Developing effective innovation management

Peter Cebon

Opportunities clearly exist for improving innovation outcomes in Australia. In addition to training managers to execute transactions, business schools need to teach them about the risky business of building a corporation and how to manage innovation. The role of universities and public research organisations also needs to be redefined to allow them to become key knowledge platforms for the economy, and not treat teaching and consulting as something incidental to research.

In a recent study, I examined the innovation performance of nine Australian high-technology start-ups and two projects in major corporations.[1] The projects varied from biotechnology and nano-materials to mineral exploration and shipping. On average, the companies and projects were more successful than the average Australian high-technology start-up. All (except the one failure in the study) had managed to survive an average of 20 years. However, a large number of opportunities were squandered, and many of the companies were not nearly as successful as might have been expected, given their early promise.

Key features of poorer performing innovators

The findings, which tie the cases together, can be broken into two broad classes: issues nominally within the control of management; and issues beyond the direct control of management. When I looked at the issues within the control of management, I found that a number of themes pervaded the poorer performing companies. First, management and staff tended to be more focused on the technology than on the market. That is, they thought their task was to produce excellent technology, not to produce a product the market would want. In some cases, managers didn't really understand how their product created value for the customer, or if they did, it wasn't reflected in their marketing behaviour. In the most extreme case, staff told me they were more loyal to the technology than to the company.

Second, the poorer performing companies and projects managed risk very poorly. Innovation is a highly emergent exercise in that it is difficult to determine at the start of a project whether or not it will be possible to produce the intended product or service, or whether there will be a market for it. The more radical an innovation becomes, the greater the problem of emergence. Notwithstanding, many of the ventures studied appeared to face risks that were higher than necessary, given the businesses they were in. For example, one company, which made a single piece of equipment for the mining industry, found itself taking on the task of selling the entire plant and, in one case, was even responsible for supplying the entire plant, even though it only captured profits on its small part. Other companies faced excess risk because they were unable to construct adequate and appropriate distribution arrangements for their products.

Third, the poorer performing companies had difficulty maintaining effective control over their intellectual property. By that, I do not mean they failed to patent competently.

Rather, despite their best efforts, another party ended up controlling the intellectual property they had created, despite not being greatly interested in it.

Governance, risk management and market size

More interesting is the second class of findings, namely the issues that sat outside the management team and the organisation. I highlight three. First, governance was critically important. In retrospect, this makes sense. We cannot expect inventors to be good strategic managers. They are passionate technologists long before they try their hand at business. At some point, the imperative of perfecting the technology conflicts with the need to run the business. It is unrealistic to expect an inventor to be able to manage that conflict. Furthermore, inventors do not necessarily have the right skills or experience to run a business, especially if they are founding their first company or are coming from a research background. And, even if they do, they are unlikely to know which of their skills and experiences are useful, and which are not. These two reasons point to the importance of the external oversight group — the board of directors for a start-up, or the senior managers for a within-company project — to provide insightful oversight and control.

However, governance in these organisations was often poor, and the contrast between the best and the worst performances in this area was palpable. Henry Chesbrough vividly describes the difference between managing innovation and managing routine operations as being like the difference between playing poker and playing chess.[2] Both games are highly skilled, but they invoke radically different strategies. Great chess players are not necessarily even good poker players (and vice versa) because one is about interpretation and risk management, while the other is about analysis. Rather than having been overseen by experienced poker players who had worked in a similar industry, the companies and projects often had boards full of chess players — high-status executives with extensive experience in huge corporations working in stable markets, or board members who had never actually had the hands-on experience of taking a new product or service to market. Either way, the supervising group (boards, senior managers) often lacked the skills, the strategic tools and the experience to do their work effectively.

Second, some of the start-ups had excessive risk imposed upon them by their nominal partners. Launching a global-scale business from Australia is difficult, in part, because companies are always culturally or physically distant from key markets. This means, apart from anything else, that the business will take longer to launch and/or need more skilled managers. However, there were two other forms of partner-related risk that companies funded more recently needed to contend with. First, government policy towards the commercialisation of publicly funded research meant that the companies found themselves competing with universities and public research organisations (especially the CSIRO), instead of finding them a source of support. These major institutions appeared to have more incentive to spin out new research products than to help existing companies use their intellectual resources, even if the companies had been spun out of the institution in the first place. Second, slow development of these companies meant that access to capital was a huge issue. In some cases, the thinness of Australian capital markets meant there was no margin for error when constructing and executing the business plan, because initial capitalisation was too low and it was hard to raise more capital if things went off course. In other cases, the funders were in a hurry to realise a return on their investment, and so the companies were floated on the public markets before they were really ready. This can be contrasted with Silicon Valley, which was essentially underwritten by the US Government for the first 70 years of its existence.[3]

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Finally, and not surprisingly, initial market size was tremendously important. Those companies which could launch their venture within Australia and New Zealand, and build their operating capability before going into foreign markets, found it much easier than those that needed to build operational and marketing capabilities simultaneously.

