Policy and Practice in Japan’s New Business Incubation Revolution: a Typology of Incubation Management and Emerging Hybrid Model
Kathryn Ibata-Arens

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Abstract
Since 2000, Japan has undergone a revolution in new business incubation, investing in national capacity and building hundreds of incubation facilities. This paper contextualizes developments in Japan within international trends, while identifying model incubator types. A typology of incubation management styles is proposed, contextualized within practices in the U.S. and Europe. The paper is based on an original database constructed of all incubators operating in Japan, in addition to survey and interviews with incubator managers and tenant firms. Several findings are evident. Incubation management style and incubation managers (IM) play an important role in supporting start-ups, and the nature of IM resource networks is crucial. Through a review of key policy history in Japan, policy lessons for national, regional and university level practitioners are identified. Case studies examine comparative best practices stimulating university-based new business start-ups in emerging sectors. A hybrid (university-private sector, training-network support) incubation management model has emerged in Japan, one that cultivates a bamboo network root system, supporting an innovative ecosystem for start-ups.

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**Introduction**

In August 2010, China replaced Japan as the world’s largest economy, measured by aggregate GDP ($1.335 trillion v. $1.286 trillion).\(^1\) In terms of GDP per capita, Japan’s growth between the last quarter of 2007 and the first quarter 2011 was negative 5% (China’s was positive 35%);\(^2\) while GDP per capita based on purchasing power parity (PPP) ranked Japan a lowly 19\(^{th}\) in 2010 (the U.S. was 4\(^{th}\)).\(^3\) The 2009 Global Economic Development Index (GEDI) ranked Japan 29\(^{th}\) in entrepreneurial performance, third from the bottom of all 34 economies with leading innovative capacity.\(^4\) What precipitated this decline?

The Japanese economy contracted in the 1990s, leading to unprecedented layoffs at big companies, and high levels of business bankruptcies in the small and medium sized enterprise (SME) sector. Previously, it was assumed (at least by outsiders) that entrepreneurial businesses were beneficiaries of big business (keiretsu group) controlled vertically integrated production arrangements within which SMEs (small and medium sized enterprises) prospered through supposedly trust based subcontractor relations.\(^5\) By
By the end of the so-called “Lost Decade” of economic malaise and stagnant growth, the historically big business oriented national government policies and business practices (e.g. vertically integrated production) would be revealed as ill-suited to stimulating high growth entrepreneurship.⁶

Rising public discontent with the bureaucratic status-quo led to a number of changes in Japan’s industrial governance. The ministries “reformed” in the late 1990s, for example, changing the name of MITI (Ministry of International Trade and Industry) to METI (Ministry of Economy Trade and Industry) and consolidating number of other ministries and agencies under the umbrella of the former Ministry of Education, which is now the Ministry of Education, Culture, Sports, Science and Technology (MEXT). Another outcome of the so-called lost decade was a recognition at the highest levels of government that the Japanese economy needed to become more entrepreneurial.

Japan has since undergone a revolution in new business incubation. Between 2000 and 2010 Japan had invested many billions of yen into national capacity to support new venture businesses. A significant amount of funds have been put behind encouraging university start-ups.⁷ A major part of government investment has built new business incubators (facilities where new firms pay nominal rent in exchange for a variety of hard
and soft supports, outlined below). By 2006, about 1,300 firms had graduated (left incubators while remaining in business) from the 177 incubators in existence at that time.

A study in 2006 found that 91% of incubator tenants in Japan remain in the regions in which they are incubated (compared to about 75% in the United States). 8 By 2010, there were 336 new business incubators, up from a mere 30 in 1999.

This paper analyzes the policy and incubation management practice behind Japan’s revolution in new business incubation. The findings are based on a two-year study conducted in 2009 and 2010. Data compiled include an original database outlining key features of all incubators in Japan (as of 2010), interviews with thirty incubation managers, as well as site visits to incubators in seven cities (Kawasaki, Kobe, Kyoto, Osaka, Otsu, Tokyo, Yokohama). A hybrid incubation management model is identified as a potential best practice model for the Japanese economy. Model incubators tend to be non-governmental university related hybrids that cultivate a “bamboo network root system” of entrepreneurial supports, as will be discussed below.

First, the incubation revolution in Japan is situated within the origins of new business incubation and the empirical study of the same, as well as international trends in incubation, including in the United States, China, India and Brazil. Section two reviews the
key policy history behind new business incubation in Japan and some of the challenges inherent in civil servant-led entrepreneurship policy. The third section outlines different incubator types around the world and proposes an incubation management typology to understand different approaches to incubation management. Section three also includes a discussion of best practice in incubation management types. Findings indicate that hybrid model (in terms of structure and incubation management style) type incubators have emerged in Japan. Hybrid incubators cultivate a bamboo network root system of entrepreneurial supports for new start ups. The paper will conclude with a review of the findings and discussion of policy lessons.

Section One:

Origins and International Context

Incubators take their name from the first such facility, in Batavia, New York, established in 1959. Incubators can provide a variety of hard (facilities, fax, telephone) and soft (management consulting, networking, tacit and codified knowledge) supports to firms, usually pro bono and/or at subsidized rates. Not all facilities that call themselves incubators provide these supports, however. These differences are discussed below. The rent that firms pay to be incubator tenants is generally below market rates.
Most incubators around the world are not-for-profit, and often run by local, regional or national government institutions. Some are mixed-use, indicating a variety of types of tenants (high and low tech, manufacturing and service), while others focus on high technology sectors. As a tool of regional economic development and innovation policy, successful incubators produce high growth graduates that a) contribute to local employment and b) produce high value added products contributing to the economic well-being of supporting sectors. Since the 1990s, many countries have since established incubators, to varying levels of success in supporting new business start-ups.

While a comprehensive review of the literature on incubation is beyond the scope of this paper, follows is a brief review of works that have addressed incubator performance in particular. In their 2004 review of research in business incubation Hackett and Dilts and trace the evolving research streams from the mid-1980s to 2000. While early works focused on defining incubators and incubation, as well as providing taxonomies and conceptual frameworks to understand incubation. By the 1990s, the study of business incubation had evolved such that outcomes and measures of success went beyond just counting “graduation” of firms, and addressed the economic impact on local communities, job creation and innovation. Hackett and Dilts note that one major finding in the literature
had been that the age of the incubator and number of incubatee explained half of the variation in success, measured by firm survival. More recently studied have been concepts such as “virtual” incubators (online and other remote resources, but no physical space for start-ups) and the extent to which incubators function within broader social networks. 

