

IS INCUBATION A WINNING STRATEGY?

PART ONE: WHAT WE KNOW

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The goal of this article is to examine recent research on business incubation, including our own experience and interviews with incubator managers and tenants across the continent. In a following article we will identify factors that distinguish effective incubators from their less successful peers, and offer some considerations for those who may be trying to determine if incubation is the correct strategy for their organization.

Economic developers are coming to realize that entrepreneurship is a primary driver of economic prosperity. Startup businesses play an out-sized role in both innovation and job creation, especially in rural areas or small communities where business attraction efforts can be a long shot. So perhaps it is no surprise that there is a growing interest in business incubation as an economic development strategy. But is it an effective one?

A number of recent articles call into question the impact of incubation on business formation and growth. The many criticisms include findings that incubated businesses are no more likely than other businesses to find long-term success. In fact, the data suggest that very few businesses actually grow to a point where they can graduate from an incubator. But perhaps this problem is more closely associated with characteristics of the incubator than the tenant business or the overall potential of business incubation as a practice. Some incubators, after all, have an enviable record of success.

STARTUPS AND BUSINESS INCUBATORS

Businesses are constantly creating and eliminating jobs, but in almost all of the last 30 years, net job growth has been entirely within the smallest businesses. On average, businesses with more than 20 employees have tended to shed more employees than they have added, while businesses with fewer than 20 employees have been more likely to add employees. Only recently, research by the Kauffman Foundation¹ adds a new dimension to the analysis. In nearly every year since 1990, all

¹ The Importance of Startups in Job Creation and Job Destruction, Kauffman Foundation

net job growth has been attributable to startups, while net job growth in businesses one year old or older was negative.

These statistics are no reason to abandon other economic development strategies. Given the circumstances of any local area, policies and programs designed to support struggling businesses, encourage business expansion, or attract new businesses may have merit within an overall economic development strategy. But the numbers do imply that business formation strategies should be an integral part of many economic development programs, rather than an ancillary pursuit left to others (such as SBDCs), as is often the case.

When it comes to promoting startups, many economic development organizations turn to incubation. The numbers reflect a growing interest. The European Commission estimates that worldwide, the number of business incubators has grown from 3,200 in 2000 to approximately 9,000 in 2013. Estimates for the number of incubators in the United States are in a range from 1,200 to 1,400.

Challenges to arriving at a definite number include the fact that there is no registry of incubators, as well as the fact that there is no precise definition by which they can be classified. For the purpose of this article we use a description from the National Business Incubation Association:

Business incubation is a business support process that accelerates the successful development of start-up and fledgling companies by providing entrepreneurs with an array of targeted resources and services. These services are usually developed or orchestrated by incubator management and offered both in the business incubator and through its network of contacts. A business

incubator's main goal is to produce successful firms that will leave the program financially viable and freestanding. These incubator graduates have the potential to create jobs, revitalize neighborhoods, commercialize new technologies, and strengthen local and national economies.

Note that the definition does not describe incubation as a *space*, but a *process*. In recent years there have been a growing number of virtual incubators offering programming, but not housed in a specific location. Businesses enrolled in virtual incubators may occupy space on their own, or the virtual incubator may have relationships with partners who can provide space at market or below-market rates.

Characteristics of Business Incubators

Most North American business incubators (about 93 percent) are nonprofit organizations focused on economic development. About seven percent are for-profit entities, usually set up to obtain returns on shareholders' investments by taking an equity position in tenant businesses. In terms of a client focus, most (54 percent) are mixed-use, assisting a range of companies that might include a combination of office based and manufacturing uses. Another 37 percent have a tech focus, while six percent target service or other niche businesses.

