

Preface

Today there is a broad recognition that entrepreneurial, knowledge-based enterprises are prime creators of economic growth and that such ventures need unique business development services. Innovation is a powerful engine for expansion and for addressing societal and global challenges. Innovation drives economic growth and job creation and is important not only for high-tech sectors but for all economic sectors. While economists and policymakers worldwide have recognized the importance of technological innovation for growth, the relationship between innovation and entrepreneurship has been appreciated only recently, specifically with regard to the important role entrepreneurs play in fomenting innovation.

The objective of this research is threefold: (1) to identify the impact of innovation, incubators, and entrepreneurship in economic development from different perspectives; (2) to identify the key performance indicators of innovation, incubators, and entrepreneurship including economics, policy, industry, and culture; and (3) to establish a roadmap for shaping economic development as a modern economy based on knowledge.

The research methodology to be used is a mixed-methods approach with quantitative (survey) and qualitative (multi-case study and interview) components to examine the innovation and incubator best practices worldwide.

Although the research analysis focuses on ten case studies from developed countries, all of the cases presented here underscore the value of innovation and business incubators. Each case study analysis includes the ratio of performance indicators over the years a particular program has been in operation since the early 1980s. It is evident that some innovation centers and incubation programs are performing better than others. Austria presents the highest rate of job creation and graduate companies, at 25 and 12.63, respectively, per year. Also, the UK presents the highest rate of client companies, at 5.53, and Austria indicates the oldest operating program, at 32 years.

The results of ten international interviews conducted by the authors in 2013–2014 of incubator programs located in the US, UK, and GCC focused on the four categories, include cultural, economic, policy, and industry using 16 indicators to measure all the categories. In 2013–2014, the authors studied ten incubator

programs in the US, UK, and GCC member states. Sixteen key performance indicators (KPI) in the four categories of economic development, policy, cultural change, and industry change were used to analyze the success of the incubators. All the interview respondents presented positive impacts from different contexts, including economic development, innovation, entrepreneurship, technology transfer, and commercialization.

Analysis of the survey, case studies, radar charts (international interview), and literature review resulted in the following key findings:

1. The case studies of innovation centers and incubation programs indicated that programs tend to become more successful with experience and maturity, making years in operation a very important metric.
2. Innovation centers and incubation programs that construct strategic relationships with an international organization such as the European Business and Innovation Centre Network (EBN) and governmental bodies are more successful in technology transfer.
3. Innovation centers and incubator programs that provide continuing tangible and intangible services are able to add value to the companies they support. This leads to a high number of tenants in incubator programs and a high number of start-up companies.
4. The most common outcome from innovation is economic growth.
5. Innovation systems in developed and developing countries lead to a platform for policy decisions and high technology derivatives.

Seventy-four incubators and innovation centers from both developed and developing countries participated in a survey. A descriptive analysis of the survey responses revealed the following:

1. Two-thirds (67 %) of the services offered by incubators were strong tangible and specialized services.
2. Three-fourths (73 %) of incubators' goals focused on the entrepreneurial climate.
3. The main sponsors of incubators were non-profit economic development (48.0 %).
4. Most incubators (72.0 %) have a staff of one to five persons.
5. The majority of incubators (59.0 %) reported creating more than 50 jobs.
6. A high percentage (43.0 %) reported having graduated between six and twenty-five companies.
7. A majority of respondents (55.0 %) indicated a low increment of incubators worldwide.
8. Half of the incubators surveyed (50.0 %) indicated having tenants in the range of six to twenty-five.
9. Half of the incubators and innovation centers (49.0 %) indicated that the survival rate of their tenants ranged between 81 and 90 %.
10. Nearly half (45.0 %) of the incubators and innovation centers indicated a poor role of science parks.
11. One-third (34.0 %) of the programs indicated active cooperation with R&D.

12. A high percentage (72.0 %) of programs indicated fostering entrepreneurship at the market rate.
13. A significant percentage of programs (40.0 %) indicated a very active role for innovation.
14. Nearly half (48.0 %) of incubators and innovation centers indicated technology transfer at a modest level.
15. Most incubators and innovation centers present low rate of patents (48.0 %).
16. Low rate of licensed intellectual property (IP) in most of the innovation and incubators (47.0 %).

In addition, some of the leading rankings revealed in the study were as follows:

1. Among the ten programs located in the US, UK, and GCC that were interviewed based on selected best practices, Sussex Innovation Centre presented the highest outcomes (93 %) with respect to the other innovation centers.
2. An Austrian organization, Styrian Business Promotion Agency, SFG, was the oldest program studied, at 32 years.
3. The Austrian case study also presented the highest ratio of jobs creation, at 25.00 per year.
4. The UK case study demonstrated the highest ranking based on the ratio of client companies, at 6 per year.

In summary, the study recommends guidelines for practitioners such as government, policymakers, funding organizations, and academic institutions. Implementation of the insights from this study can be expected to result in: (1) enhanced economic development through job creation, (2) a stronger entrepreneurship climate, (3) technology commercialization and transfer for graduated companies, (4) sustainability of graduated companies in the market with high rate of survival, (5) innovation acceleration with smart product and services, and (6) diversification of the economy from companies' outcomes such as innovation and technology.

Innovation and Entrepreneurship

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