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## **Entrepreneurship Education: An Entrepreneurial Ecosystem Approach**

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## Entrepreneurship Education: An Entrepreneurial Ecosystem Approach

### ABSTRACT:

*In this paper, we examine entrepreneurship education from an entrepreneurial ecosystems perspective. We outline a comprehensive conceptual framework for entrepreneurial ecosystems (EE), developed from the literature, including details of nine core components. This EE framework is then applied using an in-depth case study of an innovative academic unit called The Entrepreneurial Garden (TEG) at Burgundy Business School in Dijon, France. TEG offers entrepreneurship education, research and enterprise development as an integrated portfolio using the 'entrepreneurial method' world-view and action-based experiential pedagogies. This analysis shows how an academic unit can be developed as an EE building from local resources and expertise, aligning with macroeconomic policies and priorities, and leveraging partnerships to provide access to other entrepreneurial players, resources and networks.*

**Keywords:** entrepreneurship education, entrepreneurial ecosystems, The Entrepreneurial Garden, case study

### INTRODUCTION

Entrepreneurship and innovation have been recognised by government leaders around the world as the underlying source of economic growth and social development (WEF, 2014, 2016; EC, 2013; OECD, 2010a). In addition to developing national regional policies incorporating entrepreneurship and innovation activities and outcomes (Lundström & Stevenson, 2010; Gilbert, Audretsch & McDougall, 2004; OECD 2009; 2010a), this has highlighted and increased expectations for the quality and effectiveness of entrepreneurship education programs (O'Connor, Fenton & Barry, 2012; Oganisjana & Matlay, 2012; O'Connor, 2013; Belitski & Heron, 2016). Entrepreneurship as a field of research has also developed significantly in the past two decades (Shane 2012; Shane and Venkataraman, 2000; Sarasvathy & Venkataraman, 2011), increasing the academic scholarly capacity to deliver entrepreneurship programs and explore entrepreneurial people, processes, policies and practices.

While entrepreneurship has traditionally focussed on the entrepreneur and new venture creation, recent studies signal the need to include contextual factors surrounding the entrepreneurial phenomena (Zahra, Wright & Abdelgawad, 2014; Autio et al, 2014; Zahra, 2007). Adopting a 'systems' perspective has been recognised in prior work on business ecosystems (Clarysse et al, 2014; Isanti & Levian, 2004; Moore, 1993) and national innovation systems (Lundvall, 2007, 1992; Freeman, 2002; Nelson, 1993). The emerging *Entrepreneurial Ecosystems* (EE) approach provides a new framework for evaluating the complex factors involved in economic growth from both macro and micro contextual environments (Isenberg, 2011; 2014; WEF, 2013). Akin to business ecosystems, the EE approach is holistic and recognises that businesses don't evolve in a vacuum, rather they are relationally embedded with

suppliers, customers and financiers. It is timely and important to consider the ecosystems approach for entrepreneurship education.

Entrepreneurship education occurs within the context of a wider system. From an ecosystem perspective, the different dimensions of teaching and learning need to be integrated (Belitski et al., 2017; Maritz et al., 2016; Mueller et al., 2016; Schmidt & Molkentin, 2015; Toutain & Mueller, 2015). In this paper, we examine the delivery of entrepreneurship education by an innovative educational group in terms of the core components of the EE framework. First, we provide a brief overview of the nature and expectations of entrepreneurship education. Next, we review the entrepreneurial ecosystems literature and introduce the core components of an EE framework. The EE framework is then applied to entrepreneurship education using a detailed case study of a French educational group. In the conclusion, insights from this study are discussed and some further research projects proposed.

## **ENTREPRENEURSHIP EDUCATION**

Entrepreneurship education encompasses formal and informal processes that develop an entrepreneurial mindset, plus the knowledge, skills and abilities to live and work in an entrepreneurial economy (Oganisjana & Matlay, 2012). Although this is potentially much broader than academic programs in entrepreneurship, higher education institutes have key responsibilities. University level education aims to be transformational for individuals and their future careers. From a national policy perspective, university graduates are recognized as key members of the workforce for a knowledge economy and human capital is a key driver of economic growth (Lundvall, 2007). Positive links between entrepreneurship education and entrepreneurship-related human capital assets, and with entrepreneurial outcomes (such as new venture creation and entrepreneurial performance), were demonstrated in a meta-analysis of 42 independent studies by Martin, McNally & Kay (2013).

