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# BUSINESS INCUBATORS MODELS OF THE USA AND UK: A SWOT ANALYSIS

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**Abstract:** *Purpose:* To identify the strengths, weaknesses, opportunities and threats of business incubator models and their potential use in worldwide. *Methodology:* We studied two international cases: a) United States, b) United Kingdom. Findings: The results highlight the similarities and differences between the countries. It adds knowledge for both academics and practitioners who are interested in business incubation. *Value:* This paper is the first to utilize the SWOT technique to analyze the business incubation field and provides recommendations to implement successful adoption of the incubator's strengths. The potential of Business Incubators who act as models in worldwide and their contribution to the economy, the active role they play in the local, regional and national economic development are discussed. *Implications:* Adaptation of a Business Incubator Model leads to 1) the support of diverse economies, 2) the commercialization of new technologies, 3) job creation and 4) increases in wealth, given that weaknesses can be overcome.

**Keywords:** *Business Incubators, Economic Development, Maryland Technology Development Corporation (TEDCO), Coventry University Enterprise (CUE), SWOT Analysis, Technologies Commercialisation*

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## INTRODUCTION

In the USA and the United Kingdom it was recognised that fresh strategies were needed to help regenerate crisis sectors that experienced a significant rise in unemployment resulting from the collapse of traditional industries. The origins of these crises can be traced back to Western industrialised countries in the late 1970s and early 1980s. It

was, however, during that time, business incubators began to be used as instruments to support innovation and technology transfer (Allen and McCluskey (1990) and McAdam and McAdam (2008)).

The Center for Strategy & Evaluation Services (CSSES) for the European Commission Enterprise Directorate – General (2002, p 18) defines a business incubator is an “or-

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ganisation that accelerates the process of creating successful enterprises by providing them with a comprehensive and integrated range of support including: Incubator space, business support services, and clustering and networking opportunities by providing them with services.”

The National Business Incubation Association (NBIA) of the United States defines business incubators as entities that “accelerate the successful development of entrepreneurial companies through an array of business support resources and services, developed or orchestrated by incubator management and offered both in the incubator and through its network of contacts” (NBIA 1998, 2002, 2005).

Based on those definitions, Business Incubators are used as economic development tools by almost all countries. Typically, an incubator provides a safe haven for a firm in its early stages of growth. This is accomplished through a mix of tangible and intangible services such as providing physical space and sharing services, along with administrative assistance, consulting, coaching/training/networking, and access to financing. The entrants in these programs are small commercial product or service companies. The Business Incubator’s primary objectives are job creation, revitalization, economic development, support to particular target groups or industries and development of companies and clusters. (Hackett, S.M., Dilts (2004a); Hackett & Dilts (2004b); Chinsomboon (2000); Lalkaka (2000, 2001, 2002, 2003); Temali (2002); Rice, Matthews (1995).

Most of the current literature discusses business incubation as an economic development tool (Campbell, C., Berge D., Janus J. and Olsen K (1988); Campbell (1989)).

Some of the more recent literature discusses economic development strategy and the use of business incubation services to influence long term success rates (Al-Mubarak (2008); Al-Mubarak, Al-Karaghoul, Busler (2010)). The American Economic Development Council’s definition of economic development is a “process of creating wealth through the mobilization of human, financial, capital, physical and natural resources to generate marketable goods and services. The economic developer’s role is to influence the process for the benefit of the community through expanding job opportunities in the tax base” (Malizia and Feser (2000)).

The benefits of business incubators are varied depending on the stakeholders which include the local, national and international community, research institutes and universities, government, businesses and the tenants. Regarding the International community, incubators generate opportunities for trade and technology transfer between client companies and their host incubators. For the local and national community, incubators create self-esteem and an entrepreneurial culture (Joseph and Eshun (2009)). For research institutes and universities, the business incubation center (BIC) helps strengthen interactions between university-research-industry and promotes research commercialization (Lewis (2001)). For Government, the incubator helps overcome market failures, promotes regional development and generates jobs. And finally for tenants, incubators increase the probability of success. (Lalkaka & Abetti (1999); Lalkaka, Shaffer (1999)).

Thus it is the aim of this exploratory research to determine the strengths, weaknesses, opportunities and threats of the incubator models in the US and UK and find differences as well as similarities. We will detail the two models and then perform the SWOT

analysis. We conclude by summarizing the findings and offering some recommendations. This paper should serve as a beginning point for comparison purposes, which may ultimately lead to a global business incubator model recognizing that variations may exist based on country or culture.