One challenge remaining is to balance the need for access to incubatee start-ups (usually via the “gatekeeper” of the incubation manager) and the tendency of incubation managers to over-report success, and under-report failure.

In their introduction essay to a special issue on incubation in the *Journal of Business Venturing*, Phan, et al. (2005) address the challenges in comparing the role of science parks and incubators in supporting entrepreneurship. Phan et. al. find that “there is no systematic framework to understand science parks and incubators,” and suggest that different theoretical approaches (institutional, resource dependence, agency, organization learning) will have widely different foci in terms of dependent variables of interest (new venture institutionalization, absorbing uncertainty, monitoring entrepreneurial effort, knowledge accumulation). Consequently, empirically grounded models of the incubation process have been slow to develop.
Etzkowitz (2002) reviews incubator models, including the evolving role of universities in supporting new business based economic development. Etzkowitz notes that universities, once in the business of “knowledge protection” are now expected to deploy knowledge to pursue economic development goals. Comparing university incubation development in Albany, NY to Rio de Janeiro, Brazil, Etzkowitz found that networking (with area firms, state and other research labs in Albany, with other local incubators in Rio) played a critical role in the rapid growth of incubators in these regions. Etzkowitz predicts that an “entrepreneurial academic paradigm” shall take hold in the future, making incubators an integral part of universities.\(^\text{1}\)\(^\text{3}\) In terms of efficacy of incubators, research has also called into question the over-emphasis on technology type incubators worldwide and related policy failures in promoting entrepreneurship and economic development (Tamasay 2007).\(^\text{1}\)\(^\text{4}\) In short, too many regions have attempted to emulate places like Silicon Valley, and have failed.

Others, including Aernoudt (2004) and Bergek and Norrman (2008) suggest best practice models of incubation management.\(^\text{1}\)\(^\text{5}\) These models include the critical role of networks between incubators and local angel investment networks (Aernoult). Bergek and Norrman argue that measurement of incubator outcomes should track with the type of
incubation management model of a particular incubator. Bergek and Norrman introduce
an important aspect of understanding the incubation process, that is that outcomes
(number of graduates, firm growth) often correspond to a continuum of management
types (e.g. the “pickier” incubators are about selecting tenants, the higher the success
ratio in firm-level outcomes). They observe (in Sweden) differences across incubators in
terms of the approach to selection (“survival of fittest” to “picking-the-winners”) of tenant
firms, and mediation (“laissez-faire” to “strong intervention”) of firm activities. In a
subsequent section, a similar incubation management typology is proposed, based on
observed practice in Japan.

It is too early to assess whether or not Japanese incubators have been successful,
as it takes upwards of a decade of supporting start-ups (aiming to help them “graduate”
out of incubators and succeed in business) to reap a return on investment: for graduates
to produce products that reach the market, employ significant numbers of people, and
become profitable. We can at this stage, however, get a sense of the potential for
Japanese incubators, that is, whether or not they are demonstrating features of successful
incubators elsewhere.
Worldwide, it is estimated that there are more than 4,000 new business incubators, an increase from 3,000 in the year 2000. Most of the world experienced a steady growth in the number of incubators, while Asia experienced the most growth. The following table outlines the number of incubators in countries worldwide as of 2010, compared to 2000.

<table>
<thead>
<tr>
<th>Country</th>
<th># of Incubators in 2000</th>
<th># of Incubators After 2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>US (米国)</td>
<td>1000+ (2010)</td>
<td></td>
</tr>
<tr>
<td>Russia (ロシア)</td>
<td>150 (2001)</td>
<td>166 (2010)</td>
</tr>
<tr>
<td>India (インド)</td>
<td>25</td>
<td>100 (2010)</td>
</tr>
<tr>
<td>Japan (日本)</td>
<td>30</td>
<td>336 (2010)</td>
</tr>
</tbody>
</table>

National governments have recognized the role of new business incubators in supporting successful start-ups and have followed suit by investing in national incubation capacity. The number of incubators in China and Korea has grown significantly since 2000, with China leading Asian economies in the number of graduates. On a per capita basis, Korea is the leader in establishing incubation facilities, followed (more recently) by Japan. India is increasing the number of incubators, but has yet to match the growth in other
Asian countries. Further, India has focused on building capacity in large research parks (housing MNC anchor tenants and mid stage start-ups) particularly in high technology fields including biotechnology, rather than new start-ups per se. Japan has focused on developing university incubators, facilities located on or near university campuses.

Section Two:

History of Policy and Practice in Japan

In Japan, the Ministry of Economy Trade and Industry (METI) has been the main source of the funds to build and manage new business incubators, while the Ministry of Education, Science, Sports and Culture (MEXT) has been responsible for policies encouraging university start-ups (new businesses established by faculty/students and/or based on university generated science and technology). The following graph outlines the incubation related national expenditure between 2000 and 2010. METI, in conjunction with MEXT has taken a three-tiered approach to stimulating new business start-ups: first, targeting university ventures (大学発ベンチャー) of 135.5 billion yen, second, building incubation facilities (175 billion) and third, creating regional economy level (researcher and industry) networks (66.5 billion). The intent is to create an incentive and institutional system conducive to new firm start-ups, what can be called an “entrepreneurial
ecosystem”. Of the three types of capacity investment, the largest has been in building incubation facilities. Having visited a number of the government-sponsored new business incubators built since 2000, this author observed stylish building facades, marble and crystal fixtures in restroom facilities, and high tech (bio-sensor) entryways, as well as state-of-the art clean rooms and wet lab space. Japan has clearly excelled at building the physical capacity for (high tech) start-ups.

