synonymous label, growth mindset is yet to be fully and consistently defined as a leadership construct (Higdon, 2005). Proposed within this study is a faculty-focused approach that can serve as input for development and refinement of an entrepreneurial mindset focused on college leadership within liberal art universities. Sufficient at this point is to propose psychological traits and behaviors that underlie the entrepreneurial mindset be role-modeled by educational leadership within liberal art colleges. These traits and behaviors include self-efficacy, confidence, critical-thinking, collaboration, and team building (Ridley, Davis, & Korovyakovskaya, 2017).

Be adaptable to changing market conditions. Colleges and universities must cultivate a multidimensional entrepreneurial ecosystem to position to adapt to changing environment. In some cases, industries are being destroyed by disruptive forces like advanced technologies. In this scenario, companies laid-off employees at the same time they are bringing new employees into the organization. The primary reason is that the skillsets for the jobs are different. Thus, employees must perform continuous improvement to stay ahead of rising automation of jobs. According to an Oxford University study, nearly half of American jobs are at-risk due to artificial intelligences by 2033. Divergent jobs like drivers, lawyers, finance advisors, and factory workers are predicted to be transformed due to artificial intelligence (Benedikt & Osborne (2013). Spinelli (2019) further argued that an entrepreneurial ecosystem enhances

student experience, fosters stronger industry and alumni connections, and makes for a great place to work.

Universities must create entrepreneurial climates. Green, Dwyer, Farias, Lauck, and Mayfield (2019) suggested universities that create the right environment for entrepreneurial mindset will be more successful. This environment includes equipping faculty with the right type of entrepreneur training and by giving students more relevant course content and staying current on technology.

Jabeen, Faisal, and Katsioloudes (2016) provide specific practices in implementing an entrepreneurial mindset within higher education institutions. Among these practices are embedding specific courses and developing learning outcomes that explicitly relate to the entrepreneurial mindset. This includes content centered on working in ambiguity, development and employing critical-thinking skills, and providing research opportunities within communities that facilitate partnerships with business and community-based organizations.

A comprehensive review of the literature suggests that assimilation and synthesizing of growth mindset and entrepreneurial mindset evidence is needed to provide a shared topology among education institutions (Higdon, 2005; Jabeen et al., 2016). A shared topology, it is assumed, would facilitate the development of specific learning outcomes and competencies needed to facilitate the creation and development of curriculum that incorporates factors related to the entrepreneurial mindset (Higdon, 2005; Jabeen et al, 2016).

One of the most significant implications of creating and sustaining a climate that supports an entrepreneurial mindset is clearly defining the construct specific to faculty members. From this construction, a more comprehensive connection to student learning and course outcomes can be developed (Higdon 2005; Kisenwether et al., 2013). Absent of this development, it is reasonable to assume that continued resistance and limited perspective on the utility of the entrepreneurial mindset would continue among non-entrepreneurial faculty members.

CONCLUSION

During the wave of disruptive changes, today's liberal arts colleges and universities face insurmountable challenges. Yet, if these organizations do not make any significant changes, their future may be bleak. Although there are currently more than 4,000 colleges and universities in the United States, Harvard Business School Professor Clayton Christenson predicted that half of these institutions would be bankrupted in 10 to 15 years because they would not change their current course of operations (Hess, 2017). This article explored how an entrepreneurial mindset in faculty can help stimulate innovation and creativity in the constant, changing environment in higher education. In analyzing the current crises in higher education, this paper describes a set of strategic implications that will aid universities planning to create sustainability education programs. The result of this investigation demonstrated the significant of an entrepreneurial mindset in transitioning these academic institutions which would better assist administrators, faculty and practitioners on how to inject the entrepreneurial mind-set in young business professionals in order to produce sustainability education for small liberal arts colleges and universities.

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BUSINESS INCUBATOR DEVELOPMENT IN THE STATE OF OKLAHOMA DURING 2000-2017

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ABSTRACT

In 1997 the Oklahoma legislature passed the Small Business Incubators Incentives Act in an effort to "promote, encourage and advance economic prosperity and employment throughout the state by creating a more favorable tax climate for organizations which qualify as sponsors of small business incubators in this state and a more favorable business climate for tenants." To-date there has been no formal analysis of the aggregate yearly data collected by the Oklahoma Department of Commerce regarding the incubators certified through the program. Utilizing data from 2000 through 2017, this review organizes and analyzes the information to have a picture of the development of Oklahoma's business incubators through the years and to discover what questions and trends might be beneficial and of interest for further investigation.

INTRODUCTION

Business incubators have become an important ingredient in the economic development and entrepreneurship ecosystems around the world. In 2012 the International Business Innovation Association (InBIA) reported that there were around 1,250 incubators in the United States and an estimated 7,000 globally (NBIA, 2012). The state of Oklahoma has been very active in its promotion of business incubators, including passing legislation to provide a tax break for both the sponsors and startup companies in incubators. In 1987 the Oklahoma legislature passed the Oklahoma Small Business Incubators Incentives Act and amended it in 2001. According to the Act, this is an effort to "promote, encourage and advance economic prosperity and employment throughout the state by creating a more favorable tax climate for organizations which qualify as sponsors of small business incubators in this state and a more favorable business climate for tenants." The act called for the Oklahoma Department of Commerce (ODOC) to certify any incubator that sought to take advantage of the act and create a yearly report to the legislature on the activities of those certified incubators and their tenants.

The incentives built into the act give the sponsors of the incubator (if applicable) up to a 10-year tax exemption on any income received for providing services or financing the incubator. The tenants of the certified incubators are also eligible for a minimum of 5-years' and up to a 10-years' income tax exemption so long as they are upstanding current residential tenants or graduates of the certified incubator program. The exemption remains in effect after the tenant graduates from the incubator. If after five years the tenant makes at least 75% of its gross sales to out-of-state buyers, to buyers located within the state if the product or service is resold to an out-of-state customer, or to the federal government, then the tax exemption extends for another five

years for a total of ten years. According to the Oklahoma Department of Commerce (ODOC, 2015), since the inception of the legislation Oklahoma has benefited from increased revenues and increases in the number of startups and expansions of small businesses.

BACKGROUND LITERATURE

States and other formal entities engaged in economic development have been increasingly turning to entrepreneurship development for the last few decades. This has been the result of a growing body of research that shows the vital importance of entrepreneurship in building and maintaining economies (Becker, 1993; Garavan & O'Cinneide, 1994, 1994b; Matlay, 2001; Mueller & Goic, 2002; OECD, 1999; Piazza-Georgi, 2002; Schultz, 1971; Schultz, 1993; Audretsch, Keilbach, & Lehmann, 2006). In a study that looks at employment growth and entrepreneurship, Adrangi, Allender, and Anderson (2003) suggest that employment and entrepreneurial activity are positively related. They conclude that small entrepreneurial firms do have a net positive impact on job creation. Bruce, Deskins, Hill, and Rork (2007) found that new firm creation is the single largest determinant of Gross State Product (GSP), Total State Employment (TSE), and State Personal Income (SPI).

In terms of the true economic impact of focusing on startups, Don Macke (2005) of the Center for Rural Entrepreneurship references research by David Birch who indicates that business startups produce 44% of new job creation nationally. Macke also references the National Commission on Entrepreneurship, which found that entrepreneurial growth comprises two-thirds of all job creation and two-thirds of all business growth. Other studies and reports show that nearly all new job creation comes from young firms (Kauffman, 2015; Haltiwanger, et al. 2013; Neumark et al. 2013).

Johnsrud, Theis and Bezerra (2003) point out that while the concept of business incubation is uniquely Western, it has taken hold around the world and business incubation is seen today as an important economic development tool. Researchers and policymakers have identified business incubators as important to the development of entrepreneurs and entrepreneurial ecosystems (Hansen et al., 2000; Bøllingtoft & Ulhøi, 2005; Hughes et al., 2007; Arena, et al., 2008; Nasr, 2012). Business incubators in the United States alone have a wide reach with the International Business Innovation Association [InBIA, formerly known as the National Business Incubation Association (NBIA)] estimating that in 2011 North American incubators served more than 49,000 startup companies. These companies provided full-time employment for more than 200,000 workers that generated annual revenues of more than $15 billion (NBIA, 2012). Allen and Bazan (1990) report that firms graduating from incubators in Pennsylvania had a lower failure rate than nonincubated firms, and that incubator tenants had statistically significant better performance in sales and employment. The study also found that once the companies graduated, they did not outperform other firms in the same marketplace. This finding suggests that the value of the business incubator is in stabilizing the company in its early years so that it can survive to enter the marketplace with nonincubated firms.

From an infrastructure perspective, a 2008 analysis of the U.S. Department of Commerce's Economic Development Administration construction grants showed that business

incubator construction grants had the greatest impact on job creation out of all their funding project categories—that is, Business Incubators, Commercial Structures, Roads & Transportation, Industrial Parks, and Community Infrastructure (Arena, Adams, Noyes, Rhody, & Noonan, 2008).

DATA

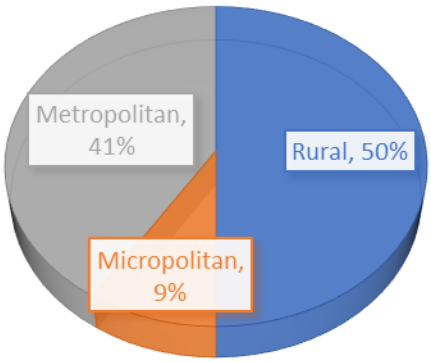
This study utilized the Oklahoma Department of Commerce's "Oklahoma Small Business Incubator Certification Program" reports from 2000 to 2017. The reports from ODOC have undergone an evolution in both content and format over the years. All the reports have the following information in common: list of certified incubators with location, newly created incubators (referred to herein as incubator births), and the incubators that closed (referred to as incubator deaths). Beginning in 2005 the state began adding to the reports the types of businesses targeted by each incubator, and the number of tenants that created jobs in each incubator. In addition to the data included in the reports, this researcher added the categories of population to identify the incubator location as Rural (<10,000), Micropolitan (10,000–49,999), or Metropolitan (>50,000), as well as the type of sponsor of the incubator.