## **THEORETICAL BACKGROUND – BUSINESS INCUBATION MODELS**

### **(A) United States Model**

Incubators in the United States are well established, numerous, often innovative and located at the heart of an environment that encourages entrepreneurship. They do, however, vary widely as both public and private entities often work together. Some university-based incubators are very dynamic. Other universities develop technology transfer mechanisms in response to their states' massive investments in scientific research. Entrepreneurship education is thriving with the help of major foundations and the National Business Incubation Association (NBIA) has become a driving force for business incubation. Here business incubation attempts to increase awareness and understanding of the incubation process among entrepreneurs and community leaders and to strive for greater excellence in these programs. (Peters, Rice, Sundararajan (2004)).

The United States has the largest number of business incubator programs in the world. In many ways the U.S. has been a pioneer in this industry and the growth has been rapid from less than a 100 in the 1980s to about 1,800 in the 2010 (NBIA (2010)). The United States government has played a dominant role in supporting incubators with legislative allocations for economic development and job creation. They have also provided support at both the local and state

level by providing sponsorship (Chandra & Fealey (2009)). Appendix 1 shows the distribution of incubators worldwide.

Wiggins and Gibson (2003) conclude that business incubators must accomplish five tasks well in order to succeed. 1) Establish clear metrics for success, 2) provide entrepreneurial leadership, 3) develop and deliver, value added services to member companies, 4) develop a rational new-company selection process, and 5) ensure that member companies gain access to necessary human and financial resources.

There are two types of support available in the United States: formal and informal. Formal support includes capital funds from the legislature for incubator infrastructure in the form of competitive grants from the State to select incubators, matching grants for service support for new ventures and funds that are channeled through the State Economic Development Agency. Informal sources of support includes tax incentives in the form of tax credits to businesses investing in incubators, low interest loans to local government agencies to support investment in incubators, and private partnership funding where incubators raise money from other related businesses or from banks for operational funds. (Chandra & Fealey (2009)).

To describe the incubator manager as well as the characteristics of business incubators, the National Business Incubator Association performed a study in 2010 which reported the results from of 124 incubator programs of both NBIA members and non members noting that 58% were full time incubators, 26% were from part time incubators and 16% were from other incubator professionals. This study found that biotech incubator managers earned an average an-

nual salary of \$131,800 in 2009, followed by other technology incubator managers who earned \$92,151 and mix –use incubator managers with \$76,500. Female incubator managers earn \$ 75,764 while males earned \$92,167 (Knopp (2010)).

The age of business incubation programs represented in the survey reflects the industry's recent growth. More than 51% of full time incubator managers who responded to the survey directed programs that had opened their doors since 2000. Of these, 26% of the managed incubators have opened since 2005 when NBIA conducted its last survey. More than 28% of respondents had lead programs that began accepting clients between 1995 and 1999, and 21% had programs that began operation prior to 1994 (Knopp (2010)).

Today, the programs with full time managers are located 40% in urban areas, 35% in suburban areas and 25% in rural areas. The primary sponsors of incubation programs with full time managers are 37% university, 19% nonprofit economic development agency, 18% government, 9% no sponsor, 7% hybrid, 5% technical 2 year collage and 5% others. In addition, the types of incubation programs with full time managers as 53% mixed –use, 33% technology, 9% biotechnology and 5% other. Finally, the average square footage of incubation facilities with full time managers are 50,400 for biotech, 40,693 for mixed-use, 29,932 for technology and 22,714 for others (Knopp, 2010).

In general, in the United States, incubators were moving toward a service mix that emphasized higher value-adding services such as networking, which is now recognized as more valuable in the service continuum of incubators than mix–use incubators in rural regions or regions un-

dergoing rejuvenation. (Allen & McCluskey (1990); Chandra & Fealey (2009); NBIA (2010); AL-Mubarak (2008); Al-Mubarak and Busler (2009,2010)).

### **(B) UK Model**

Western Europe has a wide range of incubator models with countries at various stages in the process of developing networks at the EU level. The European Commission's Enterprise Directorate General undertook a mapping exercise with benchmarking of Business Incubators and compiled a database of all incubators in EU Member States. The results revealed that there are currently about 900 business incubators (NBIA 2010). Appendix 2, shows the summary of Business Incubators in EU Member States.

We selected a United Kingdom incubator because UK was one of the first countries to establish incubators in Europe. In 1975, British Steel formed a subsidiary known as the British Steel Industry (BSI) to create jobs in steel closure areas (Aernoudt (2004); Voisey, Gornall, Jones, Thomas (2006); European Commission (2002)). Both in the U.S. and in Europe, the business incubation concept evolved gradually. In Germany, the University of Berlin established the first incubator in 1983, aiming at "facilitating the transfer of research findings to the industry" (Aernoudt (2004)). In France, the first incubator was created in 1985 as an incubator within the Sofia Antipolis Technology Park (Aernoudt (2004)). Currently Germany has about one third of the incubators in the EU member states. Most of these were set up in the western part of the country during the early 1980's. Today Germany has Europe's largest business incubator association. The feature of German incubators is that they are linked mostly with universities and R&D institutes. France has 21% of the in-

cubators in the EU's Member States. However, only 50 of the 192 programs meet the "minimum standard". UK has just 16% of the total with 144 business incubation programs. A European Business and Innovation Center Network (EBN) Business Incubation Center (BIC) observatory report demonstrates the European model for all member levels (EBN 2009). The EBN experienced an increase in the number of BIC's demonstrating the business and innovation support model and is generally considered to be highly relevant, very efficient, and always more embedded in the strategies of local economic development. The core focus is on all types of innovation and BIC's have demonstrated a high capability of adapting their models and their activities.