**Graph: Incubation Related National Expenditure**
(2000 to 2010 Quarter 1)

![Graph: Incubation Related National Expenditure](image)

**Unit = Billion Yen 金額**

**Incubation Related Budget**
(2000-2010)

**インキュベーション関連予算**

- **Blue** = University-private sector linkages
- **Pink** = Facilities
- **Yellow** = Regional Economy

**Source:** Ministry of Finance (MOF), 2000 METI and MEXT data from METI and MEXT, 2009, 2010 preliminary budgets.
In 2000, METI and MEXT began to offer financial incentives to faculty who started businesses, encouraging technology start-ups especially. Consequently, the overall number of university start-ups has increased dramatically since 2000 – from a few hundred to more than eighteen hundred by the year 2008. However, most university start-ups under these programs have yet to introduce new products to market. The following graph shows the growth in core university start-ups (bars represent firms established with university-generated technology) and total university-related start-ups (slope represents core university start-ups and also firms established in collaboration with faculty or students).

Graph

University Start-Ups in Japan (1989 - 2008)

![Graph University Start-Ups in Japan (1989 - 2008)](image-url)
The following table outlines major national spending targeting new business incubation and other supports, related to the three foci (university ventures, incubation facilities, regional consortia) outlined above.
<table>
<thead>
<tr>
<th></th>
<th>平成 14年</th>
<th>14 補正予算</th>
<th>平成 15年</th>
<th>平成 16年</th>
<th>平成 17年</th>
<th>平成 18年</th>
<th>平成 19年</th>
<th>平成 20年</th>
<th>億円</th>
<th>億円</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regional regeneration consortium research and development project</td>
<td>87.7</td>
<td>15</td>
<td>101.1</td>
<td>114.2</td>
<td>137.2</td>
<td>162.9</td>
<td>99.2</td>
<td>-</td>
<td>717.3</td>
<td></td>
</tr>
<tr>
<td>Subsidy of large area new business support network etc.</td>
<td>5.9</td>
<td>0</td>
<td>6.3</td>
<td>6.8</td>
<td>20.1</td>
<td>19.3</td>
<td>17</td>
<td>11.4</td>
<td>86.8</td>
<td></td>
</tr>
<tr>
<td>Support of regional new business creation platform activities</td>
<td>24.9</td>
<td>0</td>
<td>101.5</td>
<td>80.4</td>
<td>32</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>238.8</td>
<td></td>
</tr>
<tr>
<td>Maintenance of facilities (research on campus) for industrial-academic complex</td>
<td>1</td>
<td>0</td>
<td>0.7</td>
<td>0.5</td>
<td>0.4</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2.6</td>
<td></td>
</tr>
<tr>
<td>Incubation facilities maintenance</td>
<td>73.9</td>
<td>53</td>
<td>69.6</td>
<td>59.6</td>
<td>50.9</td>
<td>65.5</td>
<td>25.8</td>
<td>-</td>
<td>398.3</td>
<td></td>
</tr>
<tr>
<td>Instruction course project for training incubation managers, etc.</td>
<td>0.8</td>
<td>0</td>
<td>0.8</td>
<td>0.8</td>
<td>1.3</td>
<td>1.2</td>
<td>0.7</td>
<td>-</td>
<td>5.6</td>
<td></td>
</tr>
<tr>
<td>Total of budget related to university ventures (Budget draft)</td>
<td>476</td>
<td>221</td>
<td>474</td>
<td>451</td>
<td>551.4</td>
<td>528.2</td>
<td>547.1</td>
<td>351</td>
<td>3599.7</td>
<td></td>
</tr>
<tr>
<td>Total Spending on Incubation</td>
<td>670.2</td>
<td>289</td>
<td>754</td>
<td>713.3</td>
<td>793.3</td>
<td>777.1</td>
<td>689.8</td>
<td>362.4</td>
<td>5049.1</td>
<td>23</td>
</tr>
</tbody>
</table>
In Japan, stimulus policies have contributed to an increase from less than 30 incubators nationwide before 2000 (the year national new business incubation policy began in earnest), to more than 300 by 2010. The following map illustrates this change while indicating that the highest concentrations of incubators are located in the Kanto (Tokyo) and Kansai (Kyoto, Osaka) areas. These incubators are nurturing thousands of new business start-ups in a variety of sectors. These include information technology, environmental technology, and services. Considering that before 2000 there was little institutional support (government sponsored in particular) for new firm start ups, the past ten years have truly represented a revolution in new business incubation. Further, the entire country of Japan (of 130 million people) is only about the spatial size of the state of California (population 36.9 million) in the US.\(^4\) Having more than three hundred incubators built in this space in less than a decade (in addition to being a boon to the Japanese construction sector) is a testament to the hard work of Japanese civil servants behind these policy initiatives. The next figure shows the geographic distribution of Japanese incubators (virtual incubators excluded).\(^5\)
The highest concentrations of incubators are found in the metropolitan area of Tokyo (23 districts), followed by Osaka City, Kyoto City and Kita Kyushu City. While policies supporting new business incubators did not become a major focus of the Japanese government until 2000, they are rooted in decades of prior national attempts to stimulate firm-level capacity.

Section Two
Policy History: From Technopolis to Incubator
Japan’s national policy behind its efforts to create an entrepreneurial economy is divided into five historical periods: top-down (late 1980s), decentralization (early 1990s), privatization (late 1990s), university-private sector alliances and facilities building (early 2000s) and strategic management (late 2000s). Each period is outlined briefly below:

• Period I: Top Down (late 1980s) Technopolis Policies
(テクノポリス法・民活法・頭脳立地法)
Still riding on the euphoria of the high growth, cash rich post war period (1950s-1970s), METI (then MITI) embarked on an ambitious series of projects intended to build major capacity in “technopolis” scale mega research parks, and other facilities. Widely acknowledged to be a wasted investment, the “build it and they will come” approach of this period failed to generate significant new technology innovations or start ups, though the Tsukuba University Campus and environs were beneficiaries of these policies.

• Period II: Decentralization (early 1990s)
In the early 1990s, after the collapse of the asset bubble in 1989, local governments began to establish NGOs and facilities to support new business start ups and existing small businesses. Like the incubation investments discussed below, these facilities were managed by local governments and while some high tech (e.g. testing) equipment was put in place, local firms often complained that the machinery was of little use to them without
the technical expertise necessary to utilize them effectively. This author visited a number of such facilities in this period and observed mostly darkened rooms, with neither personnel to run equipment, nor local firms making use of them.