The data used in this analysis of the Oklahoma Small Business Incubator Yearly Reports included the following:

- Name/Location of the certified incubators
- Number of Companies – For the years 2005 through 2015 information was reported annually for the number of resident companies by each incubator.
- Type of Incubator – Classified by their type or primary client target. The categories are: Aerospace & Defense, Art, Biomed/Biotech, Kitchen/Food, Mixed Use/Manufacturing, Professional Office, Retail, Service, Student, and Technology.
- Location Classification: Rural (<10,000); Micropolitan (10,000–49,999); Metropolitan (>50,000)
- Primary Incubator Sponsor: College, Community, Economic Development Entity, Private, Technology Center

Oklahoma is a rural state with a 2014 Census Bureau population estimate of 3,879,610. In the year 2000 the population was 3,450,654. Currently there are only 10 cities that fit the Metropolitan category. Figure 1 shows that these cities contain 41% of the population. Also, there are 16 cities categorized as Micropolitan and they contain 9% of the population, with the remaining 50% residing in rural areas.

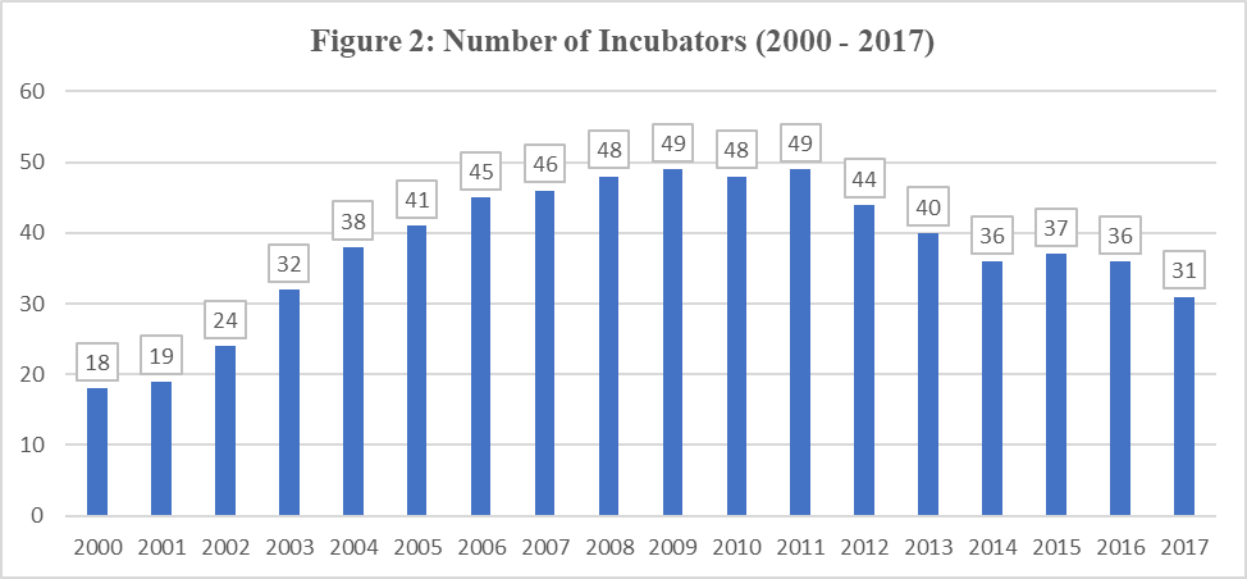
Figure 1: Oklahoma Population (2014)



FINDINGS – HISTORICAL SNAPSHOT OF OKLAHOMA'S BUSINESS INCUBATORS

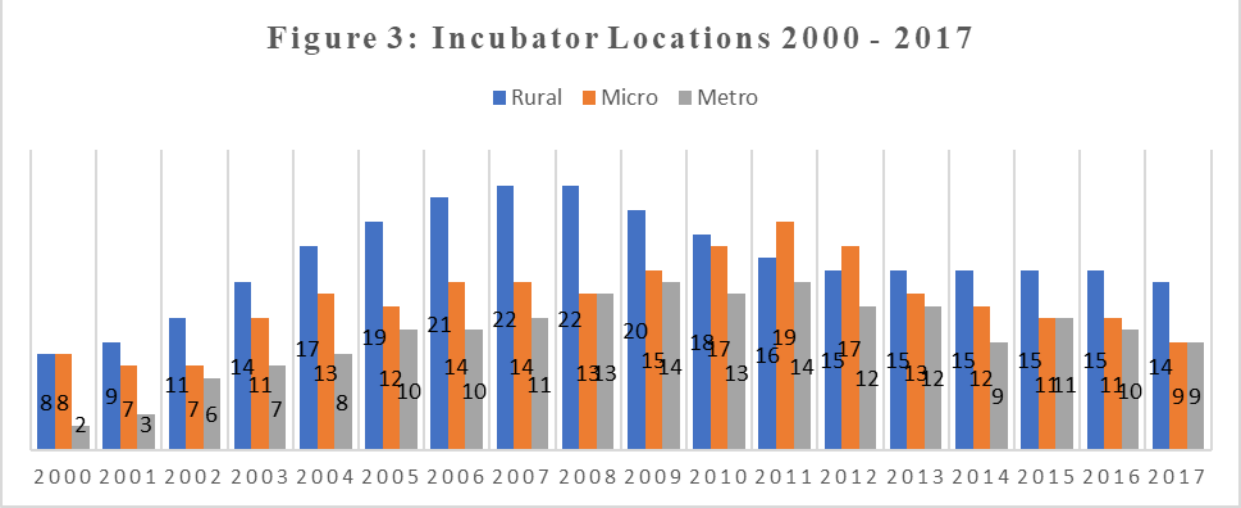
Incubator Population

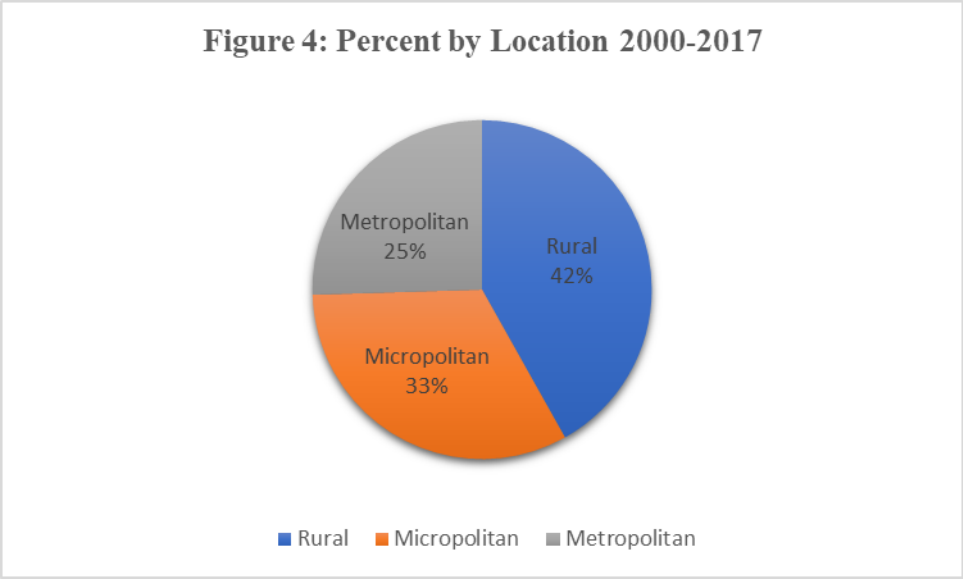
At the end of 2017, the State of Oklahoma was home to 31 certified incubator programs (Figure 2). Historically, the incubator population in the state saw consistent growth from 2000 through 2011, peaking at 49 distinct incubator programs in 2011. Beginning in 2012 the incubator population decreased around 10% per year to a low of 36 in 2014. The number of incubators in the state stayed steady for three years. In 2017 the number dropped to a level that had not been seen since 2003 when there were 32 incubators. This trend followed the national trends of economic downturn; however, 2017 saw a sharper drop of incubators in the state while the national economy advanced. This may reflect a lag in response time by the local entrepreneurship support ecosystems, or an overall change in the entrepreneurship activity in the state.



Incubator Locations

Across the three locations or geographic categories, Rural incubators had the highest count during all but the two years 2011 and 2012 (Figure 3). The Micropolitan programs had the second highest number during all but two years where they eclipsed the Rural in 2011 and 2012 while representing only 9% of the population. The Metropolitan programs consistently have the smallest number of incubator facilities while representing 41% of the state's population. On average across the years, the incubator ecosystem in Oklahoma is seen to be 42% Rural, 33% Micropolitan, and 25% Metropolitan (Figure 4).





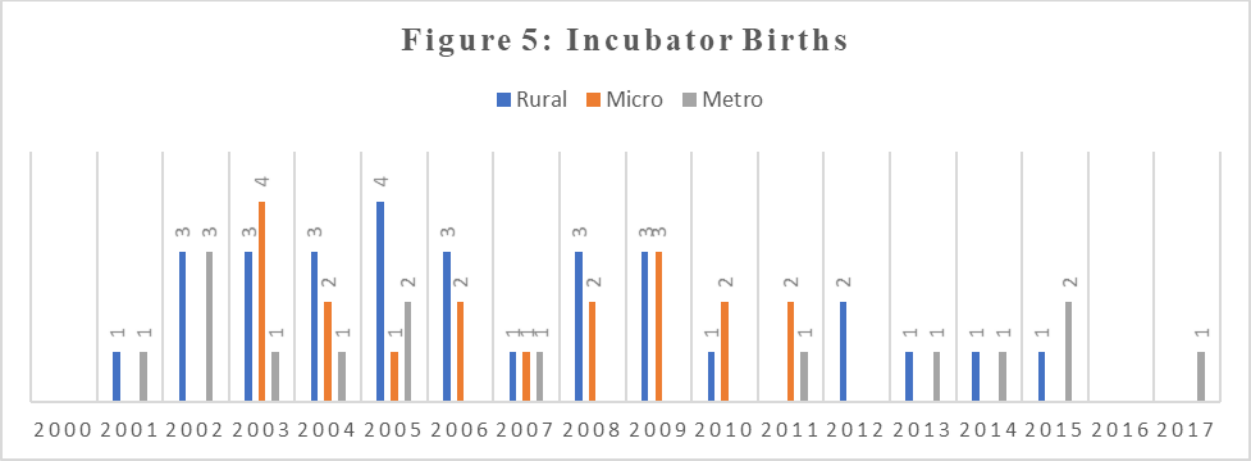
Considering that the rural population represents around 50% of the total population of the state, it appears to suggest that the highest count of incubators is found here as well. While this is the case with the number of incubators, we will see that the number of companies housed in the rural incubators is out-of-proportion with the number of incubator locations.

