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Recent Studies

On university high-tech spin-offs, outsourcing strategy, measuring intellectual capital, and other topics of interest.

Research Notes
by Des Dearlove and
Stuart Crainer

The University Incubator

Sue Birley (s.birley@ic.ac.uk),
“Universities, Academics, and
Spinout Companies,” *International
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www.senatehall.com/ijee

Many important technology breakthroughs happen not in garage startups but within universities. Yet the factors involved in transmuting academic research into commercial gold have received scant attention. Sue Birley, director of the Entrepreneurship Centre at London’s Imperial College of Science, Technology and Medicine, explores the role of universities in technology transfer through the creation of “spinout” companies (known in the U.S. as spin-offs).

Some universities, Stanford University and Massachusetts Institute of Technology in the U.S. and Cambridge University in the U.K., to name three, have been highly successful at spawning and developing technology-based firms. Other universities, however, have tended to license their intellectual property (IP) rather than spin out new companies. That tendency to license IP rather than retain control of it in the

Des Dearlove

(des.dearlove@virgin.net), a business writer based in Britain, is joint editor of the *Financial Times Handbook of Management* (Financial Times Prentice Hall, 2001) and coauthor of *Firestarters! Igniting the Entrepreneurial Organization* (ft.com, 2001).

Stuart Crainer

(stuart.crainger@suntopmedia.com) is a U.K.-based business writer and a frequent contributor to *strategy+business*. His most recent book, from Strategy+Business books, is *The Management Century* (Jossey-Bass Inc., 2000).

early stages of a company's development is now changing, says Professor Birley, as universities recognize that the spinout route offers academic researchers and their institutions the prospect of a better return on IP.

She defines a spinout as a “company created using the intellectual assets of the university but which is neither wholly owned nor managed by the university.” These fall into three categories:

- An *Orthodox* spinout, the best known, happens when researchers make a clean break by leaving the university to start a company.
- A *Technology* spinout takes place when an outside investor buys or leases the IP from the university and forms a new company.
- A *Hybrid* spinout is a complex model that occurs when a subset of the inventors becomes shareholders (founders) of a new company. They may remain at the university or take a sabbatical to start the company.

Most universities are not well suited to creating spinouts. Independent research laboratories, defense agencies, and companies face many of the same challenges in developing IP as do universities, but

the special nature of academe adds layers of complexity. Because the primary purpose of universities is to cultivate and disseminate knowledge, technology transfer is seen as a peripheral activity. This creates tension. Spinouts, says Professor Birley, require a managerial structure and culture different from the rest of the institution — something more akin to a corporate venture.

Professor Birley argues that academics possess many of the attributes necessary for successful venturing: vision, creativity, the ability to think laterally, self-confidence, and dogged determination. To launch a spinout successfully, however, researchers have to persuade others to invest in their vision. Here they face a double challenge. To secure investment requires a “proof of market concept”; to gain the support of the university requires a “proof of technology concept.” IP ownership and distribution of equity also have gray areas in the university context.

This complexity should not discourage the pursuit of university spinouts, which have the potential to make a major contribution to local and national economies. If universities become more adept at commercializing their IP, it could

lead to more collaboration with companies engaged in corporate venturing. Professor Birley does not discuss this kind of partnership in her paper, but the benefits to both parties could be significant.

Outsourcing's Multiedged Weapon

Andrew Kakabadse
(a.p.kakabadse@cranfield.ac.uk)
and Nada Korac-Kakabadse,
“Trends in Outsourcing: Contrasting USA & Europe,” *European Management Journal*, April 2002.
www.emjournal.com

A study conducted in 2001 by two faculty members at the Cranfield School of Business in the U.K. provides a snapshot of the changing pattern of outsourcing practices in the United States and Europe.

The study included interviews with service purchasers and providers and an empirically based survey of senior managers in Europe- and U.S.-based companies. In all, there were some 747 respondents, including CEOs and chairpersons. Contrary to previous research suggesting that many firms are unhappy with the outcome of their outsourcing

relationships, the Cranfield survey found a high level of satisfaction among respondents. Close to 60 percent of companies from both regions said they were generally satisfied; less than 6 percent were dissatisfied.

In their study, Andrew Kakabadse, professor of international management development, and Nada Korac-Kakabadse, senior research fellow in information systems, highlight two contrasting views of outsourcing. One emphasizes the core competencies perspective, and the other cost discipline.

Over 50 percent of U.S. and European companies reported outsourcing basic services like cleaning, catering, and printing. These were followed by human resources systems and processes, which, in this survey, were narrowly ahead of information technology services. The next group of processes and activities targeted for outsourcing included manufacturing, as well as facilities management, e-commerce, call centers, logistics, and accounting. Least likely to be outsourced were information and knowledge management, purchasing, fund management, and securities and asset management. Only 5 percent of U.S. and 6 percent of European companies outsourced these functions.

