

# **BUSINESS INCUBATORS FOR CENTRAL AND EASTERN EUROPE**

John L. Kmetz

Associate Professor of Management  
Department of Business Administration  
University of Delaware  
Newark, DE 19716  
USA

Telephone/voice mail: (302) 831-1773  
Fax: (302) 831-4196  
E-mail: [kmetz@udel.edu](mailto:kmetz@udel.edu)  
Home page: [www.buec.udel.edu/kmetzj](http://www.buec.udel.edu/kmetzj)

August 7, 2000

Earlier versions of this paper were presented to the Second World Congress of the International Management Development Association, Turku School of Business and Economics, Turku, Finland, 3 June 1993, and to the 29<sup>th</sup> International Conference on Small Business, Strasbourg, France, 25 June 1994. Portions of this version were presented to the Partners for International Education and Training at the Region VIII NAFSA conference, Bethesda, Md., 17 November 1995.

Copyright©John L. Kmetz, 2000

# **BUSINESS INCUBATORS FOR CENTRAL AND EASTERN EUROPE**

## **ABSTRACT**

This paper provides a literature review on the “business incubator” as a new-business development tool, based primarily on research done on these organizations in the U.S. Combining this with numerous interactions with University of Delaware and other groups from Ukraine, Bulgaria, and Slovakia since 1989, and experience from a USAID program in Bulgaria since 1991, the author makes recommendations for the formation and management of business incubators in Central and Eastern Europe. The recommendations in the main body of the paper are for general incubators; the Appendix makes specific suggestions for technology incubators.

## **WHAT IS A “BUSINESS INCUBATOR?”**

At the awards banquet of the 1994 annual meeting of the National Business Incubation Association, Frank Mancuso, an individual widely recognized as the “father of business incubators,” told the story of how the first one got started and how the name originated: In the 1950's, Watertown, New York, had experienced significant job loss owing to the movement of many manufacturing industries to the South and the West Coast. Along with this industrial shift, an incubator that had served local poultry growers closed, since much of the industry was moving (to Delaware, as it turns out). Left with a vacant building, the city of Watertown decided to clean it and refurbish it, and Mr. Mancuso, who was then Mayor, decided to allow entrepreneurs to use the building as a place to get their businesses started. He charged minimal rent, since his primary purpose was to stimulate economic activity, and basically provided a heated space to work and access to a telephone. Even with such limited resources, a number of new start-ups emerged from the building, and the program was enough of a success to attract the attention of the local press. A reporter who came by to see what was going on asked Mr. Mancuso what he was doing. As he tells it, he replied, “I don’t really know what to call it—we used to incubate chickens in here, and now I guess we’re incubating businesses.” The rest, as they say, is history.

A modern “business incubator” is a combination of physical space and facilities, entrepreneurial ideas, and administrative and management support, all joined to nurture new companies in the critical early stages of development. More specifically, a typical business incubator is a building (or part of a building) in which space is provided for entrepreneurs who are forming new companies (a “new-venture” type), or else is intended to be a real-estate venture which will increase the value of the building used. The building usually includes a central office in which common services needed by all companies are provided, both logistical services and management assistance. The building and support services may be provided by government, industry, or one or more universities. This description is relatively conservative in some ways, since the explosion of investment in Internet firms (“dot-coms”) has led to use of the term to include venture capital and other investment companies which buy or underwrite such

new businesses without necessarily providing physical space or logistic support. In earlier years these would be termed “incubators without walls.”

## **Growth of Business Incubators**

The primary motivation for creating business incubators is obviously economic. They are either a new-business development entity intended to increase the rate of new business formation and the likelihood of survival for those new companies which emerge (“graduate”) from them, or else real estate ventures. The motives of some incubator sponsors may be altruistic, e.g., alleviation of regional unemployment, but it is more likely that sponsors expect some economic benefits over the long term, whether for investors or the community.

The number of business incubators in the U.S. has grown tremendously since their inception. By the end of 1990, there were nearly 400 of them; the 1992 U.S. count was 500 incubators (Allen & McCluskey, 1990), and the 1998 NBIA survey reported a census of 587 (Survey of Business Incubation 1998, 2000). Another 500 are estimated to operating elsewhere in the world, including 200 incubators or “proto-incubators” in Central and Eastern Europe, Russia, and the Newly Independent States.

The population of Internet incubators has also grown rapidly; (Walker, 2000) estimates that over 40 of these exist in the US alone. What is more, the nature of the companies that these incubators host is quite different from their non-Internet brethren. The extremely competitive market for such companies has led to a dramatically different role for many incubators, in that they provide direct financing for their tenants, even to the extent of selling shares in the incubator itself (Weintraub & Reingold, 2000; Barrett, Sharpe, & Weintraub, 2000), and working to accelerate the movement of new firms into the marketplace (Why Incubate When You Can Accelerate?, 2000).

In the next section of this paper, we examine the characteristics of business incubators in more detail, including some of the factors which contribute to success or failure of them. In section (3), we review the basic steps involved in creation of an incubator, and in section (4), we evaluate the business incubator as one way to assist economic transition in Central and Eastern Europe (CEE), and recommend consideration of several factors particular to CEE. The majority of the discussion will focus on new-venture incubators, since they are of the most concern to us in the region. Finally, the Appendix addresses several issues of particular relevance to technology incubators.

## **CHARACTERISTICS OF BUSINESS INCUBATORS**

### **Sponsors**

As Haugen (Haugen, 1990) notes, the original reason for creating incubators was to replace employment lost when companies left a region or city. Allen and

McCluskey (1990) found that 42 percent of all incubators in their National Business Incubator Association (NBIA) survey were this type.

Many incubators are now operated by universities, as a means for moving new technologies from the laboratory to the marketplace. Allen and McCluskey found that 15 percent of their sample was affiliated with academic institutions.