It is interesting that with only 9% of population in the Micropolitan category, it has consistently evidenced the second-largest number of incubators in the state. One of the possible explanations for this may be that those who take responsibility for economic development in these areas focus more on the strategy of entrepreneurship as the contributor rather than their smokestack-chasing policies. It could also be that the Micropolitan areas see more dynamism in their entrepreneurship activity with more of the resources needed for a healthy entrepreneurship ecosystem. This is certainly an area for further investigation.

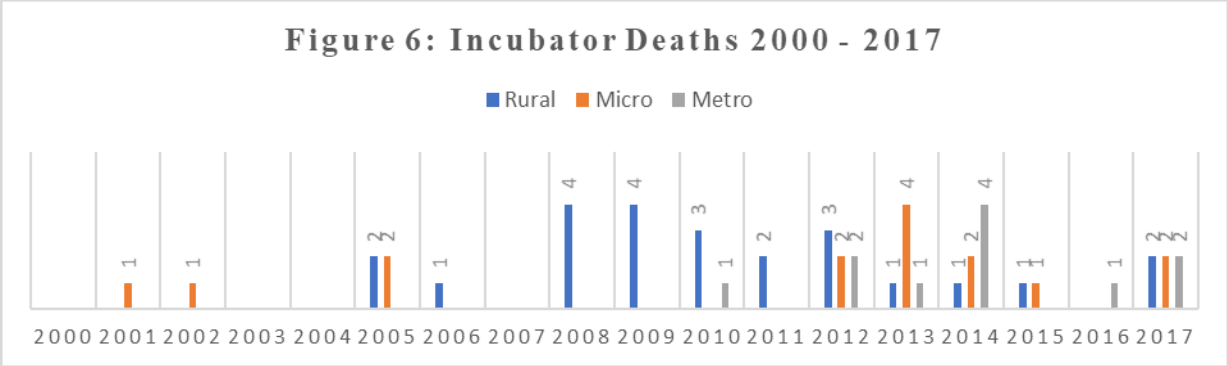
Births and Deaths

Incubators, like the startups they seek to promote, also have lifespans. This dataset starts with 18 pre-existing programs. The data in this section looks at the growth from that point forward. Between the years 2000 and 2017 there were 64 incubator births and 50 incubator deaths with an average of 3.5 births per year and 2.87 deaths per year (Figures 5 & 6). When looking beyond the averages we can see in Figure 5 that the growth of the incubator ecosystem was strongest from 2002 to 2009 and has generally been contracting since 2012.

The Rural category had the most births and deaths with 30 (46%) and 24 (48%) respectively. The Micropolitan category followed with 19 births (30%) and 15 deaths (30%) while the Metropolitan saw 15 births (24%) and 11 deaths (22%). There have been no Micropolitan incubators created since 2011, but there were 9 Micropolitan Incubator deaths between 2012 and 2017.



Of the incubator deaths, 56% of the incubators were sponsored or managed in partnership by Economic Development Entities. The remaining deaths were shared somewhat evenly with Colleges- and Community-sponsored incubators at 12% each, and Technology Centers and Private at 10%. As with most death rates, one might expect that the largest population group would likely have the highest number of deaths and this is the case here as well. The death rate follows suit through the categories in all but one of the cases with the smallest category (Community) being equal with Colleges as having the third-highest percentage of deaths while only making up on average 5% of the total incubator count.

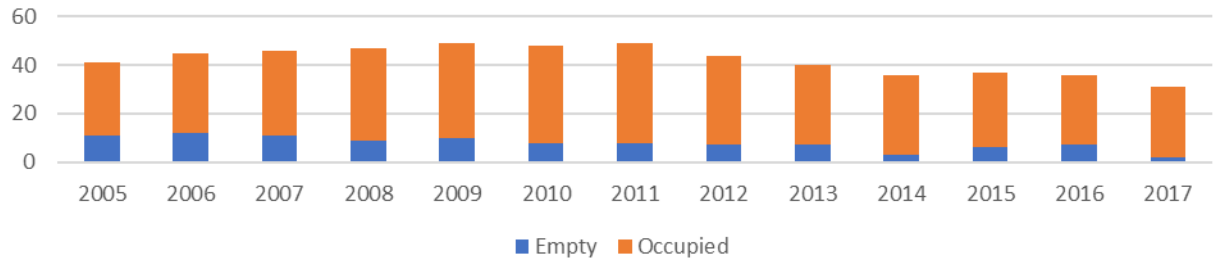


Incubator Occupancy

An interesting finding in the analysis of the data has to do with the number of empty incubators on a year-to-year basis. For the years client company data was reported (2005 to 2017), there are several incubators that reported no clients (Figure 7). The empty incubator figure ranges from a high of 26% of all certified incubators in Oklahoma reporting zero clients in 2005 and 2006, to a low of 6% being empty in 2017. When looking at the yearly empty programs the Rural category averaged 47% of all yearly empty programs, followed by Micropolitan with 35%, and Metropolitan with 17%. One of the possible reasons for these empty incubators is that in

rural communities the sponsoring entities are seeking to add the Small Business Incubator Tax incentive into their mix of economic development attraction tools, and go through the steps to have an incubator certified as a possible attraction to companies or entrepreneurs in the rural areas. A positive trend in the Occupied & Empty data appears to be that as the incubators mature, they have fewer years with zero clients across all Location categories. In addition, communities and organizations that have empty incubators may be finding other ways to utilize those physical location resources.

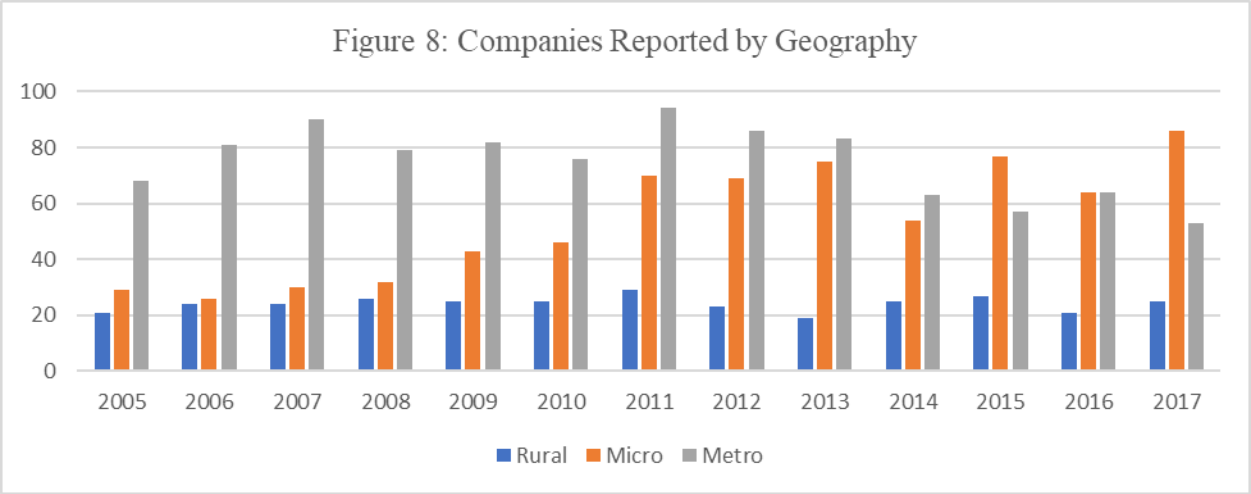
Figure 7: Empty vs. Occupied



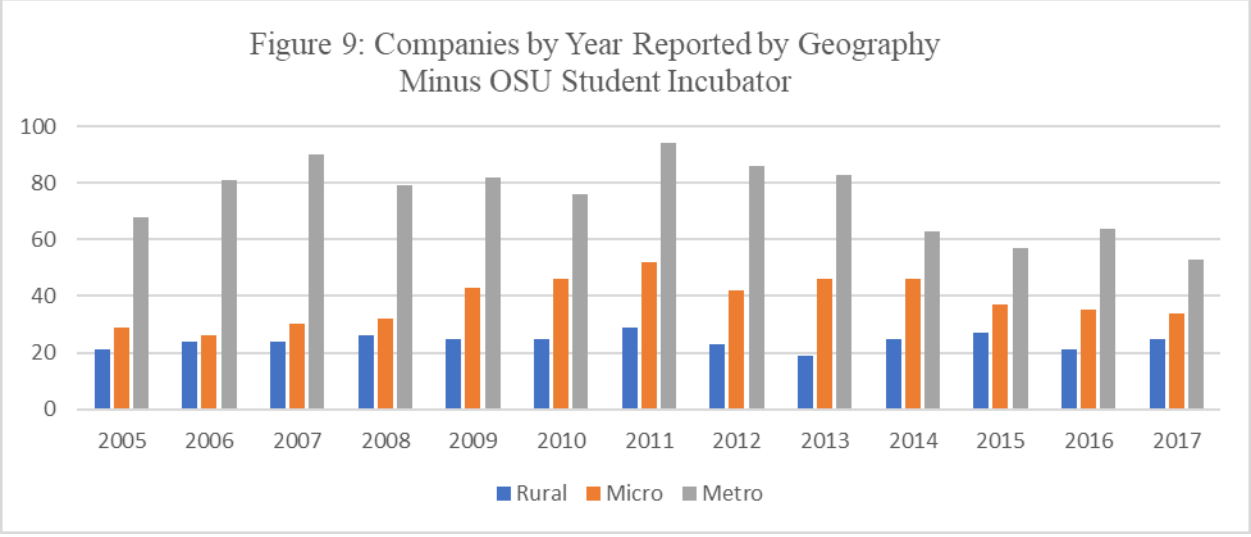
Companies

Two key metrics for incubators across the globe are: number of companies, and number of jobs created and/or supported. For this Oklahoma dataset there are yearly counts of the number of companies supported in the various programs for the years 2005 to 2017.