Among U.S. companies, outsourcing decisions are more likely to be made by senior line managers, who take a strategic and operational view of outsourcing. These respondents' strategic reasons for outsourcing were to add value through best practice, improve service quality, and utilize new technology. Their operational reasons were to reduce costs and build core competencies.

European companies, on the other hand, are more likely to refer

outsourcing decisions to the board and to view the practice narrowly, primarily as a way to achieve economies of scale. At present, the authors conclude, advantage would seem to lie with the broader but more operationally focused U.S. approach. Indeed, in the hands of line managers, outsourcing becomes a multiedged competitive weapon.

Remember Akron

Donald N. Sull (dsull@hbs.edu), "From Community of Innovation to Community of Inertia: The Rise and Fall of the Akron Tire Cluster," Harvard Business School Working Paper 01-025. www.hbs.edu/knowledge/capital.html

The economic, social, and organizational ramifications of industrial clusters are analyzed with ever-greater zeal by researchers. What few contemplate is the grim industrial fact of life that clusters usually die, as Harvard Business School's Donald N. Sull observes in the U.K. (textiles in Lancashire, steel in Sheffield), in Switzerland (watches), and in the U.S. (autos in Detroit), and elsewhere.

In the U.S., Professor Sull closely examines the rise and fall of the tire-producing cluster of Akron, Ohio. The Akron cluster, says Professor Sull, went through three phases in its life: innovation, institutionalization, and inertia.

During the period of innovation (1900–35), Akron grew rapidly to become America's "rubber capital," the center of U.S. tire production and expertise. With Goodyear, Firestone, and BF Goodrich all headquartered in Akron, the city expanded rapidly (from a population of 42,000 to 255,000), and a

profusion of tire companies (more than 200) were established. Knowledge was openly shared, and innovation after innovation emerged to improve the product and the manufacturing process. By 1920, there were an estimated 122 tire-industry millionaires in the city.

In the institutionalization stage (1935–65), the cluster settled into middle age to enjoy its wealth. Professor Sull cites the influence of the Portage Country Club, the hub of a close social network of executives, most of whom lived within an area of five blocks. Insularity ruled and lingered: In 1972, 100 percent of Firestone senior managers had spent their entire career with the company. The same was true at Uniroyal and General Tire.

In the final stage, inertia (1965–88), the introduction of the radial tire slowly left the Akron companies behind. New competitors emerged. Within 18 months, three of the four remaining Akron tire companies lost their independence.

Although the business conditions that fostered the Akron cluster are disappearing (lifetime employment and vertical integration, for instance), this is still a salutary tale. The fundamental lesson is that the benefits of knowledge sharing offered by clusters decrease over time. Simultaneously, the tendency to institutionalize increases over time. Flexibility of thought and action gives way to inflexible thinking and habitual behavior.

This leaves clusters fallible to any sudden major change in the market. The Akron-based companies responded with surprising rapidity to the arrival of radial tires. Products were quickly developed and new capacity introduced. Faced with new competition, the Akron

companies concluded that continuing to make radial tires, only faster, would suffice to stay competitive.

However, hard decisions about closing redundant plants were delayed because optimistic growth scenarios didn't confront the simple reality that the new tires lasted longer. The Akron cluster was willing to change — but wanted to change in its own way rather than in a way dictated by markets and competition. Because of this, it joined the list of historical clusters.

The unanswered question here is this: Is such a fate avoidable, and, if so, how?

When Two Worlds Cooperate

Ted London

(LondonT@bschool.unc.edu), Dennis Rondinelli, and Hugh O'Neill, "From Disparity to Synthesis: How Do Inter-Sectoral Alliances Between Corporations and Environmental Nonprofit Organizations Work?" Winner of the 2001 Booz Allen Hamilton/Strategic Management Society Conference "Best Ph.D." Fellowship. Unpublished paper.

Alliances are among the most popular business strategies of our time, but they are fraught with difficulties, even when they are made between partners with similar organizational objectives and values.

This, however, has not prevented the scope and scale of corporate alliances from expanding. In fact, a few companies are boldly developing alliances with unlikely partners — nonprofits and activist groups. Here, Ted London, a Ph.D. candidate from the University of North Carolina's Kenan-Flagler Business School, and Kenan-Flagler profes-

sors Dennis Rondinelli and Hugh O'Neill examine the motivations, challenges, and performance of what they call inter-sectoral alliances.

