BUSINESS INCUBATOR MODELS IN THE U.S AND KOREA

By

Boyun Yun

THESIS

Submitted to
School of Public Policy and Management, KDI
in partial fulfillment of the requirements
for the degree of

MASTER OF BUSINESS ADMINISTRATION

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ABSTRACT

A STUDY ON BUSINESS INCUBATOR MODELS IN THE U.S AND KOREA

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Business incubators in the New Economy are seen as entities that help to create successful new ventures by providing speed-to-market, synergy, network, talent, and capital. This study examines the business models of various business incubators and analyzes the case of three early movers: Idealab, CMGI, and ICG. These incubator business models are classified by organization type and operating type. Even though each business model has different value focus, this study analyzes the overall value proposition and risks of business incubators and identifies some of the key factors for success.

This study also examines the current status of business incubators in Korea and offers some suggestions for improvement

ACKNOWLEDGEMENTS

It is a pleasure to acknowledge all the people who have helped me in my preparation of this paper. I am particularly grateful to my thesis supervisor, Professor Seung-Joo Lee, who has given his precious time, excellent comments and generous support to me throughout the entire process. I also want to express my gratitude to Dean Gill-Chin Lim, Professor Woo-Chan Kim and Professor Young-Ki Lee. You, and all the other professors at the KDI School of Public Policy and Management, who have offered me generous help during my study there. Finally, I would like to thank my friends and classmates who have given me encouragement and help during this process.

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Chapter I

INTRODUCTION

During the past few months, the number of for-profit business incubators has increased dramatically both in the U.S and in Korea. In the past, business and technology incubators were tools for rehabilitating local economies or improving technological innovations within a country. These incubators were sponsored by non-profit organizations such as local communities, governments, universities, and the like. Since the late 1990s, however, the incubator concept has gained popularity with Internet and high-technology related businesses because it addresses the unique demands required of successful ventures capital firms. Increasingly shorter times to IPO's as well as faster speed-to-market (which involve powerful capital and human resources synergy effects) have made the incubator business model attractive.

Some early movers such as Idealab, CMGI, and ICG recorded remarkable returns from selling or bringing public their portfolio firms. Their phenomenal growth has spawned others to act and Korea has been no different. The rapid expansion of such incubators has been facilitated by KOSDAQ and grew explosively since the mid-1999 with the advent of venture industries.

The scope of this study is focused on for-profit business incubators, which excludes non-profit incubators.

This study focuses on the business models of US incubators and examines the following issues:

- Identify the various business models of such incubators
- Classify business models according to various characteristics
- Analyze the value proposition, risks and key success factors of each business incubator model

This study also explores the Korean incubator industry and makes comparisons to US models. Through this process the surrounding business environments will be analyzed and implications for Korean incubators will be discussed.

Chapter II

OVERVIEW OF NEW BUSINESS INCUBATORS

I. Recent Growth Phenomenon

Business incubators have been around since 1959, when Charles Mancuso and his family purchased 850,000 square feet of a multi-story factory warehouse and leased it to several tenants in Batavia, N.Y.Mancuso partitioned the space and allowed tenants to share various office service expenses[1]. This building, which is known as the Batavia Industrial Center (BIC) has been instrumental in the creation of more than 1,000 businesses.[2]Many communities adopted and developed this idea to revitalize their local economies and to create jobs by providing entrepreneurs with a breeding ground to develop new firms. During the 1970s, business incubators became a tool for improving regional and national competitiveness by fostering the emergence of innovative and technology-based firms. This shift was accelerated in the 1980s by linking the incubator concept more closely to higher education and public research institutions. In the 1990s, there has been a trend to develop business incubators around specific industrial and technological clusters such as biotechnology, information technology, and environment technologies.[3]

According to the U.S. National Business Incubation Association (NBIA), there are more than 800 business incubators in North America – a dramatic rise from 12 in 1980. Currently 75 percent of North American incubators are nonprofit, while

[1] Frederick Burger, "Business Incubators: How Successful Are They?," *Area Development*, Jan. 1999.
[2] Lawrence Aragon and Julie Landry, "How a Farming Town Hatched a New Way of Doing Business," *Red Herring*,19 Jan. 2000.

25 percent are profit orientated. For-profit incubators were only 8 percent of the total 587 incubators in a 1998 survey.

The recent growth of for-profit incubators implies not only the growth in the number of firms, but also the emergence of new breeds of incubators. Many people argue that the new incubators were started by Bill Gross of Idealab in 1996. In contrast to the older and more static concept which had rent or client fees as a main revenue source[4], Idealab had considerable equity stake in the incubated firms and provided a whole set of business support resources from idea generation to operation and funding. This highly efficient hatchery concept makes for a particularly nice fit in the New Economy, where time and talent are often the most precious resources.[5]According to NBIA, for-profit incubators recently began opening at the rate of nearly four firms per week.

II. Definition

The NBIA published the following definition of a business incubator:

"Business incubators accelerate the successful development of entrepreneurial companies through an array of business support resources and services, developed or orchestrated by incubator management, and offered both in the incubator and through its network of contacts."

The 1995 NBIA survey illustrates the features of old-style business incubators. 57 percent of revenues came from rent or client fees, 21 percent from

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[3] OECD Secretariat, "Building Business and Technology Incubators", *Technology Incubators: Nurturing Small Firms*, OECD, 1997, 13-32.
[4] As Note 3.
[5] G.Beato, "Dream Factory," *Business 2.0*, December 1999.

service contracts or grants, and 31 percent from cash subsidies of government or communities. 59 percent of firms served by incubation programs are "regular clients" (start-up firms in the facility), 34 percent are "affiliate firms" (firms that access services but are located off-site) and 7 percent are "anchor firms" (firms that are self-sufficient and are either graduates or remain in the facility adding stability to the incubators). [6]

Recent for-profit business incubators, however, have many different aspects. Internet and technology are the main focus of incubating, and instead of fees for their services, equity stake has become an important compensation method. New incubators have various different operating models and services. The following definitions in some studies on new incubators reflect the different features of new incubators.

Motley Fool Internet reports states the following definition:

" A firm that helps other start-up companies grow in the early stages of its lifecycle in exchange for a share of the success of the child company"[7]

A paper on incubators of MBA program at MIT states an incubator as follows

"A controlled environment that fosters the care, growth, and protection of a new venture at an early stage before it is ready for traditional means of self-sustaining operation. In today's world, where information technology and the Internet are normal parts of the business environment, the term "controlled

[6] OECD Secretariat, "Building Business and Technology Incubators", *Technology Incubators: Nurturing Small Firms*, OECD, 1997, 13-32.
[7] Paul Larson, "Internet Incubators Nurture Fledgling Companies," *Motley Fool Research*, 9 May 2000.

environment" could be either physical (real estate and office facilities) or virtual (networks)"[8]

From the many definitions of business incubators, two distinctive features of these recently evolved for-profit incubators may be noted; firstly that virtual incubators – click versus brick and mortar – have become popular, and secondly that equity is the major compensation method for services provided.