As seen in Figure 8, while the Metropolitan incubators consistently make up the lowest average yearly total of incubator programs (25%), they were responsible for the most client companies until 2014 when the Micropolitan category began to lead in the number of companies hosted. Considering all Locations together, the average number of companies per incubator across all years is 5.33, but this includes the empty or inactive incubators. This number jumps to 13.40 companies per active incubator when one removes the unoccupied incubators (for the years reported, 2005-2017).



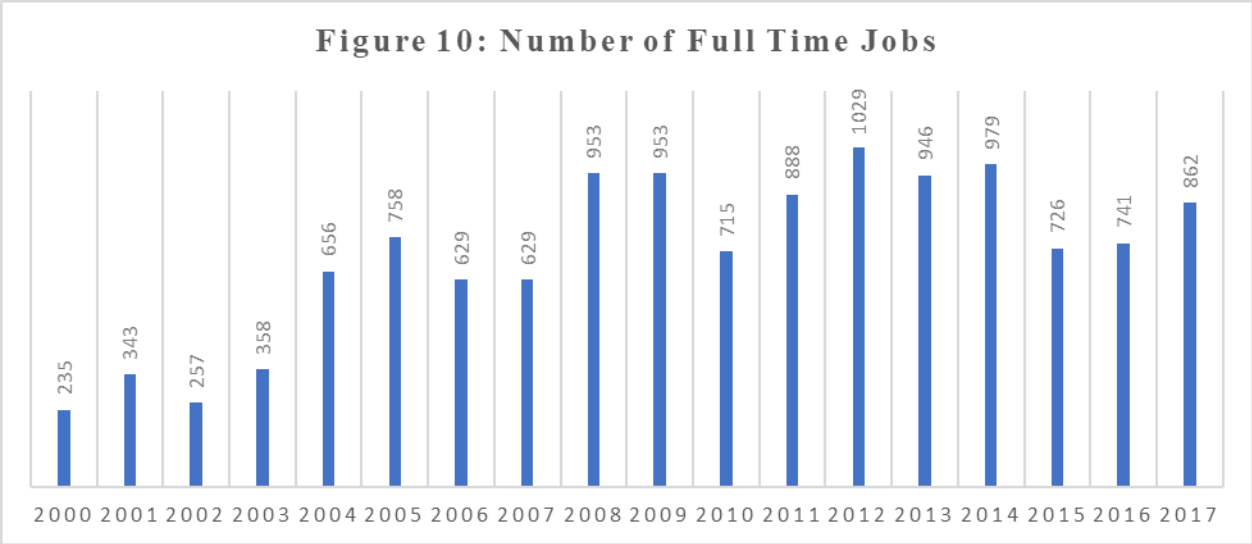
One of the contributing factors to the Metropolitan category losing some ground is that from 2014 to 2017 this category suffered 7 deaths against only 3 births. While fewer programs would lead to fewer companies, the main reason for the Micropolitan category taking the lead is due to there being only one program for each location. This program is the student incubator at Oklahoma State University in Stillwater. The number of companies reported by Oklahoma State University starting in 2011 through 2017 were 18, 27, 29, 8, 40, 29, and 52, respectively. Without the student companies factored into the results, the trends remain the same since the beginning of the dataset with the Metropolitan programs leading in terms of number of companies hosted (Figure 9).



On average, the Metropolitan programs supported 52% of all reported incubated companies followed by Micropolitan with 32% and the Rural incubators supporting 17% while having the highest number of incubator locations.

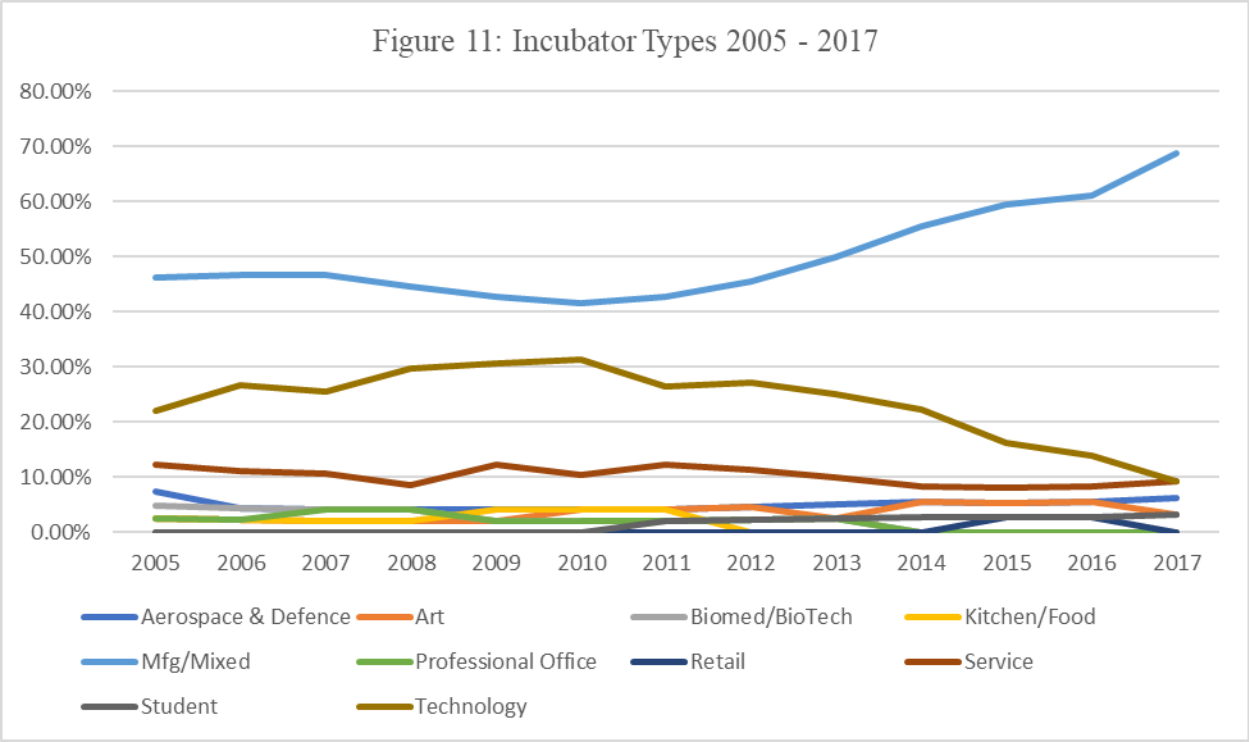
Jobs

The number of jobs created or supported is one of the most commonly considered and important metrics for incubator programs. While the Oklahoma State data does not attribute jobs to individual incubators, the reports give yearly jobs in aggregate from all the certified incubators. In terms of jobs, the data shows a mostly increasing number of jobs supported by the Oklahoma incubators (Figure 10). Considering all Locations together, the average number of jobs supported by each incubator across all years is 18.39, but when one removes the unoccupied incubators, that average jumps to 21.47.



Incubator Types

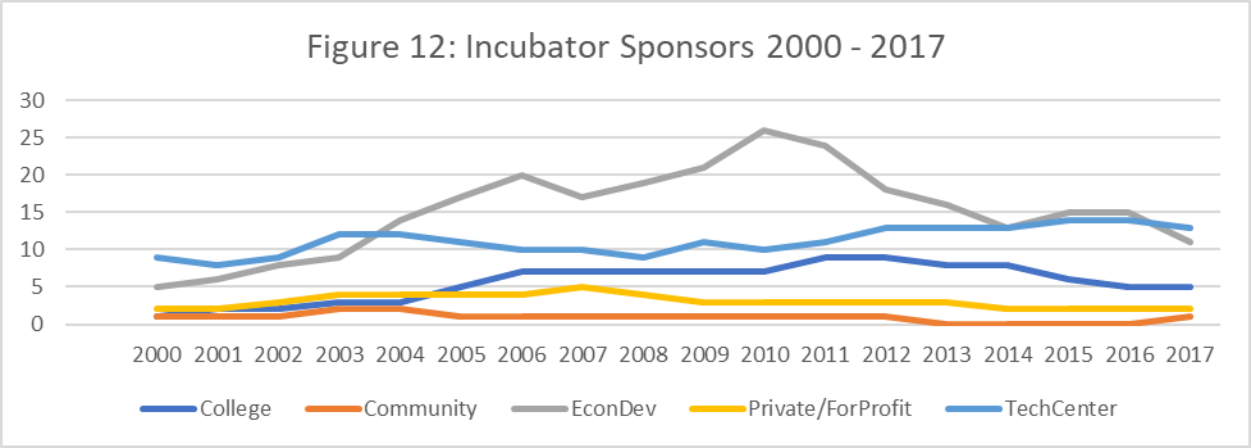
Incubators vary widely in terms of their client company focus for startup assistance. This analysis condensed the multiple incubator types or focus areas into the following: Aerospace & Defense, Art, Biomed/Biotech, Kitchen/Food, Mixed Use/Manufacturing, Professional Office, Retail, Service, Student, and Technology (Figure 11). The Incubator Type data covers the years 2005 to 2017 as the ODOC did not begin reporting types until 2005.



Consistent with national trends, the most common type of business incubator in Oklahoma is the Mixed Use/Manufacturing category with an average of 50%. Technology-focused incubators averaged around 24% with the Service category averaging 10%. Aerospace & Defense, Art, Biomed/Biotech, Kitchen/Food, and Professional Office made up between 1.5% and 6% of the average yearly total. Interestingly, as of 2017 the only certified student-focused incubator was at Oklahoma State University; and the first certified Retail-focused incubator opened in 2015 in a Hispanic-focused mall redevelopment, but that facility closed in 2017.

