THE IMPORTANCE OF INNOVATION IN EUROPE: SWEDISH CASE STUDY

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Abstract

Purpose: The dynamics of business contexts manipulate the way firms act in their industry. These changes can have effects in several areas within a company. Entrepreneurship and Innovation are two areas that are affected when a change in a firm's environment occurs. The aim has been to fulfill the requests for knowledge on trends and initiatives for Europe and an analysis of Swedish competitiveness in innovation.

Design/methodology/approach: The case study of this publication devotes a special consideration to the question of whether the analysed innovation efforts have helped to move the companies towards new market and knowledge relationships.

Results: The Swedish case study emphasizes the value of the innovation centre in sustaining technological innovation through jobs creation and companies as well as through the nurturing of entrepreneurship spirit in a local community.

Keywords: Economic development, Technology, Entrepreneurship, Innovation

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INTRODUCTION

The innovation survey plays an imperative position in generating policy related information about innovation processes, behaviour and performance. Innovation is persistent in every phase of life, but its significance becomes clearer when observed in the perspective of economic development.

Incubator programmes in the developing and restructuring countries are naturally focused on technology ventures. The incubation process that was developed has included services for on-the-spot diagnosis and treatment of business problems, dramatically lowering the usual early stage failure rate. Business incubator programmes, often called "new entrepreneur creation projects" helps extend new entrepreneurs and supports them to start up business and be better able to survive on a longer-term sustainable basis. The business incubator objective includes small entrepreneurs that want to develop, new graduates and those who would like to expand their talent and ideas, and transfer of technology (Mian, 1994 and 1997; Phillips, 2002; McAdam and McAdam, 2008; AL-Mubaraki, 2008).

The objective of this paper is twofold: 1) to discuss and analyse the adoption of an innovation centre in Sweden as a European success case study, and 2) to identify the indicators to be examined.

The remainder of the paper is as follows: the next section provides a thorough review of the literature. Following this, five successful European cases will be discussed. Next, we briefly discuss the research methodology used to facilitate the objectives. The following section discusses the study findings and the paper concludes on innovation as value-added from European countries such as Sweden.

LITERATURE REVIEW

AL-Mubaraki and Busler (2011a) discussed the European models based on their adoption as case study examples: the United Kingdom, France, and Germany. They occupy 83% of all the incubators located throughout Europe today.

The business incubations programme is a fiscal and societal programme which provides the precise support to start-up companies. AL-Mubaraki and Busler (2010a) indicated that the business incubators can help

young firms to survive and grow during their start-up years, and can play a key role in the economic development of a community or region. In developing countries, business incubators are particularly valuable in helping to develop local economies, promote technology transfer, create new enterprises and generate jobs. In accumulation, the outcomes are used to make recommendations for maximizing the success of incubators.

The innovation systems merge all the influencing essentials on the development of innovations such as the economic, social, political, organizational and institutional aspects, and an array of development and a diffusion of new technologies complies with the government's implication. AL-Mubaraki and Busler (2010b) demonstrated the five European case studies: France, Spain, Netherlands, Luxemburg and Portugal. They utilized SWOT analysis to analyze the business incubation field, which reflects the strengths of each programme and complies with its mission and objectives, showing great opportunity with the future plans and performance of each programme.

AL-Mubaraki and Busler (2010c) considered business incubation as a cost-effective economic development process. Business incubation could be an effectual contrivance for economic development at appreciably higher cost than originally anticipated if a thorough and objective feasibility study is planned, performed, and best-practice is applied.

AL-Mubaraki and Busler's (2011a) findings indicate business incubators as an innovative tool in supporting the start-up businesses. The empirical results highlight some implications for successfully developing and implementing the best practices of business incubation programmes, which makes a contribution to knowledge regarding the process of business incubation.

Totterman and Sten (2005) discussed the case study of three incubators, three managers, nine tenants and nine post-incubated clients in Finland. They found that incubator support and networking are important if client firms (incubatees) are to benefit from the incubator resources, concluding that incubator managers should focus on strategic business networking rather than only providing infrastructure and physical capital to entrepreneurs.

In Finland and the US, Studdard (2006) surveyed 52 firms with a RR of 18%. The study applied a quantities approach. The findings suggested

that knowledge acquired by interacting with the incubator manager had no effect on new product development, technological competence and sales cost, but it did enhance the reputation.