These features are more specifically explored in the following chapter

III. Business Models

1. Overall Survey

Several surveys were conducted or are being conducted about incubator business models. Among them, a few comprehensive survey data was available at the time of preparing this study: 1) Oonnut Mac Chinsombon, "Incubators in the new economy" MBA at Massachusetts Institute of Technology (June 2000) – 52 US incubators survey, 2) Morten T. Hansen, Nitin Nohria, and Jeffrey A. Berger, "The State of the Incubator Marketplace", Harvard Business School(June 2000) – 169 US incubators survey, 3) Joanne Lee, Christina Ma, Patrick Maloney, Victoria Martens, Oswaldo Ramirez "Business Incubators: US vs. Europe" Hass School of Business (June 2000) – 69 incubators in the U.S and Europe.

Here are some common features of the incubator model which have been extracted from several surveys conducted recently.

[8] Oonnut Mac Chinsombon, *Incubators in the New Economy*, MBA Thesis, Massachusetts Institute of Technology, June 2000.

(1) Deal Sourcing

According to Chinsombon in an MIT survey, 19% of incubators had some internal idea generation function. For external idea generation, the most common source of ideas and deals was personal and professional networks. Deals derived from the network of service firms and friends were more highly evaluated than those that came in without reference.[9] Other deals originated from external submissions, web interfaces, university relationships, and business plan competitions.

(2) Deal Evaluation

Incubators have their own criteria for screening deals. The most common criteria for screening deals include market needs, market size, level of market fragmentation, unique business model and potential for market leadership. Evaluating such criteria involves the following process: 1) Initial screening by one or more analyst 2) A committee review and market research 3) Entrepreneur presentation4) Due diligence and in-depth research, and5)contract formation[10]

(3) Source of Investment Fund

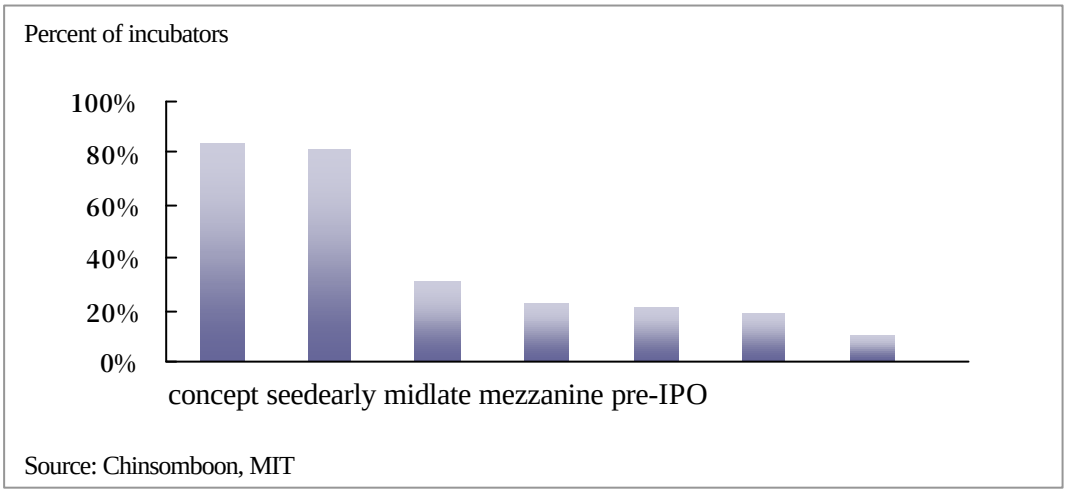
Sources of incubator funds include institutional investors, private individuals and publicly traded stocks as in the case of listed incubators.

[9] As Note 8.
[10] As Note 8.

(4) Point of Intervention

The literature on this subject revealed that incubators typically invest in the very early stage – seed stage – of firms. Figure 2-1 clearly illustrates this fact:

Figure 2-1Point of Intervention



(5) Amount of Investment

The range of investments usually begin with between 50,000 to 500,000 and may extend upwards to a maximum of about 2 million USD.[11]

(6) Equity Stake

[11] Joanne Lee, Christina Ma, Patrick Maloney, Victoria Martens, and Oswaldo Ramirez, *Business Incubators: US vs. Europe*, Hass School of Business, Univ. of California Berkley, June 2000.

Hansen, Nohria and Berger note in a June 1990 Harvard Business School survey that the average equity stake held by incubators is 35%, but Chinsombon's research revealed that equity stakes varied widely from 2% to 60%.

(7) Participating Business Focus

The Harvard Business School survey highlights that 92% of interviewed incubators answered that the Internet is their main focus.

(8) Period of Incubation

Not surprisingly, the time horizon varies according to the industry and goals of the firm: 6 to 18 months for high-tech software firms, 5 years for bio-tech firms, and 90 to 120 days for incubating projects that involve consulting [12].

(9) Exiting

Exiting milestones are as follows. After additional rounds of funding by institutional investors, space constraints in physical incubators, or failure in meeting agreed upon terms[13]. Sometimes the last one, 'failure of agreed upon terms' is blamed for a harsh terms of contract. For example, a Manhattan-based incubator insisted that its candidate firm to share its technology with other companies. The

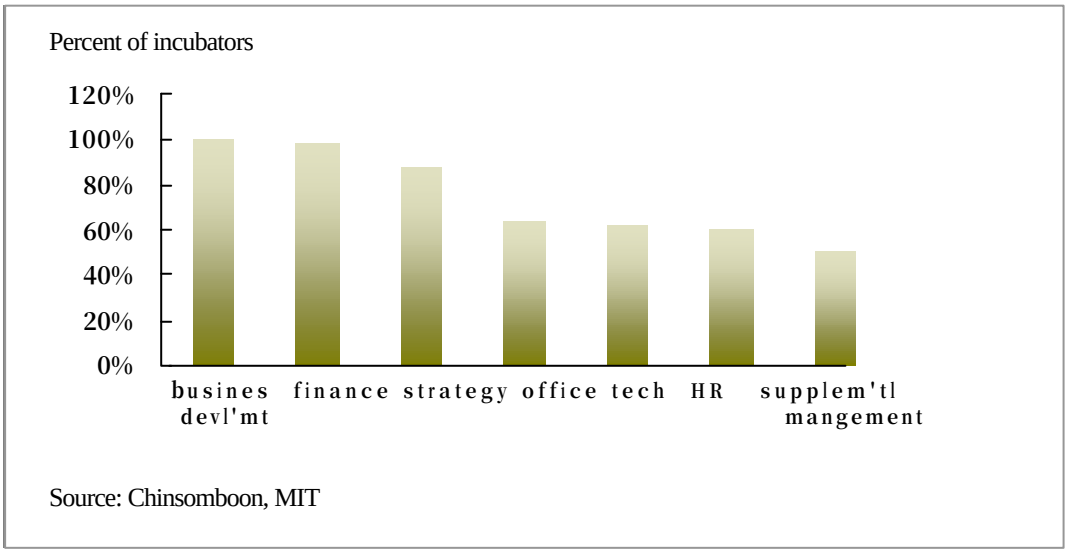
[12] Oonnut Mac Chinsombon, *Incubators in the New Economy*, MBA thesis, Massachusetts Institute of Technology, June 2000.
[13] As Note 12.

entrepreneur refused and the incubator suggested the second offer: Raise up to $10 million dollars in a year or lose the firm to the incubator[14]

(10) Services Offered

Figure 2-2 describes the services offered by incubators. The most common services are business development (100%), finance (98%) and strategy (87%). Business development includes assistance in evaluating, structuring, and negotiating joint ventures, strategic alliances, joint marketing agreement, acquisitions and other transactions. The Harvard Business School survey shows that nearly all incubators offer physical space and also picked funding and coaching as commonly offered services.[15]

Figuer 2-2 Services Offered by Incubators



Source: Chinsomboon, MIT

[14] Luisa Kroll, "Mad Hatchery Syndrome", *Forbes*, 17 April2000.

