Available online at www.sciencedirect.com

ScienceDirect

Agriculture and Agricultural Science Procedia 8 (2016) 718 – 724

Agriculture and Agricultural Science Procedia

Florence "Sustainability of Well-Being International Forum". 2015: Food for Sustainability and not just food, FlorenceSWIF2015

A conceptual approach for business incubator interdependencies and sustainable development

Roberto Hernández[a,b]*, Giuseppina Carrà[a]

[a]*University of Catania, via S.Sofia, 100, Catania 95123, Italy*
[b]*University of Copenhagen, Rolighedsvej 25, Frederiksberg C 1958, Denmark*

Abstract

Sustainable development is an important dimension for business incubators to improve tenant-businesses in the coffee value chain. This study focuses on business incubators addressing social and economic dimensions of sustainability in developing countries. Business incubators are perceived as important mechanisms for sustainable development as they involve relevant stakeholders and activities to interact each other. Prior research highlights the gap of theoretical explanation to understand business incubators linked to sustainable development. The purpose of this study is to provide a conceptual approach based on resource dependence theory to better understand strategies in interdependencies to address power imbalance issues of business incubators in developing countries. Strategies such as integration and coordination should be implemented in the incubator management to increase mutual dependencies and improve relationships to secure resources, thereby, providing quality services for tenants. Relationships with relevant partner organizations such as universities, business centers, and public research organizations represent opportunities for business incubators in boosting sustainable business development.

Keywords: business incubators; interdependencies; resource dependence theory; sustainable development.

* Corresponding author.
E-mail address: rrhc1@ifro.ku.dk

doi:10.1016/j.aaspro.2016.02.054

1. Introduction

Coffee is an important trade commodity for many developing countries as production and exports generate high revenues in the agricultural sector (Ponte, 2002). The importance of coffee in in East African countries is related to the economic impact that this represents for stakeholders in the value chain. Coffee value chain creates directly and indirectly employment for millions of people in East Africa (Salami *et al*., 2010). Currently, several startups in East Africa venture in the production of coffee value-added products to increase profit and business development (Hockerts, 2006). Startup business development in the coffee industry is important because new ventures together with small and medium enterprises (SMEs) contribute largely to the gross domestic product and job creation in East African countries influencing the economic growth of the region. One important dimension for startups and SMEs is sustainable business development as they need to overcome social and business issues related to poverty, lack of innovation, and income inequalities (Thirlwall, 2006). Sustainable businesses in the coffee industry focus on economic, social and environmental terms (World commission on environmental and development, 1987). One initiative supporting sustainable development in East Africa is business incubators (BIs).

BIs are seen as facilitators for sustainable development owing to the range of services supporting startups and SMEs in the formation and improvement of businesses (Schwartz and Göthner, 2009; Bruneel *et al*., 2012). Partners of BIs are critical in the incubation process as they provide resources to build services for tenants i.e., startups and SMEs. Therefore, BIs establish networking arrangements or partnerships with universities, government, NGOs, and/or industry organizations in order to get access to needed resources in relation to BI services (Etzkowitz *et al*., 2005).

BIs and partners assist tenants in developing countries by providing resources e.g., acquiring new technologies, experts' counseling, and access to networks by including relevant individuals from the coffee value chain (Olaopa and Siyanbola, 2012; Bøllingtoft and Ulhøi, 2005). Further, BIs and partners in developing countries usually are committed to promote sustainable development to tenant-businesses, thus, the incubation process denotes a positive intervention to nurture startups and SMEs involving socio-economic development factors.

The advance of knowledge from a theoretical perspective for sustainable development initiatives i.e., BI partnerships are relevant as they are considered key mechanisms to enhance sustainable businesses in developing countries (Fonseca and Jabbour, 2012). We use resource dependence theory (Pfeffer and Salancik, 2003) to analyze BI partnerships in developing countries in relation to boosting sustainable businesses. This focus includes an analysis of BI interdependencies, power imbalance, mutual dependencies and BI strategies.

In the next section, this study contains a literature review on BIs and partners followed by the conceptual approach for the analysis of BIs enhancing sustainable businesses. Then, a BI case in the coffee value chain in East Africa is presented and hence discussed through the lens of the resource dependence approach.

2. Business incubators and partners

BIs are organizations that create value by providing support such as facilitation services to assist potential startups and SMEs to develop sustainable businesses (Tötterman and Sten, 2005; Hughes *et al*., 2007). BIs provide different services mainly integrated in three dimensions: facilities, coaching, and access to networks (Abduh *et al*., 2007).