Incubator Sponsors

There are a variety of incubator sponsors represented in the Oklahoma data. For the purpose of this analysis the primary incubator sponsor categories are College, Community, Economic Development Entity, Private, and Technology Center. In Oklahoma, the Technology Centers are secondary and post-secondary career and technology education institutions found throughout the state. (see Figure 12).



The smallest category of incubator sponsors in Oklahoma is the Community category with an average of 2% of all programs across the dataset. These represent primarily municipalities/cities that provide support and facilities for the incubator program. In Oklahoma all the Community sponsors are in Rural areas. In many cases, they may contract the client service provision to another entity or partner. The next largest category is that of the Private incubators with an average of 8%. The third-largest sponsor comprises Colleges (16%) which include both 2- and 4-year institutions. As previously noted, these college sponsors are operating facilities that primarily cater to the community with only Oklahoma State University running a student-focused program. Technology Center sponsors are the fourth-largest category on average (31%), and in certain years have been the largest. The current trend is seeing the Technology Center sponsors regaining the top spot. The final and largest category is that of Economic Development Entities representing 42% of sponsors on average across all years.

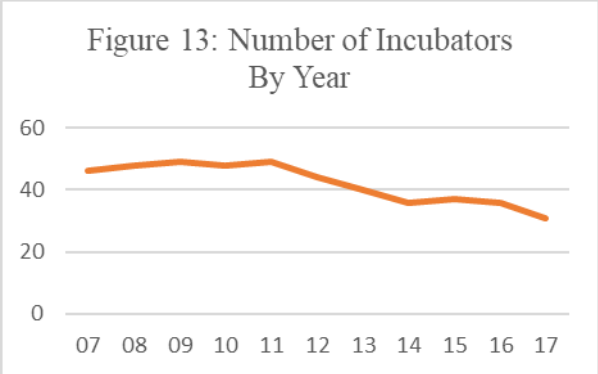
COMPARISON TO KAUFFMAN INDEX TRENDS

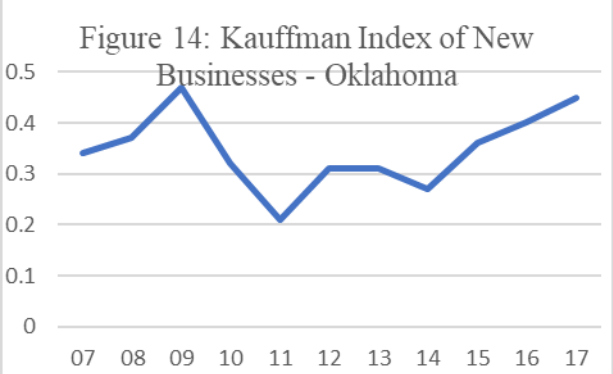
In considering the growth of incubator activity in Oklahoma, it is interesting to see how this compares to national and state trends in entrepreneurship. If there were increasing numbers of startups in an ecosystem, would one expect to see an increasing number of incubators as well? Are incubators created as a reaction to increased entrepreneurship?

To begin to look at this question, a comparison was done with the Kauffman Index of Entrepreneurial Activity (KIEA) on the state level. State-specific data began in 2007 for the Kauffman Index. For the sake of this research about Oklahoma's incubators, the state-specific data for 2013 is missing as Kauffman was while adjusting the methodologies of the KIEA analysis, and no report for that year could be found. In this comparison, the Kauffman index rate of new entrepreneurs was utilized, and is represented in the Kauffman reports as a decimal. For example, in 2017 Oklahoma had a Kauffman rating of .45, which translates to 450 out of every 100,000 adults creating businesses. In recent years, Oklahoma has had one of the highest rates of new entrepreneurs in the country. In 2017 Oklahoma had the second highest growth in

entrepreneurial activity, behind only South Carolina. Because there is no state-specific data for the year 2013, the same rate for 2012 was used.

We do not see a similar trend when looking at the growth of incubators in Oklahoma compared to the rate of entrepreneurial activity (Figure 13). Oklahoma's incubator count reached a high in 2011 and has since been on a downward trend, while the Kauffman Index of New Businesses has seen a trending increase during this same period (Figure 14).





This initial evaluation shows that in Oklahoma during the period represented (2007-2017), the growth of incubators was not coextensive with the growth of entrepreneurship in general. In this specific situation, many further questions arise about what drives incubator creation and growth.

CONCLUSIONS

From this data we see an incubator ecosystem that predictably reflects its rural state but, in some ways, may show surprising results. As one might expect, rural incubators make up the majority of the programs, but they account for a relatively small percentage of overall companies and jobs. It is the Metropolitan locations that have the fewest programs, but with the highest number of companies supported. This data is not suggesting that the Metropolitan incubators are a better investment, or that they are of greater value than the rural incubators. This could be an area for further research that looks at the specifics of the companies and jobs created, and the cost of running the various programs. Oklahoma looks very much like the rest of the country in terms of having most of their programs reflecting a Mixed-Use focus.

In terms of the birth and death of incubators, this data reveals a consistent growth of programs for 12 of the 16 years in the dataset, although the recent trend has been towards a contraction in the number of incubators. It is interesting to note that during the first few years of the economic downturn (2008-2011) the number of incubator programs reached their highest count to-date, and after 2012 the number of programs began to drop to their lowest levels in 10 years. This is also an area for further research in terms of looking at the reasons for the deaths of the programs, and the motivations and rationale for creating new programs. A particularly

interesting point of further research may lie in looking at how the startup of Entrepreneurship Support Organizations (ESOs) compares to the startup process of the companies these organizations are hoping to serve.

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AN INTEGRATED MODEL FOR LARGE-SCALE SOCIAL ENTREPRENEURSHIP: ADDRESSING GLOBAL WATER SUPPLY PROBLEMS

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Andrey Kretinin, William Paterson University
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ABSTRACT

This paper introduces a large-scale social entrepreneurship model to help address the growing need for the development of an international water resource sustainability system within a world water economy. We explore the relationships between government policy, geopolitical impacts, and business interests. In particular, we investigate why past policy has largely failed, while proposing an emerging entrepreneurial model that introduces a new perspective for large-scale green business start-up capability. We believe an appropriate overlay of multiple stakeholder interests and alternative structuring may be employed in innovative entrepreneurial start-ups that require complex manufacturing and distribution networks. Comprehensive long-term water shortage planning and short-term interventions coupled with an emerging prototype large-scale green entrepreneurship model may help to advance the conversation.

"How sad to think that nature speaks, and mankind doesn't listen."
-Victor Hugo, 1840

INTRODUCTION

Issues of sustainability are widespread and encompass all aspects of human global expansion and development including overpopulation, fossil fuel emissions, climate change, food shortages, human and animal abuse, and chemical pollution, to name a few. Although the U.S. and scores of other nations have been involved in numerous national and global protocols and agreements, significant progress in some critical areas remains lacking. One of the most significant areas of societal need that requires attention and policy review are water stress, water shortage and water crisis. Today, at least 1.8 billion or approximately 20% of the people around the globe lack clean drinking water. Currently, 2.8 billion people face water scarcity for at least one month every year (UNESCO World Water Assessment Programme, 2012). The societal implications of water scarcity and crisis exceed those of energy needs, yet private sector initiatives and government regulation or support in the U.S. and elsewhere to produce water-saving technologies has fallen behind the increase in human needs and population growth. Less than successful government policies and programs to meet global water requirements suggest the development of alternative resource sustainability models that better integrate government, business and society as the basis for a more promising future.

OVERVIEW OF WATER SCARCITY

It is rare that we find major environmental and human issues that span across continents, yet water scarcity is affecting every part of the globe. Water scarcity is generally defined as the aggregate usage and consumption of water under the prevailing institutional conditions including environmental needs, such that usage cannot be sustained or met. It should be noted that the terms water scarcity, stress, or shortage are not universally defined or measured with any consensus. However, there are several measures that in conjunction provide specific indicators of water issues. The most commonly used method is the Falkenmark Water Stress Indicator that defines scarcity according to renewable resources related to use per capita (Brown & Matlock, 2011). A second popular method is the Water Availability Index (WAI) which takes into account surface water and groundwater, and compares the total amount to the demands of all users including business, domestic, and agricultural usage (White, 2012). Another method, the Basic Human Needs Index, is based on the use of water as opposed to water availability (Gleick, 1996), quantified the basic water requirements (BWR) for domestic use such as hydration, food preparation, bathing, personal sanitation, and hygiene as averaging 50 litres per person per day.

The Index of Water Scarcity (IWS) includes water abstraction against water availability or freshwater removal as a percentage of internal renewable resources (Wendling, Emerson, Esty, Levy & de Sherbinin, 2018). The issue of renewable resources now becomes more important. For example, the use of desalinization plants in certain regions such as the United Arab Emirates corresponds to a crucial 18% of yearly abstractions at a high economic cost but is a minor variable cost in other regions (Christopherson, 2012). Another contributing index is the Water Poverty Index (WPI) which attempts to analyse the relationships between water scarcity issues and socio-economic impacts. It then ranks countries based on resources, access, use, capacity, and the environment (Sullivan, 2002). This can then be further classified according to countries that require financial investment. If these countries are financially handicapped, they will be considered economically water-scarce as opposed to physically water-scarce. That is, if financial investments are available, future demand will still outgrow water availability (OECD, 2009). All these complex measurements and numerous others require significant amounts of time and resources to conduct accurate evaluations.

THE CURRENT SITUATION

Water scarcity will be one of the main challenges faced by many during this century. Collectively, a grim picture emerges showing that over half the world will confront water shortages by 2032. Although some regions farther from the equator may experience less stress, other areas may see more drastic situations. The use of water has been growing at more than twice the rate of population increase which has also grown exponentially. Global human population growth is about 83 million annually or 1.15%. The current world population is approximately 7.6 billion compared to 1 billion in 1800. By 2035 it is expected to be 8.6 billion, and by 2055, it will be 30% higher than today at 9.8 billion, and by 2100, 11.2 billion. (United Nations, 2017).