One-fourth of the Allen and McCluskey sample were for-profit incubators. These incubators are formed as commercial ventures to provide the support and services given by any incubator, but the rentals paid are expected to be adequate for the operator ("sponsor") to earn a profit. The majority of these incubators were real-estate ventures, a relatively distinct group.

A recent addition to the incubator family has been the creation of the "dotcom" incubator as a direct result of the business potential of the Internet. While the number of these is not known for certain, one estimate reports roughly 100 of them with another 20 forming (Kilgannon, 2000). If this is correct, then the population of business incubators has increased quite rapidly. Ernst & Young started a dotcom incubator in New York, and this has been acquired by the French consultancy, Cap Gemini, in June, 2000; clearly, the Internet incubator has now caught the attention of Europeans.

## **Goals**

The goals for formation of business incubators are fundamentally economic, as noted. However, there are other purposes served by incubators, and most of these goals derive from the interests of the sponsors as well as the entrepreneurs in them.

The greatest diversity in the U.S. is typically found in the reasons for forming government-sponsored incubators. Government units, whether states, cities, counties, or rural areas, may intend to reduce the job loss resulting from losing large employers, to reinvigorate "blighted" regions or neighborhoods, to assist particular subpopulations or groups, or simply to increase general economic activity and diversity, and to expand the tax base. Some government units have found that business incubators are preferable to attempts to attract outside employers (Udell, 1988). Experience suggests much the same goal diversity applies to incubators outside the U.S.

Universities are more likely to be involved in technology development, where new technologies are being brought from the university laboratory to the marketplace. Local government may focus on assistance of disadvantaged minorities as a goal of equal importance to the economic returns expected, but the humanitarian motives are significant in their own right. Commercial incubators intend to earn a profit, and from self-interest may also provide services to enhance survival of the companies it incubates.

Whatever other goals may be served by an incubator, its principal function is still to help entrepreneurs launch new businesses. The incubator's services eliminate the need for the entrepreneur to attend to matters not directly concerned with the business,

and reduce the cost of operation. The below-market rentals offered by most incubators also reduce the operating costs for the new business during its critical early stages. The benefits of the incubator relative to a more traditional start-up are therefore both technical and financial.

## **Participation and Tenancy**

There are no universal selection criteria for tenants, and one study (Lumpkin & Ireland, 1988) found that the goals of the sponsor were the predominant factor in selecting candidates firms. The Allen and McClusky (1990) findings were similar. For example, corporate “seed capital” incubators admitted new ventures with high growth potential and high cash harvest potential; property development incubators admitted tenants mostly for their ability to pay rent.

Most incubators allow participants to be tenants for a limited period of time, although some do not expect tenants to exit. It is especially likely that real estate incubators will have full occupancy as an economic objective, and once achieved, will be unlikely to require or expect tenants to leave. Surveys have found that most business-development incubator tenants remain in the incubator for two or three years (Allen & McCluskey, 1990). However, since new technologies often take longer to get to the market, some incubators allow tenancy for longer periods. Many incubator sponsors reserve the right to make case-by-case decisions on the extension of normal tenancy, and many make more frequent progress reviews. (One particularly successful Irish for-profit incubator encourages new companies to stay until they literally outgrow available space in the converted Dublin hospital which houses the incubator.) Whatever the length of a limited tenancy, at the end of it the new firm “graduates” to the outside world, and is on its own.

Rules for graduation vary. Some incubators rely solely on time, i.e., length of tenancy, as the criterion, while others use business-volume tests, profitability, or other financial criteria. Many use graduated rent schedules, such that the tenant pays rent which gradually increases to market levels. When the tenant has demonstrated ability to pay market rent, graduation occurs. Combinations of these criteria are also used.

## **Incubator Services**

As noted earlier, incubators usually do not provide capital, nor any other direct financial assistance beyond reduced rental and office support. Incubators frequently help entrepreneurs prepare plans and proposals, assist them in making contacts to find financing, and may be able to assist participants to obtain cheaper insurance, but most incubators themselves are not investors. The majority of services provided are in the form of services and indirect support.

**Logistics and support.** A key feature of most incubators is the provision of common logistical support items. These consist of utilities, a secretary, telephone system and answering machine, computer, printer, fax machine, copier and mailbox.

**Management services.** An important feature of an incubator is the ability to provide management services. Allen and McClusky (1990) found that all incubators in their sample provided at least four of twelve common management services. These included accounting, marketing, business planning, government procurement, legal services, and the like. These services are often arranged through the incubator, but are provided by private consultants, and for roughly half of the tenants surveyed, full rates were paid.

**Training and education.** Many incubators provide training and education for emerging managers. This training may be in conjunction with educational institutions, or may be provided independently.

**Technical assistance.** Business incubators usually do not provide direct technical consulting or assistance, but several notable exceptions exist. First, incubators associated with universities and educational institutions typically incorporate some form of technical research or research and development support as part of their operation. This may not always be available to all tenants, owing to the need for security of developing technologies. The second form of incubator providing technical support is the “seed capital” type, which has a direct interest in seeing ideas come to market and earn a profit.

## **Incubator Success and Factors Contributing to Success**

Do incubators work? Of special interest is success or failure of the developmental incubators intended to graduate new companies. There are many “success stories” in the literature of incubators (Haugen, 1990); (Mamis, 1989); (DeMuth, 1987); (Bacas, 1986), usually case studies of individual incubators or governmental efforts. At the same time, there are observers who are critical of incubators and their impact, and who consider them to be unsuccessful. Udell (1990) noted that there was little systematic research on incubator effectiveness despite early growth in their popularity, and (Cote, 1991) was especially critical of government-sponsored incubators in Canada.