However, BIs as any other organizations are limited to possess all the resources to create value. BIs need to ensure sufficient resources to provide the demanded incubation services at the wanted level and quality. According to Somsuk, and Laosirihongthong (2014) BI resources are divided in:

- Human resources which are composed by incubator's management team and staff including knowledge and experience;
- Technology resources are products and technology e.g., laboratories, technology capabilities and skills;
- Financial resources allude to financial support; and
- Organizational resources make reference to planning, coordinating, monitoring, routines and relationships related to an organization.

BIs seek to establish interdependencies to get access to such resources. BI interdependencies are seen as strategic partnerships that may contribute to increase sustainable business development for tenants by improving businesses reducing socio-economic issues e.g., income inequalities and poverty (Bitzer *et al*., 2008).

Mainly, access to resources is through creating collaboration with partners in order to achieve BI objectives; otherwise, BIs fail if they lack of critical resources to perform its services (Peters *et al*., 2004). Collaboration is influenced by BI strategies to control interdependencies and increase mutual interests among the strategic partnership (Hillman *et al.*, 2009)

3. A conceptual approach for the analysis of business incubators

Resource dependence theory (Pfeffer and Salancik, 2003) posits that organizational behavior is affected by the management of its dependence on external resources. From the perspective of resource dependence theory, organizations are self-constrained with regard to possess the needed resources for value creation. Consequently, organizations need to establish interdependencies for interacting each other and get access to resources to increase survival rate (Pfeffer and Salancik, 2003).

The notion of resource dependence theory lies in the opportunity that other organizations possessing resources take advantage to gain control i.e., power over an organization that is in need of resources. Resource dependence posits that the external environment of an organization contains all the needed resources; thus, interdependencies with other organizations in such environment constitute an important issue for a focal organization. One of the main subjects of this paper is interdependencies between BIs and partners as well as power relationships and strategies.

Denktas-Sakar and Karatas-Cetin (2012) show a framework using resource dependence theory in relation to sustainability and interdependencies in ports. They explain how different stakeholders influence sustainability in the port context and how different constructs of resource dependence help to explain the phenomenon; in this study, we follow the main concepts of that conceptual approach as our interest is interdependencies and strategies in the BI in relation to boosting sustainable businesses. The notion of resource dependence theory may help better explain such phenomenon in this study.

Interdependencies comprise power imbalance and mutual dependence. Resource dependence proposes that some organizations are more powerful than others to the magnitude that they control resources that some organizations need, and they can reduce interdependencies for resources. Interdependence refers as many organizations controlling the conditions require to achieving a desired outcome, thereby, interdependence makes organizations to be contingent on the environment (Pfeffer and Salancik, 2003).

Interdependence is distinguished as vertical, horizontal and symbiotic (Pennings, 1981). Vertical interdependence occurs when organizations are viable partners to exchange resources; horizontal interdependence refers to organizations with similar structure; and symbiotic interdependence when organizations can supplement each other for resources (Denktas-Sakar and Karatas-Cetin, 2012). Additionally, interdependence between stakeholders is categorized in: sequential interdependence, relationship between organizations operating in a single direction; pooled interdependence, organizations indirectly interdependent sharing similar resources; and reciprocal interdependence, mutual exchange of resources between organizations (Denktas-Sakar and Karatas-Cetin, 2012).

Interdependencies in BI strategic partnerships, BIs manage the control of resources by accessing resources from partners. Recent studies consider strategic partnerships as relevant for interdependence activity. Some strategies for interdependencies are coordination and integration, for instance, movement of personal between organizations, symbiotic and vertical interdependencies, board of directors to provide resources to the organization, and success of managers to overcome issues in the organization (Hillman *et al*., 2009). In this sense, mutual dependence encourages the formation of strategic partnerships while power imbalance can limit the interaction between organizations.

4. The case of business incubator in East Africa: The coffee value chain

Ultimately, the number of BIs in East Africa has increased due to the potential of these organizations to promote sustainable development for the region (Olaopa and Siyanbola, 2012). There is the case of one non-profit BI located in East Africa that supports agribusiness startups and SMEs in the coffee value chain to develop value-added products. For confidential reasons the name of the BI reminds anonymous in this study. This BI is under an initiative related to enhancing sustainable development; this initiative is sponsored by an international aid organization. The

BI is defined as a public-private partnership initiative formed by a local university, a national coffee agribusiness association, and a public research center. The mission and vision of the BI is to support agribusiness tenants and serve as a help for job creation in East Africa by doing collaboration between partner organizations. The main services offered by the BI are:

- The promotion of value-added coffee products;
- The formation and improvement of agribusiness startups and SMEs;
- Business development support in the coffee value chain; and
- Programs in collaboration with the university.