Water scarcity may be caused by both environmental and man-made intrusions such as industrial waste, polluted run-offs, chemical agricultural practices, or animal and human contamination and waste. Water resources are not evenly distributed, and much is unsustainably managed. Some 80% of the world's wastewater and over 95% in the least developed countries are released into the environment without treatment (World Water Development Report, 2017). By 2025, some scientists estimate that two-thirds of the global population will be living in water-stressed regions. Currently, 700 million people in 43 countries face water scarcity, in arid or semi-arid regions including Africa, Sub-Saharan Africa and the Middle East (WWAP, 2012; Human Development Report, 2006). Further, 90% of all worldwide disasters are water-related, mostly the result of floods or severe drought (Mekonnen & Hoekstra, 2016).

BARRIERS TO WATER SUSTAINABILITY

The impacts to business are obvious as the price of a gallon of marketed or fashionable bottled water now equates to a gallon of gasoline. Yet, the funding and resources we put into private oil and gas production make invisible the paltry sums invested into potable water despite the water shortage. The U.S., although well-prepared and potentially well-funded to support such research, does not experience the difficulties faced by water shortages found around the globe. Perhaps for this reason, and others, we have turned a blind eye to both a major societal issue as well as a politically strategic area of potential strength. O'Connor (2017) points out the numerous transboundary conflicts that arise regarding disputes over rights to water. For example, Egypt uses 55.5 billion cubic meters of water from the Nile each year. However, it is subject to the upstream Nile activity of 10 other countries including the Democratic Republic of the Congo, Ethiopia, Kenya, Rwanda, Sudan, Tanzania, and Uganda before it even reaches Egypt. (Islam & Susskind, 2015). The United Nations General Assembly and Human Rights Council (United Nations, 2016) has also recognized the fundamental need of humans to have safe, sufficient and affordable water to positively affect health, dignity and well-being. Yet fear of water-resource depletion has likely contributed to varying degrees of global unrest. The U.S. National Intelligence Council stated that water conflict in North Africa and the Middle East, such as in Syria, may spark greater instability with the U.S. as water shortages and mismanagement also contribute to food shortages causing millions to leave their lands and spread destabilization to surrounding areas (Maddocks, Young & Reig, 2015). Water shortages in Bolivia and Ecuador have also led to political upheaval in South America. We need to understand that many of the causes and outcomes of water scarcity represent a multidimensional phenomenon encompassing cultural, political, and ecological impacts.

In addition to an already over-stretched water resource shortage, we can expect an alarming additional 3-5 billion people to the current population of 7.6 billion over the next 20 years. Currently, surface and groundwater are probably the most cost-efficient means to capture available water. However, pollution in China and India has contaminated over 20% of their water, making it unusable for either human consumption or agricultural purposes. India, China and Africa with their proportionately exploding populations will also increase demand for water by 30% over the next 20 years (Dobbs, Oppenheim, Thompson, Brinkman & Zornes, 2012).

China, in particular, will require new sources of water for its vast industrial expansion as well as for its increased demand for agricultural food supplies. Unfortunately, alternative water sources such as those widely used in the Middle East, i.e., desalination, cost approximately ten times as much to harvest and filter water as traditional surface and standard purification procedures.

CURRENT LARGE-SCALE EFFORTS

After several hundred years of what appeared to be unlimited or cheap resources, water supplies are finally being recognized as finite and unsustainable given both the current and anticipated population growth forecasts. The United Nations recognizes the importance of water with its UN-Water which coordinates the water and sanitation efforts of over 30 UN organizations (UN Water, n.d.). Unfortunately, there are few other organizations either private or public that have made water resource productivity a strategic or monetary priority. Moreover, in a global economy with increasingly scarce resources, those customers, businesses and governments that can move from short-term focus to more broad resource productivity activities may be well poised to increase their competitive positioning both economically and politically. In particular, businesses need to plan for resource innovation that will create new opportunities for profit growth, competitive advantage and regulatory influence. Resource-supplying companies may continue to evolve based on anticipated market needs and the large profit opportunity forecast across resource demand categories. Those industries that are resource consuming, especially in regions of water scarcity, will face more intense competition for access and rights.

Planning for these occurrences will require the consideration of innovation strategies that systematically explore growth opportunities, new service or product portfolios, and both business and consumer markets. Resource efficiency will play a greater role as will green supply chains, resource management, pollution and chemical reduction, environmental sustainability and consumer value propositions. Risk management will also become more predominant as it migrates from the current issues of government regulation and cyber security to new challenges regarding resource scarcity, climate change, political influences, operational disruptions, reputational capital, and, stakeholder reactions.

Current Sustainability Efforts

A number of management, engineering, and environmental consulting firms have determined that businesses with greater efficiency in resource management, including water scarcity, will be viable and profitable in the near future. Large corporations such as General Electric and Siemens have invested heavily in technologies that support clean water operations including massive wind turbines and energy-efficient industrial operations. Although these opportunities are not without other severe environmental criticisms such as visual pollution, noise and land devaluation, and community protests, they at least cause recognition of issues and profitable venues of ‘Black Swan’ opportunities with an early track record of modest profitability.

For much of the U.S. water is still treated as an inexpensive resource, but costs have been steadily rising with increasing usage in desert areas, agricultural applications, industrial processes and changing human preferences for natural products. Emerging-market countries, especially within cities, have become cognizant of improving extraction processes, recycling opportunities, water replenishment, and water waste management. Meeting these needs will likely increase competition for production, distribution, and sustainable end-to-end water management systems.

Numerous beverage companies including PepsiCo, Coca-Cola Co., Nestle, SABMiller, and even Anheuser-Busch have entered this market, but each of their paths have been unique, and not altogether without friction. The Coca-Cola Co., the world's largest beverage company, operates in 200 countries through franchises and independent bottlers with more than 500 beverages, and generates 70% of its revenue from outside the U.S. However, it was charged in India that its products contained pesticide residues and that it depleted villages of drinking and irrigation water causing boycotts in India as well as in the U.S. Coca-Cola sought to resolve this issue and conducted meetings with the World Wildlife Fund, The Nature Conservancy and various scientific groups. Through this process they reached a consensus to construct a self-improving goal of water neutrality by 2020 through three main initiatives: reduce, recycle and replenish. By 2011 it had made considerable progress by leveraging over 300 partnerships with governments and other organizations in 61 countries for water treatment facilities, improved watersheds and irrigation systems. At this point they appear on target to replace almost 70% of their water usage to communities and nature (Lawrence & Weber, 2017). Likewise, PepsiCo's operations in India now replenish more water than their operations consumes. However, as positive as this sounds there are large areas of India where farmers' water harvesting methods have proven to be unsustainable, causing communities and millions of people to be without access to drinkable water once again. It is estimated that India is draining its aquifers by 250 cubic kilometers every year. This would essentially deplete all the water in Lake Erie in two years (Human Development Report, 2006). While many organizations and government bodies have attempted to remedy this life-threatening issue by introducing new technologies, India's population has swelled to 1.2 billion people.

This trend of draining aquifers without adequate regulation repeats itself in much of Asia, Africa, the Middle East and the Americas. Currently, 1 billion people lack access to safe water and consumption is doubling approximately every 20 years. As a result of this unsustainable rate of growth, it is estimated that by 2025 one third of the world's population mostly in Africa and South Asia will face acute water shortages, increased disease, and regional hostilities (Human Development Report, 2006). Thus the current efforts, although admirable, are limited and suggest the need for a broader approach supported by innovative corporate leaders, policy reform, and large-scale entrepreneurial mindsets.

An Emerging Model for the *World Water Economy*

Water economy refers to the economic impact and conflicts created by the use of water for agriculture, industry and individual consumption. In discussing 'Nourished Planet', Danielle Nierenberg wrote that "The science of water economy studies the way in which water resources

are limited and how they must be managed to satisfy farming needs without creating social inequalities and unsustainable environmental impacts." Water is essential for any society to flourish, and freshwater resources are not distributed evenly (Nierenberg, 2018). Water usage and distribution has always been a collective concern as evidenced by such projects as the Roman aqueducts or even earlier irrigation projects. The study of water economics (also referred to as economics of water management) studies 'economic water scarcity' and goes back to the 1960's (Detwiler, 1968; Wolman, 1961). Escalating concerns with water scarcity have created the 'water justice movement' which calls for more democratic water policies and more sustainable development practices that promote a more equitable water distribution (Justicia Hídrica, 2016).

It should be apparent that the issue of water scarcity has not been resolved. There are excellent examples of progress such as the water regeneration efforts of Coca-Cola and PepsiCo in India, but the applications have been limited to regional areas or communities. As the population increases, water availability per person drops. This is further exacerbated as demand has also increased with economic development and improvements in quality of life. Other efforts, such as those of Massachusetts Institute of Technology's (MIT) Susan Murcott's extensive social entrepreneurship entity, Pure Home Water (PHW) system launch in West Africa underscores that accelerating consumer demand can easily outstrip the capability of philanthropy models causing both business and delivery failure for large-scale needs (Nelson, Ingols, Christian-Murtie & Myers, 2011). Murcott's work is certainly to be applauded, but she is also quick to point out that start-up and growth challenges as well as market definition, pricing, revenue, finances, operations and supply chain are as important as venture mission and intention in a real-world economy. Related small and regional ventures such as ceramic water filters, fog water catchers, small water filtration devices, and related products, although helpful, do little to make a dent in the world water economy and need for sustainability.

On a much greater scale are massive desalination plants of which there are now over 12,000 in operation around the globe, with approximately 50% in the Middle East. These plants greatly lesson groundwater mining where water levels are diminishing or running dry and replacement from scarce rain or deep aquifers is not nearly sufficient to offset saltwater intrusion. In Saudi Arabia, 70% of the drinking water is now supplied by 30 desalination plants. However, these large-scale plants can be cost prohibitive in many parts of the world as they typically cost $100 million to supply water to 300,000 people, not including a distribution network. The U.S. is also employing desalination reverse-osmosis technology in Tampa Bay. This facility supplies about 10% of the region's needs making it the largest desalination project in the country (Christopherson, 2012).

