

Business Incubation: Profitability vs. Economic Development

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Abstract

This paper is drawn from a study undertaken in 2002 and sponsored by the US Department of Commerce, Technology Administration, Office of Technology Policy. The study was undertaken to discover new models and current trends in business incubation in the US and to review business development and incubation activities in 22 countries of the Middle East, Central Asia and North Africa. The research identified recently emerged business incubator models, including accelerators (which have largely disappeared), operating companies, corporate venture arms, foreign-owned incubators in the US, and international incubators. These new models emphasize profitability goals associated with the entrance of corporations, foreign interests, and the seed and venture investment community and the emergence of technology-based economic development (TBED) strategies in the US and internationally.

In contrast, developing and transitional economies, such as those in the Middle East, Central Asia and North Africa, require economic development strategies that help create a viable business climate and stimulate free market capitalism. Consequently, business incubators focus on encouraging the development of a diverse number of start-ups that can become a local base of thriving service, manufacturing, banking, retail and other types of commercial enterprises. While profit-based models of business incubation are gaining increasing attention, they may not be suited to achieving the goals of developing and transitional economies. In fact, hasty adoption of such models may lead to conflicts between participating organizations as the disparities between goals and outcomes frustrates policy makers, discourages entrepreneurs and undermines economic development efforts in general.

Introduction

This study was designed to discover new models and trends in business incubation as part of a larger-scale effort funded by the US Department of Commerce Technology Administration, Office of Technology Policy. The intent was to uncover evidence of new approaches to business incubation that have the potential to expand economic development, to create a vibrant and growing technology-based business sector,¹ and to suggest avenues for further policy and program development research.

¹ By “technology-based,” we refer to technology in its broadest sense. It includes products and processes discovered and developed in areas as diverse as biotechnology, pharmaceuticals, medical devices, communications, advanced

In addition to the project's original goal of revealing new trends and models of business incubation, however, the research team was asked to expand its treatment of "international" business incubation activities. Partly as a result of the tragic events of September 11, 2001, but also partly as a result of globalization and increasing international efforts to foster technology-based economic development in both developing and transitional economies, the researchers were asked to assemble a set of baseline information about business incubation activities in countries comprising North Africa, the Middle East and Central Asia.

Data collection was accomplished by collecting and reviewing archival materials available in print or on the Internet. Additionally, information was obtained through interviews of knowledgeable experts in the field of business development and incubator management. A number of individuals graciously gave of their time and expertise, including the director of a successful biotechnology business development incubator, venture capital investors, university technology transfer officers, and other business development and assistance professionals.² Finally, individuals from the US Department of Commerce Technology Administration were also especially helpful in providing names of contact persons in economic development agencies and other information for use by the project team.³

Study results reveal that the number of business incubators and the variety of services they offer to clients continues to grow in the US, especially with the entrance of early stage seed capital investors. In fact, in the past five to ten years, providing start-ups with access to early stage and subsequent phases of venture funding has become a staple service of many successful incubator programs, evidence of the increasing sophistication of business development efforts. Differences between business incubation models in the US and Europe reflect different underlying assumptions. Specifically, business incubators are variously viewed by stakeholders and funding agencies as a means to achieve (1) local economic development, (2) profitability for investors or (3) both. The following sections describe these underlying driving forces and illustrate their influence on the nature and operations of business incubation facilities in the US and abroad.

materials, robotics, sensors, food processing, agriculture, and a plethora of other engineering and science areas. We do not use the term "technology business" in this report to reflect only the computer and electronic communications industry, as is often the case in business analyses of "technology stocks" or "technology companies."

² These other individuals included Ms. Patty Breedlove, Director of the University of Florida's Sid Martin Biotechnology Development Institute, Ms. Rose Cauchon of Enterprise North Florida Corporation, members of the Gainesville (FL) Area Innovation Network (GAIN), Mr. Morris Windhorst, Director of the Gainesville (FL) Technology Enterprise Center, and Mr. Erik Sander of the University of Florida.

³ These individuals were Mr. Doug Devereaux of the Technology Administration, Office of Technology Policy and Mr. Ken Ferguson of the Technology Administration, International Programs Office.