In evaluating the evidence, we should note that the objectives of the incubators must be considered fully in evaluating their “success.” If the objective is to create and graduate new companies with a higher probability of success than a non-incubator start-up, then graduation and long-term survival rates are the criteria to use. On the other hand, if the objective of an incubator is to earn a return as an entity in its own right, then graduation of successful firms would not be a suitable criterion of success.

Allen and McCluskey (1990) found that the majority of incubators surveyed reported some degree of success in achieving their objectives, with exception to the real-estate incubators. (Doescher, 1988) claims that about 80 percent of incubator graduates survive, where in the general economy only about 20 percent of new firms do; the 1991 NBIA survey found a failure rate of 16 percent (Lichtenstein, 1992). Finally, there is a growing quantity of “hard” data supporting incubator successes. The Advanced Technology Development Center in Atlanta, Ga., has monitored its

performance continuously since 1990. By the end of 1994, total revenues generated by graduates and tenants had grown from \$148 million to \$214 million (the census of firms has grown from 43 to 58); total employment from 1,106 people to 1,646; and total economic impact from an estimated \$218 million to \$316 million in the area (Kalis, 1995).

The most recent survey of business incubation (Survey of Business Incubation 1998, 2000) reports that as of 1998, North American incubators had spawned over 19,000 surviving companies, and these collectively had created 245,000 new jobs.

Several surveys of factors contributing to the effectiveness of business incubators have been done. From these, there is some agreement on several factors, although these are certainly no formula for success. Many of these factors were concerned with particular incubators in specific locations, while others attempted to identify characteristics of more general importance. The most evident conclusion from these surveys is that factors specific to the objectives of particular incubators are more important than general ones. Not in order of importance, these include:

1. Effective incubator management. Good incubators require an effective administrator who organizes support services well, and who in many cases plays a key role in the selection of tenants.

2. Management support services. Surveys consistently emphasize the importance of management services to the success of the tenant firms. These services include assistance in fundamental skills and services, such as bookkeeping and legal assistance, as well as training in business planning and organization.

A paradox in this regard is that surveys have consistently identified these services as a key to incubator success, and yet most U.S. incubator tenants do not take advantage of these services, and express dissatisfaction with them when they do (Udell, 1990; Allen & McCluskey, 1990). It is not clear to what extent new entrepreneurs know what they need—(Fry, 1987) found that even when assistance in planning was available to incubator tenants, they often had to be pressured to take advantage of it. This has been indirectly supported in studies of high-technology European incubators (Autio & Klofsen, 1998). Udell (1990) also noted that most incubators have not developed such a full-service program, which might account for the dissatisfaction reported by many tenants.

3. Incubator size appears to be important to success, suggesting that perhaps a larger and more diverse tenant base is more likely to succeed than a specialized one. This suggestion is reinforced by the conclusion that real estate investment incubators are not particularly effective, either as investments or as incubators of other businesses (Allen and McCluskey, 1990). Size may be only an artifact of age, which was about equally strongly related to success in this study.

4. Other factors. Several other surveys, less comprehensive than the Allen and McCluskey study, have suggested a number of factors contributing to the success

of incubators. Merrifield (Merrifield, 1987) found six factors: capital availability, manufacturing competence, marketing and distribution skills, technical support, component and materials availability, and management. Based on a combination of a national survey and interviews with operators and tenants of incubators, Smilor (Smilor, 1987) found ten factors which contributed to success: on-site business expertise, access to financing and capitalization, in-kind financial support, community support, an entrepreneurial network, entrepreneurial education, a perception of success, a selection process for tenants, a tie to a university, and concise program milestones with clear programs and procedures.

In concluding this section, it should be noted that recent surveys and empirical investigations have begun to support the arguments that incubators are effective in assisting both new-business development and survival. At the same time, these surveys have clarified some of the shortcomings of the incubator.

### **STEPS IN BUSINESS-DEVELOPMENT INCUBATOR FORMATION**

Briefly, several general steps in formation of a new-venture incubator can be recommended. These are based on several assessments of incubator formation in the past five years (Culp, 1990; Kuratko & LaFollette, 1987; Scherer & McDonald, 1988).

1. Specification of incubator goals. These should be coordinated with the objectives of the community and the sponsor.
2. Establishment of a local working group to take responsibility for initial work in incubator formation.
3. Assessment of local business support, in terms of training, experience, and technical expertise.
4. Analysis of local economic activity, including both entrepreneurial activity and market potential.
5. Site identification.
6. Identification of financing sources for both the facility and its tenants.
7. Creation of start-up plan.
8. Marketing and publicizing of the incubator.
9. Evaluation and redefinition of goals.

It is worth noting that as with many organizational projects, thorough preparation is a critical requirement for success. Understanding of the regional business environment, and the risks and rewards it poses, is important. Finally, development of relationships with significant sponsors or external agents is important, as is marketing of the incubator to prospective tenants.

### **CHARACTERISTICS OF OPERATING U.S. AND EUROPEAN INCUBATORS**

The 1991 NBIA survey of U.S. incubators provides some very useful data on the characteristics of operating incubators in the U.S. (Lichtenstein, 1992). 150 incubators



provided usable responses to the survey. Several of their survey findings are especially noteworthy:

1. Incubators graduate 27.5 percent of their tenants annually, and have a tenant failure rate of only 16 percent.
2. Many successful incubators are not necessarily large, having a mean (and median) of 12 tenants with an average of 5.4 employees per tenant, and occupy only 19,000 square feet (1,764 m<sup>2</sup>). The trend has been for incubators to be smaller, with the average size of incubators founded prior to 1986 being 37,000 square feet. Nevertheless, these incubators had produced a total of 7,250 jobs, one-fourth within 1991 alone. This latter fact is indicative of the rapid increase in the number of incubators in the U.S.
3. Rental fees constitute over 75 percent of all operating revenue for surveyed incubators, and only 40 percent of all revenues for the entire sample came from subsidies or non-operating sources (despite the fact that 90 percent of all incubators are non-profit organizations, although this is the case for tax purposes).
4. Management of the incubators is very lean, with most having only one or two paid staff. Most management time goes into working directly with tenant firms (21 percent) and training (8 percent). Other time is split between recruiting, building management, incubator operations (leases and rent), and fund-raising and external relations.
5. Median operating income (rentals, equity income) for the survey respondents was US\$ 76,000. Median total revenue was US\$ 142,000, but this includes many sponsored incubators. Median costs for labor were US\$ 64,000; for plant and equipment US\$ 43,000; and for other (mostly utilities) US\$ 61,000.
6. The most sought-after types of tenants were firms with technology products. Light manufacturing, research and development, and services were next.

A 1994 survey of 74 mature European Business and Innovation Centres (BICs), as reported by the (European Study Confirms BIC Success, 1996), found that an average of 22 business plans per BIC were generated, along with 1,423 new companies or new products from existing companies. These start-ups produced nearly 7,000 jobs. Interestingly, most of the financing of European BICs comes from private companies, and these BICs generated 54.8 percent of their own operating income. An average of 8.9 people work for each BIC, about 60 percent of whom are executive staff.

With the growth of the incubator industry in the U.S. and Europe, and increasing quantities of data and experience to draw on, the case for business incubators in CEE is made even stronger. The most recent development in U.S. incubators is strongly consistent with my recommendations for them in Central and Eastern Europe—make them self-sufficient, operating as profit centers or preferably as profitable businesses in their own right (Kalis, 1995). Reasons for this trend are many, but two stand out as most important. First, it takes a great deal of time *not* to be self-sufficient. Writing grant

applications, reporting requirements, travel, and all the ancillary activities necessary to operate an externally-funded incubator detracts from running the incubator well. The second reason is closely related, and highly consistent with the objectives of incubators in CEE: the goals of an externally-funded incubator are always multiple, and this diffuses effort and managerial focus. The best business incubators operate from a very solid initial business plan, and monitor and evaluate themselves henceforth as businesses.

## **CONSIDERATIONS AND RECOMMENDATIONS FOR INCUBATORS IN CENTRAL AND EASTERN EUROPE**

Based on the review of the literature above and experience elsewhere, it is the author's view that business incubators are feasible for business development in CEE, and for some reasons may be preferable to any other form of new-business development assistance. The steps in section (3) above are the recommended sequence of activities for creation of incubators. Based on the literature review here, observations from the first year of the University of Delaware program on management training in Bulgaria, and numerous interactions with other client and professional groups, the following are recommendations for development of business incubators in Central and Eastern Europe.

1. Incubator Goals. There should be a clear focus on economic and business-development goals. Further, I recommend that the incubator itself be established with the objective of becoming a profitable and self-sustaining organization as rapidly as possible. These goals should focus on both the direct support of developing businesses, and on entrepreneurial and managerial training as co-equal objectives. Artificial creation of jobs to preserve existing levels of regional employment should not be a consideration—unemployment should be reduced through creation of new jobs. It is recommended that the incubator objective should not be that of a real estate investment, but rather to stimulate and nurture new manufacturing and service companies.

Educational preparation for prospective tenants should include a short but intensive course on basic business planning and management functions. Basic accounting and financial management must be included in this training. Experience with such courses offered through the University of Delaware program indicate that evening courses of several weeks duration, meeting two to three times per week, are adequate to provide basic information. More intensive instruction may be required on specialized topics. As a longer-term objective, the author recommends that native-language videotapes be prepared as self-instruction tools, with accompanying manuals to be used as a workbook and reference. These educational tools reduce dependence on external instructors and classroom facilities for new tenants, and allow much more flexibility in scheduling both training and changes in tenancy of incubators.

It is imperative that more specialized education not ignore accounting. While there is much perceived need for management and marketing courses, many managers

and entrepreneurs in CEE, and to a considerable extent higher-education institutions, do not recognize the need for training in accounting. Lack of accounting knowledge is certain to become a near-term liability for many of these individuals and organizations.

2. Sources of Capital. Continuing relationships with external funding agencies will be required. Unlike many U.S. incubators, CEE incubators will need to be sources of direct funding and investment capital for tenant firms. Organizations such as the (Country)-American Enterprise Fund, the International Bank for Investment and Development (World Bank), The European Bank for Reconstruction and Development, and others specializing in providing start-up capital and seed money may serve as sources of funding for new companies. In a few cases, this could even include growing CEE companies who are now sufficiently profitable to invest in other countries in the region (Miller & associates, 1994; Economics Focus: How Does Your Economy Grow?, 1995). Along with the focus on business-development goals, the objective of the investors should be to earn a return on that investment, consistent with their own objectives. In that connection, investors will need to coordinate their objectives with the role of the incubator manager.

In this connection, the author is recommending that CEE incubators must become profit-making organizations in their own right. This is characteristic of only a minority of U.S. incubators, but is necessary both to contribute to the objectives of the funding organizations, and to impose financial discipline on the incubator itself.

Funding organizations contributing capital to the incubator would derive benefits from the ability to expand their impact on the economy through the incubator and its management. The practical reality is that the value of most currencies in the region is so low in comparison to U.S. and other industrial-nation currencies, that "small" loans in the terms defined by the lending organizations are "large" in Central and Eastern Europe. It is impossible for the management of any one lending institution to consider or to manage all the worthwhile small loans which could be made. However, using the incubator in this capacity, effectively a secondary lending institution, benefits both the primary lenders and the incubator, and makes investment capital more widely available.