In the UK model, with 35 years of experience, the BIC has become increasingly adequate and flexible to adapt itself to the changing surroundings and is capable of remaining in the forefront of innovation. It is not by coincidence that large companies are showing more and more interest in the BIC model and are getting in touch with the network as a viable source of innovation detection. EBN's quality system, which was created 5 years ago to manage the EC BIC logo for the European Commission, has assured a high level of quality that contributes to the achievement of results of the network in terms of promotion and networking. The EBN objective is to keep those at high levels (EBN 2010).

The BIC's mission (EBN 2008, 2009), which remains and needs to remain the creation of innovative enterprises, can better be reached if appropriate and effective agreements are carried out with other local stakeholders as well as with other specific and specialized service oriented organizations. This can increase the delivery of a more ho-

listic, collaborative and efficient level of support to the end users who are the innovation-based entrepreneurs of tomorrow's Europe.

The EBN's (2009, 2010) BIC's network confirmed the fundamental role of BICs as local development instruments within their regions. This has been recognized by the local and national policy makers and has confirmed BIC's "public interest" mission. Among those, 14% of BIC's report being private while 78% are non-profit. The legal status of the BICs indicates that over 50% represent public bodies or public equivalent bodies. Regarding the size, the average square meters available for incubation activities of owned incubators was 2945 in 2007 and 3159 in 2008. In addition the average incubator space occupancy rate was 83% in 2007, 78 % in 2008. In addition, the average incubation time is approximately 3 years.

EBN(2008) reports that the average number of tenant companies in the incubators operated by BIC's in 2008 was 30, while the median value is 23. The average number of employees within incubators was 155, with a median value of 92. The European governments play a predominant role in supporting incubators with legislative allocations for economic development and job creation.

## **METHODOLOGY**

Concerning the planning cycle, which is the first stage of an effective case study analysis we identify the goals and objectives and then translate them into specific key success indicators, assessing present and existing internal strengths and weaknesses, as well as external opportunities and threats. We then provide guidelines and recommendation as the result of this evaluation. To re-

inforce this cycle, the strategy utilized in the case studies is presented in Figure (1):

Data was collected through structured interviews with incubator managing directors and through examination of case studies (Creswell 1994). The first case study was conducted at the Maryland Technology Development Corporation (TEDCO). This was selected because it is one of the oldest and is the largest incubation program in USA. The other case study was the Coventry University Enterprise (CUE) in United Kingdom which is the largest university enterprise organization in the world. The criteria of evaluation in each case study are 1) incubator mission and strategic planning, 2) incubator finances and 3) incubator graduation rates. Detailed questionnaires were used in each interview with the managing director of each program. The SWOT analysis was done based on these interviews and analysis of each case. (Eisenhardt 1989, Yin 2003).

## **CASE STUDIES : A SWOT ANALYSIS**

### **Maryland Technology Development Corporation (TEDCO) U.S.A Case Study**

The goal was to assist in transferring technology to the private sector as well as to commercial the results and products of scientific research. The goals were then expanded to foster the commercialization of research and development and to create, as well as sustain, businesses throughout all regions of the State (TEDCO 2010). The vision of TEDCO (2010) is that Maryland will become internationally recognized as a premier 21<sup>st</sup> century location for technology and technology-based economic development.

According to TEDCO's (2010) mission

statement, they are there to foster the development of a technology-driven economy that will create and sustain businesses throughout all regions of the State. TEDCO identified its role to be Maryland's leading source of funding for seed capital and entrepreneurial business assistance for the development, transfer and commercialization of technology.

It is important to assess the economic impact of incubators to understand their outcomes and provide support for increased activities. To that end, incubators must provide decision makers with a better understanding of the state's capacity for incubators and the potential to realize further economic development outcomes from increased investment in incubation. (Claggett Wolfe Associates (1998); TEDCO (2010)

RTI International (2007) conducted a comprehensive study of the TEDCO. Maryland currently has 19 technology incubators and seven proposed projects. The majority of these incubators are located in Baltimore, Montgomery, Howard, and Prince George counties. Technology incubators can also be found in other areas of the state, including Frederick, Anne Arundel, Allegany, Garrett, and Washington counties. The study had three significant objectives. The first was to provide an economic impact analysis of the technology incubators on Maryland's economy. The second objective was to analyze the state's capacity for new technology incubators, while the final objective was to examine the needs of incubator graduates and the ways to help these graduate companies continue to be successful after leaving the incubators.