Business Incubation as an Economic Development Strategy

The most widely held assumption about business incubation is that it helps to bring about local economic development. The assumption is that business incubators help to strengthen local economies because their small business tenants and clients are more likely to survive the precarious early years than start-up enterprises that do not receive incubator support services. Thus, municipal and state governments often fund and support business incubators as a way to increase the number of successful new companies in a community. As the number of companies increases, so do the number of better-paying jobs which, in turn, broadens the community's and state's tax base. This assumption of cause and effect is widely accepted, however rigorous investigation of the impacts of incubators on economic development are still somewhat lacking. While efforts have increased to determine quantitative impacts of business incubation on the local communities,⁴ more study is required to demonstrate unequivocally the nature and extent of their impact.

Nevertheless, following this line of reasoning, business incubators are most often established in the US and abroad to stimulate business formation and revitalization of economically depressed areas where business start-ups are at high risk of failure. The rationale is not based on 'whether or not' business incubators will catalyze economic development, but rather on how best to manage them and/or which mix of services are the most beneficial to client start-ups.⁵ Similarly, most writings about business incubation focus on best practices, rather than on the more fundamental questions about what sorts of economic development are desirable and appropriate for a given local area and which approaches are most likely to bring about those ends. Instead, communities have eagerly embraced business incubation as the cornerstone of (and sometimes the sole basis for) their economic development strategies.

In an earlier work, Johnsrud (1998) profiled the most common elements of successful business incubation facilities culled from the extensive literature and resources available from National Business Incubation Association (NBIA) and other sources. These elements in general have not changed for traditional business incubators and include:

1. Provision of a facility to house client firms, including office space, business services and access to laboratory and other technical resources needed for prototyping, testing and analysis for technology-based clients;

⁴ See, for example, the NBIA study entitled, "Impact of Incubator Investments" (1997) a report funded by the US Dept. of Commerce Economic Development Administration and the more recent "Partners on a Mission: Federal Laboratory Practices Contributing to Economic Development," by Diane Palminteri (2003) funded by the US Dept. of Commerce Office of Technology Policy.

⁵ See, for example, Tornatsky, Sherman and Adkins, "A National Benchmarking Analysis of Technology Business Incubator Performance and Practices" (2003) National Business Incubation Association.

2. Agreement among stakeholders on the objectives of the incubator, including short-term and long-term expectations about tenants' growth and maturation;
3. Experienced incubator managers who can design and deliver customized services to address the unique needs of client firms;
4. Design or use of long-term financial support strategies that draw on some combination of locally available investment sources, client fees, and downstream equity or royalty returns; and
5. Presence of a supportive community infrastructure to facilitate access to the widest possible range of financial, management, marketing, technical, legal and information resources needed for tenant training, networking, market analyses, regulatory compliance and product development.

All business incubators must have a strategy for continuing operations, and most do so by establishing a variety of income streams, including grants from local and state agencies and other support organizations, limited financial returns from profits earned by client firms of the incubator through equity or royalties, and rents and other fees charged to client firms. More recently, some incubators have also established seed funds that are available for highly qualified tenant firms based on business plans and anticipated future revenues from commercialized products and services. While not necessarily a characteristic of all such incubators, seed and venture funds do provide client firms with needed investment capital to achieve growth and stability. They also provide investors with the hope of substantial future monetary returns. When seed funds are not available, successful incubators often maintain access to networks of angel investors and other sources of capital to which client firms are directed as appropriate.

To summarize, traditional public business incubators are established to achieve community-based economic development goals. These are most often incubators "with walls" that provide office space and a suite of specialized assistance to a variety of start-up firms in a wide range of manufacturing, service, retail, and other industries. Incubators established with economic development goals are often located in economically depressed or rural areas, sometimes in abandoned warehouses or other building structures. The intent is to foster a number of high quality start-up firms that will subsequently grow, locate within the geographic area and employ an increasing number of local workers.

As the movement toward establishment of business incubation facilities in local communities has expanded during the past decade or so, the number of regional and national, as well as international, associations and networks have emerged. Examples include the NBIA, the Pacific Rim Incubation Network, and several business incubator networks sponsored by the World Bank, the United Nations, the Eurasia Foundation, and other entities. In fact, the proliferation of business incubator networks in developing

and transitional economies outside the US and Europe provide an interesting avenue for further research, since they require sizable amounts of funding and management effort over and beyond that allocated for their individual member incubators.

