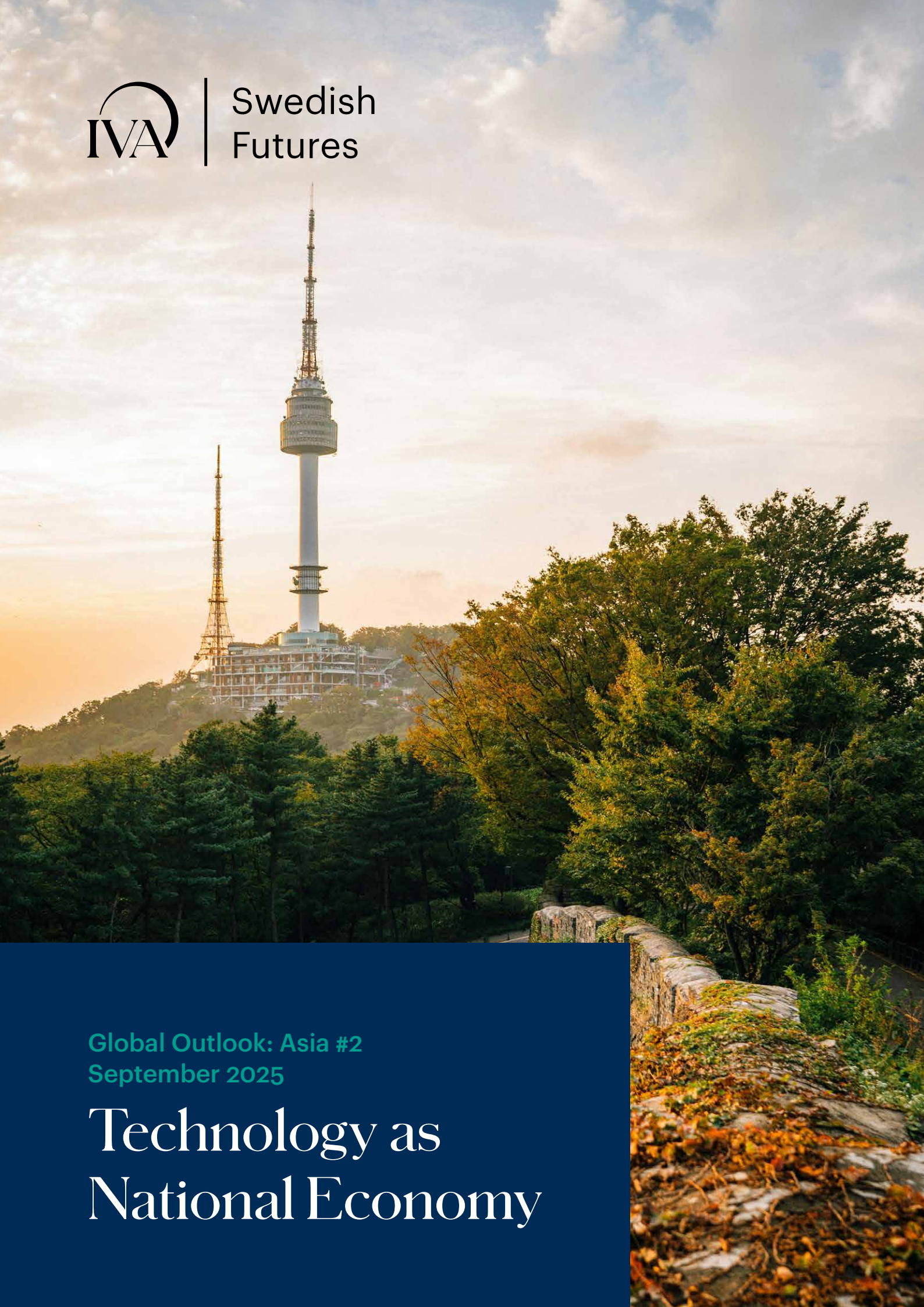




Swedish  
Futures



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# Technology as National Economy

**Technology has now globally gained a prominent place in national economic policymaking. Innovation is something to protect; access to technologies such as high-end chips is something to contest. For the West, discussion of national control over technology represents a departure from the globalization era's understanding of trade, complementarity, and mutual prosperity.**