3. The Role of the Incubator Manager. Given the above recommendations, incubator managers in Eastern Europe will need to be individuals who can meet an exceptional challenge. On the one hand, they will need to be people who can meet the requirements for effective Western management, and be able to convince potential investors of that capability. In addition, they will need to be extremely effective internal managers of the incubator. This will require that they be able to evaluate business plans according to Western standards, to be able to recommend projects and new entrepreneurial undertakings as worthy of funding to sources such as those mentioned in point (2) above.

Meeting these requirements will require great care in the selection and preparation of the managers. My recommendation is that prospective managers be selected through a combination of in-country interviews and proficiency testing, particularly for language skills. Since I also recommend that intensive training be

provided in the U.S., the second language of preference will be English. This is necessary not only as a precondition for training, but also for the ability of these managers to represent their tenants to foreign organizations for funding, marketing, and sources of supplies not available locally.

Those selected for this training should be brought to the U.S. for a program of intensive instruction in business and accounting. Their program should include visits to operating incubators in the U.S. to see actual incubator activities, and they should be exposed to different types of incubators to learn more of the different types and objectives of domestic incubators, much of which may provide useful information for incorporation into their incubators in their home countries. At the end of this period of instruction, trainees should be rigorously evaluated, primarily through preparation of a detailed business plan, which will be written in English, presented to a team of trainers and peers in English, and also translated into the trainee's native language from English. The latter will be evaluated by a native-language speaker for accuracy. Only those trainees who can be certified through this process will be accepted as incubator managers; U.S. or other agencies who support such training should be prepared to accept that not all trainees will succeed in this process.

Obviously, the individuals selected for such positions will have to be highly motivated themselves. In addition, I recommend that the persons trained should have business experience in their home countries as a precondition for selection. Business success is not a requirement, but this position will require considerable ability to understand entrepreneurs and work with them effectively—it is not an academic job. Nevertheless, the ability to communicate effectively and to train others will be a requirement, so teaching skills should also be evaluated. These will be rare individuals, and must be chosen carefully.

4. Services Provided. Provision of a full range of services, including management and business training, is clearly needed. Historical relationships between universities and industries do not provide a viable model for CEE, for two reasons. First, relationships between institutes and their respective industries were almost always highly specialized and far too inflexible for a market economy. Second, the academic model of instruction in Central and Eastern European universities was little concerned with application of knowledge, and treated information abstractly. Newer models of instruction, emphasizing continuing education along with application, will need to be developed for incubator tenants.

Services offered must include basic internal business functions, such as planning and consulting on organization, financing and financial planning, accounting services, tax assistance, and the like. Indoctrination into the incubator must be part of the service program, and must be a requirement for anyone to be approved for tenancy. This control will ensure that all new tenants are given basic information about the risks and requirements of starting a new business—what is called a “reality check” in the vernacular. Clearly, the content of the management training must emphasize skill development equally with cognitive knowledge. Even in the U.S., skill training is often ignored for business students and business people, despite the repeated findings that

skills are the most needed new learning (see Whetten and Cameron, 1991, for a review of these studies).

The U.S. organizations who sponsor and support the development of these incubators and the training of the managers should pay particular attention to the content of their training information. Evidence since the beginning of this transition period has made it clear that much of the trade within the region has been with Western Europe and the European Union, rather than a continuation of trade within the CEE area as before the breakup of the Council for Mutual Economic Assistance (CMEA or COMECON) group. Also, the Central European Free Trade Area (CEFTA) has also been largely ineffective as a trade union (Macvicar & associates, 1993). Thus, training should include material on the European Union, its trade requirements and standards, and conditions new companies in CEE should expect to meet if they want to trade with the West. Most U.S. training programs in CEE provide little of this information.

5. Limited Tenancy. There should be limits on tenancy, with a three-year limit on tenancy as the recommended basic limit. In addition, the author recommends a multiple limit structure for different types of firms—for example, a retail shop might be restricted to one year to get started, where a high-technology, high-value-added company might be allowed the full three years. The primary reason for this recommendation is the need for access by different types of firms, while keeping incubator services as widely available over time as possible.

6. Tenant Selection. Because the incubator provides some protection from marketplace risks, and because there are many more potential tenants than the incubator can accommodate, incubator operators will need to be highly selective in choosing incubator participants. The financial assistance given to the entrepreneurs who are selected is not available to those who are rejected, which raises the question of fairness to the potential pool of tenants.

Another reason for selectivity in acceptance of tenants, stated frankly, is that corruption is widely perceived as a problem in relationships which may involve financial gains. Whether these perceptions are accurate or not is not the issue here—it is the perception of it, and this must be scrupulously guarded against.

One of the principal requirements for tenancy will be to accept a full program of business training. This will be provided primarily by the incubator manager, and the first phase of training will be for prospective applicants, who will be provided with enough knowledge to formulate a reasonable written business plan. Tenants will be accepted on the basis of that business plan, and will be obligated as a condition of their tenancy to complete a longer second phase of training while they are tenants. Part of the requirement should be to revise and update their business plans as they progress toward actually launching their enterprises. By graduation, they should be proficient in the use of all modern business tools, including accounting knowledge, computer skills, and effective communication.

7.     Networking. The incubator should serve as a local nucleus for networking and development of support relationships for sharing of knowledge and information of value to entrepreneurs. While such activity may outwardly seem anti-competitive, the underdeveloped private sector in CEE makes it more likely that such cooperative relationships will not affect close competitors. Exploratory contacts with business people who have participated in the University of Delaware program in Bulgaria resulted in some interest in forming such networks in two cities.

These networks should also include relationships with universities, but principally in the form of providing opportunities to get new technologies into the marketplace, as is common in the U.S. model. In the technical realm, it may be easier to form relationships with universities than it is in the area of management training. Relationships with universities can also be helpful in that they can provide both education and training, and provide assistance through local surveys of economic conditions.