Additionally, (Hytti and Maki, 2007) investigated 131 high-tech firms with an average RR of 83%. They found that firms that are young and have growth potential benefitted more from the incubator services, whereas older firms tended to be less satisfied with services. The incubation period should also be optimal and flexible according to firms' needs.

AL-Mubaraki and Busler (2011b) studied a mixed-method approach in business incubation and analyzed it as a tool for economic development based on economic indicators from incubation outcomes such as: (1) entrepreneurs, (2) companies created, (3) jobs created, and (4) incubator companies.

AL-Mubaraki and Schrödl (2011) determined the effectiveness of business incubators individually and as an industry. Their study recommended four dimensions in the area of focus: 1) the number of businesses graduated over a period of time, 2) the number of businesses still in business over a period of time, 3) jobs created by incubator clients, and 4) salaries paid by incubator clients.

AL-Mubaraki and Wong (2011) presented incubators in Europe and from developed countries. The goal of the business incubator is to produce successful businesses that will leave the programme financially viable and freestanding. They create jobs, revitalize communities, commercialize new technologies and create wealth for local and national economies (AL-Mubaraki and Busler, 2011c).

The fostering of entrepreneurship and innovation is very active in both the US and Brazil's incubators. In addition, in the United States and Brazil, the stakeholders are mainly the government in respect to universities and businesses. It is also evident that some incubators offer tangible and intangible services (AL-Mubaraki and Busler, 2012).

AL-Mubaraki and Busler (2011d) summarized 40 incubators in the Middle East, presenting the seven benefits of business incubators: 1) type, 2) financial model, 3) services, 4) objectives, 5) number of clients 6) number of graduates, and 7) jobs creation with a description of each incubator and total % of each benefit. In addition, chain incubator

programmes created greater than 61 (20%) jobs, with a total number of graduated companies greater than 14 (40%). Furthermore, the number of client companies inside the incubators is greater than 21 (45%), the percentage of financial model of not-for profit incubators 80% and 98% of the main objectives of all incubators in the Middle East are the entrepreneurship and profitable enterprises.

AL-Mubaraki *et al.* (2012) ranked business incubators according to four key indicators: financial data, mission, size and obstacles, and using mathematical techniques, which can contribute to the acceleration of the economic development process of incubators within business incubation programmes.

SWEDISH CASE STUDIES

Sweden is located in Northern Europe between Finland and Norway, with a population of approximately 8.9 million people. Although Sweden is a country with a low population density and moderate economic growth in the past few decades, environmental issues have long been at the "forefront of Sweden's agenda" (OECD, 2000, p. 228). Sweden has a high standard of living with a mixed system of capitalism and extensive welfare benefits (CIA, 2003).

The Innovatum Technology Park is a development centre created with research projects and inspirational activities. The centre consists of a science centre, a project arena and an incubator. The incubator is an environment conducive for innovative ideas within three focus areas: (1) production technology, (2) clean tech, and (3) creative industry. Furthermore, innovatum offers entrepreneurs a network of professional advisors, access to external financing and guidance through the complexity of managing a business. The centre was founded in 2003 in Trollhättan, Sweden with Governmental funding, and more than 40 companies have developed, several of them now working with international brands in a global market (EURP, 2010; EBN, 2010, Vanrie, 2009).

Between 1997 and 2003 the industry grew impressively, due predominantly to research-intensive companies. The Swedish public funding of knowledge development is characterized by a lot of funding sources with small amounts available from each of them. Even though co-financing is often required, the funding streams to individual

projects and subject fields might be more scattered in Sweden than in the UK. In Sweden, the industrial R&D expenditure has also showed a decline but the public funders have not significantly increased their funding. The funding of Swedish and British life science research currently relies on different kinds of actors. In Sweden, the private funders defray a larger share.

The profile of the Swedish case study provides a wide-ranging overview, including the region of each innovation programme, the number of companies in the region (2008), region population (2008), funded year, stakeholders and catchment area. Table 1 reveals the profile of the case study source (EURP, 2010). See Table 1.

In Sweden, the Innovatum Technology Park sign Strategic Partnerships with three bodies: networks, governmental bodies and universities. Partnerships with networks include Swedish Incubators and Science Parks, Innovation Bridge West, West Götaland Region, E-Chain Network and Incubator Competens. Partnerships with governmental bodies include the Government of Sweden, West Götaland Region, Innovation Bridge West, Kommuna lforbundet Fyrbodal (14 municipalities working together for growth), and the City of Trollhattan. Partnership with universities and research centres include University West (EURP, 2010; EBN, 2010; EBN, 2008; 2009; Vanrie, 2009).