### **Academic programs in entrepreneurship**

The numbers of entrepreneurship courses offered by Business Schools and specialist Entrepreneurship Centres has increased, along with the range of specialist topics being offered (Winkel et al., 2013; Valerio, Parton & Robb, 2014). From their survey of 321 universities in 60 countries, Winkel et al. (2013) reported the top five courses in entrepreneurship programs: Introduction to Entrepreneurship, New Venture Creation, Small Business Management, Practicum/Consulting/Experiential, and Creativity and Innovation. From this study, undergraduate degrees were most popular, with 25% of the institutions offering an undergraduate entrepreneurship major, 48% offering an undergraduate minor for business or non-business students, 41% offering graduate majors, 25% offering graduate minors, and 19% offering entrepreneurship PhDs. In addition, 36% were offering internship opportunities with local companies, and 32% had small business incubators available (Winkel et al. 2013).

### **Teaching and learning methods in entrepreneurship**

A wide range of teaching and learning strategies are adopted within entrepreneurship education linked to the learning objectives and outcomes. As shown in Table 1, there are four primary world-views on entrepreneurship education reflecting different approaches, which assume different priorities for learning activities and outcomes.

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Insert Table 1 about here

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The teaching and learning methods adopted within entrepreneurship courses may reflect traditional and/or a range of experiential approaches linked to course objectives, content and audience (Daniel, 2016; Lackéus, 2015). Where the learning outcomes include development of entrepreneurial behaviours and mindset, the pedagogies for this type of entrepreneurial learning include personal development and reflection (Daniel 2016). Neck and Greene (2011, 68) propose teaching entrepreneurship with a practice-based *method* as a way of thinking and acting, rather than as a *process*:

*Starting businesses help students “feel” what it is like to assume the role of an entrepreneur. Serious games and simulations allow students to play in virtual worlds that mirror reality. Designed-based learning encourages student to observe the world through a different lens and create opportunities. Finally, reflective practice gives permission to our students to take time, think, and absorb the learning of their practice-based curriculum. Together, our portfolio of feeling, playing, observing, creating, and thinking is the entrepreneurship method and a prescription for practice.*

Utilising a portfolio of teaching pedagogies is important in entrepreneurship to enable learning to be individually constructed, and to allow for co-creation of knowledge with peers/others (Daniel, 2016; Löbler, 2006; Fayolle, 2013). Daniel (2016) tested the design thinking six-phase process as a methodology for entrepreneurship education and reported positive impacts on student motivation and their performance satisfaction. With this approach, the favourable climate for learning and the promotion of active participation were key elements of the learning process. Creating a culture that fosters collaboration, creativity and autonomy, and having the teacher act as a *facilitator* of the leaning process are also important (Daniel, 2016).

### **Enterprise development**

Although many entrepreneurship courses now include ‘live’ cases, interviews, field trips, simulations, business games, role playing, ‘pitch’ presentation competitions, and research projects, there are also opportunities provided in some programs for ‘practicing’ entrepreneurship with an ‘actual business start-up’ (Crispin et al, 2013). For example, Neck and Greene (2011) report that starting businesses as part of coursework has become mainstream at Babson College in the United States. Their new venture creation course, which is a blend of theory and practice, is required for all first-year undergraduates to allow students to practice business and entrepreneurship so that the content comes ‘alive’:

*The objectives of this course include:*

*(1) Students practice entrepreneurship and generate economic and social value.*

(2) *Students understand the nature of business as an integrated enterprise and knowledge of all key business areas is essential in developing a well-rounded business aptitude in preparation for the real world.*

3) *Students use information technology (IT) for decision-making and productivity and learn that IT is essential in supporting all areas of a business.*

(4) *Students experience social responsibility and philanthropy through the donation of their time (six hours minimum) and business world.* (Neck and Greene, 2011, 63)

This type of experiential learning develops knowledge and skills about the enterprise, the business processes involved (including leadership, decision making under uncertainty, communication, teamwork), as well as specific insights about themselves. Access to the types of resources normally provided in business incubators (including investors, mentors/advisors, intellectual property etc.) also becomes important supporting infrastructure for new ventures to survive and grow (O'Connor, Fenton & Barry, 2012; Neck et al. 2004). As providing this infrastructure for entrepreneurship students requires investment, it is a strategic decision for the institution and links to the mission and objectives for engagement and enterprise development (Belitski & Heron, 2016). Access to local, regional or international business/industry for internships and 'live' projects is important to provide experiential learning opportunities and contribute to developing an entrepreneurial mindset (Blenker et al., 2011).