At the same time, the incubator must be careful to maintain its relationship completely independently of the university insofar as incubator decisions and operations are concerned. Many CEE universities are presently going through a major restructuring and redefinition of missions, and the role of the incubator must be carefully protected from the potential turbulence which will accompany these changes in the universities.

Since much of the support for development of these incubators will come from U.S. sources, it is advisable for these incubators to become affiliated with the U.S. National Business Incubation Association. This group has a large and very active membership, including growing numbers of international members. It supports its own computer bulletin-board system for incubators, and has a long-term relationship with PriceWaterhouseCoopers public accounting and management consulting firm. As such, it is an invaluable source of support and assistance for developing incubators.

8.     Coordination of incubators. Although movement away from centrally planned development is clearly the preferred direction of the Central and Eastern European economy, there is potential need to coordinate efforts and share information on the unique properties of CEE incubators as they develop. This coordination can be partially achieved through the networking discussed above. Moreover, there are possibilities for significant European support and coordination within and between groups of organizations. For example, Bulgaria recognized the need for increased economic development before the collapse of its last communist regime, and had created seven regional technology development centers. These organizations are presently struggling to survive, but they could form a nucleus of incubator activity in the development of marketable new technologies (many of which, as an additional benefit, are opportunities to employ highly skilled scientific personnel from former defense industries in Bulgaria).

Business Innovation Centers would also benefit from better coordination of efforts. Many of the estimated 200 BICs in CEE and Russia and the NIS are barely

more than a telephone on a desk in a small room (or part of a room), and by pooling and coordinating their activities much more effective use of them might be obtained.

Several points from the 1994 NBIA survey (Kalis, 1995) are immediately relevant to incubators in CEE:

1. Get a building without debt. There are many state-owned and state-company-owned buildings that can be designated as sites for incubators. Many are not attractive for modern industry, but that is often not an issue for incubators.
2. Take equity or royalties in tenant companies. Having a joint stake in making tenants profitable focuses managers on getting them there.
3. Partner with other organizations, but do not duplicate programs. Working with universities, government, Western funding agencies, and the like is an excellent idea and frequently a good source of support, but these relationships should not be duplicates of programs others have under way. A niche is good for an incubator as it is for a business. In much of CEE, such niches are relatively easy to find, and all of them help develop a market economy.
4. Implement an affiliate program. This can take the form of support for companies not in the incubator itself (an “incubator without walls”); provision of business services for non-members (often for a fee); trading of incubator services for outside services; using surplus space to generate marginal revenues as a real-estate investment; providing technical consulting through tenants; and the like. Often these “affiliate programs” are limited only by the imagination of the incubator management, and many are highly adaptable to a developing market economy. “Anchor tenants” are often developed by incubators, and these are successful tenants who stay in the incubator for a longer time than usual, typically because they are growing quickly, even as new technologies come to market. These may become part of this affiliate program, in that they can often offer services and technical assistance to others.

## **CONCLUSION**

It bears repeating that in the author's view the business incubator may be a very appropriate and useful tool for development of private companies in the changing Central and Eastern European economy. It is his personal recommendation that incubators should be created in major cities, in municipalities where a specific knowledge base has been created through industrial or education development, and which holds promise as a resource for entrepreneurial initiatives. Selection of sites for incubators will require evaluation and outside expertise as time goes by and opportunities increase.

This paper has been written to serve two major purposes: to explain business incubators to those who may not be familiar with them, and to suggest how this device

might help meet the needs of the emerging market economy in Central and Eastern Europe. These considerations are offered as a first step toward creating a viable and helpful incubator in Central and Eastern Europe, and not as a definitive blueprint for such an incubator. If anything, experience has shown that each of the emerging democracies in the region will need to design and tailor its own institutions, and it is certain this will apply to business incubators as well. This paper may be a small contribution toward that end.

## **APPENDIX**

### **SPECIAL CONSIDERATIONS FOR TECHNOLOGY INCUBATORS IN CEE**

This appendix provides additional information which is specific to technology development business incubators in Central and Eastern Europe. Business development based on innovation and the commercialization of new technology is one of the most attractive concepts anywhere in the world. Many advanced nations have put energy and money into creation of a local version of “Silicon Valley,” so that now we find the “Silicon Glen” in Scotland, the “Silicon Cote d’Azur” in France, and Malaysia’s “multimedia super corridor.” (Micklethwait, 1997). The model for many of these incubators is the “science park,” frequently a university-affiliated incubator and with significant direct and indirect government support.

**Motivation.** The motivation for recommending “high technology” or “science park” incubators is derived from two sources. First, it has been widely publicized that one of the major assets of CEE is a well-educated and highly literate work force. This has been especially true in the physical and exact sciences. Therefore, there would appear to be a major opportunity for investors seeking new ideas for development of marketable products in specific technological fields. Second, and perhaps more importantly, technology-based products are more likely to be specific to application and market niches, many of which are in high-value-adding activities. This characteristic means that CEE technologists can compete on the basis of their strengths, of course, and it removes them from the arena of commodity competition.

In the latter area, the future is likely to be brutally competitive, as the combined effects of the Single Market in the European Union, the World Trade Organization agreements from the General Agreement on Tariffs and Trade, and the expansion of the European Union, now scheduled to include Cyprus, the Czech Republic, Estonia, Hungary, Poland, and Slovenia early in the 21st century. The increasing global and regional competition in this environment means that many commodity producers will be threatened by parallels to the “hog cycle” in agriculture—declines in prices for swine products motivate farmers to produce more hogs, continuing until the market collapses. Shortages then increase prices and motivate a return to the market, and the cycle begins anew. It is better to avoid getting trapped in this cycle, and in the author’s view, niche-specific high-margin products offer a better alternative.