There are a number of key results of the RTI International (2007) study. 1) The technology incubators in Maryland increased

gross state product by \$1.2 billion. 2) The total annual employment impact of technology incubators was 14,044 new full time employees in the state (5,374 direct employees and 8,670 indirect employees). 3) The new jobs contributed \$845 million in annual salary and benefits to Maryland households. 4) The technology incubators increased state and local tax revenue by approximately \$104 million per year. 5) Maryland has the potential to support new high-tech incubators, as evidenced by the state's strong high-tech economy, abundant research, concentration in high tech employment, and exceptional political support. 6) Gross state product contributions totaled \$1.2 billion which ultimately increased state output by \$2.7 billion per year. 7) TEDCO contributed \$104 million in state and local taxes. 8) For every \$1 of incubator assistance funding provided by TEDCO tenant, companies contributed \$1,800 dollars to Maryland's gross state product. 8) TEDCO made an average investment of \$120 per incubator company job.

In 2008 annual report (TEDCO 2010) provided \$287,500 to 12 incubator programs (16 distinct physical facilities) to provide directed and targeted business assistance to their tenant and affiliate companies. The funding was used for a variety of business assistance services that these incubators would not have been able to provide otherwise.

### **TEDCO's Strengths**

There were eleven specific strengths identified. First TEDCO's contribution to economic development facilitated the creation of businesses and fostered their growth in all regions of the State through the commercialization of technology. Second TEDCO is Maryland's leading source of funding for technology transfer and devel-

opment programs and entrepreneurial business assistance. In FY 2008 the total of the incubator development fund was approximately \$10 million. Third TEDCO's job creation made a significant contribution to Maryland which has a strong high-tech industry, with over 15,000 establishments employing almost 200,000 in 2006. The average annual pay for high-tech jobs was \$75,000, more than 60% higher than the statewide average annual wage of \$46,000. Fourth is that the Science Park, which provides the local economy with new high tech positions.. Fifth is that the Networking experience is shared between 19 separate programs. Sixth is the information provided by the Feasibility Studies for financial support. Seventh is the breadth of differently funded programs in which the University partnerships, venture capitalists and TEDCO incubators are included. Eighth is that the State of Maryland support which resulted in incubators exceeding the national average in spinning out new companies. TEDCO has been working closely with the various university technology licensing offices to identify barriers to new business formation and has identified specific needs, including sophisticated market analysis and business strategy development. Ninth is Award 2008, a national award for excellence for a new company, which given to a Maryland Incubator Company in 2008. Tenth is that the Research and development funding for that Academic R&D totaled \$2,357 million in 2005. The represents the fourth highest total in the nation. Finally is the presence of Federal labs in which there are over 40 research centers in Maryland, including a significant number of federal labs and prominent university institutes.

### **TEDCO Opportunities**

Six specific opportunity areas were identified. First is Maryland 21<sup>st</sup> century. Mary-



land could become internationally recognized as one of the premier 21<sup>st</sup> century locations for technology and technology-based economic development. Second is the potential of the four Proposed Incubator and Accelerator Projects in Baltimore, Dorchester and Montgomery counties with incubator type of the projects, (TEDCO 2008). The third is Targeting Incubator entrants, especially Energy & Cyber Security firms (Melton 2010). Fourth is the growth potential in Concentrated Industries. The three most concentrated industries are management, scientific, and technical consulting services, computer systems design and related services and communications equipment manufacturing. Fifth is the potential for future growth of the ACTIVATE Program, Achieving the Commercialization of Technology in Ventures through Applied Training for Entrepreneurs (ACTIVATE). This program was initially funded by a National Science Foundation Partnership for Innovation grant awarded in the summer of 2004. The \$600,000 grant supported three one-year classes. TEDCO provided the required \$60,000 matching funds. At the conclusion of the third year, ACTIVATE had far exceeded its goals in creating new companies. Sixth is BioMaryland 2020, a Strategic Plan for the Life Sciences in Maryland. This comprehensive 10-year plan reflects Maryland's identification of the bioscience industry as a strategic priority and is the result of significant assessment and deliberation over the past 18 months by members of the Maryland Life Sciences Advisory Board. LSAB and its seven working groups have more than 100 leaders involved in bioscience development in Maryland which is drawn broadly from industry, education, federal laboratories, and state and local economic development organizations who helped to shape this Strategic Plan (TEDCO 2010).

### **TEDCO Weakness**

There were no specific weaknesses noticed in the incubation program. However, the director of the program said there are three main points of potential concern. First is lack of support to hire a qualified incubator manager. Second is lack of consultancy or resources inside the program. Finally the third is the lack of qualified feasibility studies of a company to be included in the incubator.