## **ENTREPRENEURIAL ECOSYSTEMS**

The entrepreneurial ecosystems (EE) framework provides a new approach for understanding the many complex and dynamic factors involved in economic growth and social development. Aligned with the broader view of entrepreneurship as a social process embedded in context (Cope, 2011), this EE approach has become popular with entrepreneurial leaders and policy makers from around the world (Stam & Spigel, 2016). However, academic scholars from a range of disciplines (including entrepreneurship, economic geography and urban economics) are currently debating the definitions, core elements and their linkages, the measures and metrics for profiling and evaluating an EE, and proposing a future research agenda (including Brown & Mason, 2017; Stam & Spigel, 2016; Stam, 2015; Mack & Mayer, 2016; Alvaladen & Boschma, 2017). Special issues on aspects of EE are forthcoming for several major journals including: *Strategic Entrepreneurship Journal*, *Small Business Economics*, *Industrial and Corporate Change*, *Journal of Enterprising Communities*, and *Academy of Management Discoveries*. Yet, while these scholarly debates unfold/continue, the EE framework as outlined by Babson Professor Daniel Isenberg (2010, 2011, 2014, 2016) from his studies of how to foster entrepreneurship in countries and cities around the globe, has been adopted, adapted and applied by policy makers and researchers in many countries e.g. Australia, France, Germany, India, Kenya, New Zealand, Nigeria, Scotland, Saudi Arabia, South Africa, Vietnam, and the United States. In addition, the EE framework has been recognised and utilised by leading international agencies including the World Economic Forum, Organization for Economic Co-operation and Development, World Bank, and the European Commission.

A comprehensive definition of an entrepreneurial ecosystem was provided by Mason and Brown (2014) from their study for the OECD of growth-oriented entrepreneurship, as follows:

*“...a set of interconnected **entrepreneurial actors** (both potential and existing), **entrepreneurial organisations** (e.g. firms, venture capitalists, business angels, banks), **institutions** (universities, public sector agencies, financial bodies) and **entrepreneurial processes** (...) which formally and informally coalesce to connect, mediate and govern the performance within the local entrepreneurial environment” (Mason & Brown, 2014, p. 5).*

This definition captures the complexity of these ecosystems, which are dynamic and co-evolving communities of diverse actors who create and capture value through increasingly sophisticated models of both collaboration and competition (Visnjic & Neely, 2013). In this type of dynamic context, new and existing firms have better opportunities to grow and create employment than in traditional industry silos, thereby fostering innovation (Williamson & De Meyer, 2012). The key players in an EE are not just entrepreneurs and small high growth potential firms, but also the organizations and institutions which contribute to shaping the context, as well as large firms that may provide opportunities to access markets, technologies or expertise. The quality of the links between the key players, as well as the mindsets of the different actors involved, are also important factors for effective collaboration to occur.

### **The components of entrepreneurial ecosystems**

Six core components of an EE were proposed by Isenberg (2010, 2011, 2014) and three additional domains were recommended by the World Economic Forum (2013) from their survey of entrepreneurs perceptions of EE. The Aspen Network of Development Entrepreneurs (ANDE, 2013) reviewed the EE frameworks from a series of different organizations in their project to develop a diagnostic toolkit for EE, as summarized in Table 2. Although each of these frameworks was prepared for a slightly different purpose, they found a high level of consistency in the core domains of the EE.

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Insert Table 2 about here

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The overall EE framework, shown in Figure 1 (Mazzarol, 2014a), provides a structure for understanding and evaluating the enabling environment in which entrepreneurial firms can grow. As each ecosystem is unique, shaped by the local assets and conditions, and evolving, a holistic approach is required to ensure the inter-related components are mutually reinforcing to stimulate self-sustaining venture creation (Isenberg, 2010, 2011).

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Insert Figure 1 about here

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**Government policy.** The role of government is to facilitate and foster a vibrant environment for entrepreneurial ventures to be successful and sustainable, rather than providing direct investment schemes (Isenberg, 2011). Policies may be *specific* to encourage and support growth of small and entrepreneurial business developments, as well as *general* policies and regulations for taxation, financial

services, telecommunications, transportation, labor markets, immigration, education and health (Mazzarol, 2014a). Policy makers are advised to target four aspects of the EE including: (1) entrepreneurial actors, (2) entrepreneurial resource providers, (3) entrepreneurial connectors, and (4) entrepreneurial orientation (Mason & Brown, 2014; Brown & Mason, 2017).

***Regulatory framework and infrastructure.*** Regulation and infrastructure act as potential enablers or inhibitors of small business creation and growth (WEF, 2013; Mazzarol, 2014b). The ease of ‘doing business’ is reviewed and reported each year by the World Bank focusing on eleven areas of business regulation in 189 countries (World Bank, 2016). This analysis, which includes the complexity and cost of regulatory processes and the strength of legal institutions, provides rankings and detailed summaries including notes on key areas of improvement. Access to basic infrastructure, including utilities, telecommunications and transportation, which are essential for business operations also need to be considered within the EE context.