Although there have been incremental changes and scientific advancements to help stem isolated problems within the current water scarcity, there exists a need for much greater integration of efforts if we are to deal with the world water economy that is longer-term and comprehensive. The international systems dealing with water issues are often underfunded and subject to vested interests. Priorities are not always straightforward, and timeframes are usually a reaction to immediate urgencies. A movement towards either national or international

cooperation may require a new form of collaboration involving a variety of stakeholders, including passionate and "flexible" entrepreneurs with a new perspective.

Green-oriented Technologies

Green-oriented technologies and start-ups have faced major hurdles in attempting to enter the marketplace. Whether these companies are profit or non-profit, they essentially face the same financial difficulties as any other start-up. Even with a technological advantage, start-ups are faced with acquiring materials, manufacturing, distribution, and customer issues. Before this stage of 'market readiness' may lie years of research investments, apart from any commercialization activity. Some researchers have noted that many R&D labs associated with large organizations such as Xerox, Lucent Technologies, GE, and Boeing have come under close scrutiny resulting in highly focused time-based ROI research as opposed to long exploratory projects. Academic research has experienced similar pressures and finds itself highly subject to either government grants or industry investments. Venture capitalists have also become more risk-adverse, leaving "green" entrepreneurial start-ups, especially those without a fast and significant payback, much lower on investment priority lists regardless of past development costs.

INTEGRATED MODEL FOR LARGE-SCALE SOCIAL ENTREPRENEURSHIP

Social Entrepreneurship

The issues surrounding water scarcity can be addressed by a social entrepreneurship approach. Social entrepreneurs look for a return to society and a return on investment. Where others (governments, NGOs, etc.) have not been successful in solving societal problems, social entrepreneurs have been effective. There have always been those who have made money augmenting the efforts of governments and charities; however, modern social entrepreneurs have combined altruism with a desire to make a profit. One example is the emerging field of microfinance, which serves those who were unable to find funding from traditional sources and need relatively low amounts of money.

Social Entrepreneurship is in a pre-paradigmatic state (Granados, Hlupic, Coakes & Mohamed, 2011) and as such it is difficult to formulate an exact definition of it (Conway Dato-on & Kalakay, 2016; Abu-Saifan, 2012). However, here is a simple definition that captures its essential elements:

> ***Social Entrepreneurship****: Using profit-making enterprises to address social, environmental, and other problems that were traditionally entrusted to governmental and non-profit organizations (Betts, Laud & Kretinin, 2018).*

Some terms associated with social entrepreneurship such as "philanthrocapitalism", B corporations, impact investing, and microfinance are among the Chronicle of Philanthropy's 2011 "10 Favorite Buzzwords of the Decade" (Jones & Donmoyer, 2015) In an attempt to separate social entrepreneurship from other activities, yet address the differences in approaches, Zahra, Gedajlovic, Neubaum & Shulman (2009) present a typology of social entrepreneurs which separates them into three types (see Table 1).

Table 1 TYPES OF SOCIAL ENTREPRENEURS*		
TYPE	**DESCRIPTION**	**EXAMPLE**
Social Bricoleur	Use innovation and the resources available to solve local problems	Fifteen - chef Jamie Oliver
Social Constructionists	Introduce societal change and reform in way wealth is created and distributed	Amul - milk cooperative
Social Engineers	Introduce revolutionary change and disrupt the equilibrium	Grameen Bank – microfinance

* From Zahra, Gedajlovic, Neubaum & Shulman (2009).

Large-Scale Social Entrepreneurship Model

We propose a model for large scale social entrepreneurship that is using the philosophies and principles of social entrepreneurship across many stakeholder groups such as governments, research universities, NGOs and so on. Figure 1 shows stakeholder groups who can help in servicing the world water economy.

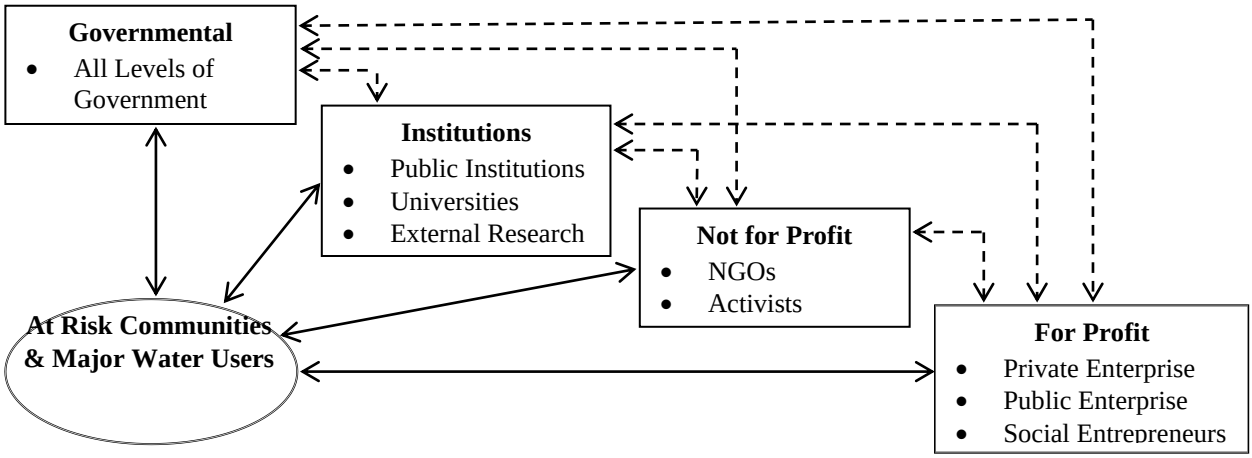

Figure 1 - LARGE-SCALE SOCIAL ENTREPRENEURSHIP: LONG-TERM COMPREHENSIVE PLANNING STAKEHOLDER MODEL

The model for a large-scale social entrepreneurship venture is based on an emerging paradigm used successfully in technology start-ups. The early focus is based upon what start-ups do well, i.e., innovate and generate prototypes, if only embryonic in development. Rather than attempt to acquire and manage resources against investment assets to maintain financial or ownership control, early efforts are made to identify established partners with the capability to drive new technology into commercialization. Identifying and leveraging the appropriate stakeholders lays the groundwork for a comprehensive input and direction. This provides a better probability of long-term marketplace survival for almost any breakthrough, especially those requiring some degree of technological complexity. However, these start-ups also need to resist the temptation of giving away significant portions of their intellectual property (IP) to capture early revenue. So long as the IP is rare, non-substitutable, inimitable, and valuable, it

can provide a sustainable competitive advantage (Barney, 1991). The IP represents the innovation necessary to address of the many problems in the water economy.

The links between each stakeholder group and the water users already exist; however, they are working independently of each other. The links among the stakeholder groups represent the flow of information, resources, and technology. These exchanges are necessary for efficient water management, but are currently not addressed in a coordinated manner. The model gives a framework for further development of a more integrated collaborative system. Researchers and stakeholder groups can examine each link to come up with ways to better coordinate efforts.

The World Water Economy Stakeholders

It will take many players in different kinds of organizations with diverse interests to enact the large-scale efforts that we propose. Figure 1 outlines the players in the Large-Scale Social Entrepreneurship Long-Term Comprehensive model. In the following sections we explore each group in the collaboration.

Governmental

To one extent or the other, governments have been players in dealing with water concerns for thousands of years. In ancient Greece, the water rights to freshwater lakes were granted by the government, and cities had water brought to them through large tunnels (Zanakis, Theofanides, Kontaratos & Tassios, 2003). In today's world, social entrepreneurship can benefit from governmental support (Goyal, Sergi & Jaiswal, 2016; Jung, Jang & Seo, 2016; Griffiths, Gundry & Kickul, 2013; Sullivan, 2007). The government has data and insight which can be used to help identify and provide access to the problems that can be helped by social entrepreneurs. They can use existing organizations (Goyal, Sergi & Jaiswal, 2016), and grants and other funding can be set aside for addressing social problems (Boehm, 2010). Lastly, policies and legislation can provide incentives and facilitate the efforts of social entrepreneurs (Lan, Zhu, Ness, Xing & Schneider, 2014; Prakash, Jain & Chauhan, 2015). In order for policy change to work, other players must be involved and networks formed. Then issues need to be strategically framed, forums controlled, and approaches adjusted to the peculiarities of the institutional system the entrepreneur is working in." (Huitema, Lebel & Meijerink, 2011).

Government can help encourage entrepreneurs, but it does not always do so. In many places poorly formulated and inappropriate fiscal policies have slowed down the process of social entrepreneurs (Chukwuemeka, 2011). The government needs to recognize that entrepreneurship drives economic growth and innovation and social entrepreneurs can help with essential service concerns and provide an enabling and secured environment for economic development, job creation and youth employment. An essential part of such an environment is access to clean water, which can be implemented by local entrepreneurs once governmental (and other) support is established (Chidiebere, Iloanya & Udunze, 2014). Governments can set policies that encourage corporations to conduct their corporate social responsibility (CSR) activities visibly and explicitly, rather than having a controlling rule-setting regulatory approach. Public water service companies can also engage in CSR to obtain more authenticity and a higher level of legitimacy in the field (Lauesen, 2014). Taking actions that limit corruption and waste have the effect of facilitating growth in many industries. (Prahalad, 2018) One approach to encouraging and enabling social entrepreneurship is through innovative legal forms, such as the low-profit limited liability company (L3C) and benefit corporations. Current results of these

forms have not shown them to be highly effective; however, with modifications and adjustments they may become more effective in the future (Weismann, 2017)

Institutions

Universities and research organizations are frequently the originators and developers of innovative technology used in pumps, filters, storage and distribution systems. Data collected from existing projects can help estimate water needs and usage. One example is "The Gravity Recovery and Climate Experiment (GRACE). Their satellites can observe water storage changes at regional scales which can then be augmented by other methods for basin-scale water storage changes (Longuevergne, Scanlon & Wilson, 2010; Shamsudduha, Taylor & Longuevergne, 2012).