(10) Location

Figure 2-3 shows that incubators in the U.S. are centered in California and New York – areas where IT knowledge are concentrated. According to the survey by HBS, incubator locations are city centric[16]

Table2-1 Locations of US Incubators

States	Number of incubator	%
California	44	27%
New York	19	12%
Georgia	14	9%
Massachusetts	13	8%
Virginia	8	5%
Others	66	40%
Total	**165**	**100%**

Source: www.rednecktech.com

The business models of incubators have a wide range of variations. However they may be clearly distinguished from venture capital models. The following is a comparison between the two.

Table 2-2 Business Model Comparison Between Incubator and Venture Capital

	Incubator	Venture capital
Stage of intervention	Early stage	Expansion stage
Amount of funding	USD 50,000 to2 million	Average USD 13 million
Way of delivering services	Management position Board representation	Board representation
Services offered	Whole array of business support	Mainly capital

[15]Morten T. Hansen, Nitin Nohria, and Jeffrey A. Berger, "The State of the Incubator Marketplace," Harvard Business School, June 2000.
[16]Morten T. Hansen, Nitin Nohria, and Jeffrey A. Berger, "The State of the Incubator Marketplace," Harvard Business School, June 2000.

2. Cases of Most Active Incubators: Idealab, ICG, CMGI

The above survey reveals the overall features of business incubators. Yet such general models cannot directly translate into current and upcoming successful incubator business models. Therefore this study examines the most active incubators. Given their short history, attempts to select successful ones is limited; the long-term prospects, for example, may prove quite different from short term results. Success of incubators can be measured several ways, such as: number of graduates, number of IPO's, rate of return of its investment, success of graduates, net income, market value of equity stake held by incubators, and market value of incubator stocks, to name a few. Due to fluctuating market prices and their short history, however, the success of incubators cannot be measured statistically. Therefore this study analyzes incubators which have been noticed and regarded as key players by the press - Idealab, CMGI, and ICG (Internet Capital Group).

Tables 2-3 and 2-4 compare and contrast these three leading incubators. Idealab is considered a first mover among new incubators while ICG and CMGI are also considered early movers. Some of the common features and differences are outlined.

Table 2-3 Summary of Business Model of Three Incubators

	Idealab	ICG	CMGI
Deal Sourcing	Mostly internal idea through frequent brainstorming session	External – through network sources	External – through network sources, Internal
Deal Evaluation	Criteria Address a large, unidentified market needs Superior business model Scalable business model Sufficient entry barrier to benefit from first mover advantage Sustainable competitive advantage Value to idealab network	Criteria Industry Inefficient market Potential-size, profit Existence of centralized information sources Company Industry leader potential Significant ownership Network synergy Management quality	Criteria Industry leader potential Efficient business model Interconnectivity with CMGI network and synergy
Focus	B2C e-commerce and Internet infra, service	B2B e-commerce and technology	B2B, B2C e-commerce, technology
Funding	Affiliation of 5 venture funds	Public market of ICG stock	Public market of CMGI stock CMGI @Ventures fund
Stage of intervention	Mainly concept and seed stage	Later stage of pre-IPO	Concept, Early, Later stage, pre-IPO
Equity stake	Over 50% - 8 firms 20-50%-11 firms under 20% - 11 firms	Over 50% - 8 firms 20-50%-53 firms under 20% - 12 firms	Over 50% - 17 firms 20-50%-4 firms under 20% - 33 firms
Services	Office infra, Funding, Recruiting Business development Strategy, Technology Legal, Sales/marketing	Funding, Recruiting Business development Strategy, Technology Legal, Sales/marketing	Office infra, Funding, Recruiting Business development Strategy, Technology Legal, Sales/marketing
Employees	198	70	1,024
Asset	$ 1,674,683,000	$ 2,050,384,000	$ 2,404,594,000
Relation with incubated firms	Considered as separate entity Networking firms through formal and informal communication	Considered as separate entity Formal conference, meeting, Informal introduction	Direct control of operating firms
CEO background	Bill Gross B.S.engineering Founded several ventures	Walter Buckley B.S. political science Safeguard Scientifics Founded one venture	David Wetherell B.A. mathematics Founded several ventures
Origin	Start –up by Bill Gross	Co-founded by Walter Buckley and Ken Fox Former Safeguard Scientifics employee	LBO of CMG(marketing firm) by Wetherell
Location Notable Exit	California (headquarter) Silicon Valley New York, Boston, London Etoys,(12%) GOTO,(27%) CarsDirect(44%) Netzero(5%)	Wayne(headquarter), San Fran, Boston, Seattle, London, VerticalNet(9%) Breakaway Solution(49%)	Andover MA(hq) California, Illinois, New York, UK Chemdex(Ventro),9% Engage(ENGA) 82% NaviSite(NAVI) 72%

Table 2-5 Common Features and Differences of Three Incubators

	Idealab	ICG	CMGI
Internal idea generation	O		O
Network synergy and market leader potential for deal criteria	O	O	O
Office space offered to portfolio firms	O		O
Collaboration among portfolio firms	O	O	O
Entrepreneurial experience of CEO	O	O	O
Direct control of portfolio firms			O
Venture capital affiliation	O		O
Origin: Incubated by other incubator		O	
Focus on a specific Internet sector		O	

(1) Common Features

In screening deals, the common criteria of the three incubators were market leadership potential and synergy or value to their network. Also the collaboration among portfolio firms are encouraged or arranged by the active role of incubator CEOs. Except for ICG, CMGI and Idealab have affiliated venture capital and directly manage their venture funds to invest in portfolio firms -- so that they can concentrate on coaching entrepreneurs instead of searching for funding sources. All three incubators provide an array of business support resources and services, but ICG doesn't offer office space. Another distinguishing feature of these leading incubators is the fact that all three CEOs [Bill Gross(Idealab), David Wetherell(CMGI), and Walter Buckly(ICG)] have experiences in founding several venture firms before they started the incubator business.

(2) Different Features

Equity Stake, Point of Intervention, Control

Idealab mainly generates ideas internally and co-found venture firms with entrepreneurs. Entrepreneurs often come from inside the firm. After Idealab gets a company up and running, their equity stake is diluted through several liquidity events. eToys, an idea born by Bill Gross and Toby Lenk (former VP at Walt Disney), was launched by Idealab in 1997. However Idealab's quickly absolved theire Toys board representation by the end of 1998;eToys therefore had more management control before their 1999 IPO. Idealab now holds a 12%equity share in eToys.