***Funding and finance.*** Access to funding/finance is another fundamental requirement for new and growing businesses. Research on entrepreneurs, microbusinesses and SMEs shows personal resources and informal loans from friends and family are often the preferred source of funds for many new and small businesses. However, to fund significant growth external debt is generally preferred to external equity (Vos et al., 2007; Clark & Douglas, 2012). The status of the financial sector can be evaluated using a set of indicators provided by ANDE (2013) for banks, venture capital, angel investors, private equity, public stock markets and philanthropic activity. Access to credit is measured in the World Bank’s Doing Business study by considering the sharing of credit information and the legal rights of borrowers and lenders with respect to secured transactions (through collateral laws and bankruptcy laws (World Bank, 2016). New sources of funding from online sources or crowdfunding platforms are providing alternative sources of funds for entrepreneurs with new business ideas (Mazzarol, 2014b).

***Culture.*** Developing a culture in which entrepreneurship is highly valued can be assisted by communications strategies to profile entrepreneurial business growth, education programs to increase knowledge and awareness, and celebrations of awards to recognise innovations (WEF, 2013). Culture is one of the key intangibles impacting on entrepreneurial activities, as shared values and norms influence attitudes and patterns of behaviour (Barney, 1986). Society’s tolerance for risk, mistakes and failure is one of the specific cultural attributes that is relevant for EE (Isenberg, 2011; WEF, 2013). Attitudes towards innovation, creativity and experimentation are also key cultural factors which impact on the acceptance of new ideas and willingness to engage in entrepreneurial business practices (Isenberg, 2011). The social status accorded to entrepreneurs is relevant as this may act to either encourage or inhibit people from establishing and growing entrepreneurial enterprises (Isenberg, 2011). Similarly, if there is a preference for self-employment vs working as an employee within the culture, this can increase the numbers of small and entrepreneurial businesses (WEF, 2013). In addition, societal norms for

personal drive, ambition and wealth creation can play a major role in the cultural dimension of the ecosystem (Isenberg, 2010).

***Mentors, advisors and support systems.*** A business mentor is typically an experienced business person who is empathetic and usually independent of the business, who volunteers his/her time to provide advice and act as a sounding board over an agreed period of time. Mentoring may be organised formally via an official program offered by a mentoring organisation or informally by the individuals involved. By contrast, advisors are normally employed by business consulting organisations or government organisations/agencies, to provide business intelligence for fees. Specialist professional service firms offer specific advice e.g. law, accounting, auditing, taxation, information technology, intellectual property or investment banking. Advice for entrepreneurs may also be provided within incubators or accelerators, from peer networks of entrepreneurs or business networks such as the Chamber of Commerce (WEF, 2013).

***Universities as catalysts.*** Universities can contribute to the EE as catalysts for change through their academic programs, research, and economic development activities (WEF, 2013; Mazzarol, Battisti & Clark, 2016, Feters et al., 2010). Academic programs produce graduates with the knowledge and skills to contribute to growth of new and existing companies. Via internships, students contribute to problem solving for organisations; training high technology, science and engineering students in business/entrepreneurship areas enables them to develop their new ideas into marketable products and ventures. Theoretical and applied research on new and emerging domains and fields contributes to the knowledge-based economy. Staff and student connections with industry/business to address their problems/issues enables the University to have influence on their growth and performance. Converting new ideas into innovations is encouraged and supported by Universities by providing infrastructure for commercialization via research centres, or by supporting incubators, accelerators or technology parks on or close to campus.

***Education and training.*** The focus of education and training system is to provide the knowledge and skills required by the workforce operating in an entrepreneurial economy. To support innovation in a wide range of industry sectors, the workforce needs educated and trained employees and entrepreneurs. The generic and specific skillsets needed by each sector are determined by consultation with industry professional bodies and education providers. Specific formal and informal education and training programs for entrepreneurs are also recommended (WEF, 2013).

***Human capital and workforce.*** Human capital represents the total knowledge, talents, skills and abilities of individuals that can contribute to the workforce and create economic value. This was rated by entrepreneurs as one of the top three most important EE components for growth of early stage companies (WEF, 2013). There are many different kinds of talent and expertise needed in a dynamic entrepreneurial knowledge economy. As global markets change, business models, employment systems,

and workforce patterns also change e.g. the rise of independent contractors in lieu of employees (McKeown & Phillips, 2014).

**Local and global markets.** Access to markets is very important for early-stage and growth companies (WEF, 2013). Yet there are many challenges for new market access including geographic locations, distribution channels, visibility, and access to key decision makers. Assistance is potentially available from suppliers and customers, as well as from industry/trade organisations. Market segmentation is a key process for identifying and evaluating potential target markets. Establishing and leveraging productive relationships with large companies is recommended for early stage and growth companies (WEF, 2013).