Profiting from Business Incubation

In contrast, since the late 1990s subtle shifts in assumptions about the value of business incubators have generated new models in the US, Europe and other developed economies. The new assumptions assert that business incubation can be a source of significant profits for investors. Profits can be direct or indirect. That is, profits can come in the form of cashing out an equity investment in a successful start-up firm, or they can accrue through more indirect means such as cost savings or increased market share for a new or improved product. The business incubation models that have emerged as a result include (1) for-profit incubators that resemble operating companies, such as accelerators, EcoNets and Metacompanies, (2) corporate venture arms and (3) corporate-sponsored incubators. The goal in each of these general investment-type incubation systems is to achieve a significant financial return by making sizable equity investments in and providing intensive management and technical development assistance to a few highly promising companies.

The idea of for-profit incubators is an outgrowth of the experiences of venture capitalists in the 1980s and the dot.com boom of the 1990s. Additionally, the corporate practice of profiting from strategic mergers and acquisitions and from outsourcing instead of through in-house manufacturing operations opened interesting new doors for technology-based start-up companies. Specifically, the goal for many investors in their backing of start-ups was to help them grow to a size such that they became visible and attractive acquisition targets of larger firms. Such liquidity events could mean sizable pay-outs to the original investors, who were then free to scan the horizon for other promising start-up ventures. Because incubators are somewhat selective about the firms that are accepted as clients, investors began looking at incubators as sources of high quality technology start-ups that presented lower risk of failure and substantially higher return potential. Since then, a variety of approaches have emerged, some with greater success than others.

Accelerators

The earliest of these new approaches emerged with the explosive growth of Internet-based companies. After a slew of successful "dot.com" IPOs (initial public offerings) earned millions of dollars for early investors in the 1990s, some technology business incubators began to focus exclusively on nurturing dot.com start-ups in this cash-rich environment. These organizations identified themselves as "accelerators" rather than business incubators in the traditional sense. The name was meant to reflect the need to "accelerate" the speed of transforming an idea into a product given the short life span of most information technology products (software, chips, and hardware configurations) and the more intensive approach required to build new companies. In

the accelerator model of business incubation, investors selected a small number of very promising technology-based start-ups and put them on the fast track to IPO or merger and acquisition (M&A) status. In return for a share of company equity (up to 50% or more), an entrepreneur could receive capital for initial (and/or subsequent) rounds of financing, business and legal services, access to the industry's established human networks, and in some cases, office space.

This contrasts with the traditional business incubation model, where office space and fees-for-services are generally constant features. With the help of an accelerator, entrepreneurs could be freed to focus solely on developing core products rather than the administrative details of starting a business (Rowe 2000). Relatively high equity stakes in client companies provided accelerators the incentive to bring start-ups to a revenue-producing stage as quickly as possible. In most cases, this meant client companies presented their IPO in 90 to 180 days (Singer 2000). Provided the start-ups were successfully incubated, accelerators received high returns upon a liquidity event.

The IPOs generated huge profits in many cases, leading to a new view of business development as a primary strategy for realizing profits. Another outcome of the early successes was the fact that the accelerators themselves began to work toward their own IPOs. Examples of accelerators include Garage.com (now Garage Technology Ventures) and Incuvest/Vennworks. However, the accelerator movement was short lived, and the accelerators themselves modulated into other forms. When the dot.com industry collapsed in early 2000, most of the accelerators also went out of business. Nevertheless, the strategy of making early stage investments in promising start-ups became a staple service for most business incubation programs as a way to establish downstream revenues that provide a hedge against uncertain, politically-driven state and local funding levels.

Eco-Nets

Accelerators were followed by other investment-type models such as EcoNets-- corporate-structured for-profit incubators that retain some control over their "graduated" portfolio companies. This, in effect, creates an interdependent network of companies that resembles a conglomerate. The term "EcoNet" was coined by *Red Herring* in 2000. They are aggressive incubators that retain control of startups after their IPOs, arranging their companies into networks of "tightly knit, yet loosely controlled conglomerates" (Henig 2000). The effect is akin to what the Japanese call *keiretsu* – a group whose members rely on each other for synergy, and a term that has itself become a buzzword in the world of venture capital and business incubation. To reduce risk, an EcoNet does not focus on a specific area of business, but instead relies upon a diverse portfolio to enable numerous types of interaction to occur among businesses in the network. The argument behind these synergistic arrangements is that portfolio companies will be stronger by giving each other preferential business. An Internet advertising business can, for instance, sell advertisements to an e-commerce company that is also part of the same EcoNet, with both sides benefiting (*Financial Times*; London: 2000).