### **TEDCO Threats**

The impact of international economic crises effects the government funding worldwide potentially resulting in the loss of funding for some business incubation programs.

### **Coventry University Enterprise (CUE) case study: S.W.O.T Analysis**

Coventry University Enterprise's (CUE) vision for business incubation is to encourage and promote innovation and entrepreneurship within a supportive environment and to create opportunities for business development and growth. CUE's mission statement notes, "We are a dynamic, enterprising and creative university committed to providing an excellent education enriched by our focus in applied research" (CUE 2010).

The report of EBN-BIC (2009) presents a case study of Coventry University Enterprise (CUE). As one of the largest university enterprise organizations in Europe and a wholly owned subsidiary of Coventry University, it employs more than 140 people directly within the field of business support, business incubation and technology transfer. It delivers business support to over 5000 businesses per year, offering an activity portfolio covering a broad spectrum from pre-incubation and incubation through to spin-off company formation and develop-



ment, with internationalization business advice. From its base at Coventry University Technology Park (CUTP), CUE offers a full and progressive package of office space and specialist facilities to new and growing businesses. It has provided incubation support for the past 10 years.

Recently a CUE (2010) report defined the CUE as a market leader in much of its delivery activity, including its renowned mentoring, advice and specialist support programs for young entrepreneurs, SME's and large corporations on a regional, national and international basis. Due to the close links with the University, CUE is highly experienced in the field of commercialization of university research and the development of intellectual property portfolios, maintaining a focus on high technology and high growth potential enterprises. CUE's people are therefore selected for their business experience, track record in enterprise, innovation and entrepreneurship, and ability to work and respond to a fast changing, challenging business environment focused on clients' needs and development potential. CUE is also home to the University's Institute of Applied Entrepreneurship (IAE), through which much of the business incubation activity is carried out.

The data reported in figure 2 demonstrates the (BIC) percentages for areas of expertise.

### **CUE Strengths**

There were 8 specific strengths identified. First in the area of Economic Development CUE demonstrated the ability to see a project through to completion. This was accomplished by giving entrepreneurs a strong voice in their future prosperity and by encouraging private, public, education and volunteer agencies to work together growth as well as cross partner cooperative policy.

Second was the formation of Technology Corridors which accelerate the modernization and diversification of the region's economy, stimulate new enterprises and attract new investment with great potential for innovation. It also fosters the technology-based and high value-added businesses by developing the region's science parks and R&D centers. (CUE 2010). Third is the Business Development Team which has extensive experience in working with companies from all sectors: locally, nationally and internationally, from large multinational corporations and government bodies to regional organizations and new pioneering SMEs. The team has worked in many different markets including healthcare, utilities, arts, design, manufacturing, transport and environmental technologies. Fourth is the focus on Long-Term Strategy as the University values the partnerships it develops and believes in investing time and effort to strengthen these relationships and turning them into long-term strategic alliances. Just as these alliances influence teaching, it improves business solutions which are supported by the latest thinking and research from industry-leading names at the university. (CUE 2010). Fifth are the University Relationships. Coventry University has a long established relationship with industry and has always encouraged this relationship to collaborate for mutual benefit. The University has worked with companies from all sectors: locally, nationally and internationally. In addition, it has a vast amount of experience and knowledge of European grants and funding. The University's commercial work has enabled it to build an extensive network of clients and has gained a reputation for providing real business solutions while taking an innovative and enterprising approach to today's changing business environment. Sixth is the Value Added. The University values the commercial knowledge

and relationships they build, as this enables the combining of practical business knowledge with theory taught to students. It values the partnerships developed and believes in investing time and effort to strengthen these relationships, turning them into long-term strategic alliances. Coventry University not only offers business support to small-to-medium sized enterprises, but also manages projects on behalf of other public sector bodies. They provide consulting services which includes expert advice, reports, marketing, workshop design and delivery, training and event management. Seventh is the UK EBusiness EIncubation EAchievement Award 2009 and the Midlands Entrepreneurial University Award for 2010. And Eighth is the Infrastructure and Resource Base that supports in excess of 7500 small and medium-sized enterprises, 500 large companies and 120 start-ups annually with 30 private and 11 public sector strategic level partners.(CUE 2010)

