The Pathway for Micro/Nano Product Commercialization

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Academic and research institutions worldwide continue to receive significant government funding to support micro and nanotechnology development. This funding has resulted in these institutions being able to build a micro and nanotechnology knowledge and intellectual property base. In many instances, micro and nano-based product concepts have been developed; however, not many products have been commercialized. It is now generally recognized that the conventional infrastructure of the educational system and of manufacturing are not supportive of micro/nanosystems-based product commercialization. This infrastructure begins with the integration of micro and nanotechnology principles into the science and engineering curricula of universities. Developing this skill set, particularly for engineers, is important for engineers to be proficient at designing products at the micro and nano scale. Companies must be able to prototype design concepts and develop manufacturing processes to provide a pathway to commercialization. A packaging/micromanufacturing infrastructure is critical. The cost in time and financial resources to build the facilities and to provide the trained personnel and the equipment is beyond the reach of both small and large companies. This paper will discuss the challenges within academia, industry, and government, and the need for coordinated roles in developing a commercialization pathway for micro/nano-based products.

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