ICG, in contrast, typically invests in later stages or into pre-IPO firms; by holding 20-50% equity stakes in portfolio firms, ICG maintains significant influence over its investments. As of August 2000, ICG had 20-50% equity stakes in 73% of its portfolio firms.

CMGI has a two-tier investment system; firms which are classified into operating firms with more than 50% of ownership, and firms which are invested through @Ventures fund with minority ownership. For operating firms, CMGI has strong control of its daily management. CEOs of operating firms have meetings every week in the CMGI headquarter[17]. CEOs of operating firms often either come from CMGI, or are recruited by CMGI. By contrast, @Ventures is operated like other venture capital. Concerning deal selection, on the other hand, network synergy is a critical screening criteria, and collaboration among portfolio companies are strategically encouraged.

[17] *En@ble*,April 2000, 144.

Figure2-3 Equity Stake Held

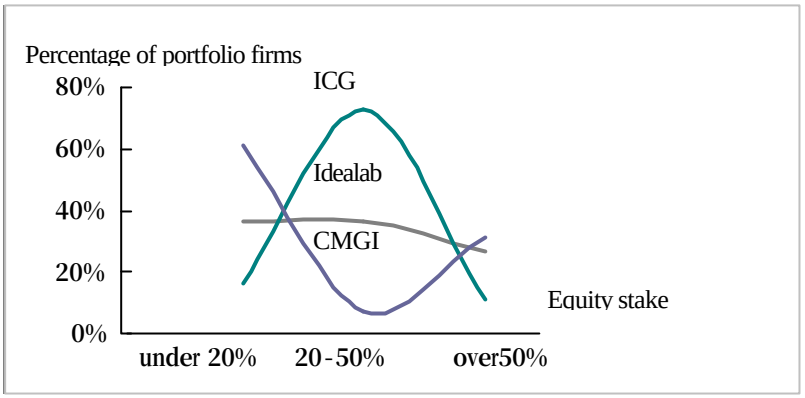
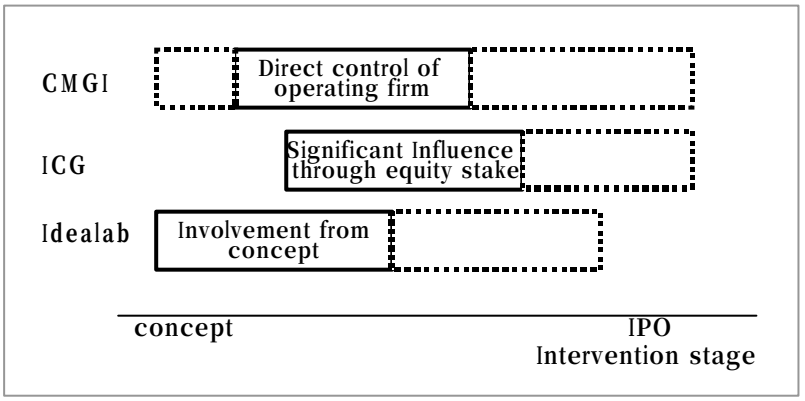


Figure 2-4 Point of Intervention and Type of Control



Focus and Services

Among the three incubators, ICG clearly states that its business focus is B2B e-business. ICG doesn't offer physical office space to portfolio firms. That's because ICG mainly invests in the later stage firms – or firms that do not require office space. Idealab's business focus is on Internet business and interactive communications, while CMGI's portfolio spans across the whole Internet business including B2C and B2B commerce and enablers.

3. Classification of Business Models

There are many different ways of running incubators, and niche players are entering the market. In this section, these different incubators are classified by the following criteria.

(1) Classification by Organization Type

1) Independent incubator

Independent incubators are not affiliated to other organizations and are managed independently.

Example: Idealab, eHatchery, Cambridge Incubators, CampSix

2) Corporate Incubator

Corporate incubators are similar to corporate venture capital in terms of organizational structure. In general, corporate incubators are subsidiaries of parent company or start a incubating program with outside venture capital or incubators. The corporate incubators' goal is not capital gain on their equity investment, but future prospects of enhancing the existing business of parent companies.

Example:

IBM-Conxion Dotcom(ISP) Incubator Program: provides technology and service at no cost for six months and gives venture firms the right to buy the product or walk away[18]

Panasonic Internet Incubator, HP Garage Program

Hotbank: Only incubates Softbank companies

This strategy matches with research results about the corporate venture capital program. According to the study on corporate venture capital programs by Gompers and Lerner(1999)[19], success depends on portfolio firms' strategic fit with parent companies.

3) Venture Capital Incubator

Some of the established venture capital firms have their own incubating business.

Example:

Kleiner Perkins Caufield & Byers: incubates 20% of its funded companies in its facility.

Benchmark Capital: there are usually two companies in its "seed program" at any given time[20]

(2) Classification by Operation Model

[18] Lawren Aragon, and Julie Landry, "A-to-Z Guide to Incubators," *Red Herring*, 19 Jan. 2000.
[19] Paul Gompers, and Josh Lerner, *The Venture Capital Cycle* (Cambridge, London: The MIT Press,1999).
[20] As Note 18

1) Traditional Incubators

Traditional incubators provide nearly all of the services that a venture needs including office space, HR, technology, money, network access, legal help, accounting assistance, and the like.[21] They intervene in the very early stage of firms -- usually during the concept stage or business plan formulation stage.[22]

Example: Idealab, eCompany , eHatchery, Cambridge Incubator

2) Accelerators

The concept of venture accelerator is used widely for firms that provide services for accelerating the growth of a new business[23] They don't necessarily provide whole sets of services for a start-ups , but instead help a company start or develop a new business by leveraging the accelerators' core competences. They participate in the seed or early stage of a company and emphasize speed to market in providing services. Oftentimes, they work with well established companies in developing new businesses, as in the Internet arena. In this category, the participation of incumbent consulting firms is notable.

Example: @McKinsey, Antfactory, Intend Change, Reactivity

[21] Oonnut Mac Chinsombon, *Incubators in the New Economy*,MBA thesis, Massachusetts Institute of Technology, June 2000.
[22] Joanne Lee, Christina Ma, Patrick Maloney, Victoria Martens, and Oswaldo Ramirez, *Business Incubators: US vs. Europe*, Hass School of Business , Univ. of California Berkley, June 2000.
[23] Joanne Lee, Christina Ma, Patrick Maloney, Victoria Martens, and Oswaldo Ramirez, *Business Incubators: US vs. Europe*, Hass School of Business , Univ. of California Berkley, June 2000.

3) Eco Net

Eco Net[24] -- the economic network -- is a term for incubator conglomerate. Traditional incubators like eCompany spin out invested firms as soon as the markets would have them. Eco Net retains control of start-ups after IPOs and network their companies together tightly -- yet the control is looser than conglomerates.[25] They work with companies at all stages of development and build and leverage synergies among portfolio companies.[26] They are often strategic investors for the new venture as well as for other ventures within the firm, with service arms that create network synergies among these investments.[27]Incubating is part of their whole business and they are often holding companies or investment companies.