### **ENTREPRENEURIAL EDUCATION ECOSYSTEM**

Entrepreneurship education has a significant role within the EE and thereby contributes to economic growth and development. Two of the core components of the EE explicitly focus on education activities and outcomes i.e. *Universities as Catalysts* and *Education and Training*. These activities contribute directly to the *Human Capital and Workforce* component and to the development of a *Culture* that values entrepreneurial people, processes and performances. Education also contributes indirectly to the *Mentors, Advisors and Support Systems* as these processes include transfer of tacit and explicit knowledge. These inter-relationships between the entrepreneurship education activities and outcomes demonstrate the complex, integrated and holistic nature of the EE framework.

Prior research on links between entrepreneurship education and EE includes a case study of a German entrepreneurship program by Maritz, Koch and Schmidt (2016). This project included discussion of an *entrepreneurial* university that incorporates the *University as Catalyst* elements and activities including entrepreneurship education, research and enterprise/stakeholder engagement. Connections from the entrepreneurship program to the broader context within and beyond the university (such as the national system for entrepreneurship [Acs et al. 2016; Acs, Autio & Szerb, 2014]) were found to be important and difficult to separate out as they are intertwined and overlapping. Schmidt and Molkentin (2015) outlined a consortium approach to developing a regional inter-university ecosystem for entrepreneurship education in northeast Ohio, USA. Collaboration from 11 institutions established a regional network of faculty, students and staff to share undergraduate course ideas and materials.

Mueller, Toutain & Bornard (2014; 2016) reported on their study of learning communities in entrepreneurship, which focuses on the contributions and expectations of all the main *actors*, such as pupils/students, teachers, directors, parents and external partners. This European study, conducted in the Netherlands, Finland, Spain, and Germany, examined entrepreneurship education programmes across primary, secondary, and higher education levels to test an education EE conceptual framework with 5 dimensions: (1) the learning framework, (2), networks and connections, (3) entrepreneurial culture, (4) pedagogical solutions, and (5) learning spaces and materials (Mueller et al. 2014; 2016).

Each of these prior entrepreneurship education ecosystems studies has a different purpose, focus, unit of analysis and conceptual framework. This means that the findings, which are relevant and interesting, are not directly comparable, nor do they build upon a common literature as this is an emerging field and the authors come from different disciplinary backgrounds. Our exploratory project aims to examine entrepreneurship education using the dominant model of EE (at this point in time) using an innovative entrepreneurship program. This EE conceptual framework provides a replicable structure for mapping the key elements of a specific EE. Each of the core components of the EE framework (outlined above) will be illustrated in the case study that follows outlining details for the specific entrepreneurship education unit.

### **THE ENTREPRENEURIAL GARDEN (TEG) CASE STUDY**

To demonstrate how this new EE framework is applied, we have used an in-depth qualitative case study of The Entrepreneurial Garden (TEG) at Burgundy Business School in Dijon, France. This analysis is outlined below and summarised in Figure 2.

#### **The context: Burgundy and the Burgundy School of Business (BSB)**

Burgundy School of Business (BSB), founded in 1900<sup>1</sup>, is a leading teaching and research business school holding international accreditations (AACSB and EQUIS) and belonging to the network of top French academic institutions in business and management. BSB is located in Dijon, the capital of Bourgogne-Franche Comté, and north of the Auvergne Rhône Alpes region, which is one of the most dynamic regions of France in terms of innovation, entrepreneurship and growth<sup>2</sup>. BSB is a private, non-profit institution offering a range of degree programs where students experience high quality education (the Master in Management program is ranked in the Financial Times amongst the Top 80), and delivering a personalised approach within an international environment. In terms of size, BSB relies on a faculty of 60 professors and researchers, has 2,300 students (including 500 international students of 65 nationalities), and an international network of 10,000 alumni.

BSB created a formal students' *incubator* in 2009, capitalizing on the ongoing experience of coaching student business projects (*ESC Entreprendre*, a student's association created in the mid-1990s) and courses in Entrepreneurship (since 2000). Involving one, then two faculty members, and related to teaching, mentoring and research, this incubator had grown over time with increasing interest of students in entrepreneurship and it required a more dedicated structure. Hence, this incubator project led to the birth of *The Entrepreneurial Garden (TEG)*, launched in 2013, with new dedicated premises in 2016.

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<sup>1</sup> Under the name: École Supérieure de Commerce de Dijon.

<sup>2</sup> Auvergne Rhône Alpes (around Lyon and Grenoble) ranks 2<sup>nd</sup> in France in terms of GDP; Bourgogne-Franche Comté ranks 11<sup>th</sup> out of 13 regions)

## **The concept: The Entrepreneurial Garden (TEG)**

The Entrepreneurial Garden (TEG) is a Centre for Entrepreneurship and Small Business Management, which was established to contribute to sustainable entrepreneurial growth and applied entrepreneurship education and research. The TEG vision (shared by the team and the board of the Business School) is: *"To contribute to the development of a sustainable entrepreneurship, creator of economic, social and environmental value, relying on innovation and cooperation, for which the entrepreneur learns to become an author"*. TEG is focussed on five fundamental themes: (1) creativity and entrepreneurial leadership, (2) design thinking and entrepreneur, (3) strategic management and applied innovation, (4) creating opportunities and business models, and (5) new venture creation, growth and takeovers.