The Innovatum Technology Park provides two major value-added services as start-up companies with professional coaching and external

Profile	Sweden
Region	Region West Gotaland
Companies in the region (2008)	160.000
Region population (2008)	1.600.000
Founding year	2003
Stakeholders	City of Trollhättan and West Götaland Region
Catchment area	Production technology, clean tech and creative industry

Source: (EURP, 2010)

Table 1. Profile of case study

advisors, and offers access to a wide range of opportunities with regards to funding, governmental and private venture capital (EURP, 2010; EBN, 2010; EBN, 2008; 2009; Vanrie, 2009).

There are high ambitions among Swedish policy-makers and decision makers regarding the competitiveness in research and science industries. However, the ambitions could be more strongly reflected in actions and budgets, although an increase is on the way. There may be a concern about the levels of public funding in Sweden, particularly considering the vulnerability inflicted by the large share of funding.

RESEARCH METHODOLOGY

The research methodology that has been used in this study comprises desk-research, interviews and a case study of a Swedish innovation centre as a European model.

Table 1 shows the analysis of the case studies divided into the indicators to be measured. The indicators are divided into two categories; the first categories include figures such as: 1) Number of tenants in incubators, 2) Number of business plans produced during the year, 3) Number of start-ups created during the year, 4) Enterprise Survival Rate, 5) Total employment and, 6) Number of enterprise creation projects during the year. The second categories, without figures, include: 1) Number of tenants since the beginning of the incubator, 2) Number of start-ups created since the beginning of the incubator, 3) Total employment by tenants, 4) Existing SMEs supported during the year, 5) Number of jobs created in the year in question (start-ups) and, 6) Number of jobs created in SMEs (client companies of BICs). See Table 2.

FINDINGS

Incubators are commonly linked with business support networks and technological innovation programmes. Incubators generally aid in the growth of new ventures (Campbell, 1989; Petree, 1997). In addition, incubators foster technological innovation and industrial renewal (Allen and Rahman, 1985; Smilor and Gill, 1986; Allen and McCluskey, 1990; Mian, 1996). Furthermore, the innovation supports regional development through job creation (Allen and Levine, 1986; Mian, 1997; Thierstein and Wilhelm, 2001; Roper, 1999).

Key indicators	Swedish case studies (2009)
Number of tenants in incubators	13
Number of tenants since the beginning of the incubator	N/A
Number of business plans produced during the year	45
Number of start-ups created during the year	6
Number of start-ups created since the beginning of the incubator	N/A
Enterprise Survival Rate	85%
Total employment by tenants	N/A
Existing SMEs supported during the year	N/A
Number of jobs created in the year in question (start-ups)	N/A
Number of jobs created in SMEs (client companies of BICs)	N/A
Number of enterprise creation projects during the year	20
Total employment	35

Source: (EURP, 2010)

Table 2. Case studies key indicators (all the results in 2009)

Innovation is the driver of our future growth (White House, 2010; EURP, 2010; EBN, 2010; EC, 2010 and Joseph and Eshun, 2009). Innovation-based incubators are local economic development tools (EURP, 2010; AL-Mubaraki and Busler, 2009; Joseph and Eshun, 2009; AL-Mubaraki and Busler, 2010), which, favouring the conditions for creation and growth of novel business activities, contribute actively to the development of the regions where they operate.

As can be seen in Table 3, the Swedish case presented here underscores the value of the innovation centre in supporting technological innovation through jobs creation and companies as well as through the nurturing of entrepreneurship spirit in a local community. In 2009 the Key Performance indicated the number of tenants in incubators was 13, employing a total of 35. The number of start-ups created in 2009 was 6. The number of jobs created in SMEs was 20, with an Enterprise Survival Rate of 85%. Moreover, twenty enterprise creation projects were supported during 2009. The ratio performance of tenants in the incubators per year indicates 2.1, and total employment per year 5.8 (EBN, 2008; 2009; Vanrie, 2009).