Metacompanies

The concept of the “metacompany,” as it is used in the venture capital business incubation lexicon, probably originates with Atiq Raza, founder of broadband incubator Raza Foundries. Raza trademarked the term “Metacompany,” which describes a for-profit incubator model that combines the key features of an incubator, a VC firm, and a diversified operating company. Like a corporation, a metacompany has a CEO and a corporate management team and maintains a significant (but less than 100%) ownership stake in a number of ventures. Unlike VCs and EcoNets, however, metacompanies focus on a single area of business. Like EcoNets, businesses in this model maintain a certain degree of involvement with portfolio ventures after they have become established companies. While standard VC firms or smaller incubators focus on the venture creation process, the metacompany continues to exploit “collaborative synergies” among its successful ventures after they have become established operating companies (Malik 2000).

The appearance of these new business incubator models stimulated managers and stakeholders of many “traditional” economic development to expand their business support activities. Support was expanded to include establishment of small in-house seed venture funds or formal relationships with investor groups and networks as a way to help client firms obtain investment capital needed for successful growth and sustainability. Thus, not only do most incubators provide their clients with access to management, legal, financial, and other business assistance, they now also coach them in developing and making presentations to affiliated investor groups.

Corporate Venture Arms

In addition to the direct investment models just described, many large manufacturing corporations have also formed their own *venture investment arms* to search for and invest in technology-based start-up firms. Investments are made in firms that have a product or suite of products and technologies that, with further development, could benefit the corporation's bottom line. The goal is to minimize the costs of the corporation's own internal research and development activities, maintain a full product development pipeline, gain flexibility in technology, and accelerate speed to market by buying and selling small firms with technology development resources. In this way the corporate parent has access to a steady supply of new technologies and creative, engaged entrepreneurs from all over the world who, in turn, may benefit by having a ready market for their products and access to financial investments for new product development. Cargill, Cisco Systems, Merck, Eli Lilly and Johnson & Johnson, among others have implemented corporate venturing to complement internal R&D functions by searching the world for promising technologies being commercially developed by small firms and start-ups.

Corporate-sponsored Incubators

Additionally, a few corporations have gone so far as to establish their *own* incubation facilities, often on the same corporate campus as headquarters offices or major manufacturing facilities. While still relatively rare, these incubators help entrepreneurs develop technology from sources that are either internal or external to the parent firm, and they share costs of development in the latter case. Monsanto and Lucent Technologies, for example, have followed this strategy in recent years by providing a facility for internal entrepreneurs. They provide internal entrepreneurs with support in starting their own businesses for commercially developing technologies spun off by the corporation but that do not fit into the corporation's current product development plans. In some cases, the corporation allows the entrepreneur to have access to idle manufacturing equipment and floor space as a way to maintain capacities and operating economies.

In other cases, corporate-sponsored incubators house entrepreneurs who are developing technology from external sources. Although these types of incubation facilities are relatively rare, they may represent an emerging trend for larger established corporations who wish to retain creatively skilled entrepreneurs by providing them with opportunities to develop new technologies. Coca-Cola and Becton-Dickinson both illustrate this type of corporate-sponsored incubator model.

Foreign-Owned and International Incubators in the US and Elsewhere

Finally, another investment strategy that has emerged in recent years is a reflection of the global marketplace. Increasing numbers of foreign-owned incubators are being established in the US. In some cases they represent the interests of a specific country, such as Japan, wishing to establish a foothold in US markets for Japanese-owned companies. Other examples of "international incubators" in the US include those that are designed to assist entrepreneurs from a variety of ethnic backgrounds to establish successful companies. Advanse International (France), Enterprise Ireland, iPark Silicon Valley/Boston (Korea), JETRO US-Japan Business Incubation Center, Korea Venture Center, Panasonic Digital Concepts Center, Scottish Technology & Research Centers, and Softbank are all foreign-owned incubators in the US. International incubators include Incubator America! and the International Business Incubator (San Jose).

