


# Nanotechnology: the path to industrialization

**N**anotechnology, the science of creating and utilizing materials on a molecular or atomic scale, differs significantly from current methods of production and promises to serve as a future platform for the introduction of new materials or novel process technology while preserving natural eco-systems. A prime example has been the enormous progress in electronics in recent years.



*The ROC's TECO, an SME, showcases its first nanoproduct*

ers, R&D centers, universities, and policymakers will go a long way toward developing a commercial nanotechnology industry. Participants discussed how to prioritize strategic areas for growth and mapped out a framework for the Asian Nano Forum (ANF), a collaborative network of academic and industrial researchers in the Asia-Pacific region established in 2004. Of the 13 ANF member economies, all but three (New Zealand, PR China, and Australia) are also APO members. It was suggested that a formal working structure be developed between ANF activities and APO nanotechnology projects, creating synergy while advancing the nanotechnology agenda within the region. 

Recognizing the nearly infinite potential and benefits of nanotechnology, along with significant industry interest, the APO's first nanotechnology project was an observational study mission to the Republic of Korea, considered a nanotechnology leader. As a continuation, a follow-up expert study meeting on Strategic Industries: Nanotechnology was held in the Republic of China, 10–13 June, to coincide with the Nano Taiwan event held 12–14 June in Taipei. The meeting had the twin objectives of gaining a broad understanding of developments in member countries in this field since the previous APO project and exploring a regional collaborative framework to facilitate strategic alliances among key players for industrializing nanotechnology.

The study meeting examined the Japanese, Korean, and Australian models of nanotechnology industrialization. Current national nanotechnology strategies of three groups were analyzed: the large industrial leaders (USA, Japan, Germany); the industrializing nations (PR China, India, Brazil); and smaller industrialized nations (Australia, Republic of China, Malaysia, Singapore, UK, Thailand, Switzerland). Differing levels of technology and interest have produced different degrees of commercialization, industrialization, and policy support. The meeting agreed that a common concern in scaling up nanotechnology is the lack of a viable business model. The most realistic model may fall between the current IT and biotechnology models. Another immediate challenge is the creation of long-term markets for nanotechnology products. Scientific innovations must be linked with businesses for future applications, and public perception of nanotechnology products must first be positive. It was noted that all would prefer not to repeat the painful lesson of the poor introduction of genetically modified organisms, which still are unable to gain public acceptance or market share.

Nanotechnology development will be long and complex, with multiple uncertainties. However, public/private-sector partnerships among industrial produc-