The BI and partners are committed to generate sustainable development in the region through business support and innovation. The BI has the following organizational structure: board of directors, technical working committee of the board, management and staff, and clients.

The Board of directors is formed by eight relevant individuals from partner organizations i.e., the university, the national coffee agribusiness association, the public research center; a representative of a local bank; and a representative of an environmentally-friendly industry organization. Each partner has experience and network in the coffee value chain. Technical working committee of the board is composed by 11 experienced professionals in the agribusiness sector mainly from the university; the rest is formed by representatives of the other partner organizations in fewer numbers. Six people compose the management and staff e.g., director, technologist, administrator, and assistants. Clients refer to tenants in the incubation process i.e., startups and SMEs.

4.1. Coffee value chain

Coffee value chain involves the activities and development of coffee products from producers to final consumers (Valkila *et al*., 2010). In the coffee value chain there may be power relationships among different stakeholders. Power relationships is one of the reasons several agribusinesses in developing countries lack of support and innovation to produce coffee value-added products (Valkila *et al*., 2010). Relevant stakeholders in the coffee value chain can influence the process to get access to resources, prices, and increase revenues (Giovannucci and Ponte, 2005). Several initiatives have emerged in developing countries to generate a more sustainable coffee sector by helping agribusiness startups to improve businesses. BIs is an initiative that supports tenants in boosting sustainable businesses (Bergek and Norrman, 2008). BI strategic partnerships may include relevant stakeholders from the coffee value chain to support startups and SMEs by increasing the quality and innovation of value-added products (Bitzer *et al*., 2008). Furthermore, BI contemplates enhancing sustainable coffee businesses by considering socio-economic responsibilities in the incubation process, for instance, reducing poverty and increasing incomes.

Accordingly, BIs nurture startups and SMEs in rural areas to develop businesses (Fonseca and Jabbour, 2012). Governments, NGOs, and aid organizations support BIs to increase sustainable development for tenants in the incubation process (Mian, 1997). Sustainable development in the incubation process may help tenant-businesses in developing countries to use new technologies and innovation to develop more environmentally-friendly products; new technologies and innovation may help tenants to increase income and alleviate poverty by producing value-added products more attractive to final consumers (Hart and Milstein, 2003). The importance of BIs is perceived as essential to potentially create sustainable economic growth and local development in the coffee value chain.

For the purpose of this study, we discuss strategies in the incubator management to control power imbalance in interdependencies between the BI in East Africa and partners in favor of securing resources and subsequently help tenants to enhance sustainable businesses. We have identified that the BI director and staff need to cope with management activities; these activities mainly focus on securing stability in the access to resources from partners; meeting the objectives of external stakeholders i.e., partners, NGO and government; and enhancing sustainable businesses for tenants.

The main services of the BI in East Africa based on the three dimension of incubation services are labs; office space; office equipment; business development; market access; financial services; mentoring and coaching programs; and networking. Most of these services are built on partners' resources.

The BI has taken different strategies in regard to securing resources and suppression of power. The first strategy is integration strategy, involving members from other organizations in the board and technical committee. For instance, members from the university and the public research can allow tenants in the incubation process to commercialize new technologies produced by researchers in the university and the public research center. In this sense, both parties gain benefits, tenants by using new technologies at a lower cost improving businesses and the university and the public research center by commercializing the research produced in these organizations

In addition, the board of directors includes a representative from a local bank; this involvement ensures that tenants can access to financial resources such as credits during the incubation process. The BI gives legitimacy in terms of tenants producing enough revenue to succeed, in doing so; the bank can guarantee benefits from the incubation process too. Similarly, the representative of the environmentally-friendly organization can provide business support to assist tenants commercializing innovative environmentally-friendly coffee products.

A second strategy is forming interdependencies such as strategic partnerships with relevant organizations. The three main partners are the university, the national coffee agribusiness association, and the public research center; they are engaged to promote sustainability through the development of new technologies, sharing knowledge, and resources to commercialize innovative value-added products. For example, the university and the public research allow tenants to use facilities and equipment, receive training and technologies difficult to find outside the incubation process. Further, the national coffee agribusiness association develops trainings to share knowledge of experts in the coffee value chain in order to help tenants to commercialize their innovative products. This strategic partnership reveals that BI form a vertical and symbiotic interdependence in order to secure resources.