- **Period III: Privatization (late 1990s)**

In the late 1990s, of the handful of incubators, some were established and run by private firms, while local and regional governments continued to build small-scale incubation facilities. In 1999 METI promoted projects to build additional incubation facilities as part of “regional platform” (地域プラットフォーム) based national policy. This was outlined in the 1999 Venture Business Creation Law (新事業創出促進法). This year marked a turning point in the activities sponsored by the national government to support entrepreneurial development.

- **Period IV: University-private sector alliances and facilities building (2000-2008)**

As outlined above, most incubation facilities in Japan were established after 2000, when METI and MEXT began to make substantial investments in capacity upgrading. For the first time, METI and MEXT each targeted universities as a potential center for entrepreneurship development, encouraging university ventures. Included in initiatives were the establishment of a number of university-affiliated technology licensing
organizations (TLOs) and also university housed incubation facilities. Historically, business has been the purview of METI, while MEXT has managed education, including universities. Sharing turf for the first time, some activities have been more competitive than collaborative. Witness the two incubators on the Katsura Campus of Kyoto University, built across a parking lot from each other, one by METI and the other by MEXT. Interviews with incubator managers (IMs) in each incubator as recently as 2009 indicated that little communication occurs between the two, despite the mere stones throw distance apart from each other.

- **Period V: Strategic management (late 2000s)**

Seasoned IMs in the United States say that it takes at least a decade to begin seeing a return on investment in incubation facilities.\(^2\)\(^7\) Japan is nearing this stage, and successful incubators have emerged, while failing incubators have begun to exit. The national government is doing its part to raise incubator performance, for example, by focusing on improving the skills of IMs via government training programs, discussed below.

Two initiatives that fell victim to the budgetary crisis beginning in 2008 (partly resulting from what in Japan is called the “Lehman Shock” from the US mortgage meltdown) are the Global 30 (promoting internationalization at universities) and the
JANBO (Japan Association of New Business Incubation Organizations) programs that began in 1999.

*MEXT: Global 30 to Global 13*
（文部科学省: グローバル30からグローバル13へ）

The initial idea of the Global 30 was to promote the internationalization of Japanese universities. This would have two benefits. First, Japanese students would be able to have “international” experience without necessitating leaving the country and second, in a scenario of declining birth rates, generate tuition revenue from attracting additional foreign students. The goal was to increase the number of foreign university students in Japan to 30,000, at 30 select “Global” universities. Those universities having “global” status would be eligible for funds from MEXT to hire new faculty and expand facilities.

After the first 13 universities were selected, however, the program budget was gutted. Consequently, the Global 30 became the Global 13. Further, Global 13 universities are finding it difficult to attract high caliber Western students, having better luck with Asian countries, particularly China. For example, nearly half of the student body at the Ritsumeikan University Kusatsu Campus (housing its Business, Engineering and Natural Sciences) is foreign, predominantly Chinese.

*JANBO, JBIA and InnoNet*
JANBO, Japan National Business Organization, (日本新事業支援機関協議会) was closely linked to METI, was established in 1999 as a quasi-governmental organization to act as a clearing house of information and to coordinate the expected increase in facilities and programs nationwide to support new business creation. JANBO’s activities were divided into two main areas: research and training. The organization conducted a number of surveys of IMs and tenant firms, as well as put together public databases of incubators and tenants. JANBO also established an IM training program to improve the ability of IMs to support new start ups. Incubation Managers coordinate the various soft supports for start-up tenants.

In 2008, JANBO lost its funding and closed in June 2009. An interesting, and ultimately serendipitous thing happened at this point. A group of IMs (those having extensive private sector experience) established JBIA, Japan Business Incubator Association, modeled on the National Business Incubator Association (NBIA) in the United States, while civil servant members of JANBO went to Innovation Network (InnoNet), a new organization that would focus on training IMs. JBIA is an individual membership organization comprised of IMs, while InnoNet is a conglomeration of mostly government
and quasi-government business support organizations. In sum, one half of JANBO went private, while the other remained public. The following figure illustrates the 2009 shift.

JANBO  
(June 1999- June 2009)

<table>
<thead>
<tr>
<th>JBIA</th>
<th>InnoNet</th>
</tr>
</thead>
<tbody>
<tr>
<td>日本ビジネス・インキュレーション協会</td>
<td>全国イノベーション推進機関</td>
</tr>
</tbody>
</table>

One of the main criticisms of InnoNet by outsiders is that it is too bureaucrat heavy (an estimated 80% of its members are civil servants). As a consequence, the training provided by the organization for incubation managers is focused on codified (book learning) rather than practical or tacit (such that experiential learning provides). A number of informants referred to their training as “tsukue no ue no kenshu”, literally “training on the top of a desk”, meaning something that lacks practical applications or is unproven in reality. On 18 March 2010, Masao Horiba, honorary chairman of InnoNet (which modeled itself after his own KVF (Kyoto Venture Forum), affiliated with the Mikuruma Incubator in Kyoto, discussed below) opened the second annual Regional Forum by on a dour note: “looking around this room, I cannot say that this past year has been a success.” The
previous year (2009), prior to the split off between InnoNet and JBIA, private sector people made up about half the audience in the first annual Regional Forum (this author attended both events). In 2010, it was virtually all civil servants. An official of InnoNet in July 2010 confirmed that there is little collaboration across the two organizations, though a few IMs are members of both. In addition to the challenges of civil-servant led IM training outlined above, Japan faces a number of other political bureaucratic challenges as it attempts to create an institutional environment conducive to new business creation.