Opportunities to achieve more effective innovation management

Given this set of issues, there are clearly opportunities for improving innovation outcomes. Again, I would highlight three. First, there is a need to teach managers how to manage innovation. This applies at the project level (the people who run projects), the corporate level (the people who manage portfolios of projects) and the governance level (the people who have oversight responsibility for the projects).

To my mind, some ideological issues are getting in the way of effective innovation management. As mentioned above, there is the question of whether we teach managers to play chess or poker. As many authors have noted, at a lot of business schools, the thrust is overwhelmingly towards playing chess.[4] There are many reasons for this. Among them, the equity markets, and corporations in general, put a premium on predictability. Consequently, when facing a trade-off between emergence (poker playing) and control (chess playing), managers favour the latter. This is reflected in our teaching, with virtually the entire MBA core oriented towards understanding and controlling managerial systems. While it is critical for managers to have these skills, this is only half the story. In addition, and closely related to this point, we train managers to execute transactions — mergers, acquisitions, financing and distribution deals that will qualitatively shift the value of a corporation overnight (chess moves that are amenable to the analytic techniques we teach). This is what is rewarded in corporations, and it creates neatly defined items to put on one's résumé. Much less emphasis is placed on the difficult, risky business of building a corporation.

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In addition, the social debate about corporate governance has been co-opted and shaped by an alliance between US pension funds and applied economists. Consequently, the debate is framed in terms of whether or not boards of directors are managing the downside risks of corporations: are they preventing management malfeasance; and are they ensuring that shareholders receive their fair share of the corporate spoils? Much less emphasis is placed on whether the board is working to maximise the value of the company by managing upside risks (opportunities) well. Consequently, we don't emphasise those sorts of responsibilities when we train managers.

Second, before we can teach people about innovation governance, we need to know what it is! As noted above, there appears to be an opportunity to reframe the meaning of governance to include prudent management of opportunities (upside risks) as well as prudent management of downside risks. However, before that happens, there needs to be significant research and debate about what constitutes effective governance for high-risk ventures.

Finally, there is an opportunity to reduce the extraordinary risk faced by innovative Australian enterprises. Beyond the cultural issues and physical distance from markets are the problems a competitive relationship with universities and public research organisations, and the need to produce globally competitive rates of return when a number of factors, including those discussed above, make it difficult.

I believe we need to redefine the role of universities and public research agencies to ensure they become knowledge platforms for the knowledge economy rather than mere generators of commercial intellectual property.[5] If genius is 1 per cent inspiration and 99 per cent perspiration, the initial intellectual property of a venture only embodies a small portion of the knowledge assets needed to bring

an idea to market. The rest of a venture's knowledge assets must come from outside the organisation, particularly from universities and public research organisations. We should think of universities and public research organisations as key knowledge platforms for the economy, delivering knowledge through various means, including teaching (degree and executive), research, consulting and commercialisation of intellectual property. ■

ENDNOTES

1 Peter Cebon ed. 2008, *Measured success: innovation management in Australia*, Melbourne University Publishing, Carlton.

2 Henry W. Chesborough 2003, *Open innovation: the new imperative for creating and profiting from technology*, Harvard Business School Press, Boston MA.

3 Timothy J. Sturgeon 2000, 'How Silicon Valley came to be', in *Understanding Silicon Valley: the anatomy of an entrepreneurial region*, ed. Martin Kenney, Stanford University Press, Stanford CA; and Stuart W. Leslie 2000, 'The biggest "angel" of them all: the military and the making of Silicon Valley', in *Understanding Silicon Valley: the anatomy of an entrepreneurial region*, ed. Martin Kenney, Stanford University Press, Stanford CA..

4 See, for example Paul J. H. Schoemaker 2008, 'The future challenges of business: rethinking management education', *California Management Review*, vol. 50, no. 3; Warren G. Bennis and James O'Toole 2005, 'How business schools lost their way', *Harvard Business Review*; Robert H. Hayes and William J. Abernathy 1980, 'Managing our way to economic decline', *Harvard Business Review*, vol. 58, no. 4; Henry Mintzberg 2004, *Managers, not MBA's: a hard look at the soft practice of managing and management development*, Berrett-Koehler, San Francisco, CA; and Rakesh Khurana 2007, *From higher aims to hired hands: the social transformation of American business schools and the unfulfilled promise of management as a profession*, Princeton University Press, Princeton.

5 At the time of writing, the review into the national innovation system had not been released.

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