**In Asia's high-growth economies, though, there is less novelty in the talk of competition over technology. In China, South Korea, Japan, and Taiwan, economic policy has long been tightly integrated with technology policy. Understanding this point can be helpful in Europe for thinking about technology planning, international science collaboration, and relations with Asian partners.**

## **Late industrialization and technology**

The close connections between technology policy and economic policy in these Asian countries stems from the historic context of rapid industrialization. Consider the problem of industrialization. Without technological advancement, a poor economy has little chance of transformative growth. Running the economy on solid market principles might allocate resources efficiently in the short run, but it would not produce the sustained, long-term growth that comes with industrial upgrading. The latter is what transforms and enriches an economy.

The problem of economic catch-up is, therefore, one of acquiring technology. China did not have

to reinvent the industrial revolution; entrepreneurs just needed to borrow plans for factories. South Korea did not have to experiment until it hit upon methods of building cargo ships or automobiles; Korean firms and planners found the ideas elsewhere. The task of industrialization in Asia was to gain existing technologies to change market incentives and thereby leap forward.

For these late developers, then, technology policy has been a central component of economic policy.

Technology acquisition has taken many forms. Gaining technology can be as simple as reverse engineering a product and then copying it – mostly

likely without worrying about intellectual property protections. It can also involve greater coordination. The United States in the 1950s supplied its ally South Korea with extensive technical resources and training opportunities for scientists. Economic planning agencies in Japan and South Korea designed strategies for obtaining technologies that would be crucial to growth. Later, across East Asia, domestic research and development capacities grew.

Relative to Europe, these periods of planned technology acquisition occurred recently. The experiences remain part of the institutional memory.

The focus in economic policy is less on traditional economic principles of “free trade” or “market preservation” and more on gaining and developing technologies. In centuries past, economies such as Germany and the United States had a similar focus as they sought to catch up with northwestern Europe.

Not only is technology at the centre of national economic planning, but the building of international ties features heavily in technology strategies. After all, technology had to be acquired at first from outside.

## **International collaboration as national technology strategy**

Enter the current period of national contestation over technology. Planners in Asia have not really missed a beat. They might be frustrated by American tariffs and by the undermining of the global supply chains in which Asian economies have had crucial roles, but the game Asian policymakers understand themselves to be playing has not changed. Technology upgrading remains front and centre.

It is also understood that the success of national technology plans hinges on effective international cooperation. The contrast with the autarkic turn in American rhetoric could not be starker. In Asia, international cooperation has actually grown as a priority in current planning.

China is a case in point. In a range of fields, China is expanding its international science collaboration. As opportunities for working with the United States have decreased, China has turned to Africa and other parts of the world.

Policy discussions in South Korea recognize that the international environment has changed to one of competition for technology. However, the strategic plans for technology place priority on international cooperation. The logic is that national strategic technologies can be developed only with targeted international collaboration. The effort to build this collaboration is a joint initiative of both the industry ministry and the science and technology ministry.

In Japan, too, there has been an emphasis on international cooperation. Even as the country imposes restrictions on collaboration with China in specific, sensitive fields, Japan has looked for greater engagement in international science. A number of bilateral partnerships, including with Sweden, has emerged in recent years. The country is also entering discussions about potential association with the European research platform.

## Lessons

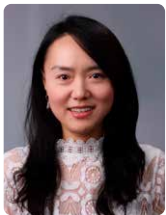
For these countries, national planning for technology is not anathema to international collaboration. National interests clearly come first but this priority hardly precludes the expansion of international cooperation in science and technology. This internationalism is hard-nosed but it is nonetheless a form of internationalism.

Competitive pressures from China, the United States, and elsewhere bring change to technol-

ogy policy. European governments will have reasons to revamp strategic plans for technology and innovation. Security concerns are real and must be incorporated into science and technology practices. Yet national planning need not be detrimental to international scientific exchange and knowledge transfer. As the Asian examples show, international collaboration can be refigured rather than undermined.

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## About Global Outlook: Asia

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