Universities can do a great deal to teach, encourage and facilitate social entrepreneurship directly (Mititelu, Fiorani & Litardi, 2017). They can provide and encourage experiential learning (Gundlach & Zivnuska, 2010), service learning (Kinsella, & Wood, 2014; Peric, & Delic, 2016), and social entrepreneurship competitions (Huster, Petrillo, O'Malley, Glassman, Rush & Wasserheit, 2017). The Dell Social Innovation Challenge (DSIC) at UT has awarded prizes for water-related issues. For example, in 2012 an international team of five engineering students developed a water-filter for use in Bangladesh (Grobmeier, 2012).

Non-research institutions such as banks and other organizations that provide microfinancing have been recognized as useful partners for the large-scale delivery of health products such as water in low-income countries." (Baum, Elize & Jean-Louis, 2017). Microloans and microcredit are increasingly used in the poorest areas, frequently to help with water issues (Duy & Ngoc, 2018; Mondal, 2012).

Not-For Profit

NGOs (non-governmental organizations such as not-for-profits, charities, etc.) have many potential roles in a large -effort. They can directly fund entrepreneurs, or partner with social entrepreneurs through universities (Stephenson & Mace, 2009). A company called Verb was licensed to run Dell Social Innovation Challenge (DSIC) from the University of Texas. DSIC is the largest student social entrepreneurship competition in the world (Business Wire, 2014). The Queen Rania Centre for Entrepreneurship (QRCE) in Jordan holds a National Entrepreneurship Competition that has water as a competition field (Emam, 2015).

NGOs can work with local communities. for example, Gram Vikas is an NGO that deals with water and sanitation programs in India. They have a philosophy of inclusion and develop self-governing management systems (Pless & Appel, 2012).

Social workers, community organizers and activists all have a place in the social entrepreneurship landscape. Social workers are part of the traditional governmental and non-profit approach to addressing social issues. Activists and organizers focus attention on issues and situations that are not adequately addressed by charities, CSR, social workers, and others. In doing so, they help attract support, and frame the opportunities for value creation by the social entrepreneur.

For-Profit

In the for-profit grouping we have private and public enterprises and social entrepreneurs. Social entrepreneurs are different from traditional entrepreneurs (Massetti, 2008). Entrepreneurs and social entrepreneurs use both discovery and creation strategies for getting opportunities (Gawell, 2013); however, the traditional entrepreneur is more likely to try to discover opportunities, whereas the social entrepreneur is more likely to create them (Korsgaard, 2011; Shaw & Carter, 2007). Similarly, traditional entrepreneurs are more interested in capturing

value, and social entrepreneurs are more interested in creating value (Agafonow, 2014; Crisan & Borza, 2012; Santos, 2012). One example of where social entrepreneurs are used to help solve water issues is in Malaysia where the government gives water-related contracts (Tan, 2015). Without such controls, pumps can drain aquafers dry as they do in some areas of India (James, 2015).

Social enterprises are like social entrepreneurs, but on a larger scale. They make a profit by addressing social problems and are often involved with privatization of services formerly supplied by the government (Sepulveda, 2015). There are many examples of social enterprises addressing water problems. The social issue of high levels of nitrates in the waters in Romania inspired Aqua Carpatica to combine a technological innovation (testing tool) with marketing communication. This innovative approach increased customer loyalty and brought in new ones (Hadad, 2018). In Denmark, a combination of political and organizational forces allowed for the water utilities to be privatized (Lauesen, 2016).

Water problems are being addressed by companies through their corporate social responsibility (CSR) efforts. CSR does not avert the tragedy of the commons (Karnani, 2014) because it is not the primary focus of the organizations, and the providing of goods and services is haphazard. A recent study of CSR related to sustainability in France showed a short-term orientation rather than more analytical or long-term approaches. Economic concerns outweighed social and environmental concerns (Husser, Jean-Marc, Barbat & Lespinet-Najib, 2012). In India, the National Aluminium Company (Nalco) creates drinking water infrastructure, but only for communities near their operations (Satpathy & Singh, 2013). Researchers have found that corporations consider rural people as stakeholders regarding their CSR efforts (Das, 2015); however, among categories of CSR activity, water and sanitation were the least preferred, compared to education, health issues, environmental issues, disaster relief, employability and others (Ghosh, 2014). It is important to note that many companies do address water issues in their CSR activities. For example, Tom's Shoes has 100 partners who together have provided 600,000 weeks of safe water (Prahalad, 2018). Such efforts can be helped through using more partners in our collaborative approach.

There are many innovations initiated by collaborations outside of traditional organizational and leadership contexts (Bragg, 2003). A good example of multiple stakeholders solving a social problem is a multinational effort supported by community contributions and international donor funds to design, produce and distribute bio-centers that produce bio-gas which is used for energy (Dixon, 2017). Although energy is an important concern, investments in activities related to water resource have even greater returns (Sepúlveda & Mendizabal, 2011). However, the world's patience is needed: providing clean toilets in Nigeria took four years ("Entrepreneur of Human Waste", 2015).

Community-level engagement including prototyping and pilot testing are necessary for non-traditional partnerships and collaborations with knowledge institutions, government institutions, and social enterprises operating at the grassroots level (Goyal, Sergi & Kapoor, 2014). As stakeholder participation increases, the need for administrative reform and capacity building increases. Reforms in the water sector may follow any of a number of paths, such as the bureaucratic or the entrepreneurial (Tankha & Fuller, 2010). The large-scale model proposed is flexible enough to facilitate these different paths. For example, in Papua New Guinea (PNG), 'top-down' bureaucratic approaches have been unsuccessful, therefore an entrepreneurial 'bottom-up' approach is advocated for creating value and raising rural wellbeing. Private sector involvement and seed funding drive the creation of social value (Saverimuttu & Cochran, 2018).

The linkages in the model allow for the flow of funds, technology, and other components where they are best able to facilitate addressing specific water-related issues. In Table 2 we outline key factors in the large-scale collaborative social entrepreneurship model and compare them with small scale efforts.

Table 2
KEY FACTORS IN A LARGE-SCALE COLLABORATIVE SOCIAL ENTREPRENEURSHIP MODEL

Categories	Small-Scale Cooperative Social Entrepreneurship	Large-Scale Collaborative Social Entrepreneurship
Products/Services	• Designed for small-scale social impact • Exploit existing or low-tech solutions • Smaller distribution network	• Best suited for social purpose with a high-tech solution • Products/services must be significantly better than current solution (cost, price, distribution, functionality)
Stakeholders	• Business owners • Customers • Local Community	• Communities, government, activists, NGOs, researchers, private/public businesses
Social Impact	• Incremental • Local	• Seeks disruption to build "new industry" at scale
Industry Impact	• Minor impact • Seldom disruptive	• Seeks disruptive innovation
Product Demand	• Known local demand • Fills market gaps and niches	• Immediate known high demand • attractive to government and business partners
Production Size	• Small, scale is not key	• Large, must affect large population groups • Manufacturing at scale
Funding Sources	• Small investments, generally $1-3 million or less • Small-scale private equity, family, friends • Limited government funding or grants	• Mostly business partner funding • Limited VC (requires key contacts with manufacturing and distribution partners) • VC may be unnecessary middlemen • Large investments $2-10 million
Financial Tranches	• Variable	• Research (self-funded) • Prototype (self-funded) • Mfg./Distribution (minimal; actual may be $100-$250M passed to partners)
Adoption Curve	• Varies depending on need and social acceptance	• Fast--government and vested partners ensure uptake with proven manufacturing/distribution
Distribution	• Self-funded or shared	• Passed to partner/government for quick and widespread distribution
Barriers to Entry	• Local acceptance • Legal barriers	• High due to research, facilities, manufacturing cost, and, distribution system

The small inroads made for water availability are admirable but are not currently scalable either at the country or regional level in most places. A new approach is required that combines both long-term comprehensive, and integrated planning with shorter-term water scarcity alleviation. The state-of-the-art science in water management is well advanced, but its applications have been sporadic, limited, often costly, or sub-optimal, and short-term. There are also vast differences in the ability of countries to fund research or build water production facilities. A new form of collaboration is needed that involves the many stakeholders, including

the layers within governments with their own interests, local communities at various stages of economic development, activists and NGOs, university researchers and partnerships, and, private firms and public enterprises. Important to this mix will be deep-skilled social entrepreneurs with the vision and energy to create large-scale change.

The model and approach presented reflects not only current problems, but current solutions as well. One effort that has chipped away at the walls between stakeholder groups is the Global Water Initiative. Founded in 2007, it is a coalition of seven international organizations that were created as a response to the disconnect between stakeholder groups and the fragmented manner in which water resources are managed (Action Against Hunger, 2007; World Economic Forum, 2020). Another organization that helps provide clean water through collaborative efforts is Living Waters for the World. Their emphasis is on water purification systems and education (Living Waters for the World, 2019). Social entrepreneurs, motivated by the opportunity to help a cause while making a profit, can follow in the footsteps of non-profit NGOs. Vivid Roots, Conscious Step, and Proper Soap are companies that fund various clean water projects (Trahant, 2019). Beyond funding, social entrepreneurs can be directly involved in providing water. Majik Water provides technology that extracts drinking water from the air (Majik Water, 2020). African Fountain has developed a business model and funded 11 companies for safe water in various African countries employing 840+ people (Swissbluetecbridge, n.d.). Entire communities can be encouraged to take a social entrepreneurship perspective. The Safe Water Network, founded in 2006 by Paul Newman, believes "that properly equipped communities can successfully operate small water enterprises that provide a reliable, affordable supply of safe water" (Acharya, 2018). Progress is being made, but more work needs to be done to bring social entrepreneurs into the arena and foster cooperation between stakeholders.

CONCLUSION

What is unique to the world water economy, and what makes it exciting is the need and potential development of an international water resource system. Although we do have some shared world interests, we are also encumbered by various national agencies with vested interests influenced by government policy, economic resources, and geopolitical differences resulting in the current fragmented approach. This often sub-optimizes opportunities for better long-term global water resource sustainability. However, the growing need for a world water economy along with the interests of large-scale entrepreneurs, ethical government intervention, and efforts to extend corporate social responsibility, offer an outlook to move forward. This, coupled with an emerging large-scale social entrepreneurship model, may provide a practical approach to advance the conversation.

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