**Operational Recommendations.** The following points are modifications to the recommendations made for operation of general-business incubators.



1. Goals and incubator establishment. Given the fact that many technology incubators have very specific requirements for the nature of the facilities required (for example, wet laboratories, bio-hazard safety, and many others), the types of technologists to work in them, and the like, the selection of the technology for the incubator to focus its goals on will often be an important determinant of many operating characteristics of the incubator. The type of incubator may also have a significant impact on resource requirements, as with those requiring wet labs (Graebner, 1999), which can be too expensive for even some municipalities in the US. Partly for this reason, the Board to be discussed in the next section will have a significant role to play in selection of the most promising technologies, since no single individual will be capable of making such decisions alone. However, the arguments made earlier, that the primary purpose should be to develop profitable new businesses, remains the same, and must be of paramount importance to those decision-makers who select the technologies to pursue. The primary goal of the incubator is not to continue the laboratory employment of the technologists *per se*.

My recommendation is that the goal of the incubator, in short, has to be very profit-oriented, with an eye on the well-known “bottom line” at all times. However, the reality of taxation systems in several of the emerging economies in CEE may make it necessary to initially structure the incubator as a non-profit organization. If so, so be it; however, I firmly believe that to allow that perspective to become anything but an ostensible orientation of the incubator will be a major mistake, and quite possibly one that would destroy it. Under any conditions, and in most countries, it is usually a challenge to have technologists accept the discipline of the market, since the principal interest of the technologist is the process of discovery itself. The process of discovery must be channeled into the desire to see the work succeed in the marketplace.

Experience with entrepreneurs in Central and Eastern Europe, both personal and vicarious, strongly indicates that the challenges facing new companies are in no small part a matter of the values and orientation of the entrepreneur. Technologists, particularly, are often inclined to continue the development process indefinitely, in part because it is in their nature to want to find the most elegant solutions to technical problems, and in part because of fear of the loss of ideas when they are shown to others. In the era of centrally-planned economies in this region, the “bottom line” as understood in the West did not exist; this was coupled with strong emphasis on technical excellence, maintenance of full employment, loyalty to the firm, and a lack of concern for the customer. Many of the best and brightest technological innovators were drawn into former Soviet-bloc defense industries, and these have proven to be very a great challenge to reorient toward the market (Randall & Coakley, 1998).

Finally, it should not be overlooked that incubators need not be restricted to a solely domestic market. Part of the Irish economic turnaround of the 1990's has been supported by active recruitment of incubator tenants to Ireland from other countries, many from the US. Incubators in the US have been developed to both attract foreign tenants and to develop companies with a strong export orientation; the International Business Incubator in San Jose, Ca., focused exclusively on attracting foreign tenants

(Narain, 1997). The near-term accession of many countries in this region is best served with an international market orientation early in the development of the new firm.

2. The role of the incubator manager, and incubator Technical Board composition and activity. The role of the incubator manager will be changed in several ways in a technology incubator, relative to a general-business incubator. First, the technology incubator will need a technically expert body (the “Technical Board”) to assist the incubator manager, incubator investors, and applicants. The Board will need to serve as a screening body to perform preliminary evaluations of technology-development proposals. The incubator manager will use this as one source of information in making decisions on tenancy applications. This evaluation process will also need to be reported and interpreted to investors in non-technical terms, so that both the incubator manager and those having investments at risk in the incubator can be kept informed of the evaluations. Finally, the Board may serve as a resource to applicants, to help them structure their technical proposals in ways that clearly indicate the development process and schedule, and the expected product or process to be the outcome of the incubation period. The burden of effective presentation of an idea, of course, will ultimately be on the technologist.

The incubator manager will still be focused on the business objectives of the incubator. One impact of working in a technology incubator will be that the manager will need to be informed on technical matters and issues; however, much experience in the management of technical projects has made it clear that it is not necessary for the incubator manager to be a technical expert (Kerzner, 1995). However, it is completely unrealistic to expect the manager to be able to evaluate a broad range of technologies, and it would probably be unwise to do so under any conditions, since some degree of technical risk is always involved with any new development.

The Technical Board and the incubator manager would work together to make the final selections for tenancy, based on technical proposals considered to be worthy of pursuit, acceptable to investors, and developed into a sound business plan. Owing to the amount of time and energy required to make such evaluations, it is probably the case that most technology incubators in CEE will wish to restrict their focus to one area or closely related areas of technology development.

Finally, the role of the incubator manager will require especially effective communication skills. Not only will the already high demands of regular interaction with tenants and the community be in place, but there will also be need to serve as an information “node” to investors, the technology industry base in general, and to potential customers for the incubator outputs. Communication skills must be a prominent selection criterion for such managers.

The contribution of a well-functioning incubator management cadre to the success of the incubator is seen in the study of two European science parks, the Swedish SMIL park and the Finnish Spinno park (Autio and Klofsen, 1998). In both of these, the Board and incubator management work with applicants to screen technical ideas and select those with the highest perceived chance for success. The Spinno park

requires a six-month period of training and consulting by aspiring entrepreneurs to develop not only a sound technical plan, but also the business concept, the business plan, and funding proposals for venture capitalists.

3. Sources of capital and the role of investors. My recommendation is that the technology incubator be a profit-centered, if not actually profit-making, enterprise. For that reason, the growing European model of support from outside investors has much to recommend it, for two reasons. First, the incubator may serve as a source of new growth opportunities for existing businesses, and therefore as an attractive investment in its own right. Second, the business community may be the most effective source of new ideas for products, and thus a major source of initiatives for technologists to pursue. Investors and prospective customers may eventually form close working relationships with technology incubators, and such relationships should be encouraged from the beginning.