The investments in incubation peaked by the mid-2000s. The Democratic Party of Japan (DPJ), formed in the mid 1990s by young, urban professionals, won the national election in August 2009 (enabling it to install the first DPJ prime minister and re-organize the cabinet) amid calls for an end to the *amakudari* system (that places post-retirement bureaucrats in private sector firms and organizations, such as government funded incubation facilities). One of the first policy announcements of the new government was to cut the national budget, which by that time was 40.9 trillion yen in deficit. In December 2009, the DPJ orchestrated some political theatre, whereby high-ranking ministerial bureaucrats were paraded on national TV and given 15 minutes each to justify their entire budgets. Most were informed that they would have to cut an additional twenty percent.
Since 2009, follow-on funding to the investments made in incubation facilities has all but dried up, and bureaucrats are feeling the pressure to deliver results from the monies invested thus far. Japan’s bureaucratic model (官僚モデル) of industrial governance has been slowly transforming, intentionally and sometimes unintentionally, into a more private sector driven model.

The Organization for Small & Medium Enterprises and Regional Innovation, Japan (SMRJ, 独立行政法人中小企業基盤整備機構, 中小機構), established in 2004, has taken the primary role in the building and management of Japan’s newest incubators. The SMRJ is a quasi-governmental organization affiliated with METI. The organization seeks to provide a variety of hard and soft supports to small and medium sized businesses as well as venture businesses. The organization was formed through consolidating several pre-existing SME support organizations, and its historical expertise has been in the brick and mortar (e.g. building and facilities) aspects of supporting business enterprise. If an incubator is built using SMRJ funds, it usually hires incubation managers (IMs) from the SMRJ, either through secondment or post-retirement (via amakudari). The majority of government funded Japanese incubators follow this bureaucratic management model.
The Table: Incubation Model Type shows that the majority (71 percent) of Japanese incubators (241 out of 336, not including NPOs) are run by governmental or quasi-governmental organizations such as the SMRJ (government funded are indicated in bold italics). Further, many of the university incubators have received significant SMRJ funding, and also staff.

### Incubation Model Type

（By Operating Organization 運営者別）

<table>
<thead>
<tr>
<th>Charitable/Public Benefit</th>
<th>85</th>
</tr>
</thead>
<tbody>
<tr>
<td>Municipality 市区町村</td>
<td>57</td>
</tr>
<tr>
<td>Private 民間企業</td>
<td>41</td>
</tr>
<tr>
<td>Semi-Public, 3rd Sector</td>
<td>40</td>
</tr>
<tr>
<td>Prefecture 都道府県</td>
<td>31</td>
</tr>
<tr>
<td>Independent Administrative Institution (Quasi-Governmental) 独立行政法人</td>
<td>28</td>
</tr>
<tr>
<td>University, School, etc. 大学・学校法人等</td>
<td>25</td>
</tr>
<tr>
<td>NPO</td>
<td>10</td>
</tr>
<tr>
<td>その他 Other</td>
<td>19</td>
</tr>
<tr>
<td>合計 Total</td>
<td>336</td>
</tr>
</tbody>
</table>
Most Japanese incubators began accepting tenants in the mid-2000s, and since the incubation process lasts between three to five years, data on incubator graduates is just beginning to become available. A recent survey by the Japan Industrial Location Center (JILC) and Japan Innovation Network (InnoNet) shows that start-ups housed in incubators are more than twice as likely to remain in business ten years after un-incubated firms (85% v. 35.9% survival rate). The same survey reported that among incubated firms, those in electronics and electrical machinery experienced the most sales growth, followed by environmental (e.g. green tech) and recycling start-ups. Graduated start-ups (those leaving incubators after three to five years) employ an average of thirteen people.

Like most business investments into new business start-ups, the majority of existing Japanese incubators will likely struggle, many going under and/or being converted to other uses. The budgetary crisis that began in 2008, coupled with struggles “learning the ropes” in incubator management have been the two main challenges so far, not to
mention the dearth of venture capital investment in general. Nevertheless, the odds are that a few of these incubators will survive and be successful in growing firms from birth to independence. How Japan’s bureaucratic model of incubation management compares to practices elsewhere is discussed in the next section.

**Section Three:**

**Incubation Model Types**

According to the OECD, there are three main types of business incubators: *general/mixed use* (described above), *economic development* (promoting job creation, industrial restructuring, assisting under-developed communities) and *technology* (development of technology based firms, often university tech transfer and diffusion).\(^3\) Since high technology start ups are the most likely to be the high growth successes (employment, sales) that countries seek, these more than mixed use and economic development have been the target of national government policy.\(^3\)

While most Japanese incubators are government-run (100% of Chinese incubators are governmental) a few hybrids have emerged. These hybrids appear to be developing successful incubation management models. If the measure of success for business incubators is generating start-ups that survive and grow – thus contributing to local employment and economic development, research into the incubation process has found
that high tech incubators with strong university ties are the best situated to support these kinds of firms. Other research has found that length of incubator existence explains much of the variance in outcomes (successful graduated firms). This reflects in part the evolution in incubation management expertise over time. In the United States, university affiliated incubators (on university campuses or nearby with close collaboration with universities) produce the most start-ups that survive in the long term, and further, remain in the communities that nurture them.

Briefly, the incubation process (from incubator entrance to exit/graduation), consists of five overlapping stages. Once firms are chosen for an incubator, in some cases after a rigorous application and selection process, they may obtain a number of hard and soft supports. The soft supports below correspond to the main stages of incubation of business ideas into firms that bring products to market:

<table>
<thead>
<tr>
<th>Stage/Support</th>
<th>Examples of services</th>
</tr>
</thead>
<tbody>
<tr>
<td>R&amp;D</td>
<td>assistance with identifying research collaborators, accessing lab space and technicians</td>
</tr>
<tr>
<td>(Gap) Finance</td>
<td>assistance with bank loans, introductions to angel investors, VC firms</td>
</tr>
<tr>
<td>Sales and Marketing</td>
<td>market research, advertising and branding help</td>
</tr>
<tr>
<td>Information Exchange</td>
<td>technical and industry data, international strategies</td>
</tr>
<tr>
<td>Exit/Graduation</td>
<td>introduction to graduated space, IPO planning</td>
</tr>
</tbody>
</table>
According the Kauffman Foundation Entrepreneurship Summit Executive Summary (2008), new business development professionals (NBDPs), including incubation managers, should be capable of developing programs and practices that support entrepreneurs’ core needs:

• Marketing (start-up firm products and services to potential customers)
• Talent (attracting skilled employees)
• Capital (angel finance and venture capital)
• Networks (peer-to-peer, coaching, stakeholder)

Further, developing leadership skills in incubation managers is critical. According to the Entrepreneurship Summit Summary, leaders must have “savvy to influence people over which they have no authority or control.” This is proving to be a challenge in bureaucracy heavy Japanese incubators, where it is not unheard of to have as many incubation managers (mostly civil servants on secondment or retired bureaucrats) as tenant firms. In the US, incubators are usually run by one or two people.