### **CUE Opportunities**

There were five areas of opportunity that were identified. First was Investment for Development with more than £30 million being invested to develop the Coventry, Solihull and Warwickshire (CSW) Technology Corridor, with £5.8 million of the total coming from Advantage West Midlands and the rest coming from the EU, partner organizations and the private sector. The longer-term vision is that the CSW area develops a globally significant and self-sustaining E cluster E of E innovative, knowledge-based businesses. (CUE 2010). Second Investment of Council's Business with the Investment and Enterprise Team leading the drive to support the city's growth plans by encouraging and supporting business investment. Their innovative Sector Development Strategy is designed to give the Coventry based businesses a competitive

advantage which they can exploit and focus on developing the following sectors: Aerospace, Automotive (including specialist vehicles and motor-sport), Business and Professional services, Digital and Creative Technologies, Information Communications Technology (ICT), Environmental Technologies, Medical Technologies, Leisure and Public Sector Relocation Retail. Third is Strategy Innovation where the short and long-term projects offer a new innovative perspective for products, processes and business strategies. Through commercial partnerships, the university has built up a strong network of clients and has gained a reputation for providing real business solutions, while taking a pioneering and enterprising approach to today's changing business environment. (CUE 2010). Fourth is the Research and Knowledge Transfer where Coventry University's research is focused on the application and usefulness of research and knowledge transfer activities. Rather than undertaking a study just for the sake of research, they look to demonstrate their authority to teach by applying their research to solve interesting problems for the wider community. These statements describe the core principle of the University's 2010 Applied Research Strategy.

### **CUE Weaknesses**

No such weaknesses have been noticed in the incubation program. Although CUE is the largest program in the UK, the impact of the international economic crisis is likely to effect the government funding so that a decrease in 2010 is expected. (Winters 2010).

### **CUE Threats**

Based on the interviews with Dr. Clive Winters, Assistant Director, a key person in the program, the comments regarding threats focused on government support. The risk is

that reduction in public sector funding at the regional and national level could impact funding for university applied research, technology transfer and business incubation. (Winters 2010).

The threats and the weaknesses are the most difficult to explore. In some respects this is due to the fact that the incubator is part of a wider business development activity aligned to the applied research agenda of the university.

### CONCLUSION

The SWOT analysis of each case study reflects the numerous strengths of each of the programs studied, while complying with the mission and objectives of the program, and shows great opportunity with the future plans and performance. The weakness in the UK case study, CUE, is that the rate of governmental support is reduce based on international economic crises, and this effected the implementation of CUE's annual plan. In the USA, TEDCO's weaknesses are a lack of support to hire an incubator manager, a lack of consultancy or resources inside the program, and finally, an unqualified feasibility study of a company accepted into the incubator.

The threats and the weaknesses are the most difficult to explore. This is due to the fact that the incubator is part of a wider business economic development activity to be applied worldwide with great success, as we have discussed in this paper. Of note, currently the total number of incubators worldwide is more than 7000. (NBIA 2010)

In conclusion, this study provides new and useful knowledge for both academics and practitioners who are interested in business incubation, including the incubator

manager, client graduated companies, policy maker and governments. Further, this paper is the first paper utilizing a SWOT to analyze the business incubation field. The Summary Chart, following the references at the end of this paper, represents a summary of this discussion. Business incubators are being used as economic development tools by nearly every country. Typically, an incubator provides a safe haven for a firm in its early stages of growth and development through a mix of tangible and intangible services from the perspective of local economic development. Business incubators contribute to the economy and play active roles in the local, regional and national economic development. Their adaptation leads to the support of diverse economies, the commercialization of new technologies, jobs creation and wealth building.