4. Networking and communication. In several ways already discussed, communication with the world outside the incubator will be an important incubator function. However, it appears possible that such incubators might perform an important role in more general terms, which is to bring several differentiated groups together more effectively than other mechanisms now do. Specifically, most technologists are known in academic circles and among other researchers; most companies are known in their industry and market; and there is limited interaction between them. These conditions make it difficult for companies, investors, and technologists to “find” each other. Although there are excellent relationships between many academic and research institutions and their industry counterparts, there are areas where such linkages are poor. Technology incubators can serve a helpful role in developing such linkages.

The importance of such networks may be much greater in CEE than in the West. The author’s experience in Bulgaria suggests that many potential entrepreneurs found themselves voyaging into uncharted territory, and that in many cases the psychological support of a group going through difficulties similar to those being experienced by new entrepreneurs was necessary. Lack of clear and tested business laws, aggressive and sometimes unethical and illegal business practices, and weak enforcement of laws from the authorities make direct contact between business people an important psychological complement to the development of the new enterprise. The network may also complement and perhaps even substitute for, the functioning of the Board. The experience of the Zelenograd Scientific and Technology Park (ZSTP) in Russia, suggests this, and it is hard to find a more difficult environment in which to start a new business today than in Russia (Bruton, 1998). ZSTP uses a combination of networking and interaction with local university officials to provide incubator management, and the model seems to be successful for tenants both within the incubator and those using it as a resource, but with external physical plant.

## REFERENCES

- Economics focus: how does your economy grow? (1995). *The Economist*, 96.
- European study confirms BIC success. (1996). *NBIA Updates*, 3(3), 6.
- Survey of business incubation 1998*. (2000). Athens, Ohio: National Business Incubation Association.
- Why incubate when you can accelerate? (2000). *Knowledge @Wharton*.
- Allen, D. N., & McCluskey, R. (1990). Structure, policy, services, and performance in the business incubator industry. *Entrepreneurship Theory and Practice*, 61-77.
- Autio, E., & Klofsten, M. (1998). A comparative study of two European business incubators. *Journal of Small Business Management*, 36(1), 30-43.
- Bacas, H. (1986). Why some firms don't move. *Nation's Business*, 74(5), 48C-F.
- Barrett, A., Sharpe, R., & Weintraub, A. (2000). Incubators are feeling the chill. *Business Week*, 113.
- Bruton, G. D. (1998). Incubators as a small business support in Russia: contrast of university-related U.S. incubators with the Zelenograd Scientific and Technology Park. *Journal of Small Business Management*, 36(1), 91-94.
- Cote, M. (1991). Government snake oil. *Canadian Business*, 64(11), 46-50.
- Culp, R. P. (1990). Guidelines for incubator development. *Economic Development Review*, 8(4), 19-23.
- DeMuth, J. (1987). Town loves gown. *Planning*, 53(6), 25-28.
- Doescher, W. F. (1988). Hatching young companies. *D&B Reports*, 36(4), 12-13.

- Fry, F. L. (1987). The role of incubators in small business planning. *American Journal of Small Business*, 12(1), 51-61.
- Graebner, L. (1999). Davis not hot on incubator (biotechnology incubator in Davis, Ca.). *Sacramento Business Journal*, 15(42), 3-4.
- Haugen, T. M. (1990). Getting a head start: the rise of business incubators. *Business Forum*, 15(1), 25-27.
- Kalis, N. (1995). Can incubators be truly self-sufficient? *NBIA Review*, 11(6), 1-3,8-9.
- Kerzner, H. W. (1995). *Project management* (6th ed.). Englewood Cliffs, NJ: Prentice-Hall.
- Kilgannon, C. (2000 March). White noise in the huddle room: A day in an incubator. *New York Times Online*.
- Kuratko, D. F., & LaFollette, W. R. (1987). Small business incubators for local economic development. *Economic Development Review*, 5(2), 49-55.
- Lichtenstein, G. A. (1992). *The state of the business incubation industry 1991*. Athens, Ohio: National Business Incubation Association.
- Lumpkin, J. R., & Ireland, R. D. (1988). Screening practices of new business incubators: the evaluation of critical success factors. *American Journal of Small Business*, 12(4), 59-81.
- Macvicar, S., & associates. (1993). Open it up . *Business Central Europe*, 7-9.
- Mamis, R. A. (1989). Mother of invention. *Inc.*, 11(10), 119-127.
- Merrifield, D. B. (1987). New business incubators. *Journal of Business Venturing*, 2(4), 277-284.
- Micklethwait, J. (1997). Survey: Silicon Valley (Future perfect?). *The Economist*, 342(8010).

- Miller, K. L., & associates. (1994). Europe: the push east. *Business Week*, 48-49.
- Narain, R. K. (1997). Incubator sheds light on issue. *The Business Journal*, 14(52), 23-24.
- Randall, L. M., & Coakley, L. A. (1998). Building successful partnerships in Russia and Belarus: the impact of culture on strategy. *Business Horizons*, 41(2), 15-22.
- Scherer, A., & McDonald, D. W. (1988). A model for the development of small high-technology businesses based on case studies from an incubator. *Journal of Product Innovation Management*, 5(4), 282-295.
- Smilor, R. W. (1987). Commercializing technology through new business incubators. *Research Management*, 30(5), 36-41.
- Udell, G. G. (1988). Strategies for stimulating home-grown technology-based economic development. *Business Horizons*, 31(6), 60-64.
- Udell, G. G. (1990). Are business incubators really creating new jobs by creating new business and new products? *Journal of Product Innovation Management*, 7(2), 108-122.
- Walker, L. (2000 March). A production line for dotcoms. *Washington Post*, p. E01.
- Weintraub, A., & Reingold, J. (2000). That's one hot incubator. *Business Week*, 42, 44.