In the United States, two types of incubation management models are prevalent, the network model and the training model. In a network model, the incubation manager focuses on building the strategic support networks (for R&D, finance, etc.) of
entrepreneurs. Methods of doing this include sponsoring “brown bag” lunches, evening receptions and the like, where entrepreneurs can interact with potential supporters in an informal environment. The University of California San Diego’s (UCSD) Connect program (est. 1985) is well-known for this type of incubation management style. Some incubators in Japan have adopted a network cultivation model, discussed below.

Incubators that emphasize a training model teach firms how to run their businesses. They sponsor seminars and workshops, led by local business executives, successful entrepreneurs, and consultants who show firms how to write business plans, government grants and the like. An example of this model in the US is the MIT Forum (est. 1978) which has a Bootcamp and a Workshop for this purpose.

The Figure below outlines the four types of incubator management styles. The X axis indicates how choosy incubators are about who they allow to become tenants. For example, if an incubator is high on selection, it will have a competitive application process where potential tenants must submit detailed business plans to demonstrate the viability of the idea/technology, as well as market potential and entrepreneurial skill.

Incubators with low selection criteria are more like standard office buildings, where if the firm seems to be able to pay the rent, they are admitted. In the lower left
quadrant, firms have easy entry, but receive little to no soft supports once they enter.

Incubation facilities run by real estate developers tend to be of this (facilities management) type. In Japan, a number of entrepreneur interviewees described their IMs as having the mindset of landlords, mainly because they hail from the SMRJ – the brick-and-mortar facilities builder.\(^3\)\(^9\)

Figure: Incubator Management Styles\(^\text{10}\)

On the right side, corresponding to the Y axis of development, tenant firms receive a number of the soft supports outlined above, the difference being whether or not the firms have gone through a competitive selection process. In the lower right quadrant, it is akin to a lottery system or random placement in intramural sports/little league teams. The
coach is assigned a roster of players, some who might have natural talent, but many of whom do not. The coach’s role is to coax players to train to reach the best of their ability.

In the upper right quadrant, the Cultivation or Hybrid Model, high growth potential firms are selected from a larger pool of applicants, and in addition to benefiting from being around other “best of the best” entrepreneurs, also obtain a variety of soft supports. Of these supports, helping entrepreneurs to develop strategic support networks is most critical, and the incubator managers that are able to do this effectively, draw from their own deeply connected private sector networks. Honig and Karlsson (2010) find that IMs are instrumental for their tenants in this regard, as well as in connecting non-incubatees in their communities to resources that they need. ¹¹ This has also proven a challenge for Japan’s incubators, as more than a third of them are led by amakudari bureaucrats and civil servants, whose personal networks are mostly with other public sector employees. This is in contrast to the United States, where IMs are more likely to be serial entrepreneurs or others with hands-on business experience.

Since 2006, when METI sponsored a series of surveys with IMs and tenant firms (whose results indicated limitations in civil servant led entrepreneurial networks), SMRJ has made an effort to hire IMs who have had private sector experience. While they have
been less successful in luring successful serial entrepreneurs to the helm of incubators, they have had better luck identifying willing and available semi-retired bank executives, thanks to the contraction of the financial markets since the 1990s.

Japan has moved from the upper left (picking winners, but offering little supports, such as the former MITI did in the 1950s to 1970s) to coaching, with a few incubators of a hybrid type. The hybrid type in Japan has three features, reflecting its governance structure, ties with universities and incubation management style. It is estimated that less than ten percent of Japanese incubators are of this type.

First, hybrid type incubators may utilize government funds, but avoid taking on IMs from government agencies. Instead, these incubators hire IMs who have had some degree of private sector experience. Rather than be a subordinate partner to the national government, hybrid incubators have some institutional balance, for example, having a joint venture between the prefectural government and local banking community in Shiga’s Collabo 21 incubator, and with the Kyoto Venture Forum (a group of successful serial entrepreneurs) as in the Mikuruma incubator, discussed below.

Second, in terms of their incubation management style, hybrid incubators focus primarily on developing the strategic resource networks of entrepreneurs, and secondarily
on training entrepreneurs in effective business management. These practices cultivate an extensive network of private sector supports (Finance, R&D, Sales and Marketing, Information Exchange) for tenant firms. These dense, interlocked networks around firms – their ecosystem – can be likened to a bamboo grove. Bamboo are tubers, and underneath a group of bamboo trees is a dense, lattice structure root system that connects the trees, seedlings and shoots together. A shock to one part of the root system does not destroy the grove, and new shoots pop up elsewhere in the network.

Cultivating a bamboo root system type network for start-up firms helps firms to withstand external shock (e.g. drying up of a given capital source) by assisting firms in avoiding becoming dependent on any single support source. Effective incubation managers prioritize this network cultivation, and further, they have dense private sector networks themselves, usually a result of years of experience in private industry. While effective IMs develop networks for their tenants, they also assist firms in connecting those that can provide training in the art of managing a business. This observation in Japan is consistent with the findings in prior studies on the importance of incubator networks in incubation success discussed in Section One.
The third feature of the emerging hybrid incubation management model is ties with universities. That is, the close socio-spatial location of incubators to universities has positive effects on the incubation process. The following figure illustrates this 3-point model. Start-ups are like bamboo shoots (akin to seedlings), nurtured by IMs, who to the extent they are able, draw from government resources (while keeping management in the hands of private sector individuals), and connect firms with technology resources at local universities. The following two cases illustrate how Japan is learning-by-doing in this regard: The Kyoto City Mikuruma and Shiga Collabo 21 incubators.