Contrary to widely held beliefs, only three percent of incubators have solely a manufacturing clientele. In our interviews with incubator managers we learned that many facilities were started solely with a goal of luring manufacturing businesses, but weak demand forced them to reach out more broadly. Manufacturing space has often been the most difficult to fill, and a good number of facilities have found it practical to convert some of their manufacturing floor area to offices in order to accommodate the businesses they are attracting. A number of the incubator managers were frank in admitting that the manufacturing businesses currently in their facilities might be better described as simply looking for inexpensive space, rather than as clients with good prospects for growth. These observations are anecdotal, and should be qualified by saying that the quality of manufacturing tenants appears to be better in university-affiliated and industry-specific incubators, such as commercial kitchen facilities.

NBIA's 2006 State of the Business Incubation Industry report documented a range of incubator sizes from 1,600 to 215,000 square feet. Nearly two thirds (61 percent) were less than 40,000 square feet, and 30,000 square feet is often cited as an optimal size. Smaller facilities may not generate sufficient tenant revenue, while larger facilities can take too long to fill, resulting in higher overhead costs for vacancy. An allocation of up to 20 percent of the space as common area is not unusual, not just for reception areas and hallways, but also to accommodate conference rooms, classrooms, equipment areas, and other shared spaces. Naturally, the more area that can be dedicated to leasable office, lab, or manufacturing space, the greater the potential income that can be generated.

Basic infrastructure provided by most incubators includes high speed telecommunications services, standard office equipment, and meeting rooms with audiovisual resources. Incubators with a manufacturing component will typically provide flexible production and storage space along with shared loading areas and material handling equipment. Specialized facilities can begin to add unique and often costly space and resources, such as food processing equipment, HVAC systems and freezers in a commercial kitchen incubator or wet lab facilities and air handling systems in a biotech incubator.



Business incubators have often provided basic administrative services to their tenants, though this is becoming less common as technology has reduced the need for reception, secretarial, and other office support functions. Most importantly, successful incubators employ a capable manager who can serve as a mentor to the businesses, coordinate support provided by subject experts, schedule training and network activities, and provide general administration of the program and facility. Advanced support provided through an incubator may include:

- Introductory and other business training programs
- Business development assistance, such as developing a business plan
- Management assistance and management team development
- Advanced technical assistance in areas such as human resources, inventory management, process development, product design and development, and financial management
- General legal assistance and regulatory compliance
- Intellectual property management and technology commercialization
- Access to, and assistance with conventional financing, along with alternative sources including grants, loan guarantees, non-conventional financing, angel investors, and venture capital investors
- Networking opportunities with other entrepreneurs and strategic partners
- Marketing, procurement, and market research
- International trade assistance
- Linkages to higher education resources

UNIVERSITY AFFILIATED INCUBATORS

On average, business incubators affiliated with four year universities perform better than other incubators. Businesses in incubators sponsored by universities experience a failure rate 17 percent lower than those in incubators without university collaboration, as well as sales growth 200 percent higher and employment growth 370 percent higher. Employment is concentrated in a small number of firms, though, as the mean employment is similar between firms in university incubators and other incubators.

The differential performance does not appear to extend to incubators aligned with two year colleges. Likely explanations for this include the quality of resources these institutions bring to the table, the academic and subject area composition of the faculty and students, and the greater emphasis on research at four year colleges, as opposed to the more common role of job training at technical colleges. As observed in one study, "Two-year colleges appeared to be providing primarily commercial space at low cost and clerical support to entrepreneurs rather than consulting services and strategies aimed at fostering entrepreneurship."^a

Even while university incubators may be more successful, their managers often point to discrepancies between the assumed nature of business tenants at the start of the project, and those that were actually attracted to the facility. There are many university affiliated incubators developed for science and technology businesses with expensive improvements that go unused because those tenants never materialized, at least in anticipated numbers. Instead, the primary demand has been for simple office space.

These observations do not come as a surprise. Economic developers and university officials can be inclined to overestimate the research and business creation potential of their universities. Most universities, after all, are teaching colleges first, and significant amounts of research are really only conducted among a relatively small handful of flagship state universities and leading private colleges. These comments are not meant to be dismissive of incubation at non-research institutions, but a caution to accurately understand the nature of the market before investing in facilities and equipment that may not be in demand.