Example: CMGI, ICG, Divine Interventures, Net Value Holdings

Table 2-5 Business Models by Operating Type

	Stage of Intervention	Services provided	Emphasizing value
Traditional Incubator	Concept, Seed	Full services	Idea development
Accelerator	Later	Part of services	Speed
EcoNet	Whole stage	Depending upon the intervention point	Synergy

[24] Peter D. Henig, "And Now, ECONETS," *Red Herring*, Feb. 2000.
[25] As Note 24.
[26] Joanne Lee, Christina Ma, Patrick Maloney, Victoria Martens, and Oswaldo Ramirez, *Business Incubators: US vs. Europe*, Hass School of Business , Univ. of California Berkley, June 2000.

[27] Peter D. Henig, "And Now, ECONETS," *Red Herring*, Feb. 2000.

IV. Value Proposition

According to a study by NBIA (National Business Incubation Association), the survival rates for incubated firms in the U.S are around 87%, while fewer than 20% of startups survive their first three years of life[28]. Even though this study includes both non-profit and for-profit incubators, and despite the fact that the survey was conducted before the surge of the new for-profit business incubators, the remarkably high survival rate can be an indicator of the value-added role of incubators.

1. Value to Entrepreneurs

(1) Capital

Venture capital funds, which comprised 48% of all private equity capital raised in 1999, focus on the expansion stage of firms. In 1999, expansion stage investment accounted for 55% of all venture capital investment, while early stage investment represented only 22% of venture capital disbursement[29]. The average size of investment per firm was USD 13 million.[30]

Given these facts, smaller scale entrepreneurs previously faced difficulties in getting seed capital because venture capitalists prefer not to deal with smaller sums of money in highly uncertain firms. Incubators have filled this gap by funding these very early stage. This type of external funding sources has often been used as a

[28] Janet Rae-Dupree, "Company Closeup," *Business Week*, 24 Aug. 1999.
[29] 2000 National Venture Capital Association Yearbook.
[30] As Note 29.

strategic investment to enhance the synergy with the invested firms in their businesses.

Incubators not only provide seed capital but also source venture capitalists to fund later rounds of financing.

(2) Hands-on Management Coaching

While venture capitalists supervise management through board representation, incubators are involved in daily management in a hands-on manner. Some incubators provide educational programs to fortify the entrepreneur's knowledge and skills.[31] This service is provided either through having management positions in incubated firms, or through board representation.

(3) Network Synergy

Incubators facilitate the flow of knowledge and talents, and foster partnerships among incubates to generate network synergy[32]. The results are knowledge spillovers, economies of scale, and cost reductions on customer acquisitions, marketing, and sales. If firms share the same space or are located adjacent to each other, these advantages may be earned more easily. Even if little geographic proximity exists, the collaboration is orchestrated by incubators. In the

[31] Oonnut Mac Chinsombon, *Incubators in the New Economy*,MBA thesis, Massachusetts Institute of Technology, June 2000.
[32] Morten Hasen, Henry Chesbrough, Nitin Nohria, and Donald Sull, "Networked Incubators:Hothouses of the New Economy," *Harvard Business Review*, Sep-Oct. 2000.

case of Internet solution provider `Breakaway solution', for example, nearly 18% of its revenue was generated from Internet Capital Group related companies in 1999.[33]

(4) Speed

Time to market is considered a critical success factor for the New Economy players. By having access to bundled business resources, incubators save the time which would have been otherwise used to contract such tasks individually. Incubators also accelerate the startup process through coaching and setting the right strategies.

This is all made possible based on the strength of the incubators inside resources: their ability to connect with outside resources, and their business expertise.

(5) Expertise

By having operating experts on their advisory board or management, incubators can share knowledge with several firms. ICG have Coca-Cola's first chief marketing officer on its advisory board and offer such expertise to incubated firms in a hands-on manner.

(6) Idea Generation

[33] Breakaway Solution SEC Filing 10K, 31 March 2000.

Only 19% of incubators have an internal idea generation function in the survey by Chinsomboon.[34] Incubators nevertheless help entrepreneurs develop their ideas into more marketable ones[35].

2. Value to Investors: Screening and Monitoring

Venture capitalists, angel investors, institutional investors and public market investors are all capital providers of incubators. There are several ways in which Incubators' benefit from these investors.

Uncertainty and asymmetric information are the main factors limiting access to capital for potentially profitable firms[36]. Venture firms, which are in early stages of development, are associated with significantly high level of uncertainties about their potential outcomes. Entrepreneurs may know more about their firms' prospects because they are involved in day-to-day management. [37]

Venture capitalists and other gatekeepers take the role of financial intermediaries to reduce these problems. The Incubators' role as a financial intermediary contrasts in two aspects. First, incubators deal with even higher uncertainty because their involvement is at earlier stages than venture capitalists. This higher uncertainty also bears the potential of higher returns. The second

[34] Oonnut Mac Chinsombon, *Incubators in the New Economy*,MBA thesis, Massachusetts Institute of Technology, June 2000.
[35] As note 34.
[36] Paul Gompers, and Josh Lerner, *The Venture Capital Cycle* (Cambridge, London: The MIT Press,,1999):129.
[37] As Note 36.

difference involves the higher degree of management influence as mentioned previously.

Incubators with a good reputation can reduce the problem of uncertainty and asymmetric information through their screening process in sourcing initial deals and their value-added services.

V. Risks

Despite the values that incubators deliver to entrepreneurs and investors, there are several risks to be considered.

1. Risks from its Business Model

(1) Adverse Selection

Incubators may not be hold appeal for talented entrepreneurs with strong networks and clear business prospects. This type of entrepreneur may go directly to top-tier venture capitalists and give up less equity., Incubatees therefore are arguably less able firms at attracting capital, and firms that lack convincing capabilities which stand on their own.

(2) Adverse Development of Organization[38]

[38]Oonnut Mac Chinsombon, *Incubators in the New Economy*,MBA thesis, Massachusetts Institute of Technology, June 2000.

Failure records of entrepreneurs are considered an essential ground for future success due to the valuable lessons that such experiences give. Incubators supposedly reduce possible risks and problems that entrepreneurs can face, so venture firms may not breed the organizational ability to eliminate future threats. These are so-called "Mama's Boys" problems.[39]

(3) Grandstand Trap

Most incubators are startups, too. To attract high-breed venture firms and resources, they need to establish a solid track record. Gompers and Lerners demonstrated that young venture capital firms bring invested firms to the public market earlier than would the maximized returns on those individual companies, and that this early IPO incurs the cost of under-pricing [40].This may be the same for young incubators as well; in some cases they may be guilty of rushing to bring immature firms to the public market, or perhaps of selling firms for attractive prices to build their record, rather than coaching them to ensure their long-term growth.

(4) Conflicts of Interests

With several firms in their portfolio, incubators can use the knowledge or intellectual property earned from one firm for other portfolio firms or for their own benefit. Yet entrepreneurs who don't want to share their technology or ideas with

[39] Benjamin C.Powell, "Business Incubator and Internet Accelerator," *Redneck Tech*, online, July 2000.
[40] Paul Gompers, and Josh Lerner, *The Venture Capital Cycle* (Cambridge, London: The MIT Press,,1999):241.

other portfolio firms may have conflicts with an incubator who try to transfer knowledge spillover effects among portfolio firms.