TEG differs from traditional academic and research centres by combining dedicated facilities for enterprise development integrated with academic resources. TEG was designed as the central hub at the heart of an ecosystem, which includes many different players who each contribute to the collective agenda of developing enterprises and entrepreneurial mindsets: entrepreneurs, businesses, students, lecturers, academics, researchers, coaches, experts, institutions. Reflecting its name, TEG provides collaborative workspaces and operates with innovative, multi-disciplinary pedagogy to nurture growth.

## **TEG as an Entrepreneurial Ecosystem**

**Government Policy.** Government interest in entrepreneurship has been steadily growing in France for the past 5 to 10 years. This interest has stimulated birth of academic programs in most of the business schools and universities, an increase in support of student entrepreneurs (e.g. more and more incubators in the business schools), and support at the level of the administrative regions (PREMICE in Burgundy), plus a university organisation (called PEPITE). BSB started to work on these types of initiatives in the mid-1990s; however, formalisation of BSB's interest has grown in parallel to the national movement. A regional scheme for youth entrepreneurship is progressively emerging involving the main actors (including TEG) and allied with political interests. TEG's principles align with these political orientations, e.g. *"Encouraging and supporting activity creation / re-employment for young people"*, and *"Contributing to the attractiveness of our region by strengthening territorial cooperation and the networking of young entrepreneurs"*.

**Regulatory Framework & Infrastructure.** With increased national and regional focus on entrepreneurship in France, support for creating businesses has increased. At the national level, the BPI (public bank for investment) has developed many products, projects and programs to support firm creation and development. At a regional level, the regional council has also set up programs to support entrepreneurship and small firm growth. For example, the funding of doctoral students by the regional council includes a specific program in Entrepreneurship designed by TEG to help them to create an activity around their doctoral project. In terms of infrastructure, TEG provides offices and premises for

students projects (open spaces for emergent projects, offices for more advanced projects, with web access and a postal address), and after-hours access to these facilities if required (evenings/weekends).

**Funding & Finance.** TEG provides links to former entrepreneurs who belong to the national "Réseau Entreprendre" and often visit TEG to offer mentoring and initial funding to start ups (via local experienced entrepreneurs). In addition, there is an office of "Bourgogne Angels" (same type of organisation but specialised in funding) within TEG's premises. Both organisations provide mentors and jury members, and this enables the TEG students to develop relationships with potential funders. Also, the presence of young chartered accountants at TEG once a week provides opportunities for students to access specific advice and technical guidance on the funding of their new venture projects. Another interesting additional source of information on 'crowdfunding and microcredit' is also available from a specialist BSB research group in this area.

**Culture.** Aligned with the BSB mission statement, TEG has adopted an orientation towards sustainability and social responsibility. The TEG team explicitly aims to transmit and inspire sustainable values around environmental issues, societal and human implications, and economic sustainability in coursework, as well as in their processes of mentoring students and projects. Experiential learning and teaching have been selected as the DNA of all the programs or workshops/seminars offered by the TEG team. In addition to these pedagogies, TEG has chosen to act and be different to other centres/units in terms of its localisation, organisation and governance: outside of the main campus, in dedicated premises, a collaborative team of senior and junior faculty members, working in an open space in project mode, sharing facilities with students and visitors.

**Mentors, Advisors & Support Systems.** At TEG, practitioners are a fundamental part of the ecosystem. The TEG team has developed partnerships with a number of different types of institutions including: experienced entrepreneurs - from the "Réseau Entreprendre" and from the "Bourgogne Angels"; business advisors - from the local Chamber of Commerce, the association of young lawyers, and the local group of chartered accountants; other incubators with different profiles - the regional high tech incubator, the university organisation providing support to students entrepreneurs), and the BSB students associations – which focus on business and counselling activities. Some of these organisations have an office at TEG, or are present once a week for interviews, or come to interact with the students as coach or jury. This provides TEG's future entrepreneurs with regular contact with practitioners, opportunities to interact at lunches and workshops where they 'pitch' their projects, and feedback from professional experts. Co-location at TEG's premises also creates opportunities for informal chats and discussions with faculty members, business angels, experienced entrepreneurs and other experts.

**Universities as Catalysts.** TEG serves as the home for Entrepreneurship and SME research, lecturing, and counselling - with one team located in a special-purpose building aiming to catalyse enterprise development. The team includes former BSB students, faculty members with a dual focus on culture management and engineering, and multidisciplinary researchers focusing on entrepreneurship, small firm management, innovation, education, anthropology, and sustainable development. TEG has

partnerships with engineering schools and arts schools, which enables mixed groups of students working together on projects. TEG also has a wide international research and teaching network with visiting experts and faculty from around the world.

