The Essence *of* Japan's Plight

By Richard Katz

A failure to realize that this is not your father's economy.

Different technological regimes give rise to—and require—different business institutions. When the circumstances change, so must the institutions. If not, then yesterday's strengths become today's weaknesses. Superstar trend-setters like Sony or Sears devolve into also-rans or outright failures, and a country's economic growth erodes. This, unfortunately, is Japan's plight: a failure of its business institutions to make the needed adjustments from the analog era to the today's digital world.

Among thirty-four rich countries, Japan ranked a dismal twenty-fifth in overall digital competitiveness in 2020, according to the IMD World Competitiveness Center. To be sure, Japanese companies spend plenty on information and communications technology. Their problem is that they get less bang for the yen. Japan ranks fifty-sixth among all countries in "business agility," which measures how well they use ICT.

Most Japanese companies use these new technologies primarily to cut costs by automating tasks that people are already doing, such as inventory control or intra-company communications. What makes ICT revolutionary, however, is that it enables entities to do things that they could not do before at any cost. This includes not just the ability to reach far more customers and suppliers via e-commerce, but also using so-called "big data" and the "internet of things" to develop new products, improve old products, and increase sales of existing products. UPS, for example, has sensors built into every parcel delivery

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truck to monitor conditions such as temperature and stress that typically precede a part breaking down. This avoids the expensive mechanical failure of a truck filled with parcels. Nissan has put similar sensors into its Leaf cars.

Even small companies can benefit. When a grocery store in Finland used ICT to analyze customer purchases, they found to their surprise that, on weekends, the same buyers hiked their purchases of both diapers and beer. New parents compelled to stay home wanted to enjoy beer while watching a movie on television. The store improved sales just by putting beer next to the diapers on the shelves. Without "big data," they never could have discovered this pattern. Similarly, Procter & Gamble discovered that customers were not using the right amount of laundry detergent and so developed laundry pods, now a bestseller.

If used well, ICT should enable the ICT-using sectors of the economy—distribution, services, non-ICT manufacturing, and so forth—to raise their productivity, that is, how much additional output they get for every 1 percent additional input of capital and labor. Unfortunately, Professor Kyoji Fukao of Hitotsubashi University's Institute of Economic Research found that this anticipated boost did not take place in Japan.

The root of the problem lies in the persistence of formerly successful institutions and practices. During the post-World War II economic miracle, both the dominant technologies of the time, as well as new innovations within those prevailing technologies, were best executed by giant, capital-intensive, vertically integrated companies.

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These companies could afford enormous investments in research and development and equipment, and relied solely upon themselves and longtime allies in their "vertical *keiretsu*" (conglomerates) to create distinctive products. In the hothouse environment of the high-growth era, Japan developed lots of new companies—almost half of the firms on the stock market in 1989 started after World War II—but these companies molded themselves to conform to that technological regime. The regime, in turn, played to the strengths these companies nurtured. Hence, Japan's leading companies in autos, electronics, and machinery became world-beaters.

Now, by contrast, we live in a digital world, one in which in many, but not all, industries—the vanguards of innovation, competitiveness, and growth—are newer, more entrepreneurial, knowledge-intensive companies with expertise in software. It is a world where large firms, old and new, regularly partner with smaller entrepreneurial companies in a process that Henry Chesbrough of the Haas School of Business at the University of California, Berkeley, calls "open innovation." Pfizer's Covid vaccine was developed for it by a small German biotech firm founded in 2008 called BioNTech. Amazon's Alexa and Google's Android and Chrome are all products of open innovation.

In defiance of this global trend, 70 percent of Japan's corporate giants are still afflicted by the "Not Invented Here" syndrome, according to a 2017 government survey. This is the belief that their competitiveness rests on doing everything by themselves and their affiliates. But with 10 percent of a car's cost involving software, an amount heading toward 30 percent in coming years, Japan's automakers can no longer go it alone. Having tried and repeatedly failed to develop a collision-avoiding system on its own, Honda finally relented and bought technology from Bosch. Yet further moves like this are still being resisted by the company's research and development veterans who insist that making unique products with homegrown parts is "Honda's soul."

The Amazon *vs.* Sony Example

Where is the Sony or Panasonic PC, smartphone, tablet, or e-reader? Japanese companies repeatedly developed versions of such products, but not ones that consumers wanted to buy. One Japanese periodical commissioned a focus group to compare using Kindle's Japanese-language version of its e-reader and Sony's. The group overwhelmingly preferred Kindle. In short, despite its technical proficiency, Sony could not match Amazon in producing an e-reader that Japanese consumers found user-friendly! In the absence of new competitive products to succeed old standbys, Japan's production of electronics devices halved from 2000 to 2018.

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The system forged in the analog era succeeded so well that it ingrained a mindset which incumbent companies have found hard to alter even when they try. Companies that hire employees for life, and promote from within, hire recruits most comfortable with the existing business model, not those eager to change it. Chesbrough has written, "Many internal changes will be required to Japanese firms' organizational processes in order to use open innovation." The same applies to other facets of the digital era.

