Bridging Units and Business Incubation in a Technology Research Lab

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ABSTRACT

This paper describes a new model of incubation practices at Singapore’s Kent Ridge Digital Labs from 1998 till 2002. The model deviates from previously known models where by research institutions including institutions of higher learning license their technologies to companies or entrepreneurs who wished to either productize the technology or start a new company using the technology. The model was successfully applied towards the creation of more than fifteen start ups. These start ups attracted significant investments from venture capitalists from Singapore and elsewhere. Several of these companies are still in business.

1. BACKGROUND

Kent Ridge Digital Labs (KRDL) was set up in 1998 as software driven Information Technology research lab funded by the government of Singapore. KRDL was the coming together of two previously well established information technology research labs – Institute of Systems Science (ISS) and Information Technology Institute (ITI). ISS was well known for its ability to produce world class technologies. ITI was well known for developing innovative solutions using mature technologies. The Government of Singapore felt that the combined institute can become a powerhouse at developing innovative solutions using new technologies. This was also the time when the government of Singapore was promoting Technopreneurship on a national scale through its National Science and Technology Board.

KRDL was creating world class technologies. However, it was experiencing difficulties in translating these technology developments into industrial impact. There were at least four reasons for this gap. The first was that the Singapore companies had difficulty using technologies from a research lab. Second, even the setting up of licensing units was not enough to convince companies to adopt technologies. Third, technology transfer was much more than licensing of software or patents. Fourth, the Dot Com bubble was attracting the best of KRDL’s brains away from the lab and this would lead to a hollowing effect. These issues are discussed in some detail in the rest of this section.

1.1. Industry Response to Licensing

In the mid 90’s Singaporean companies were generally very comfortable building solutions using proven technologies developed elsewhere in the world. KRDL was creating very good technologies that were world class but could not get the local companies to adopt their technologies and solutions. Companies in Singapore were not used to adopting emerging technologies, especially those developed in Singapore by her research laboratories.

The following are three key reasons why Singapore companies did not adopt the technologies developed by local research labs:
- Lack of past experience in adopting such technologies / solutions.
- The significant gap between the research prototype and industry strength product.
- The lack of clarity on whether the respective research lab will continue to maintain and enhance the technology / solution.

1.2. Licensing Units

KRDL had set up licensing units to ensure that there was planned support for a technology or solution if it were to be licensed by a company. This was an effort to convince the early adopters of its technologies and solutions that there will be a concerted effort in providing a after sales support for all the technologies licensed. There was limited success with this mechanism. An example was the IPSEC technology that was transferred to CET, a subsidiary of Singapore Technologies. This went on to become a new company called Digisafe. Another example was the suite of information security technologies licensed to Computer Associates.

Every licensing unit had one member from the team that created the technology / solution earmarked for servicing the licensees’ needs. It was difficult to have one full time equivalent (FTE) of a scientist or an engineer wait for either a technology to be licensed or once a technology has been licensed to wait for customer requests for maintenance and enhancement. Further, almost always the person earmarked for the licensing unit did not have answers to all the questions raised by a licensee.

This resulted in the person earmarked for the licensing unit of a technology to be deployed in some other project with the provision of getting him or her respond to a licensee’s request for maintenance and support. Often times this person would be assigned to be a member of a new technology / solution team that was different from the team that had created the technology or solution that was licensed. This created further problems since the priority of the person rested more with the current project rather than the technology or solution whose development was considered complete. Hence the licensing unit concept was found to not to be sustainable.

1.3. Technology Transfer through licensing

Some of the early experiences in licensing technologies threw up several issues that had to be managed.

The first licensee of the technology would almost always demand some form of preferential treatment. Often times this would mean exclusivity of some form – time, geography, or other forms. The value of a technology would fall significantly once exclusivity was granted to a licensee. Often times, the first licensee would end up being the only licensee. This resulted in not being able to create a multiplier effect out of a single technology.
The transfer of software or patents was not sufficient for successful technology adoption. Often the licensing company did not have the know-how to exploit the licensed technology. It was common to see the licensees adopt an inferior technology that had been well packaged and walk away from the technology licensed from the lab. Even claw-back agreements did not help given that the IT world was very dynamic and the lead time available for seeding a product and scaling it up was lost.

The amount of time spent by KRDL researchers and engineers in handholding the licensees was significant. The designated licensing unit person’s attention was always torn between the need to service the licensee to his satisfaction and the drive to contribute to the challenges faced by his new team.

1.4. Dot Com Bubble’s Impact

Mid to late 1990s was also the time when the dot com bubble was building up. Even untested ideas were attracting significant venture funding. Some of the companies were listed within a year of their formation thereby creating wealth for its founders. Many researchers were tempted to leave the research lab and set up their own companies. This mood was certainly promising to erode the human capital built up over the years.

KRDL had to create a mechanism for the top talent to benefit from their technology creations even while remaining rooted to the organization while foregoing what seemed to be the lucrative alternative of raising easily available funds to start up a business. Sure, not many of the start ups were going to survive but many were tempted with the possibility of a quick public listing and instant wealth accumulation in the process.

Some of the KRDL employees were genuinely interested in building companies using the technologies they had created. They were passionate about creating sustainable companies that can create new jobs for Singaporeans. Such passion had to be recognized and managed.

KRDL had built up its human capital over the previous ten to fifteen years. The cost and time involved in replenishing such lost talent would be enormous. Further, all the previous investment into building up this pool of talented researchers would be lost if it was not dealt with immediately.

KRDL found the Technopreneurship movement promoted by the Singapore government to be an excellent vehicle for addressing the four issues described above. Transforming the combination of world class technologies with significant market potential and KRDL employees who were passionate about creating companies that could generate employment for Singaporeans appeared to be excellent way forward. KRDL visited several venture capital organizations, read up on several best practices and chose to set up Bridging units as a mechanism for translating its technologies and human capital into promising businesses.

2. BRIDGING UNITS
KRDL quickly established a mechanism called “bridging units” for translating promising technologies into fundable companies. A combination of world class technologies and a founding team that was passionate about creating a successful commercial entity were the first steps in transitioning a team from a technology leader to a business builder. The team then had to identify the most promising business model for obtaining continued funding for the transition.

KRDL’s management team helped more than a dozen companies raise more than US $ 50 million from both venture capitalists and corporate investors from around the world. Some of these companies have gone on to establish a strong market presence for themselves in Singapore and abroad.

This paper will describe the methodologies used for the transitioning technology teams into business units, list our experiences in helping them raise the necessary funds and finally review the list of companies set up and the current status of the companies.
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