**Education & Training.** TEG offers experiential education and training in five specialist areas (noted above) at beginner, advanced and executive levels. In terms of pedagogy, three main convictions drive TEG's actions: (1) individual skills have to be enhanced; (2) entrepreneurship is based on the diversity of individuals who are constantly reacting to their surroundings; they are thus both the producers and the products of their constantly evolving ecosystem; and (3) entrepreneurial behaviour produces economic and social value; this has led the team to develop programs and new pedagogical methods. TEG's courses and pedagogy are defined by the following principles: (1) collective learning and effectual teaching constitute the basis of the teaching methods, including reflexivity and peer learning; (2) academic professionals and practitioners are part of the educative and pedagogical teams; (3) each participant learns entrepreneurship by experiencing real life situations; and (4) daily individual and collective feedback on their learning activities and insights.

**Human Capital & Workforce.** TEG considers their human capital development capacity within three overlapping circles: (1) the *inner circle* is composed of the TEG team and its close partners; BSB has established a dedicated team for TEG, including faculty members with different and complementary work experiences, research and teaching interests, a former young entrepreneur to look after the incubator, and a doctoral student working on hybrid organisations; (2) a *second circle* which corresponds to the business school and regular lecturers; TEG has created a network of close partners, researchers, practitioners and lecturers, who provide workshops, lectures and discussions for the students; and (3) a *third circle* which is the wider network developed around TEG including 'weak ties' to many individuals and organisations locally, regionally and internationally.

**Local & Global Markets.** TEG's core activities of education, research and enterprise development involve connections with impacts that are local, regional, national and international. One of TEG's objectives is: "*Making our region more visible on a national and international scale through its pedagogical innovation, recognition of its scientific work and its role as an accelerator in the emergence of tomorrow's start-ups*". With national and international recruitment of students, TEG's impact can be fairly broad. However, the incubation activities and coaching of projects is exclusively targeting BSB students and alumni at this stage. Yet, TEG's expertise in entrepreneurship education and in small firm management targets a wider audience, including executive education, other institutions interested in entrepreneurship courses, or organizations supporting small firm growth and development. TEG's research activities target local industries (e.g. the food industry, with a sponsored research chair specialised in business models for the food sector), or other regional activities (e.g. tourism in Burgundy, linked to a specific research program), or entrepreneurship education (e.g. pedagogy experiments).

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Insert Figure 2 about here

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## DISCUSSION AND CONCLUSIONS

In this paper, we have outlined a comprehensive framework for entrepreneurial ecosystems (EE) from the literature and applied this model in a case study of an innovative academic unit called The Entrepreneurial Garden (TEG) at Burgundy Business School in Dijon, France. TEG was selected for profiling in this exploratory study as it was designed with an ecosystems lens and incorporates the interconnected entrepreneurial actors, organisations, institutions and processes in an EE (from the Mason & Brown [2014] definition). TEG offers entrepreneurship education, research and enterprise development as an integrated portfolio using the 'entrepreneurial method' world-view and action-based experiential pedagogies.

Analysis of TEG using the EE framework components demonstrates how an academic unit can be created, structured and organised to develop entrepreneurial ventures, while also delivering entrepreneurship education and research. Although TEG has evolved from prior entrepreneurship activities at BSB, this recent launch aligns with the macroeconomic policies and priorities of national and regional government organisations and agencies. While many university leaders talk about the importance of relevance and impact for business, industry and economic growth, BSB leaders have committed resources to enable TEG to operate proactively with industry partners and function as a stand-alone unit. Leveraging funding from partners is a critical element for growth of new and entrepreneurial ventures at TEG. Co-location of key players within the EE is another major feature of TEG which contributes to resources, culture, education, human capital, and access to markets.

In terms of the EE framework, this case study highlights the connections between the components and the importance of the quality of the linkages, as well as the multi-dimensional proximity effects (far beyond the sole spatial proximity). An EE needs to grow and develop from local resources and expertise, reaching further afield as required to build scale and scope. This was demonstrated by BSB leveraging its funds and expertise, with other entrepreneurial players, resources, and networks to create the TEG ecosystem. Identifying and illustrating the EE components provides valuable information which can contribute to further refinement of the framework, as well as insights for the case study organisation. For example, the case study highlights the role of TEG's mission/purpose as a driver for the unit's structure, culture, and activities; however, the EE framework does not have a specific component that represents this type of over-arching strategic purpose.