Integration strategies involving members in the board of directors and strategic partnerships influence communication within different stakeholders and this leads to coordinate exchange of resources to increase benefits from the incubation process. Mutual exchange of resources reduces the use of power; instead, powerful organizations provide critical resources for the incubation process as they know this provision of resources can benefit them too. Therefore, coordination and integration strategies taken in the incubator management to secure resources can also influence the quality of interdependencies among the partnership.

Effective management of interdependencies involving coordination can be achieved by responding to partners' demands and follow mutual interests in the strategic partnership. Mutual interests can generate synchronization and collaboration improving benefits for tenants and partners displaying reciprocal exchange of resources. The BI should ensure collaboration between partners and tenants during the incubation process; different activities such as arranging meetings and sharing information within them can influence a more successful incubation process.

Moreover, as each partner is engaged to promote sustainable business development, the BI needs to coordinate the promotion and achievement of objectives related to sustainable development. Furthermore, the BI is funded by an international NGO; the objective of the NGO in supporting the BI to enhance sustainable businesses in East Africa to increase economic growth and development in the region. Additionally, government entities promote initiatives/programs for sustainability of coffee development and management in the value chain. The BI does not work directly with the government; however, the BI is indirectly influenced by the local law and initiatives such as creating sustainable businesses. Meanwhile, the NGO directly sponsors the BI, thus, the BI needs to respond to the demands of the NGO to continue sponsoring it.

As part of the promotion for sustainable development, this BI also attempts to involve other stakeholders from the coffee value chain as farmers, input suppliers, and other SMEs. For instance, tenants who are coffee producers can benefit from getting new coffee disease-resistance varieties; the BI also supports rural farmers in need of assistance providing them new coffee disease-resistance varieties at low-cost; this is part of an extended program that the BI has with some local farmers for support. The BI implementing this kind of program reinforces the sustainability in the coffee value chain and support farmers to reduce costs and increase revenues. Furthermore, the BI attempt to influence other relevant individuals in the coffee value chain such as input suppliers and well-established SMEs to provide resources and trainings at a lower cost. Such additional collaborations can support tenants and farmers with technology development as well as knowledge-sharing building up links within tenants and other stakeholders in the coffee value chain.

Conclusions

Based on the previously described and consistent with resource dependence theory, some organizational actions to implement for establishing the arrangement between the BI and partners are (a) securing human and financial resources, (b) establishing mutual interdependencies, and (c) commitment and support of different stakeholders i.e., partners, NGO, other individuals from the coffee value chain, board of directors, BI director, and staff (Denktas-Sakar and Karatas-Cetin, 2012). In addition, some of the requirements for the BI to integrate with partners are (a) the ability of the BI to get involved in the network in terms of collaboration; (b) the ability of the BI to promote sustainable business development; and (c) the ability of the BI to be incorporated into the networks of the coffee value chain such as business and farmer relationships.

Strategies in the incubator management reducing bargaining power promotes more vertical and symbiotic interdependencies, however, the success of interdependencies lies on the capability of the BI to create collaboration between partners and tenants.

The management capability of BIs to leverage interdependencies with partners is critical to achieve objectives and consequently promote sustainable businesses for tenants. A BI case in East Africa was presented as an example of strategies to follow. The contribution of this study is in the view of better understanding of BIs in relation to enhancing sustainable businesses. Different fields such as strategic management, BIs, coffee value chain sustainable development are incorporated to address strategies in interdependencies such as partnerships.

According to resource dependence, this study suggests that managerial actions in the incubator management play an important role of intermediary in coordinating and integrating commitment of partners and tenants, facilitating exchange of resources, and managing interests of stakeholders to achieve objectives. In addition, the BI needs to ensure networking between partners and tenants to create collaboration and mutual benefits during the incubation process. A determinant role taken in the incubator management is to identify critical resources that the BI needs to survive and secure availability of such resources to enhance sustainable businesses. This study mainly reflects social and economic development; however business incubators also promote the development of innovation related to more environmentally-friendly products. Further research can implement this conceptual approach in empirical studies especially for BIs in developing countries promoting sustainable development.

References

Abduh, M., D'Souza, C., Quazi, A., Burley, H. T. 2007. Investigating and Classifying Clients' Satisfaction with Business Incubator Services. Managing Service Quality 17(1), 74–91.

Bergek, A., Norrman, C. 2008. Incubator Best Practice: A Framework. Technovation 28(1-2), 20-28.