Some numbers might help to put the potential for university technology spin-off in perspective. In its 2012 survey, in which 194 research institutions responded, the Association of University Technology Managers found that 705 companies were formed, with 544 having their place of business in the same state. That is 3.6 businesses per research institution, or 2.8 businesses that might be located in the vicinity of the university. Again, these are numbers for major research institutions, not for more typical regional colleges.

A whitepaper from the University of Chicago offers additional insight. In their analysis, they found that startups formed from about 1.5 percent of the intellectual property coming from universities. The rate of business startups was in a range from one for every \$30 million in research funding at the best universities in the sample, to as high as one for every \$300 million in research funding. According to the Center for Measuring University Performance, only 231 of 721 universities recorded \$30 million or more in research funding in 2010.

So what does happen to the research coming out of universities if so few businesses are formed? Much of it is never utilized. But more frequently than startups, a good deal of the research is licensed to others who may commercialize it. A researcher who has developed a commercially viable technology is about 7.3 times more likely to license it to someone else instead of forming their own business to bring it to market.

Technology may be a sexy target, but if the inputs are so high to result in so few startups, does it make sense to pursue them? Aside from a small number of institutions, the real opportunity for entrepreneurship is more mundane; the faculty member who starts a consulting practice on the side, the student who wants to start a business, or the well educated spouses of faculty members who turn to entrepreneurship due to limited employment options. These are businesses that can be successfully incubated through a more traditional approach, and without the expensive and often questionable investment in advanced infrastructure.

^a Fostering Entrepreneurship Through Business Incubation: The Role and Prospects of Postsecondary Vocational-Technical Education

While the purpose of an incubator may be to nurture new businesses to a point where they can grow to independence, what are the goals of incubation? The most common one is job creation. Other objectives may include economic diversification, technology commercialization, accelerating the growth of industry clusters, fostering an entrepreneurial climate, community renewal, and growing minority or women-owned businesses.

Most incubation programs are independent, community-based, and locally supported. Business incubation is not an inexpensive strategy. Development costs can easily reach \$3 million or more for a new facility. Retrofitting existing buildings can also have a significant cost. Incubators may average \$500,000 annually to operate.²

While some seed funds are provided by the Economic Development Administration or state governments through competitive grants, a majority of incubators do not receive this funding. Even those that do will still need to provide matching development as well as operating funds. On average, leases and fees for services account for 59% of incubator revenues, followed by service contracts or grants (18%) and cash operating subsidies (15%). An investment of this magnitude should not be made lightly, especially given the continued need for operating subsidies. It is a fair question to ask what return may be expected for this use of funds.

The National Business Incubation Association has made the claim that for every \$1 of estimated public operating subsidy provided to an incubator, clients and graduates generate approximately \$30 in local tax revenue alone.³ Unfortunately this estimate is not viewed as credible by many experts who point to an inherent bias, tendency for incubators to report inflated results, and sampling of the most successful incubators from which to extrapolate results to a much larger population. Peer reviewed and quantitative academic research on the impact of incubators has generated more conservative results.

Some Real Numbers on Business Incubation

Analysis has generated little support for the idea that incubators are good job creators, however, there is some evidence that they are more cost effective than subsidizing business attraction. Regarding public subsidies, the NBIA's State of the Business Incubation Industry surveys indicate that public subsidy as a portion of incubator revenues has decreased from 57 percent in 1989 to 15 percent in 2006. In the 2006 survey, 32 percent of North American incubators reported receiving no subsidy at all. Other research using a more representative set of incubators suggests that only one in five is capable of operating without a subsidy. Many of these

profitable incubators are privately developed, with the developer taking an equity position in the tenant businesses.