There are also other potential conflicts of interests between entrepreneurs and incubators. Incubators may invest in competitors of incumbent portfolio firms or a portfolio firm may make an alliance with other firms of competing incubators. In addition to this, another problem arises: portfolio firms' strategic decisions may not benefit the incubator. In March of 1999, for example, Lycos announced its plan of merging with USA Networks (a media company). Possessing a 20% stake in Lycos, David Wetherell -- CEO of CMGI -- resigned from Lycos' board in order to protest the deal, claiming that the deal was undervalued. Lycos nevertheless supported the deal, but two months later the deal was cancelled due to the expected rejection of its shareholders.

(5) Interconnection Trap

Due to the efforts by incubators to encourage collaboration among portfolio firms, portfolio firms oftentimes are connected with each other through co-marketing, sales, equity sharing, and so on. In one such case almost 18% of Breakaway Solution's revenue came from ICG communities. While this interconnection bears synergy effects, it also leaves the incubator vulnerable to negative domino effects as well, with the possibility of one portfolio's boom-bust cycle wreaking havoc on others.

2. Risk from the External Environment

(1) Regulations

Some view the Investment Company Act of 1940 as a barrier for incubators that want to go public themselves. According to this law, a firm with more than 40% of its asset in investment securities[41] is declared a investment company, and must operate under far stricter sets of regulations and reporting requirements.[42]

Given this environment, incubators are encouraged to maintain a certain level of investment in majority owned companies. Under this law, CMGI is classified as an operating company; ICG also obtained an exemption period claiming that its strategy and active role in its portfolio companies constitutes an operating status.[43] Idealab also wants to go public and filed for an IPO, but this regulation is an obstacle that Idealab needs to overcome. Even after an IPO, however, incubators should try to maintain this level of investment. This in turn may cause unfavorable portfolio compositions.

(2) Stock Market Volatility

The incubator business is very sensitive to public market conditions. The profit of incubators mainly comes from trading, selling, and issuing of equities of portfolio firms. Uncertain valuation of the equity stake of portfolio firms causes volatile profit streams of incubators.

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[41] Investment securities include all securities except (A) government securities, (B) securities issued by employees' securities companies, and (C) securities issued by majority-owned subsidiaries of the owner which are not investment companies
Investment Company Act of 1940, FDIC Law, Regulations, Related Acts

[42] Peter D. Henig, "And Now, ECONETS," *Red Herring*, Feb. 2000.

[43] Stephanie Gates, " ICG is risky business," *Red Herring*, Aug. 1999.

The following figure (figure 2-5) is a comparison of incubators and venture capital firms in terms of relative values and risks. One may note that while incubators provide value-added services other than capital, the risks borne to them are higher than those that exist with venture capital.

Figure 2-5 Values and Risks of Incubators Compared with Venture Capital Firms

	Values	Incubator	Venture Capital
To Venture Firm	*Capital*	H (especially seed)	H
	Handson coaching	H	L
	Network synergy	H (for EcoNet)	L
	Speed	H	L
	Expertise	H	M
	Idea generation	H (for TI)	L
To Investors	Screening/Monitoring	H	H

	Risks	Incubator	Venture Capital
From Business Model	*Adverse selection*	H	L
	Adverse developmer	H	L
	Grandstand trap	H	H
	Interest conflicts	H	M
	Interconnection trap	H	L
From External Environ.	Regulation Stock market volatility	H	H

(H: high, M: medium, L; low)

VI. Key Success Factors

Figure 2-6 illustrates the factors that influence values and risks of incubators. Based on these factors, some of the key values drivers that can decrease risks have been identified.

Figure 2-6 Key Success Factors of Incubators

	Values	Enhancing Factors
Firms	Capital	Network, Reputation
	Hands-on coaching	Resources devoted to direct client coaching
	Network synergy	Strategic selection, Collaboration
	Speed	Talents, Network
	Expertise	Talents, Network
	Idea generation	Talents, Network
Investors	Screening/Monitoring	Clear selection criteria, Proper evaluation,Monitoring program

	Risks	Diminishing factors
Internall	Adverse selection	Clear selection criteria(leadership potential) , Talents, Network
	Adverse development	Supportive coaching, not do the work for them, performance assessment
	Grandstand trap	Strategic portfolio composition
	Interest conflicts	Supportive,constant relationship
	Interconnection trap	Strategic portfolio composition
External	Regulation Stock market volatility	Strategic portfolio composition

- Strategic selection – leadership potential, network synergy and need /fit
- Encouraging collaboration
- Talents, Network
- Resources devoted to direct client coaching
- Supporting, not doing the work for them
- Proper performance assessment, monitoring program
- Strategic portfolio composition

1. Strategic Deal Selection : Leadership Potential, Synergy

To avoid adverse selection and achieve synergy effects among portfolio companies, incubators need to base their deal evaluation criteria on its industry leadership potential and network synergy.

This factor was mentioned in previous studies on technology incubators. The OECD study on technology incubators (1997) reported that unlike the prevailing practice of over-emphasizing the potential for future success in recruitment decisions, technology incubators need to base entry and service decisions on "needs" and "fit" rather than on the success potential only.[44]

2. Encouraging Collaboration

Collaboration cannot be achieved by merely sharing the same physical facility or brand name of an incubator. The active role of the incubator is critical in encouraging collaboration. Bill Gross of Idealab stimulates CEOs of its portfolio firms to collaborate in various aspects. Since the drive to develop their own business model overrides collaboration efforts and minimizes the benefits of sharing the same physical space, portfolio firms need to be spurred on by incubators in the exchange of ideas.

3. Talents, Network for Resources

[44] Sarfraz A. Mian, "Evaluating the Impact of Technology Incubators," *Technology Incubators: Nurturing Small Firms*, OECD, 1997, 61.

For speed, operational expertise, and idea generation, talents and network for sourcing outside resources are the key ingredients. The CEOs of Idealab, ICG, and CMGI all have the experience of founding ventures. Experienced directors are in their management team as well. Recruiting and appropriately compensating capable management is one of the most important decisions that the incubators make, because the depth of their experience translates into faster and better execution of business plans.[45]

Prominent talents and networks can also decrease the risk of adverse selection.

4. Resources Devoted to Direct Client Coaching

The management resources of incubators should be used first and foremost to provide client assistance.[46]Studies and reports done before the rage of new for-profit incubators reveals that the time spent in direct client contact by the incubator managers is by far the most significant factor for success. Concerns which distract incubator directors from time spent with clients -- such as facility management, funding, and stakeholder issues -- jeopardize the success of tenant firms.[47]

This is true of new incubators as well. Recent studies on Internet incubators reveal that coaching is one of the most important benefits that can differentiate the incubator business model from other service providers such as venture capital.

[45]Oonnut Mac Chinsombon, *Incubators in the New Economy*, MBA thesis, Massachusetts Institute of Technology, June 2000.
[46] OECD, *Business Incubation: International Case Studies* (Paris: OECD, 1999): 162.
[47] OECD, *Business Incubation: International Case Studies* (Paris: OECD, 1999): 146.

Resources including time, knowledge, and expertise allocated to direct contacts are critical factors in delivering hands-on coaching service.