Another innovative role for business incubation facilities was demonstrated in Israel during the 1990s. Its extensive network of business incubators was established beginning in 1991 following a mass immigration from the countries of the former Soviet Union. The aim was to provide a sheltered environment in which scientists, both new immigrants and veteran Israelis, with potentially marketable new inventions could nurture their innovative ideas while receiving financial support, expert business advice, subsidized office resources, and exposure to interested investors. Although the incubators were not specifically for new immigrants, an important side effect of these

incubators was their role as socialization mechanisms for foreign immigrants settling in Israel.

Business Incubation and Technology-based Economic Development

The expectation of lowered risk and increased profitability of investing in business incubator client firms combined with the lessons learned from the successes and failures of experimental incubator models and the development of corporate strategies for finding and nurturing new technology-based start-ups, an entirely new approach to economic development has emerged. This is most commonly referred to as *technology-based economic development*, and it is currently the strategy of choice for states and large urban areas of the US and in Europe, New Zealand, Australia, and the Far East.

The key element in technology-based economic development is the focus on identifying *technologies*, rather than start-ups, that can be developed into ground-breaking new products and processes can generate huge profits. The profits accrue to both the inventors and their parent organizations (assuming they were wise enough to file for patent protection on the inventions or discoveries) and the investors who provided the financial and management backing needed to get the inventor's discovery out of the laboratory and into the marketplace. One of the earliest and most widely known examples of such technology commercialization "home runs" is Gatorade developed by Dr. Cade of the University of Florida which generated tens of millions of dollars in royalties annually.⁶ Since that time, the dream of profits fuels organizations and individuals to sift through hundreds of patented inventions and discoveries annually to find one around which to build a new company.

Today, *technology-based* business incubators are springing up everywhere there is a well-funded university, Federal laboratory or private research laboratory. Community economic development managers, university administrators, venture capital groups, and local investors view such incubators as a necessary stepping stone on the path to growth and prosperity. That is through technology-based economic development. These *technology-based* incubators are established to facilitate the transfer and commercial development of university- or laboratory-owned discoveries and inventions. They provide the scientist/inventor-turned-entrepreneur with a structured environment in which to perfect the scientific and technical aspects of the technology and to gain experience in areas such as management, marketing, finance, product design, and other critical to successful business development.

The goal is to create a number of companies devoted to the commercial development of promising technologies. Investors are betting that the technologies will be successfully transformed into breakthrough products that render existing and

⁶ Despite the fact that the patent protection has since expired, the University of Florida still receives sizable royalty income annually because it had the foresight to copyright the name "Gatorade."

competing products obsolete, grab the biggest share of the market, serve as platforms for whole new generations of spin-off technologies and products, and generate enormous new wealth for those with the foresight to see the technology's potential and the skill to bring it to market quickly.

However there is a fallacy inherent in technology based economic development approaches. That fallacy lies in the assumption that the companies formed will remain in the local area and become large employers, contribute to the tax base, and form the basis around which other spin-off firms can be established. In fact, however, there are no guarantees that successful technology-based enterprises will remain in the area or will even remain independent business enterprises. More often than not, investors in such enterprises are looking for significant profits which can be taken as soon as the firm becomes an attractive acquisition target, achieves an initial public offering (IPO) or some other liquidity event. The goal of seed and venture capital investors is not so much to grow a new company for its potential contribution to the local economy but to achieve significant personal and organizational returns on the initial investment (ROI). Thus, acquisition of the start-up by a larger firm may mean that key elements of the technology production are re-located elsewhere in the US and that many local employees and managers are no longer employed.

Technology-based start-ups that are ultimately selected for participation in a business incubator are regarded as less risky investments than non-incubator companies. As a result, the marriage between business incubators and the seed and venture capital community may yield mixed blessings for those who see such unions as powerful enhancements to community economic development.

Business Incubation in Transitional and Developing Economies

Virtually every business incubation facility in the US and internationally is organized along the lines determined by investment (profitability) or economic development goals, with an increasing number of US incubators combining both aspects. However, business incubation facilities and networks in developing and transitional economies are established almost exclusively to bring about local and national economic development along the lines of free market capitalism. The creation and growth of a base of viable companies through providing incubator services to local entrepreneurs is a hallmark of development worldwide.