Table 3. Indicators with ratio performance per year

Key indicators	Swedish case studies (2009)	Ratio performance per year
Number of tenants in incubators	13	2.1
Number of business plans produced during the year	45	45
Number of start-ups created during the year	6	6
Enterprise Survival Rate	85%	85%
Number of enterprise creation projects during the year	20	20
Total employment	**35**	**5.8**

CONCLUSION

It has been recognized in Sweden that policies of nations are subject to competition, not least in regard to attracting world-class researchers and research-intensive industries. This case study analyzes key indicators for competitiveness of the Swedish innovation system for the life science segment. In this work, it is recognized that much of the important initiatives and innovation takes place on a more local level. The approach used to handle the outcome of the different innovation systems is from its key indicators. This work discussed and analysed the adoption of an innovation centre in Sweden as a European success. The conclusions are that the innovation is the driver of our future growth and innovation-based incubators are tools for economic development.

REFERENCES

Allen, D. and Levine, V. (1986), *Nurturing Advanced Technology Enterprises: Emerging Issues in State and Local Economic Development Policy*, New York: Prager.

Allen, D. and McCluskey, R. (1990), "Structure, Policy, Services, and Performance in the Business Incubator Industry", *Entrepreneurship Theory and Practice*, Vol. 15, No. 2, pp. 61-77.

Allen, D. and Rahman, S. (1985), "Small Business Incubators: A Positive Environment for Entrepreneurship", *Journal of Small Business Management*, Vol. 23 (July), pp. 12-22.

AL-Mubaraki, H., Al-Sharrah, G. and Aruna, M. (2012), "Ranking Business Incubation: Mathematical Techniques", International J. Innovation and Regional Development, Vol. x, No. x. <http://www.inderscience.com/browse/index.php?journalID=234

AL-Mubaraki, H. (2008), "Procurement of international business incubation – Quantitative and Qualitative approaches", MelRose Books, UK, available at: <http://www.melrosebooks.com.

AL-Mubaraki, H. and Busler, M. (2009), "Business incubators: findings from worldwide survey and guidance for the G.C.C. states", *World Sustainable Development Outlook*, pp. 83-91.

AL-Mubaraki, H. and Busler, M. (2010a), "Business incubators: Findings from worldwide survey, and guidance for the G.C.C. states", *Global Business Review*, Vol. 11 No. 1, January-April, 2010.

AL-Mubaraki, H. and Busler, M. (2010b), "Business incubators models of the USA and UK: A SWOT analysis", *World Association for Sustainable Development*, WJEMSD Vol. 6 No. 4, pp. 335-354, 2010.

AL-Mubaraki, H. and Busler, M. (2010c), "Sustainable development through the inclusion of incubator: A SWOT analysis", *World Sustainable Development Outlook*, pp. 51-63. Available at: <http://www.worldsustainable.org.

AL-Mubaraki, H. and Busler, M. (2011a), "The Development of Entrepreneurial Companies through Business Incubator Programs", *International Journal of Emerging sciences*, Vol. 1 No. 2, 95-107, June 2011 ISSN: 2222-4254.

AL-Mubaraki, H. and Busler, M. (2011b), "The Incubators Economic Indicators: Mixed Approaches", *Journal of Case Research in Business and Economics*, Published ISSN: 1941-3378, Vol 4, August, 2011, available at: http://www.aabri.com/manuscripts/11884.pdf.

AL-Mubaraki, H. and Busler, M. (2011c), "Business Incubation Program for Economic Developments: The Case Study of G.C.C", I*nternational Journal of Arts & Sciences (IJAS) Conference*, Gottenheim, Germany, April 10-15, 2011.

AL-Mubaraki, H. and Busler, M. (2011d), "Incubators: Economic Theories vs. Economic Development", *The 8th International Conference of Global Academy of Business & Economic Research*, Dubai, UAE, December 22-23, 2011.

AL-Mubaraki, H. and Busler, M. (2012), "Incubators Landscapes in United States and Brazil: A comparison study", *4th International Business and Social Science Research Conference*, Dubai, UAE, January 5-7, 2012, available at: http://www.wbiconpro.com/428-Hanadi.pdf.

AL-Mubaraki, H. and Schrödl, H. (2011), "Measuring the Effectiveness of Business Incubators: A Four Dimensions Approach from a Gulf Cooperation Council Perspective", *Journal of Enterprising Culture*, Vol. 19 No. 4, pp. 435-452.

AL-Mubaraki, H. and Wong, S.F. (2011), "How Valuable are Business Incubators? A Case Illustration of their Performance Indicators", *European, Mediterranean & Middle Eastern Conference on Information Systems 2011* (EMCIS2011), Athens, Greece, May 30-31, 2011.

Campbell, C. (1989), "Change agents in the new economy: Business incubators and economic development", *Economic Development Review*, Vol. 7 No. 2, pp. 56-59.