There are significant opportunities for further research on EE and entrepreneurship education. Additional research to track and map the inter-relationships between the key factors in each of the core components is needed; also, longitudinal studies to show the evolution of an EE, and development of metrics to measure the major factors in the core components. Further studies of entrepreneurship education ecosystems to examine the contributions, interactions and interplays between the key players in the ecosystem would be valuable, as well as analysis of the outputs/outcomes of the ecosystem in terms of value added at different levels e.g. individuals, schools, regions.

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**Table 1: Entrepreneurship education world-views**

	<b>The entrepreneur</b>	<b>Entrepreneurial process</b>	<b>Entrepreneurial cognition</b>	<b>Entrepreneurial method</b>
The world of ...	Heroes, myths, and personality profiling	Planning and prediction	Thinking and doing	Value creation
Focus	Traits; nature versus nurture	New venture creation	Decision-making to engage in entrepreneurial activity	Portfolio of techniques to practice entrepreneurship
Level of analysis	Entrepreneur	Firm	Entrepreneur and team	Entrepreneur, team and firm
Primary pedagogy	Business basics, lectures, exams, assessment	Cases, business plans, business modelling	Cases, simulations, scripting	Serious games, observation, practice, reflection, co-curricula, design
Language	Locus of control, risk-taking propensity, tolerance for ambiguity	Hockey stick projections, capital markets, growth, resource allocation, performance	Expert scripts, heuristics and decision-makings, schema, mental models, knowledge structures	Practice, self-knowledge, fit, action, do-learn, co-creation, create opportunities, expect and embrace failure
Pedagogical implications	Descriptive	Prediction	Decision	Action
Education purpose	To learn 'About' Entrepreneurship	To learn 'For' Entrepreneurship	To learn 'For' Entrepreneurship	To learn 'Through' Entrepreneurship
Objective outcome for student	Emulate role models	Replicate entrepreneurial process	Decide whether to become an entrepreneur	Adopt entrepreneurial behaviours

Source: Neck & Greene (2011); O'Connor (2013).

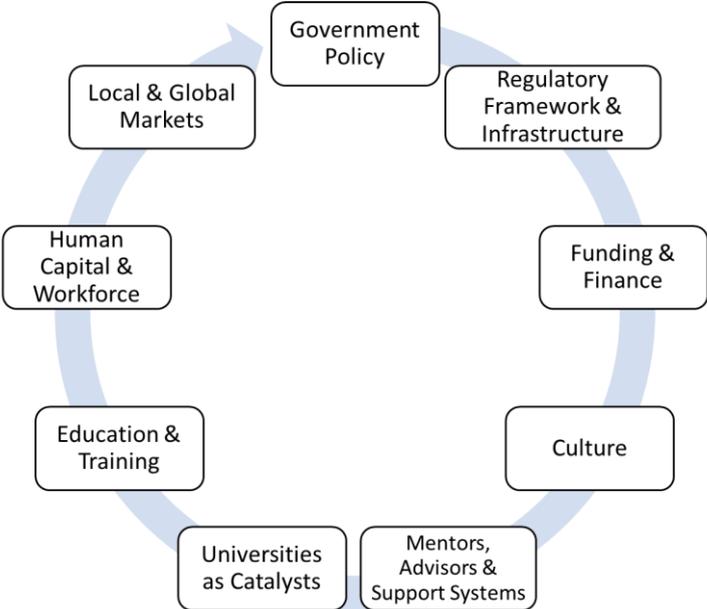
**Table 2: Entrepreneurial ecosystem framework analysis**

<b>Domain</b>	<b>Babson</b>	<b>WEF</b>	<b>OECD</b>	<b>GEDI</b>	<b>CoC</b>	<b>GSMA</b>
Policy	√	√	√	√	√	√
Finance	√	√	√	√	√	√
Infrastructure	√	√	√		√	√
Markets	√		√	√		√
Human Capital	√	√	√	√	√	√
Support/Services/Connections	√	√	√	√	√	√
Culture	√	√	√	√	√	√
R&D/Innovation	√	√	√	√	√	√
Quality of Life					√	
Macroeconomic Conditions			√			

*Source:* ANDE (2013) Entrepreneurial Ecosystem Diagnostic Toolkit

*Notes:* Babson - Babson Entrepreneurship Ecosystems Project; WEF – World Economic Forum Entrepreneurship Ecosystem; OECD – OECD Entrepreneurship Measurement Framework; GEDI – George Mason University’s Global Entrepreneurship and Development Index; CoC – US Council of Competitiveness Asset Mapping Roadmap; GSMA – GSM Association Information and Communication Technology Entrepreneurship.

**Figure 1: Components of the entrepreneurial ecosystem**



*Source:* Mazzarol (2014a) – adapted from Isenberg (2010); World Economic Forum (2013)

**Figure 2: The Entrepreneurial Garden (TEG) as an Entrepreneurial Ecosystem (EE)**