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A Sad Record

Most of the electronics firms in the United States that led in the era of radios, vacuum tubes, televisions, and minicomputers no longer even exist. Among the top twenty-one electronics hardware manufacturers in the United States today, fourteen were not yet born in 1960 and eight were not founded as late as 1970. Just two decades ago, six of them were still too small to be in the Fortune 500.

In Japan, by contrast, not a single new manufacturer has entered the top ranks of electronics since 1946 when Sony and Casio were born. When a new technology arises, sprawling conglomerates such as Panasonic, Hitachi, Fujitsu, or NEC create a new division.

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The difficulty of teaching an old dog new tricks is hardly unique to Japan. What does differentiate Japan are practices and institutions—from finance to antitrust enforcement (or non-enforcement), to labor practices, to government policies—all geared toward sustaining the incumbent capital-intensive giants. That makes it hard for new kids on the block to rise to the top. In dynamic countries, as technologies and products change, they tend to give rise to new enterprises. Most of the electronics firms in the United States that led in the era of radios, vacuum tubes, televisions, and minicomputers no longer even exist. Among the top twenty-one electronics hardware manufacturers in the United States today, fourteen were not yet born in 1960 and eight were not founded as late as 1970. Just two decades ago, six of them were still too small to be in the Fortune 500. In Japan, by contrast, not a single new manufacturer has entered the top ranks of electronics since 1946 when Sony and Casio were born. When a new technology arises, sprawling conglomerates such as Panasonic, Hitachi, Fujitsu, or NEC create a new division. The firm waffles between the future and the past. Japan's electronics sector is hardly unique in this behavior. The same can be seen in industries ranging from chemicals, pharmaceuticals, and machine tools, to printing, cosmetics, and department stores. Overall, among twenty-seven rich countries, Japan has the second-lowest rate of new firms entering and older firms exiting.

Japan suffers from a very large "digital divide" between large companies and small and medium-sized enterprises.

In this new technological era, rather than relying on abundant plant and equipment, up-and-coming companies focus more on intangible assets: software, research and development, training of staff, marketing, and "reengineering" the organization. Already, in the United States and some European countries such as Holland, France, the United Kingdom, Austria, and Belgium, companies invest as much in intangibles as in buildings and machinery, some even more so. In Japan, by contrast, intangible investment, also known as

knowledge-based capital, accounts for a mere 22 percent of total investment, that is, lots of investment in computers, but not enough in training software engineers. In 2020, Japan had 300,000 fewer ICT professionals than its companies needed. By 2030, the shortfall will rise to 40 percent of what companies need. That's one reason why, among rich countries, Japan came in last in terms of the boost to labor productivity for each dollar invested in knowledge-based capital.

When it comes to innovation in the digital regime, bigger is not necessarily better. Economies of scale in research and development have been lowered by the rise of increasingly cheap computing power, software, and the internet. Back in 1981, 71 percent of all business research and development in the United States was carried out by firms with at least 25,000 employees, and just 4 percent carried out by companies with fewer than 1,000 employees. By 2014, there was a radical reversal of fortune. The share of the giant firms had halved to just 36 percent while the share of firms with less than 1,000 staffers had increased to 20 percent. Amazingly, by 2014, U.S. firms with less than twenty-five employees were now conducting 3 percent of all business research and development. Once again, Japan resists this global trend. In 2015, only 7 percent of Japan's business research and development was conducted by firms with fewer than five hundred employees, compared to 17 percent in the United States and 33 percent in France and the United Kingdom. In 2018, almost half (43 percent) of Japan's business research and development was conducted by just ten decades-old giants.

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This sea change in research and development is one of the reasons that, in the digital era, the leading edge of innovation is newer entrepreneurial companies—a few of which grow to become household names (Google was launched in 1998). So why does Tokyo direct almost 90 percent of the government's financial aid to research and development to the large incumbents, the highest ratio in the OECD?

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To matters even worse, Japan suffers from a very large "digital divide" between large companies and small and medium-sized enterprises. In the era of Covid, 74 percent of small and medium-sized enterprises in Tokyo had no plans for remote work, a third of them because they lacked the proper equipment and software. When Japan's Ministry of Economy, Trade, and Industry asked small and medium-sized companies why they had not invested in ICT, 43 percent of respondents said the answer was "lack of personnel who can introduce ICT," followed closely at 40 percent by the answer "the effects of introducing ICT are unclear or are not sufficient." These days, neither the equipment nor the software is that expensive. What is costly is employing a technical expert, or hiring a private consulting firm, that can teach a company how to use ICT to build its business.

The government does offer some consultation services to small and medium-sized, but it is miniscule, and dwarfed in comparison to the effort in Europe. In 2019, the government's CIO (chief information officer) service helped just 192 companies. By contrast, the European Union just raised the budget of its Digital Innovation Hubs so it could help thousands of small and medium-sized companies per year.

Prime Minister Yoshihide Suga announced a program to increase digitization, including the creation of new Digitization Agency. This is a good step, but one unfortunately limited to intra-governmental functions and citizens' dealings with the government. It should be extended to business, especially for measures aimed at overcoming the digital divide.

If Japan wants to revive, it has to recognize that, to paraphrase the famous commercial, "This is not your father's economy." ◆