5. Supporting, Not Doing the Work for Them

To avoid poorly developed organizations, incubators need to support and develop the entrepreneur's ability to achieve their own goals, rather than do the work for them.[48] Incubators should not provide financial aid but also educate the tenant firm ; ideally, create an environment for entrepreneurs to aggressively pursue their goals with some amounts of hardships entailed.

6. Proper Performance Assessment and Monitoring Programs

Performance assessment and monitoring programs reduce the risk of moral hazard and poorly developed organizations. Incubators are in a better position to monitor (than venture capitalists) since its services provide hands-on coaching. Nonetheless, due to the very nature of incubators in which moral hazard problems arise, entrepreneurs may be more exposed to risks; without proper performance assessment and monitoring programs, incubators could expose their tenant firms to "Moma's Boys" [49] problems.

7. Strategic Portfolio Compositions

[48] OECD, *Business Incubation: International Case Studies* (Paris: OECD, 1999): 163.
[49] Benjamin C.Powell, "Business Incubator and Internet Accelerator," *Redneck Tech*, online, July 2000.

Given stock market volatility, grandstand traps and interconnection traps require incubators to balance their strategic portfolio compositions. Defined as firms that are well-established in the public market or a later stage of stable profit streams, anchor firms can add stability to the portfolio.[50] Secondly, in order to satisfy short term capital needs, incubators have firms to liquidate in their portfolio.[51] While this may not be a favorable way to sustain an incubating model, new incubators may be able to prove their liquidity and reputation by keeping a portion of their portfolio in this category. And lastly, incubators should create flexible networks to avoid the interconnection trap. Revenue sources, customer sources, as well as marketing activities should not be overly nor exclusively concentrated on inside networks. Equity sharing and collaboration among portfolio firms should be based on sophisticated schemes orchestrated by an incubator.

[50] OECD, *Business Incubation: International Case Studies* (Paris: OECD, 1999):155.
[51] Oonnut Mac Chinsombon, *Incubators in the New Economy*, MBA thesis, Massachusetts Institute of Technology, June 2000.

Chapter III

BUSINESS INCUBATORS IN KOREA

I. The Incubator Industry in Korea

1. History

In the early 1990s, the Korean government enacted a lot to establish business incubators with the hopes of decentralizing knowledge and technology away from the major conglomerates and to support small-and-medium-sized companies. In 1992, the government assigned the SME Industry Promotion Corporation and JoongBoo Industry Consulting to run business incubators. Soon, Technology Business Incubator was established in KAIST in 1994. Although By 1996 there were only 10 business incubators in Korea,[52] this number has rapidly increased to 226 according to a May 2000 report from the SMBA(Small and Medium Business Association. These designated incubators, one should note, are non-profit incubators which have academic links to universities, research centers and communities.

The first for-profit business incubator in Korea was Miralab (www.miralab.com). This Internet business incubator was established in 1999 by six Korean-Americans who moved back to Korea; the initial seed money was a W 30 billion investment from a U.S based fund.[53] CEO Lee Jung Suck was in charge of software development at Chase Manhattan prior to founding MiraLab. They benchmarked the business model of eBay and incubated WaaWaa.com in Korea and

[52] Ryoo, JaeWon, *Improving the Management of Business Incubators- Seoul Business Incubator Case*, Hanyang Univ. Dec. 1996, 15.

WeiWei.com.hk in Hong Kong. Since then the participants of new for-profit business incubators has increased dramatically[54] , and now established venture firms and off line corporations actively participate in the incubating business.

2. Key Players

Many service firms declare that they are incubators, but many of them provide a limited array of services. Table 3-1 shows the list of for-profit incubators in Korea.

Similar to the U.S. experience, various types of incubators including traditional incubators, accelerators, and eco-nets are currently emerging in Korea. By leveraging their high stock prices, venture firms and firms registered with KOSDAQ have entered the incubator market. Large corporations, as well, have begun incubating businesses to capture the New Economy opportunities. Samsung Corporation, for example, started a corporate venture program to nurture and expand its Internet business.

[53] *JoongAng Daily*, 1 Sep.1999.
[54] *IT Chosun* reported that the number of incubators was 120 in May 2000.

Table 3-1 Lists of Incubators in Korea

	Company	Focus	Background of CEO	Incubatees	Operating Model
Independent	Miralab.com (Mar 1999)	Internet business	Lee, Jungsuck(33) -Chase Manhattan	WaaWaa.com Pricekiss.com.hk WeiWei.com Stocknote.com	Incubator (Internal idea generation)
	MA coms (1997)	IT ventures	Originated from MA technology	ENET	Accelerator
	BnC asia (Mar 2000)	Internet Business	Kim, Soyun -Hansol telecome	10 Internet technology firmsand portals	Incubator
	Ebizholdings (Jan 2000)	Internet Business	Jin Samhyun - PhD. Engineering	Infrastructure, commerce 13 firms	Econet
	Labinvest (2000)	Technology lab	Ji Gyuhwan -Research fellow in Congress		Incubator
	Momus ventures (2000)	B2B e-business	Choi Hokyun -Goldman Sachs	Be.md.com (medical equipment commerce site)	Accelerator
	Jinsol Internet (1998)	Offline firms' e-business	Joo Jinyong	IT, education, logistics, commerce firms	Accelerator
	Ideaplaza (May 1999)	Patent-based technology ventures		JeJeworld, Inch21 Itsbe Mmline, offspace	Incubator
	Nshaper (April 2000)	e-business	Kim Youngsung - Mckinsey		Econet
	Softbank N platform (Mar 2000)	B2B e-commerce	Ma Sangjoon -Mckinsey		
	Etriz,Intizen,				
Corporate	BI-bank (Jan 2000)	e-business	e-corporation Paxnet Joint venture		Incubator
	Goldbank, Serom technology, Samsung goldengate, Daum, LG capital. Makyung IBI.DongBoo group				
Venture Capital	KVC net (June 1999)	e-business	Yoo, Wonhee -KTIC		Econet
	@팩스 venture partners Mirae asset ventures KTB incubating				

3. Government Policy on Non-Profit Business Incubators

If one compares the 226 designated non-profit incubators as of August 2000 with the figure of 800 incubators in North America -- including for-profit and non-profit incubators -- it becomes apparent that Korea is nurturing a large number of non-profit incubators.

SMBA announced in March 2000 that it would provide up to W 700 million to each eligible incubator.

Table 3-2 Korean Venture and Incubators Designated by SMBA by Locations

Region	Number of venture firms	(%)	Number of non-profit incubators	(%)
Seoul	**2,399**	**40%**	**31**	**14%**
Pusan Woolsan	**372**	**6%**	**19**	**8%**
Daekoo Kyungbook	**350**	**6%**	**25**	**11%**
Kwangjoo Junnam	**161**	**3%**	**23**	**10%**
DaejunChungnam	**454**	**8%**	**31**	**14%**
Kyunggi	**1,305**	**22%**	**35**	**15%**
Inchon	**406**	**7%**	**5**	**2%**
Kanwon	**54**	**1%**	**13**	**6%**
Chungbook	**158**	**3%**	**13**	**6%**
Junbook	**91**	**2%**	**13**	**6%**
Kyungnam	**241**	**4%**	**16**	**7%**
Cheju	13	0.2%	2	1%
Total	**6,004**	**100.0%**	**226**	**100%**

Source: SMBA

SMBA has encouraged incubator development in the non-capital region area. Table 3-2 shows the low non-profit incubators portion in the Seoul, Kyunggi, and

Inchon areas; in the remaining regions, the portion of non-profit incubators is higher than the portion of venture firms.