### BIOGRAPHY

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## SUMMARY CHART

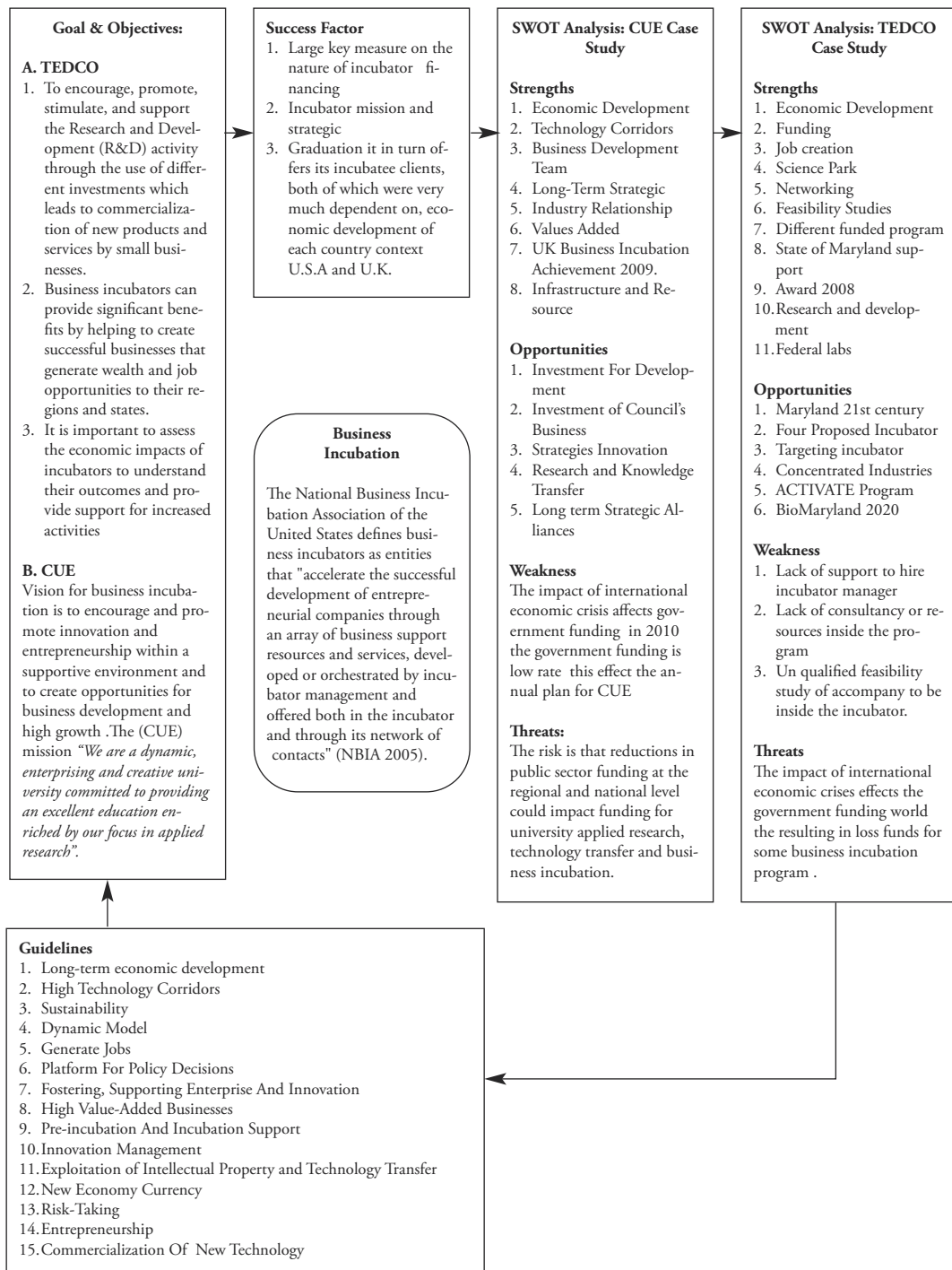
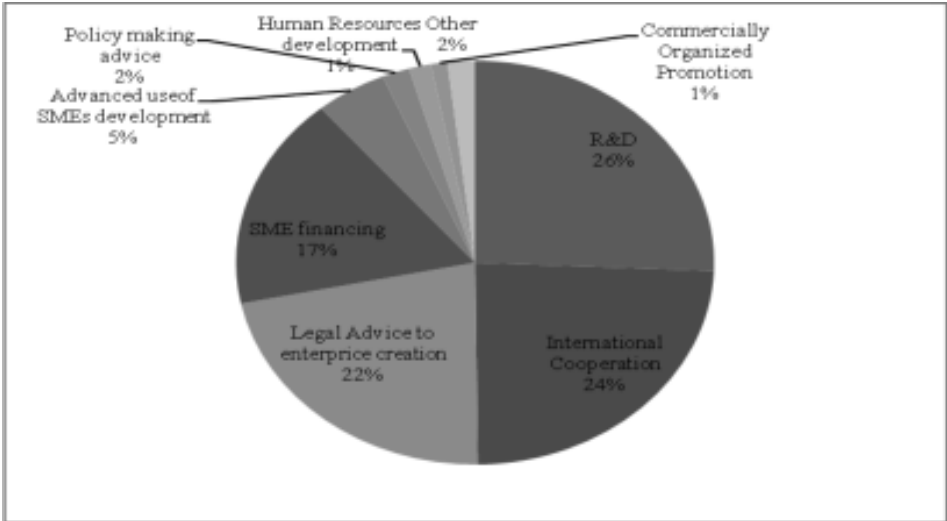