Unlike incubators in the US, Europe and other developed economies, the goal in these settings is to utilize business incubation facilities as part of an overarching organizational infrastructure that educates, promotes and supports the formation of free markets. Often established in partnership with international entities, including the World Bank, the United Nations Industrial Development Organization (UNIDO), and various

other international, state or regional groups,⁷ business incubation provides a means to formally nurture an entrepreneurial class. Twenty-two countries in North Africa, the Middle East and Central Asia were reviewed in an effort to ascertain the level and type of business development and the level to which business incubators are active.⁸

Transitional Economies

Business incubation strategies currently under development in transitional economies reflect economic development goals that are somewhat different from those in developing and emerging economies. Specifically, the task is to shift away from deeply entrenched ideas, values, legal and financial structures, and other elements of previously state-controlled economies toward those necessary for an economy based to varying degrees on free market capitalism. Consequently, it is necessary to encourage growth and development of an entrepreneurial spirit, provide training and awareness about basic business organization forms, operations and competition, and restructure the legal, regulatory, and banking structures. Business incubators and business development programs seek to provide such training and to assist governments in economic restructuring efforts.

For example, the majority of business incubators and innovation centers in the former Soviet States of Central Asia were created between 1999 and 2001. With privatization of the economic system, business incubation programs are helping to establish an industry that promotes the wide use of information technology by citizens, businessmen, and government in order to increase production and productivity. Armenia, for instance, represents a high value location in the world for information technology products, and the quality-price ratio is perhaps even more attractive than in India, where a thriving computer services industry has arisen in recent years.

With the growth of a new market economy in the former Soviet States comes a host of new challenges. One of these is the need to address the increasing role of women in the marketplace. Formerly, women lacked the resources and know-how to navigate the new market economy. However, business development programs are helping to redefine the role of women in the region and ensure their participation in the new economic model.

⁷ The Spice Group, a German-based consortium of science and technology development experts is one such group as is the Pacific Incubator Network (PIN). The US Agency for International Development (AID) also supports many economic development programs internationally through established business incubation facilities and networks.

⁸ Armenia, Azerbaijan, Bahrain, Cypress, Dubai Internet City, Egypt, India, Iran, Israel, Jordan, Kazakhstan, Kyrgyzstan, Lebanon, Pakistan, Palestine, Republic of Georgia, Saudi Arabia, Tajikistan, Turkey, Turkmenistan, United Arab Emirates, Uzbekistan, Yemen. These countries represent areas where significant business incubation activities are occurring. No significant business incubator activity was discovered for Sudan, Eritrea, Iraq, Libya, Afghanistan, or Syria, although that does not mean that such activities are not beginning to occur in these countries. Rather, it merely reflects the absence of information available from the electronic and print sources utilized in the project.

Critical infrastructure elements must be established in countries with transitional economies, including:

- Reliable access to the world wide web by the population at reasonable prices,
- Structural reforms in the economic and state administration apparatus,
- Sustainable influx of skilled laborers,
- Improvement of the banking system,
- Increased foreign investment,
- Legal and regulatory framework restructuring to support a market economy,
- Tax breaks for start-up businesses,
- Training in modern business skills for all entrepreneurs,
- Access to capital by building lender knowledge, strengthening the banking system, and creating more credit liquidity through new financial instruments and micro-credit,
- A legislation system to protect civil and commercial rights,
- Establishment of cooperative relations with international and foreign organizations that support entrepreneurship,
- Teaching of market economy principles, and
- Increased business knowledge in general, including business technologies.

Business incubation systems in these countries have become an integral part of national economic development initiatives by providing a variety of support services to the entrepreneurial community. Increasingly, incubators are linked with research laboratories at universities in efforts to identify promising discoveries and inventions for commercial development. Like their technology-based counterparts elsewhere, business incubation directors and stakeholders in transitional economies are exploring the feasibility and desirability of adding venture and other investment opportunities to the portfolio of services they offer to entrepreneurs and start-ups. The danger is that the attraction to quick profits may obscure the benefits to be realized from longer term, patient work to foster a broader base of basic local economic development initiatives.