The *National Census of Business Incubators and Their Tenants* offers some interesting insight into the impact of incubation on the success of startups. It does not paint a rosy picture. While incubators have the goal of graduating tenants within three to five years, only about three percent of businesses actually do graduate, and almost one in five graduates closes within a year after graduating. The suggestion here is that incubators often fail to build the capacity needed for the business to become and remain viable.

Most empirical studies demonstrate that rates of business failure are similar to those of unincubated businesses. Research also seems to suggest that incubated businesses are more likely to see slightly larger gains in employment and more rapid sales growth, though not necessarily an increase in profitability or survival. Interestingly, unsuccessful incubated firms tended to close more rapidly than their peers, both while an incubator tenant and after graduation. It has been speculated that the technical advice or learning associated with incubation may be a factor in helping owners recognize when a business venture is unlikely to succeed.

The results of a research review might easily be summed up in a quote. "The effect of incubation on the performance of incubated businesses is marginal when compared with the performance of unincubated businesses. In other words, incubation is not associated with a major increase in the survival, employment growth, or sales growth of new ventures on average."⁴ It is important to stress the phrase "on average". Results are not uniform across all incubators and some do have a track record of producing successful companies. What sets these apart from their failing peers are certain characteristics that will be discussed in a later article.

Before moving on, though, perhaps it will be worthwhile to consider the overall market penetration and performance of incubators. The *National Census of Business Incubators and Their Tenants* identified 18,500 incubated businesses between 1990 and 2008, with 527 graduated businesses, and 437 of these graduates remaining in business one year later. During the same period, a total of 14,050,000 new businesses were started, so that 0.13 percent (roughly one out of every 760) benefitted from incubation at one of 1,400 business incubators in the United States. This is most likely overstated as many incubators enroll tenant companies that are already existing, and not necessarily just startups.

The 527 graduated companies comprise only 0.00375 percent of new businesses started, or one out of every 26,660 new businesses. This drops to one out of every 32,152 new businesses for the 437 graduated businesses that remained

² Appalachian Regional Commission

³ Extrapolated by NBIA from data in *Business Incubation Works* and published at www.nbia.org.

⁴ Boon or Boondoggle? Business Incubation as Entrepreneurship Policy: A Report from the National Census of Business Incubators and their Tenants

open a year after graduation, or 0.00311 percent of all new businesses. Again, the National Business Incubation Association reports much higher numbers.

FACTORS IN SUCCESS (OR FAILURE)

If the preceding analysis has raised some cautionary flags about the efficacy of incubation as an economic development strategy, we have achieved our goal. It is probably fair to say that a majority of incubators have failed to live up to the hopes of the organizations that created them, and that is certainly the sentiment of a majority of the incubator managers we interviewed.

About the Author



Michael Stumpf has had a lengthy career in economic development, during which he inherited and closed a failed incubator and assisted in starting a new one. As the economic development director for the City of Boulder, Colorado in the early 2000's, he saw first-hand how a vibrant entrepreneurial ecosystem could generate new ideas and new business ventures. Interacting with these businesses, he came to understand the needs of startup businesses through a personal, rather than simply academic perspective. He was ultimately inspired to launch Place Dynamics in 2005. Consulting with individuals, organizations, and governments, he has prepared several entrepreneurial development strategies as well as feasibility studies and planning for incubators. In recent years he has been a strong advocate for coworking and similar collaborative approaches as an incubation platform, seeing them as an approach more closely matched to the constrained resources of most organizations, while also reaching a greater number of businesses in the community.

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But there is reason to hope.

Despite the outright failures and suboptimal performers, some incubators have produced very good results. And even while some incubator managers may honestly admit the shortcomings of their own facility, they are not quick to dismiss incubation as a practice. These individuals had uniformly inherited programs with inherent flaws, who found themselves hamstrung by an insufficient market, the wrong building, inadequate budgets, or similar challenges.

Part two of this article identifies some of the hallmarks of successful programs.