Core of Best Practice Incubators: Cultivating the Bamboo Grove
(Network Root System)
インキュベータのベストプラクティス（最良の事例）のコア：
竹の根型ネットワークの育成

Effective Incubation Managers
(Network and Training Approach)
(現場のインキュベーション・マネージャー)

Non-Government Hybrid
（非政府組織のハイブリッド）

University Ties
（大学の結び付き）

Kyoto Mikuruma and Kyoto Venture Forum: Network Model
クリエイション・コア京都御車（京都新事業創出型事業施設）と
京都市目利き委員会：ネットワーク型
The Kyoto Mikuruma incubator was built, refurbishing an unused 2,500 square meter Kyoto University building, in 2005, after receiving funds from the SMRJ in 2003 and 2004. The building is situated just to the west of the Kamo River, south of Imadegawa Street, near the Demachiyanagi train station. The incubator features wet and dry lab space and caters especially to biotech start-ups. It also has a terrace overlooking the river. Mikuruma began accepting firms in January of 2006. The majority of tenants have research collaborations with local universities. Currently, 35% of its tenants have R&D ties to either Kyoto University or the Kyoto Prefecture Rika University (considered leading science and technology hubs).4 The incubator takes its name from the ancient name of the street where it is located “mikuruma michi dori” named so due to its role as route to the Imperial Palace in Kyoto, (“Gosho”御所). To this day, the emperor and family, when visiting Gosho, proceed along this street on their way to the palace grounds.

The selection process to enter the Mikuruma incubator is arduous, and preference is given to firms that receive “A Rank” status (“A ランク”評価) from the Kyoto Venture Forum (KVF). The KVF was formed in the mid-1990s by a group of successful local entrepreneurs, who had taken their companies global, including Masao Horiba of Horiba
Manufacturing and Osamu Tsuji of Samco International. The group functions like a loose network of management consultants, who after a nation-wide business plan competition, select a small subset for A Rank status – those demonstrating the most potential for growth. These A Rank firms receive a number of soft supports from KVF members, including advice on product development, finance and marketing. Further, if a firm is KVF A Rank, receives about a 50% discount on Mikuruma rent for up to 3 years. KVF members also assist firms in making connections to other strategic supports, in Kyoto and also internationally. A research study on life science entrepreneurs identified KVF as a major network hub for start-ups in Kyoto.

Of the total of 5 incubation managers, 4 had private sector experience (Osaka Gas, a pharmaceutical firm, a former entrepreneur). Mikuruma’s Chief Incubation Manager (as of 2009) was a retired Kyoto Bank executive. The fifth was on secondment from ASTEM (Advanced Scientific Technology & Management Research Institute of Kyoto, 京都高度技術研究所), a regional industrial technology promotion and research organization established in 1989. As of August 2010, the incubator was full, hosting 19 start-ups, more than a third of which had grown into multiple spaces. Eight firms had graduated. As early as 2008, 10 firms were selling finished products, and 5 were already profitable. Across
Lake Biwa (*biwako*) to the East of Kyoto, is Shiga Prefecture, which lacks the critical mass of intellectual capacity of Kyoto (home to more than 40 universities and colleges). Shiga Collabo 21 in Otsu City has less of the R&D network strength of Mikuruma, as there are no university campuses nearby. Instead, Collabo 21 nurtures its start ups via a boot camp style training approach.

**Shiga Collabo 21 and Finance Networks: Training Model**

コラボしが21：トレーニング型

The Collabo 21 incubator, a three thousand square meter facility in Otsu City, Shiga Prefecture. Shiga is known as a major manufacturing center, home to the plants of a number of Japanese electronics firms and also IBM for a time. The Collabo 21 incubator was opened in 2004, the brainchild of the governor of Shiga and Takayuki Nishioka, a retired branch manager of Mizuho Bank (formerly Fuji Bank). Nishioka had spent 26 years serving in various positions, working mostly as a loan officer with small and medium sized manufacturers and entrepreneurs. At first the aim was to make the incubator a solar tech center, but there were not enough firms to fill the spaces, so the incubator became mixed-use. About half of the tenants work in technological fields, while others are in small manufactures and digital media. In August 2010 11 of the 13 rooms were occupied.
Nishioka runs a tight ship at Collabo 21, putting potential tenants through a grueling application process, and once selected, followed by a brief probationary period, where they can use a tiny cubicle sized room: enough space for a chair, a laptop and about half of a desk (these are called “booths” in Japanese). If they show progress after a month or two, they might be upgraded to a larger space. Firms not showing progress and long term viability after 6 months are asked to leave.

At the same time, he encourages his incubatees to try different things, to see if they work. He meets with his tenants one-on-one each week to work on their business planning, particularly finance and marketing strategies. Once a month, for a 500 yen boxed lunch (o bento) fee, he brings together tenants and a guest speaker from industry, banking, or venture capital and has firms give a 3 minute (maximum) presentation, after which the floor is open to intense discussion and debate. Nishioka also collaborates with a local business called the “Business Café” that hosts receptions for entrepreneurs and area businesses so that start-up entrepreneurs can interact with people they would not ordinarily bump into. Under Nishioka’s mentorship, firms spend the first year in Collabo 21 in an intense “learning by doing” training program. At the same time, Nishioka thinks that the biggest challenge for start-ups is accessing the international market, which means
putting together an entrepreneurial team that includes people with international experience.

More recently, Nishioka has been working in a finance research collaborative group led by executives of the Kyoto Chuo Shinyo Kinko (the region’s largest bank, known for its historical independence from central state dictate). The bank was working on a new service for entrepreneurs in 2010 that would provide so-called gap finance to start-ups. The mechanism would be that account holders would be allowed to overdraw – with no penalty – up to three hundred thousand yen. This is a modest amount, a few thousand dollars, but enough to purchase supplies or make payroll in a pinch. A small fee would be assessed on funds later on.  

Nishioka also works with graduates to place them in local office buildings, offering introductions and advice on how to be on their own after graduation. Graduates are encouraged to maintain their ties with the incubator. One of his graduate firms is working on its initial public offering (IPO). These hybrid models of new business incubation management have a distinctly private sector style, but at the same time have evolved out of several decades of trial and error, by well meaning, hard working national bureaucrats.

