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REPORT

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Corporate “elephants” and start-ups “Open Innovation”

One of the big buzzwords in the corporate world today is “open innovation.” It is an answer to the syndrome of many decades-old corporate giants who have become bureaucratized and lost their ability to keep coming up with innovative products (think of Sony’s inability to come up with successful smartphones or tablets or e-readers). Up to now, most such firms, often nicknamed “elephants,” followed the “Not Invented Here” syndrome, i.e., they looked down upon products or processes that they had not developed themselves. These days, however, many of these firms have realized that they need to partner with newer start-up firms who contribute fresh ideas.

This strategy is not restricted to glamorous sectors like high-tech or pharmaceuticals; it is being followed by many “humdrum” companies as well.

A poster child for the concept is Procter & Gamble (P&G), one of the world’s largest producers of household products like shampoo, detergent and toothpaste. In 2000, P&G finally faced the reality that its traditional, closed, in-house product development system was running out of steam. Only 35% of its new products were achieving their financial targets. And so, P&G created a new strategy called “Connect and Develop” with a radical goal: that a stunning half of its new innovations would come out of collaboration between P&G and external partners. It achieved that goal in a mere five years. Within ten years, P&G had engaged in more than 2000 global partnerships and is now getting more than 4,000 ideas per year that are good enough to merit further investigation. It then set a new goal: that \$30 billion of its revenue (an amount equal to 40% of its total revenue in 2015) stem from such collaborations.

P&G is hardly unique. Johnson & Johnson, a 131-year-old producer of medical equipment, pharmaceuticals and over-the-counter health items like Band-Aids, is following a similar approach. IBM adopted the approach after its near-death experience in the early 1990s and the rescue of the firm by its new CEO, former management consultant Louis Gerstner.

Open innovation in Japan

Japan Inc. has so far shied away from “open innovation,” but there are some signs of change. How far they will go—and to what degree these collaborations will help corporate Japan regain its mojo—remains to be seen.

At least some sections of The Ministry of Economy, Trade and Industry (METI) are pushing for Japan Inc. to adopt elements of “open innovation.” In fact, the guru of open innovation, Berkeley Professor Henry Chesbrough, was brought in by a METI affiliate (known as

NEDO) to help run a series of seminars for the Japan Silicon Valley Innovation Forum (JSVIF). The latter was set up by a couple dozen Japanese multinationals that had set up labs and other resources in Silicon Valley, but felt they were not getting the benefits for which they had hoped.

This past September, METI provided support for the third annual Innovation Leaders Summit (ISL), a “fair” to bring together corporate giants and new startups in order to develop plans for collaboration. ISL acted as a “marriage broker” to arrange 2,100 negotiation meetings between 500 venture companies and 100 leading companies. Half of these meetings were said to lead to further discussion of forms of cooperation, ranging from M&A to capital cooperation to joint research.

Tohmatu Venture Support, a section of Deloitte Touche Tohmatsu, has provided free expertise support to more than 3,000 promising startups since its establishment in 1997. Startups get mentoring on issues like organizational strategy and business support; improving sales via alliances and client introductions; getting finance; hiring (introducing staff, particularly lawyers and accountants) and human resources development. Perhaps its most well-known activity is the “Morning Pitch” initiated in 2013. So far, 800 startups have presented their ideas to larger corporations (as many as 100 big firms attend each of these pitches). A hundred actual alliances have resulted.

Firms in sunset industries attracted to “open innovation”

In many industries, giants facing stagnation or decline in their core markets have used “open innovation” in an effort to arrest, or reverse, the slide. One such case is KDDI, which has had to endure the dwindling of its past main market. It had been the provider of landline long-distance telephone service back in the old days of regulated and segmented telecommunications. Now, KDDI sees cell phones as its comeback route. One of its strategies is to work with independent developers to provide the “apps” that would make KDDI’s platform attractive to customers. To that end, it has established a “Startup Relations Group” to work with potential partners. To prevent the new group’s corporate culture from being tainted by the corporate mentality deadly to startups, KDDI has located the Startup Relations Group in a completely separate building in a different part of Tokyo from KDDI headquarters. The people working there shun the traditional suits of the Japanese corporate salaryman for the casual slacks and shirts that comprise the global uniform of startups. They told us that other corporate elephants that instead ran similar divisions directly out of



corporate headquarters ended up stifling the very innovativeness that they sought.

Is smaller better (than it used to be)?

At one point, the “Not Invented Here” mindset may have been the best way for corporations to proceed. However, no paradigm is valid forever. Rather, as the nature of technology changes, so does the appropriate business model.