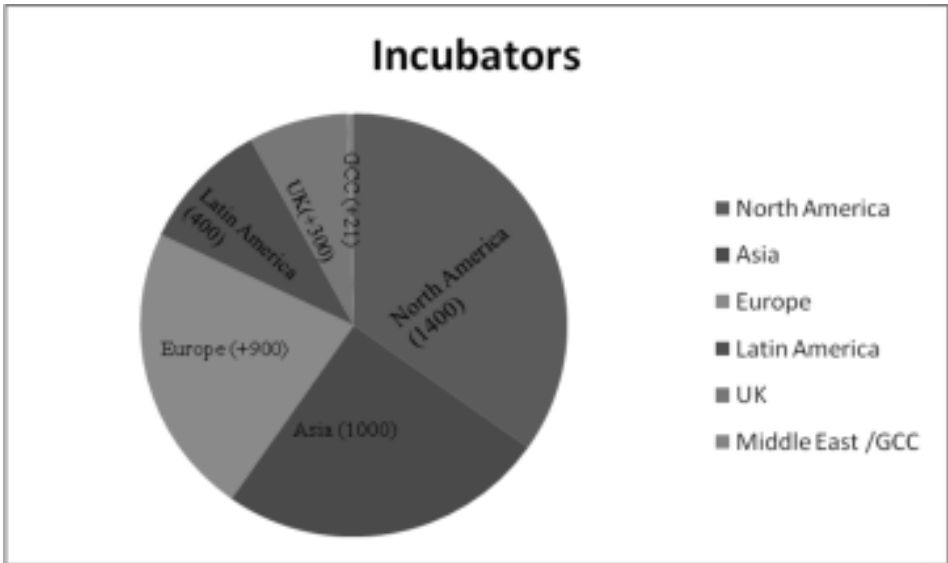
Figure 1: The Strategy for case studies



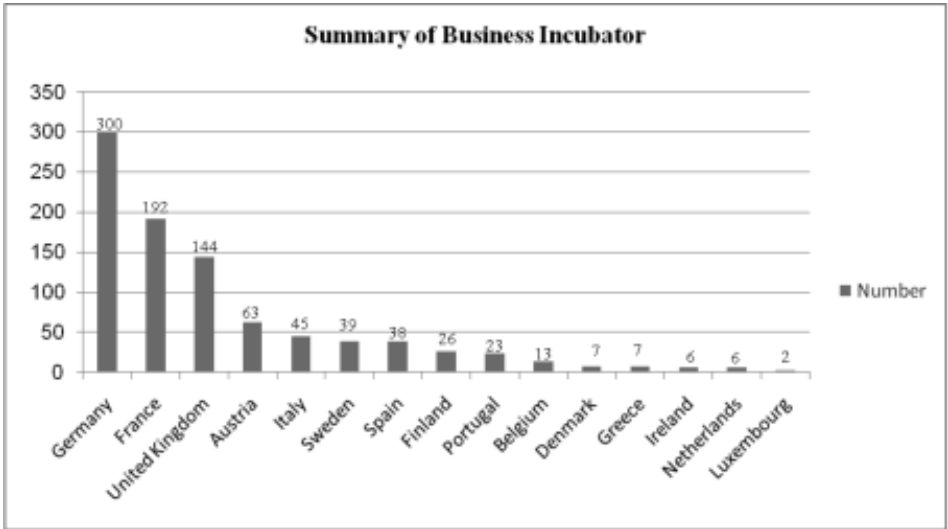
Figure 2: Key Qualification- Area of Expertise



APPENDIX 1: DISTRIBUTION OF INCUBATORS WORLDWIDE SOURCE: NBIA 2010



APPENDIX 2: BUSINESS INCUBATORS IN EU MEMBER STATES SOURCE: CSES(2002)



**APPENDIX 3. PROPOSED INCUBATOR AND ACCELERATOR PROJECTS;  
SOURCE: TEDCO ANNUAL REPORT 2008**

Incubator	County	Location	Type of Project	Targeted Industries	Status
East Baltimore Development Inc.	Baltimore	Baltimore City, near the Johns Hopkins Hospital	Incubator	Biotech	Expected to open within next two years.
Dorchester County	Dorchester	Dorchester County Technology Park	Incubator	Technology, with focus on environmental science, marine science, agricultural science, and IT	Expected to open within the next two years.
Germantown	Montgomery	Adjacent to Montgomery College campus in Germantown	Incubator	Biotech and IT	Expected to open in first quarter of 2008.
White Oak Innovation Center	Montgomery	Undecided – probable location near new FDA campus in Montgomery County	Incubator	Technology – specifics undecided	Expected to open within the next two years.

**APPENDIX 4. INTERVIEW QUESTIONS.**

1. Is the incubator's mission statement in written form?
2. Is the mission statement consistent with the vision and direction of the program?
3. Has this incubator developed an effective strategic plan?
4. Does the strategic plan contains specific, measurable goals and objectives?
5. Does this incubator has a detailed business plan?
6. Is this incubator financially self-sustaining or has it at least mapped a path to financial self-sustainability?
7. Does this incubator's selection process include an interview that enables the incubator staff or admissions committee and applicants to exchange information?
8. Does this incubator have a system for evaluating its programs and services?
9. Does this incubator assist clients in professional development?
10. Has this incubator has developed a service provider network suitable for its client companies?
11. Does this incubator's graduation policy promote optimal incubator and graduate success?
12. Does this incubator keeps in regular contact with graduates?
13. Does this incubator annually collects information on appropriate program parameters?
14. Does this incubator annually collects information on client performance?
15. Does this incubator annually collects information on graduate's performance?