4. Alliance with Global Players

Global players started to enter the Korean market by investing in Korean venture firms or making strategic alliances with Korean partners.

KTB, Korea's largest venture capital company, established their own incubating division in July 2000 (www. ktbi.co.kr), with US incubator Techpharm, Compaq, and Silicon Valley Bancshares.

II. Comparison with the US business model

1. Participating Business

Even though Korean incubators are in the earlier stage relative to their US counterparts, they tend to focus on specific areas such as B2B upstarts, software, and online solution models for offline companies. This phenomenon can be explained by Korea's late start; by the time that Korean incubators evolved, the first wave of Internet start-ups had passed and the sustainability of many Internet business models were already called into question by many analysts and industry experts. New players have, therefore, tried to focus on more specific areas rather than embrace the whole Internet business domain.

2. Sponsors: Big Corporations, Ventures

Big corporations and ventures with excess cash are starting incubating businesses. However this is different from Panasonic, IBM, or Hotbank incubators which focus on synergy effects between incubatees and their original business. Big corporations in Korea are using the incubating business model to expand their business online -- and often into new business areas. Venture companies are trying to utilize their excess cash by investing in other venture firms. While Panasonic and IBM programs have clear strategic focus, Korean corporate incubators are inclined to look for investment opportunities in diverse areas.

3. CEO Backgrounds

While many US incubators' CEOs have experience in founding ventures themselves, founders or CEOs of Korean incubators rarely have entrepreneurial experience. Consultants from multi-national consulting firm or investment firms are actively entering the incubating business leveraging their global network and expertise. This can be partly explained by the underdevelopment of SME businesses in Korea. In short, Korean incubators have accumulated less SME entrepreneurial experience and expertise relative to the U.S.

III. Implications for the Korean Incubator Industry

1. Supplementing the Weak Role of Venture Capitalists'

Korean incubators have more potential due to the weak venture capitalists' role. Korean venture capitalists have different aspects in terms of capital size, value added service and certification roles.

The size of venture capital is smaller than other countries that have well developed venture capital. The ratio of Korean venture capital size per GDP is 0.30% while the U.S is 2.10% and Taiwan is 3.91%. Therefore the incubators' role as a capital provider and venture catalyst becomes more relevant. Ensuring networks with private equity capital providers and obtaining stable funding sources is very crucial.

Table 3-3 Venture Capital Portion of GDP (1998)

	The U.S	Taiwan	Korea	Japan	Singapore
VC/GDP(%)	2.10	3.91	0.30	0.29	0.21

Source: SMBA

Korean venture capitalists role as value-added service provider is not significant due to their short history and lack of talents. Operating expertise business partnership networks cannot be acquired by obtaining venture capital investment. In light of these factors the incubator model – which provides active management participation and business model development – can be seen as highly attractive.

According to several studies[55], Korean venture capitalists' certification role[56] at the time of IPO is very weak. This means that Korean venture capitalists held little sway in their role of monitoring and reducing asymmetric information problems of venture firms. Once again the incubators' role of monitoring the management and screening promising venture firms seems to offer solutions to some of these issues.

Given the weak roles of venture capitalists have provided, and since they have not provided sufficient managerial and financial support to entrepreneurs, promising entrepreneurs may very well seek incubators to get those value-added services.

2. Nurturing Entrepreneurial Experiences and Incorporating Operating Expertise

Since both Korean incubators and venture capitalists lack entrepreneurial experience, it is unlikely that they can deliver sufficient operating expertise and hands-on coaching services. Incubators should nurture entrepreneurial experience through active management participation; furthermore they will need to recruit experienced persons to infuse corporate operating expertise into their organizations.

3. Strategic Fit and Needs in Incubating Programs of Big Corporations and Ventures

[55] Kang MoonSoo, *The study on VC' s certification role in IPO*, Seoul National Univ. Feb. 1998.
Hoe Young Soon, *The study on VC' s certification role in IPO,*Korea Univ. June 1999.

Big corporations and venture firms that are entering the incubator business should select portfolio firms according to their strategic fits and needs, not for utilizing their excess cash and maximizing investing profit. With strategic fit with portfolio firms, corporate incubators can utilize their expertise and experience not only in incubating but also in selecting promising candidates. The high success rate of corporate venture capital with strategic fit and low success rate of corporate venture capital without strategic fit were proven in many studies on corporate venture capital program.[57] Several incubators in the U.S incorporated this lesson to their business model. Panasonic, IBM, and HP enhance their product sales and acquire knowledge from their incubating programs.

Corporate incubators in Korea should have strategic fit as critical criteria for selecting their portfolio firms rather than merely divesting excess cash through diversified portfolios.

[56] Certification Role: Venture capitalists reduce asymmetric information problem between issuing firms and outside investors. Therefore the level of underpricing at the time of IPO may be smaller for venture capital backed firm due to the certification role of venture capital.

[57] Paul Gompers, and Josh Lerner, *The Venture Capital Cycle* (Cambridge, London: The MIT Press,,1999)

Chapter IV

CONCLUSION

Business incubators deliver various compelling benefits, yet contain various intrinsic risks. The whole array of services for entrepreneurs addresses the need for speed to market and ensuring superior talents. Their idea generation function is another lubricant to accelerate the entrepreneurial drive. Their network is more flexible than traditional keiretsu and, at the same time, generates compatible synergy and scale effects. The hands-on coaching places incubators in a better position to monitor the entrepreneur's practice. There are, however, many risk factors such as adverse selection, poorly developed organizations, interconnection traps, and vulnerability to volatile stock markets.

Korean incubators have a lot of potential to grow, but also face risks that stem from lack of entrepreneurial experience and insufficient capital, and a highly volatile stock market. One distinguishing feature of the Korean market is the participation of big corporations in venture capital and incubators, as well as acting on the behalf of investors and clients of incubators. Given the overwhelming presence of Chaebols, it is no wonder that many Korean incubators focus on businesses with these established firms rather than encouraging the entrepreneurial drive. Chaebols also attempt to use incubating businesses as another diversification tool without strategic fit with their core businesses. The Korean incubating business industry is at an even earlier stage than in the U.S. and have the chance to learn lessons from the past.According to a Harvard Business School survey, 16% of incubated firms were acquired by other firms or went public, while only 38% of

interviewed incubators have graduated firms. This implies that the new business incubators are in the early stages of development and it's too early to judge their success. However as more and more incubator businesses mature and go public, the valuation of incubators may become a controversial issue. Valuation of incubators is a complex process, based on the portfolio firms, operating revenues, cash on hand, the value of public and portfolios, and future value creation. These factors are much more complicated to measure than other business models. This issue should be examined in further studies.

Another issue for further study is the globalization of incubating businesses. Scalability across multiple countries, managing the risks of international portfolios, and network effects are some of the issues that will need to be addressed in the future.

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