Bitzer, V., Francken, M., Glasbergen, P. 2008. Intersectoral Partnerships for a Sustainable Coffee Chain: Really Addressing Sustainability or just Picking (Coffee) Cherries?. Global Environmental Change 18(2), 271-284.

Bøllingtoft, A., Ulhøi, J. P. 2005. The Networked Business Incubator—Leveraging Entrepreneurial Agency?. Journal of Business Venturing 20(2), 265 – 290.

Bruneel, J., Ratinho, T., Clarysse, B., Groen, A. 2012. The Evolution of Business Incubators: Comparing Demand and Supply of Business Incubation Services across Different Incubator Generations. Technovation 32(2), 110–121.

Denktas-Sakar, G., Karatas-Cetin, C. 2012. Port Sustainability and Stakeholder Management in Supply Chains: A framework on Resource Dependence Theory. The Asian Journal of Shipping and Logistics 28(3), 301-319.

Etzkowitz, H., de Mello, J. M. C., Almeida, M. 2005. Towards "meta-innovation" in Brazil: The Evolution of the Incubator and the Emergence of a Triple Helix. Research policy 34(4), 411-424.

Fonseca, S. A., Jabbour, C. J. C. 2012. Assessment of Business Incubators' Green Performance: A framework and its Application to Brazilian Cases. Technovation 32(2), 122-132.

Giovannucci, D., Ponte, S. 2005. Standards as a New Form of Social Contract? Sustainability Initiatives in the Coffee Industry. Food Policy 30(3), 284-301.

Hart, S. L., Milstein, M. B. 2003. Creating Sustainable Value. Academy of Management Executive 17(2), 56-67

Hillman, A. J., Withers, M. C., Collins, B. J. 2009. Resource Dependence Theory: A Review. Journal of Management. doi: 10.1177/0149206309343469.

Hockerts, K. 2006. Entrepreneurial Opportunity in Social Purpose Business Ventures. Social entrepreneurship 1, 142-154.

Hughes, M., Hughes, P., Morgan, R. E. 2007. Exploitative Learning and Entrepreneurial Orientation Alignment in Emerging Young Firms: Implications for Market and Response Performance. British Journal of Management 18(4), 359-375.

Mian, S. A. 1997. Assessing and Managing the University Technology Business Incubator: An Integrative Framework. Journal of Business Venturing 12(4), 251–285.

Olaopa, R., Siyanbola, W. 2012. Technology Business Incubation as Strategy for SME Development: How Far, How Well in Nigeria? Science and Technology 2(6), 172-181.

Pennings, J. M. 1981. Strategically Interdependent Organizations. In P. C. Nystrom and W. H. Starbuck (eds.), Handbook of Organizational Design. Oxford University Press, Oxford.

Peters, L., Rice, M., Sundararajan, M. 2004. The Role of Incubators in the Entrepreneurial Process. The Journal of Technology Transfer 29(1), 83-91.

Pfeffer, J., Salancik, G. R. 2003. The External Control of Organizations: A Resource Dependence Perspective: Stanford University Press

Ponte, S. 2002. The Latte Revolution? Regulation, Markets and Consumption in the Global Coffee Chain. World development 30(7), 1099-1122.

Salami, A., Kamara, A. B., Brixiova, Z. 2010. Smallholder Agriculture in East Africa: Trends, Constraints and Opportunities. Tunis, Tunisia: African Development Bank.

Schwartz, M., Göthner, M. 2009. A Multidimensional Evaluation of the Effectiveness of Business Incubators: An Application of the PROMETHEE Outranking Method. Environment and Planning C: Government and Policy 27(6), 1072-1087.

Somsuk, N., Laosirihongthong, T. 2014. A Fuzzy AHP to Prioritize Enabling Factors for Strategic Management of University Business Incubators: Resource-based View. Technological Forecasting and Social Change 85, 198-210.

Thirlwall, A. P. 2006. Growth and development (Vol. 2). Basingstoke, UK: Palgrave Macmillan.

Tötterman, H., Sten, J. 2005. Start-ups: Business Incubation and Social Capital. International Small Business Journal 23(5), 487–511.

Valkila, J., Haaparanta, P., Niemi, N. 2010. Empowering Coffee Traders? The Coffee Value Chain from Nicaraguan Fair Trade Farmers to Finnish Consumers. Journal of business ethics 97(2), 257-270.

WORLD COMMISSION on ENVIRONMENT and DEVELOPMENT. 1987. Our common future, New York: Oxford University Press, NY.