Central Intelligence Agency (CIA) (18 December 2003 – last update), World Fact Book –Sweden, available at: <http://www.cia.gov/cia/publications/factbook/geos/sz.html [accessed: 18 February, 2004].

Europe Business and Innovation Centre Network (EBN), (2010), Smart Guide to Innovation-Based Incubators (IBI), available at: http://ec.europa.eu/regional_policy/sources/docoffic/2007/working/innovation_incubator.pdf.

European Business and Innovation Centre Network (EBN), (2008), Business Innovation Centres (BIC) observatory facts and figures.

European Business and Innovation Centre Network (EBN), (2009), BIC Observatory Facts and Figures.

European Commission (EC), (2010), "EUROPE 2020: A strategy for smart, sustainable and inclusive growth", available at: http://ec.europa.eu/eu2020/pdf/COMPLET%20EN%20BARROSO%20%20%20007%20%20Europe%202020%20-%20EN%20version.pdf.

European Union Regional Policy (EURP), (2010), "The smart guide to innovation based incubators", available at: http://www.ebn.eu/assets/assets/pdf/news/final_case-studies-nma-07042010.pdf [accessed August 5, 2012].

Hytti, U. and Maki, K. (2007), "Which Firms Benefit Most from the Incubators", *International Journal of Entrepreneurship and Innovation Management*, Vol. 7 No. 6, pp. 506-23.

Joseph, P. and Eshun, Jr. (2009), "Business Incubation as strategy", *Business Strategy Series*, Vol. 10 No. 3, p.156-166. ABI/INFORM Global. (Document ID: 1882777971).

McAdam, M. and McAdam, R. (2008), "High Tech Start-ups in University Science Park. Incubators: The Relationship between the Start-Up's Lifecycle Progression and use of the Incubator's Resources", *Technovation*, Vol. 28 No. 5, pp. 277-90.

Mian, S. (1996), "Assessing the value-added contributions of university technology business incubators to tenant firms", *Research Policy*, Vol. 25, pp. 325-335.

Mian, S. (1997), "Assessing and managing the university technology Incubator: An Integrative Framework", *Journal of Business Venturing*, Vol. 12, pp. 251-285.

Mian, S.A. (1994), "Are University Technology Incubators Providing a Milieu for Technology-Based Entrepreneurship?" *Technology Management*, Vol. 1, pp. 86-93.

OECD Working Party on Environmental Performance (2000 – last update), Environmental Performance Reviews (1st Cycle) Conclusions and Recommendations 32 Countries (1993-2000), available at: <http://www.oecd.org/dataoecd/19/56/2432829.pdf [accessed: February 2, 2012].

Petree, R. Petkov, R. and Spiro, E. (1997), "Technology Parks-Concept and Organisation, Summary Report prepared for Center for Economic Development", Sofia, available at: <http://www.ced.bg/ [accessed August 24, 2012].

Phillips, R.G. (2002), "Technology Business Incubators: How Effective as Technology Transfer Mechanism?", *Technology in Society*, Vol. 24, pp. 299-316.

Roper, S. (1999), "Israel's Technology Incubators: Repeatable Success or Costly Failures", *Regional Studies*, Vol. 33 No. 2, pp. 175-80.

Smilor, R.W. and Gill, M.D. (1986), "The New Business Incubator: Linking Talent, Technology, Capital, and Know-How", Massachusetts: Lexington Books.

Studdard, N.L. (2006), "The Effectiveness of Entrepreneurial Firm's Knowledge Acquisition from a Business Incubator", *International Entrepreneurship and Management Journal*, Vol. 2, pp. 211-25.

Thierstein, A and Wilhelm, B. (2001), "Incubator, Technology and Innovation Centres in Switzerland: Features and Policy Implications", *Entrepreneurship and Regional Development*, Vol. 13 No. 4, pp. 315-31.

Totterman, H. and Sten, J. (2005), "Start-ups: Business Incubation and Social Capital", *International Journal of Small Business*, Vol. 23, pp. 487-511.

Vanrie, P. (2009), "Case Studies a Survey of 14 BICs in Action", Europe Business & Innovation Centre Network (EBN).

White House, (2010), "A Strategy for American Innovation: Driving Towards Sustainable Growth and Quality Jobs", available at: <http://www.whitehouse.gov/assets/documents/SEPT_20__Innovation_Whitepaper_FINAL.pdf [accessed January 10, 2012].

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