A few decades back, the effectiveness of R&D may have benefited from economies of scale. Innovation may have required huge expenditures in complex labs with expensive equipment.

In more recent decades, Chesbrough discovered, the situation changed: firms no longer needed to be as big as in the past in order to be in the forefront of R&D and innovation. Back in 1981, 71% of all R&D conducted by US firms was carried out in firms with at least 25,000 employees. Their share halved to just 36% by 2014. Conversely, in 1981, only 4% of R&D was carried out in firms with less than 1,000 staffers. By 2014, this had risen to 20%. By 2008, firms with less than 25 employees were conducting 3% of all business R&D in the US, almost as much as all the firms with as many as 1,000 employees back in 1981 (see top figure).

Why smaller firms need big partners

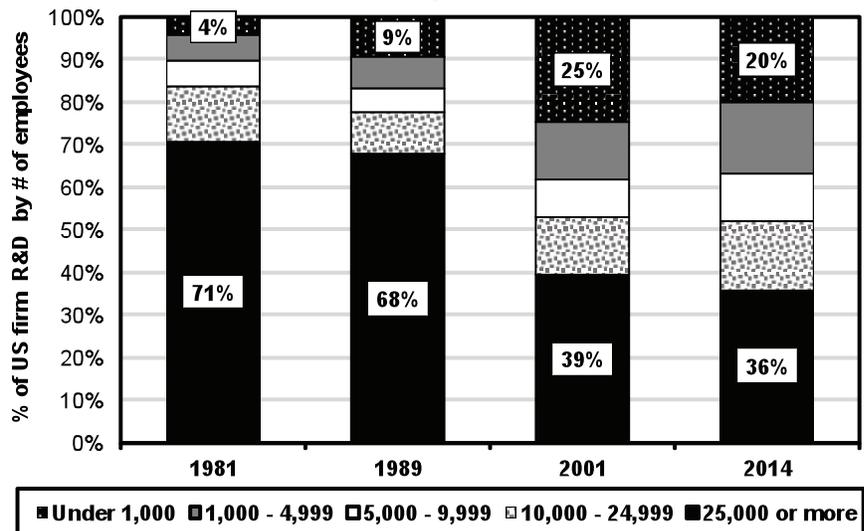
Generating a great technological advance is hardly the same thing as generating a great commercial innovation. While these tiny

firms may be able to produce an abundance of new ideas, they often lack the capacity to turn those ideas into feasible products. They don't have the necessary capital, production capacity, distribution networks, staffing, brand recognition, and marketing skills. They may also lack “economies of scope.” “Economies of scale” refers to the notion that the cost to produce a single car may be less if the firm makes 500,000 units rather than 50,000. “Economies of scope” means it may cost less to produce each camera or each photocopier if a firm like Canon can leverage its expertise in optics over both products. A pharmaceutical or biotech firm may be more efficient at each product depending on how many different products it produces.

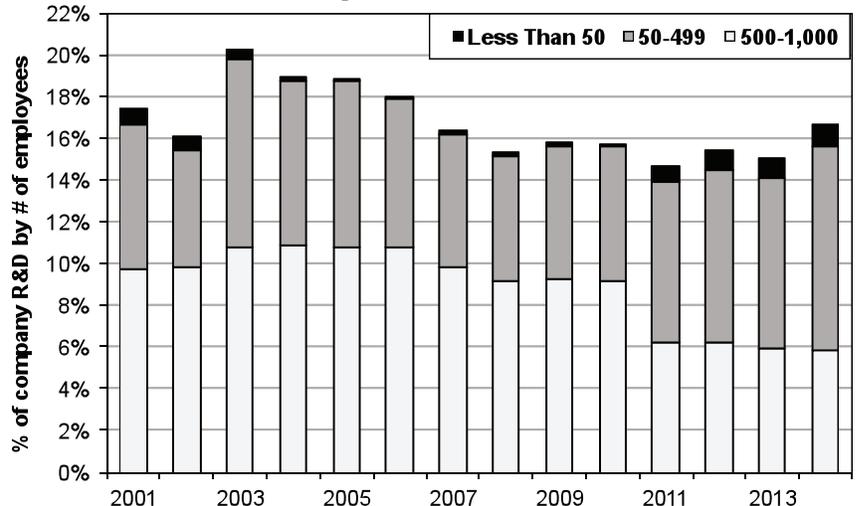
As a result of all these shifts in how new

technologies are created and then exploited, a new division of labor has developed in America over the past four or five decades. Increasingly, small, independent, entrepreneurial-minded firms, the so-called “gazelles,” develop new technologies, but, at least among those financed with Venture Capital, the majority of these firms do not stay independent and go public on the stock market. Rather, 80% of them sell themselves to the big “elephants” that are able to turn their idea into a lucrative product. While this model is most prominent in Silicon Valley, or the pharmaceutical industry, it has spread throughout the business world. Firms elsewhere in the world are now attempting to emulate a model that has taken the US 40-50 years to develop.