Conclusion
Some of the challenges remaining in establishing network type incubation manager practices include ideally hiring incubation managers with extensive private sector experience (e.g. in business or banking) and concomitant networks, or at the very least, privatizing the networks of incubation managers. A survey conducted by JANBO in 2006 confirmed that government IMs themselves were frustrated with the limits of their predominantly public sector networks in connecting firms to the resources that they need.\textsuperscript{4,9}

The gap between existing network connections and desired network connections is evident. For example, few respondents currently had connection with foreigners or Japanese with significant international experience. At the same time, the majority of respondents desired these kinds of connections in the future. In contrast, the personal networks of IMs are heavy with ties with other bureaucrats, and respondents did not appear to desire to maintain these contacts in the future.

In summary, Japan has over the past decade placed an unprecedented emphasis on new business incubation policy as the national government tries to craft an entrepreneurial economy – one that creates a supportive ecosystem for entrepreneurial firms. An initial public sector top down push has resulted in private sector spin offs
(JANBO to JBIA is one example). While the latter is one of a number of unintended consequences, this has led to some serendipity, namely the opportunity to observe and compare public and private sector initiatives targeting incubation management (InnoNet and JBIA).

Secondly, these activities are occurring in a national context of a breakdown of socio-political hierarchies, whereby the lobbying power of large corporate conglomerates has been tempered by the rise to national prominence of entrepreneurial networks including the Association of Small and Medium Sized Enterprise Entrepreneurs (中小企業家同友会) as well as the rise of the Democratic Party of Japan (民主党). Leaders from these organizations have successfully challenged the corporate status quo for the first time. Though the future of the DPJ is far from certain, having lost ground in national elections on 11 July 2010, and subsequently, its policy impact is undeniable.

Third, strategic resource networks and incubator leadership styles (effective incubation managers) appear to be improving the state of entrepreneurial ecosystems around new start-ups. Hybrid incubators that maintain some kind of socio-spatial tie with universities are the best positioned to nurture high growth start-ups and thus should be the focus of further research and policy.
Suggestions for future research include monitoring progress in Japanese incubators and tenant firms. If Japan manages to successfully incubate a new generation of entrepreneurial start-ups into high growth firms that help to transform the Japanese economy from one characterized by a bureaucratic-industrial complex to an entrepreneurial economy, the national policy push of the last decade will have been a success even if the majority of Japanese incubators cease to exist. A number of newly built Japanese incubators are state-of-the-art facilities, having invested much of their budget into beautiful architecture. If the experience of the most successful incubators in the US is any guide (abandoned warehouses are a common motif of American incubator facilities), there may be an inverse relationship between the ratio of investments into hard capacity and the availability soft supports so critical to start up survival, and ultimately, success. Further, comparisons to trends in Japan to other high growth economies, such as the BRICs might yield additional insights into best practices and lessons learned.
Endnotes


8 Chapter 5, Graduate Firms, Figure 5-4 Current Location, Report of Basic Investigation on Business Incubators, Survey conducted by Japan Association of New Business Incubation Organization (JANBO) via the Japan Industrial Location Center (JILC) and METI, 2006. 5. 卒業企業について、図 5-4 現在の所在地、平成 18 年度ビジネス・インキュベータ基礎調査報告書、平成 19 年 3 月、経済産業省地域経済産業グループ、財団法人日本立地センター。


See also Cai, Qiang. (May, 31st. 2002). “Business incubator is heading to the way of quality”, China High technology industry leader.


This represents a convergence in administrative oversight between METI and MEXT. Until the late 1990s, the lines were clearly drawn between economic/business policy (METI) and education/university policy (MEXT).

Differences in budget categorization and calculation across Japanese ministries cause inconsistencies in budget totals. For example, MEXT funds supporting university ventures also include non-incubation related expenditures. (e.g. MOT platforms).


In the United States, in the 1980s, the SBA played an early role in the establishment of new business incubators, sponsoring facilities upgrading and building new incubators.

Marcia Mellitz interview December 2005, Center for Emerging Technologies (CET), St. Louis.

SMRJ is a consolidation of the Japan Small and Medium Enterprise Corporation (JASMEC), Japan Regional Development Corporation (JRDC), and Industrial Structure Improvement Fund (ISIF). The former were established in 1962 and the latter in 1986.

I Mによる企業支援の成果, 2009年12月, 財団法人日本立地センター, 調査結果①〜高い企業存続率, 中小企業庁「2005年度における中小企業の動向」。
『中小企業白書 2006年度版』38頁。


For an overview of policy and practice in Europe, compared to other regions, see European Commission, Enterprise Directorate-General Final Report February 2002 Benchmarking of Business Incubators, Strategy and Evaluation Services.


Association of University Technology Managers (AUTM) and National Business Incubation Association (NBIA) reports, various years.

National and local governments can also support nascent entrepreneurship by 1) lessening the regulating process in starting and maintaining businesses and 2) establishing fund-of-funds to see venture capital investment in regions.

The Enterprise Forum, Massachusetts Institute of Technology, provides an information hub for the various MIT-related entrepreneurship programs:  


Kyoto Mikuruma Incubator (クリエイション・コア京都御車),  

Masanori Sawamura, Chief Incubation Manager, Kyoto Mikuruma Incubator, Interviews 23 March 2009, 4 December 2009.


Takayuki Nishioka, founder and Incubation Manager, Collabo Shiga 21 Incubator, 滋賀県産業支援プラザ、創業支援室 室長、インキュベーションマナジャー、Interview 9 December 2009. See also, Takayuki Nishioka, The role of Regional Business Incubator Networks, 38 産業立地 2008 年 3 月号、特集 ビジネス・インキュベーションの発展に果たした J A N B O の役割。

Torazo Ninagawa, longtime governor of Kyoto prefecture is often credited with “preventing the big banks from taking over” like they did in most other places in Japan. He is said to have been instrumental in the amassing of capital in the Kyoto Chuo Shinyo Kinko. The fact that he hailed from the Japan Communist Party, long in opposition to the Liberal Democratic Party (LDP) which governed national politics for most of the post war period makes the story even more fascinating.
Takayuki Nishioka Interview 23 March 2010.

Janbo 2006.