

Taiwan Seeks New 'Edge' in IT Innovation

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HONOLULU (June 26) – Fifty years ago Taiwan was poor and underdeveloped. Yet by the turn of the 21st century the small island economy had established itself as an important global high-tech factory, becoming the preferred OEM (original equipment manufacturing) and ODM (original design manufacturing) supplier to many of the world's IT industry leaders. That great leap forward, according to East-West Center Senior Fellow Dieter Ernst, can be traced in large part to Taipei's decision to assertively pursue integration into global production networks, aggressive governmental support policies, and integrating into the informal global knowledge networks that linked it with geographically dispersed knowledge communities especially those in Silicon Valley.

But, Ernst says that may no longer be enough to keep Taiwan moving forward.

“Taiwan's ‘global high-tech factory’ model is now experiencing decreasing returns, in terms of value added, profit margins and job creation,” he points out. “At the same time, the global factory model is confronted with new challenges that arise from shifts in the global innovation system, as globalization transforms markets for technology and knowledge workers.”

“The intensifying competition for a limited global talent pool, the rise of new knowledge economies such as China and India, and profound changes in innovation management of global corporations,” Ernst says, are all factors challenging Taiwan's proven game plan. He notes that the new environment “has forced Taiwan's corporate strategists and policymakers to seek new ways to re-create the country's competitive edge.”

And, that is one of the big problems. Ernst says “most firms and policymakers are still groping in the dark,” trying to determine what that new strategy requires. For the time being, he adds, most are “content with adopting a pragmatic trial-and-error approach until they find something that works.”

The island economy's global high-tech factory model may have led to one of the most impressive success stories in the Asian high-tech region, but Ernst points out, since the downturn of the global electronics industry in late-2000 the inherent limitations of the factory model have become readily evident. He identifies five major weaknesses in Taiwan's global factory model that must be overcome.

“Taiwan's unequal integration into fragmented and hierarchical global production networks” and its reliance on OEM and ODM, according to Ernst, have left local firms “under relentless pressure by global brand marketers to reduce cost and time-to-market for commodity-type products.” Something that has left many “with low value-added and razor-thin profit margins that are insufficient to support investment in R&D, intellectual property creations and branding.”

The global factory model has also put Taiwan at a disadvantage in the field of innovation. Ernst says that relying heavily on the OEM/ODM arena has meant that Taiwan firms “are heavily constrained in their capacity to develop new products and to shape technology road maps and standards.” With the emphasis on only incremental innovations within existing product architecture, and paying higher royalties and hefty patent licensing fees to global brand leaders, he points out the firms are “constrained from diversification into new product markets with higher profit margins.”

Another victim of the island economy's successful factory model is home grown intellectual property (IP). Ernst says that while Taiwan's patent filings at the U.S. Patent and Trademark Office have grown rapidly, there is growing concern that “the quality of Taiwan patents remains low.” He notes that “there are only a few ‘pioneer’ or ‘basic’ patents and that most patents can only be used as tools for self-protection or cross-licensing.” This lack of quality IP growth Ernst adds, not only severely constrains “the bargaining power of Taiwan firms in negotiations about patent swapping” but also keeps Taiwan design houses from developing complete solution packages.

Another weakness in the system, according to Ernst, is “the extensive internationalization of Taiwan’s IT industry through offshore outsourcing.” He notes that as more and more manufacturing, support services and R&D are moving to lower-cost locations in China and Southeast Asia, the outsourcing “is imposing severe hollowing-out pressures on Taiwan’s high-tech regions ... eroding (Taiwan’s) main pillars of its competitiveness.”

As long as Taiwan firms relied on the OEM/ODM model, they did not have to worry about branding. But, according to Ernst, they do now. He says intense policy debates in Taipei have led the government to launch a “Branding Taiwan” campaign “encouraging local firms to establish global brands.” But, Ernst is somewhat pessimistic. “As specialized suppliers to global brand leaders, Taiwan firms have rarely been directly exposed to the peculiar needs of final markets,” and such a bold move will take more than substantial government and industry financial support to achieve. “Taiwan can only gain brand recognition,” Ernst believes, “if it leverages its established manufacturing and logistics prowess with product innovation.”

Ernst points out that Taiwan’s integration into global networks differs from that of other leading high-tech regions, and this means “Taiwan’s approach to upgrading its IT industry must differ from upgrading strategies pursued in Silicon Valley and other first-generation high-tech regions.”

At the center of his concept of Taiwan’s industrial upgrading “is the need to find the right balance between firm-level upgrading, and between domestic and international elements.” He admits “this poses a continuous challenge for policymakers and corporate planners – the ‘right balance’ is a moving target, it is context-specific and requires permanent adjustments to changes in markets and technology.” But it is a challenge that has to be met.

Another factor in Ernst’s upgrade equation is “that ‘soft’ entrepreneurial, management and system integration capabilities need to complement ‘hard’ R&D in order to create products and services that customers will buy.” After all, that is the bottom line in the new environment.

And while industry leaders in Taiwan are moving toward “technology leadership” strategies that focus on radical innovations, Ernst argues that is not enough. He says Taiwan must also incorporate technology diversification, something that “can serve as a complementary and arguably less costly option ... (and) promises several advantages.” Ernst points out, “by recombining (mostly known) component and process technologies,” technology diversification can generate “technology-related economies of scope.” He adds, “And by focusing on ‘architectural’ innovations, this strategy allows Taiwan firms to extract greater benefits from deeper forms of integration into global innovation networks.”

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