Smaller firms do larger share of R&D in US



No rise in % of Japanese R&D by smaller firms



Source: Henry Chesbrough in *Open Innovation*; National Science Foundation, OECD
 Note: In both charts, numbers in legend refer to the number of employees per firm

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Editors Richard Katz
 Chief Correspondent Takao Toshikawa
 Washington/son Chris Nelson
 Contributing Editor Yoshisuke Iinuma

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 450 Seventh Ave., Suite 2000 New York, NY 10123
 Chairman: Takao Toshikawa

Editorial information: Tel: (212) 868-4380
 Fax: (212) 868-4392
 e-mail: rbkatz@orientaleconomist.com

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 (Japan) (03) 3263-0419
 e-mail: sales@orientaleconomist.com
<http://www.orientaleconomist.com>

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Giants still dominate Japan R&D

In Japan, so far, the “smaller is good, too” shift has failed to take place. Unlike in the US, there has been no increase in the share of R&D being conducted by firms with fewer than 1,000 employees in the past 15 years. It was around 16% in 2001 and the same in 2014 (see bottom figure on pg. 2).

On the contrary, 37% of all business R&D is undertaken by the top 20 firms, compared to 23% in the US (the top 20 are even more dominant in South Korea, with a 55% share). In fact, Japan’s top five firms alone do 18% of the nation’s R&D, compared to 10% in the US (see top chart on this page).

More spending vs. more innovation

Japan spends a lot on R&D: 3.5% of GDP, more than any other rich country except South Korea and Israel. However, what really matters for growth is not how much firms spend, but what they obtain in return for all that money. How much improvement in sales and profits and productivity do firms get for each dollar of R&D that they undertake?

By all sorts of measures, Japan falls short on this question. A Global Innovation Index ranks 128 countries in an annual report put out by Cornell University, INSEAD business school, and the World Intellectual Property Organization (a UN affiliate). In the 2016 report, Japan ranked 9th in inputs to innovation (such as spending on R&D and on education, regulatory rules and the like) but only 24th in the outputs of innovation (such as patents, high-tech exports, the use of Information and Communications Technology (ICT) to enable new business models, etc.). In the index of innovation efficiency, i.e., outputs divided by inputs, Japan ranked a poor 65th.

Less bang for the buck

The OECD has estimated each country’s sources of growth of labor productivity, such as physical capital like machinery, factories and infrastructure and what it calls “knowledge-based capital (KBC),” which consists of R&D, software, and assorted “economic competencies” of corporations. What it finds is that, while Japan spends a lot on KBC, it gets far less back in productivity growth than do other countries. Among 14 countries, Japan comes in fifth in its spending on KBC (8.1% of GDP), but 11th in the contribution of KBC to annual productivity growth at just 0.3%. It comes in dead last in terms of the productivity growth per percentage of GDP spent on KBC (see bottom figure).

Who does the R&D?

One reason for Japan’s poor results may be the issue of who is doing the spending. All too often, as shown above, it is the same old corporate elephants that may be spending more just to keep up—sort of running faster on a treadmill just to stay in place. In the US, only one of the top five corporate spenders on R&D in 2003 (Johnson & Johnson, a devotee of open innovation) was still in the top five 12 years later. Ford, Pfizer, GM and IBM had been replaced by Intel, Google, Microsoft and Apple. In the case of Japan, by contrast, four of the five on the 2003 list were still in the top five in 2015-16 (Toyota, Matsushita, Sony and Honda; Nissan had replaced NTT). In Germany, all five firms were on both lists. Not only were the American newcomers new firms, they were in different industries.

Conclusion

These R&D trends join other indicators in suggesting that Japan may have a tough time using “open innovation” to shake things up in its corporate model.

Let us be clear: we are not suggesting by any means that all countries have to follow the same model, whether it’s the “American model” or any other one. Each country has to find a route that accords with its institutions. And Japan has been very good at finding innovations elsewhere and adapting them to Japanese circumstances.

However, suppose that there is a global shift in how innovations are created and commercialized due to something intrinsic to the technologies per se. If so, then Japan could be left behind if its corporate structure inhibits such a shift. (RK)