Developing Economies

Developing and emerging economies, on the other hand, have slightly different needs with regard to developing economic systems based on free market capitalism. In these situations, the task more often than not is to strengthen an existing informal capitalist economy and to nurture its growth and expansion. Business development and business incubation systems in these countries often are established to provide access to technology, improve production processes, expand markets, and provide a range of other assistance to entrepreneurs and small- and medium-sized companies (SMEs). Rather than re-orient the populace toward entrepreneurship, the emphasis is on strengthening the existing base of entrepreneurs and helping them to achieve business growth.

As with transitional economies, many of the same elements are critical for the sustained, positive development of free market capitalist economies. These include:

- Telecommunications,
- Reliable access to the world wide web by the population at reasonable prices,
- Sustainable influx of skilled laborers,
- Legal and regulatory framework restructuring to support a market economy,
- Training in modern business skills for all entrepreneurs,
- Access to capital by building lender knowledge, strengthening the banking system, and creating more credit liquidity through new financial instruments and micro-credit,
- A legislation system to protect civil and commercial rights,
- Establishment of cooperative relations with international and foreign organizations that support entrepreneurship,
- Teaching of market economy principles, and
- Increased business knowledge in general, including business technologies.

Countries with developing economies in the present study are found largely in the Middle East and North Africa. With the notable exceptions of Israel, Jordan, and Egypt, business incubators focus on providing very basic educational and support services to would-be entrepreneurs. Cultural issues play an extremely important role in these economies. As an example, there are differing attitudes toward fixed-term leases of office space. The traditional notion of business incubation implies that the rental of office space is guaranteed only for a fixed period of time after which the start-up company "graduates" and rents office space elsewhere at the going retail price. In areas such as the West Bank/Gaza (and some areas of Latin America and the Caribbean), inflated land prices and lenient tenancy laws combine to create a culture incompatible with the notion of short term leases. In fact, here the laws dictate that a land or property owner cannot evict tenants even if they are unable to pay rents and fees.

One solution for the success of business incubators in developing economies is to establish 'virtual' incubators, often called 'incubators without walls.' These typically have no resident tenants and focus on the provision of counseling to client businesses, either through a university science department, research laboratory, or on an outreach basis to small ventures. Clients receive such services as part of their membership in the virtual incubator.

In countries with low income per capita, such as Jordan, business incubation is playing a very strong role in the development and maintenance of a market economy that meets the needs of micro and small businesses as well as women entrepreneurs. Jordan's business development and incubation activities largely focus on improving women's educational and business development opportunities as well as on strengthening the entire information technology and telecommunications industry.

There are sources of great innovation also in the Middle East, including the Dubai Internet City, the world's first complete Information Technology and Telecommunications Center. Built inside a free trade zone, it is designed to lure

information technology companies to establish operations in the area because of tax-free trading opportunities. Other such experiments are now also ongoing in Egypt and elsewhere.

Conclusion

Regardless of form or model, business incubation has become a permanent part of the global economic landscape. However, it is important to devote careful attention to the underlying assumptions which drive the creation and operation of business incubation facilities and networks. Incubators that are created for the objective of fostering the growth of small companies so as to provide employment for the local population must be managed and evaluated according to those principles. Incubators that are created for the purpose of nurturing technology-based start-ups that can yield high returns on investments must be managed and evaluated according to profitability standards, and not on local economic development measures. All too often, business incubators are designed with one end in mind, but judged on the basis of an incompatible set of standards and measures. For this reason, the entrepreneurial context, driving forces, stakeholder goals, and community economic needs must be understood and integrated into business incubator design and operations.

While technology-based economic development has largely superseded more traditional approaches to economic development in the US, Europe and other developed economies, it is very premature to apply it to transitional and developing economies. Yet, that is precisely what may be occurring as corporate and individual investors range the world searching for technologies that can become the basis for profitable new companies. The role of business incubation in any context is to guide the development of new companies and start-up ventures. Mixing incubation with investment capital can provide wonderful opportunities for entrepreneurs, particularly in technology-based start-ups. At the same time, however, the task of the incubator management and stakeholders is to ensure that non-technology based entrepreneurial ventures also have the opportunity to receive support and services. It is these companies that ultimately provide the base for subsequent local development initiatives, rather than the technology ventures which more often than not are acquired, relocated out of the area, and absorbed into larger corporate operations.

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