Cooperation between multinationals and environmental advocacy groups accounts for the most common inter-sectoral alliances. The Westvaco Corporation and the Nature Conservancy, E. I. Du Pont de Nemours and the World Resources Institute, and the Starbucks Corporation and Conservation International are among those examined in this research.

The authors make it clear that effective inter-sectoral alliances are not entered into in an effort to salve corporate consciences. Such alliances tackle compelling business projects and aren't created merely for the sake of public relations. Companies want to achieve competitive advantage. This is identified as the main reason they consider alliances with environmental organizations.

Behind this business rationale, more abstract forces are at work. Corporate participants in inter-sectoral alliances must accept the fact that bearing increased social responsibilities — whether protecting the environment or protecting child laborers — may raise costs and reduce profits.

The difficulty in quantifying business value in these alliances is understandable because, the authors say, both sides are looking for new knowledge and different perspectives. A value can be attached to this knowledge and these perspectives only after the alliance is formed and the knowledge and perspectives are developed. Similarly, companies and nonprofits recognize that each has competencies that could be useful for the other. Without their entering into an alliance of some

sort, it is likely that this awareness of potential value would go no further than mutual recognition.

Given the cultural and organizational differences between corporate and nonprofit partners, their courtship process is lengthy. Extensive due diligence is required from both partners. Trust has to be built before an alliance can be undertaken. There must be board-level leadership and advocacy for the partnership, and a champion within the company. A network of relationships between the potential partner organizations must be established before the alliance is formed.

However, the payoffs are potentially wide ranging. The most tangible benefits of the alliances studied here included new environmentally related revenue streams from redesigned products and more efficient production processes.

The Intellectual Wealth of Nations

Nick Bontis (nick@bontis.com), "National Intellectual Capital Index: Intellectual Capital Development in the Arab Region," Institute for Intellectual Capital Research and the United Nations Office for Project Services.

www.business.mcmaster.ca/mktg/nbontis/ic/publications/bontisun.pdf

Monetary measures of wealth from physical assets have been honed for generations. But methods to measure returns on research, education, commercialization of ideas, workforce diversity, information technology advances, and innovation remain in their infancy.

Indeed, it was only in the 1990s that methodologies for measuring what became known as intellectual

Accounting for intellectual capital isn't just for companies. It's a guidepost for country growth, too.

capital (IC) were first propounded and practiced. The business case was simply that in a knowledge-driven economy, it pays to be able to quantify current and future knowledge at your disposal.

Among the pioneers was Leif Edvinsson, who introduced a framework for better understanding and measuring IC at the Swedish financial-services firm Skandia Insurance Company Ltd. Using a similar IC model, others have tried a bolder experiment to measure the IC of entire nations, for example, Sweden's and Israel's.

Now Nick Bontis of Canada's McMaster University has taken experimentation with the Skandia IC model further by using it to identify and measure the IC of 22 Arab nations. Working with the United Nations Office for Project Services, Professor Bontis eventually aims to extend this project globally.

The model is divided into two categories: human capital and structural capital. The latter category is broken down into five parts: financial and knowledge capital; market capital; organizational capital; renewal capital; and process capital.

Human capital, for example, encompasses literacy rates, numbers

of schools and teachers, and educational spending as a percentage of GDP. Process capital ("the non-human storehouses of knowledge in a nation") includes access to telephones and mobile phones (usage ranges from 28.3 percent in the United Arab Emirates to 0.2 percent in Algeria) and computer ownership, as well as organizations, databases, and other structures that "sustain and externalize the output of human capital." Market capital covers a nation's attractiveness to investors and foreign commerce. Renewal capital — "a nation's future intellectual wealth" — looks at a nation's investments in such areas as research and development and patent applications.

The conclusions are that among Arab nations, Kuwait and Jordan lead the way in terms of intellectual capital, and Kuwait and Oman lead in terms of financial capital. The conclusion that Jordan and Egypt have been the most successful in maximizing their intellectual capital given difficult economic situations is even more striking.

Skeptics might say that calculating the intellectual capital of nations and regions is more of a statistical challenge than an economic

necessity. However, companies and countries are motivated to reform accounting methods for the same reasons: to achieve better economic results. (Professor Bontis argues that improvements in measuring IC are directly linked to improved economic performance.) Corporations can formulate and execute more effective strategies if they know more about all the key sources of wealth creation and the variables that affect them. For governments of emerging-market countries, IC can be a guidepost for setting long-term development objectives. In wealthier countries, says Professor Bontis, IC measures can help government more effectively channel domestic and foreign aid.

Professor Bontis's research shows that IC among these Arab countries accounts for nearly 20 percent of the financial wealth of the region. Even in these economies built on oil wealth, IC is of substantial value. This raises the inevitable question of how high the figure might be for nations at the center of the knowledge economy rather than on its periphery. +