

## Towards a Technology for Technology Transfer

Mark Alavosius, Partner, Slater Center for Progressive Manufacturing

This brief paper provides an overview of an initiative (Samuel Slater Centers) currently underway in Rhode Island, USA to enable technology transfer from centers of learning to commercial applications. The combination of government, academic, and business competencies at work in this initiative may be unique and offer opportunities to examine collaborative entrepreneurial behavior in a number of different businesses. At present there are eight core partners working to systematize a process for linking progressive manufacturers with innovative researchers. The initiative is funded, in part, by the RI legislature and enjoys the support of government, business, and academic leaders.

Today, only remnants of the textile industry continue in Rhode Island and the economy has shifted to new industries and services such as health care, biotechnology, insurance, and financial services. The desire to maintain a robust manufacturing base remains strong however. That desire finds expression in current efforts to combine government, academic, and business resources to incubate new businesses. The Slater Fund, established by the Rhode Island General Assembly in 1997 at the recommendation of the Governor and the Rhode Island Economic Policy Council, is supported by a significant annual legislative allocation. It catalyzes the commercialization of technologies developed at the state's universities and regional research centers as well as winning ideas by Rhode Island entrepreneurs. It offers an interesting example of how government, business, and academia combine resources to promote business development. The Slater initiative illustrates how diverse disciplines including behavior analysis can collaborate to launch new businesses, shape entrepreneurial behavior, and develop the local economy.

The Slater Center for Progressive Manufacturing is one of six technology commercialization centers launched by the Rhode Island Samuel Slater Technology Fund. The Slater Centers work in high-tech areas in which the Ocean State has unique expertise or potential:

- biomedical technology,
- design innovation,
- environmental biotechnology,
- interactive technologies,
- ocean technology, and
- progressive manufacturing.

### **An Historical Note:**

*Samuel Slater, son of an English farmer, is regarded as a leader of the American Industrial Revolution. He was born in Belper, England on June 9, 1768. He became involved in the textile industry in England and was a superintendent of a successful cotton mill. Slater immigrated to America in 1789 in hopes of making his fortune in America's nascent textile industry. Slater, with funding from Providence, Rhode Island investors and assistance from skilled local artisans, built America's first successful water-powered textile mill in Pawtucket, Rhode Island in 1793. He pioneered the development of mills and company towns. These enabled people to migrate from farms to factories and thereby raised their standard of living. His organizational methods (known as the Rhode Island System) helped maintain a productive and efficient workforce. The mills*

The Slater Center for Progressive Manufacturing is unique among the six Slater Centers in that it is the only center not based in an academic environment. Its unique mission is to accelerate the use of cutting-edge technologies by progressive manufacturers, inventors, and entrepreneurs by linking them with innovators in the RI research communities.

The Slater Center for Progressive Manufacturing (SCPM) is a network of seasoned professionals with diverse talents – product launch, manufacturing, marketing, team building and organizational behavior – who put their expertise to work on the development of innovative commercialization and manufacturing projects. My participation as a behavior analyst is directed towards developing learning systems to promote cooperative entrepreneurial behaviors among partners building new ventures.

The SCPM's core initiatives are:

- Catalyze technology transfer by connecting the industrial capabilities of Rhode Island's progressive manufacturers with the intellectual capital at regional research centers, such as the University of Rhode Island (URI), the Naval Undersea Warfare Center (NUWC), and the Rhode Island School of Design (RISD). Knowledge and innovation created in these research centers can increase business productivity and competitiveness.
- Build ventures to commercialize new devices and processes using a network of expert partners. The partners are organized with a hub and spoke business model. Venture partners share risk and reward (equity) in proportion to the contribution of know-how they invest.
- Increase entrepreneurial learning and cultivate serial entrepreneurs who will energize Rhode Island's new economy. Entrepreneurs are essential ingredients for sparking economic vitality and diversity. Slater Manufacturing provides mentoring and learning opportunities to promote entrepreneurial behavior by researchers/inventors/manufacturers with promising ideas and interest in commercialization.
- Provide seed funding and business development support for promising technology transfer opportunities. The focus is on the more risky, but promising opportunities that can be commercialized using talent within the regional community.

### **Five Activities by SCPM to Commercialize Ideas and Technologies:**

#### *1. Scout for Mature Ideas With Commercial Potential.*

SCPM scouts for innovative ideas and analyzes their commercial potential using a systematic process to assess feasibility. This process starts with the assembly of a team to assess the entrepreneurs' business acumen and the ideas' commercial potential. The inventor typically demonstrates exceptional expertise in research and applied science but some may lack entrepreneurial experiences. During feasibility assessments, the SCPM seeks to determine how the inventor might work with other partners to develop a viable commercial venture. We then seek to assemble partners with the necessary talents and organize a business to launch the venture. The idea is examined with these questions: Can it be patented? Can it be made? To what extent can it be manufactured in Rhode Island? Is there a market? What is the competition? What are distribution channels? To date, SCPM has evaluated nearly 50 product ideas, launched one product, and four additional companies are under formation.

## *2. Build Ventures as a Network of Partners.*

If the idea is feasible and the inventor wants to use our business model, then a hub and spoke company is customized around the idea. We help the inventor determine his or her core competencies and the additional talents required for commercialization. The additional talents (e.g., process design, manufacturing, marketing, distribution, etc.) are arrayed as spokes around the hub as a virtual company.

The hub and spoke business model is a tool for organizing competencies in an agile structure. The partnership model is particularly suitable when angel or venture capital is not readily available. Each contributor of know-how shares in the risk and reward (equity) of building the venture based on his or her contribution to it.

## *3. Transfer Technology From Regional Centers of Knowledge to Progressive Manufacturers.*

Cutting-edge manufacturers know they must invest in people, technology and continual development. Such investments lead to competitiveness and sustained success. Often the development of ideas into viable products requires a network to link diverse talents to form a business venture. Cooperative research grants between SCPM, regional manufacturers, and other grant sources help capitalize commercial development of new technologies and products.

SCPM provides tools and resources to build the ventures. Using a web-based interactive spine and secure workrooms, the partners exchange information and manage projects in real-time. Each venture gets a part-time CEO or other key senior manager to help the innovator develop the business. Learning supports (mentoring, seminars, progress measures, etc.) promote collaboration among partners. Assembling a network of qualified resource providers and developing agreements for sharing risks and rewards enables rapid venture building. SCPM takes an equity position in the venture when a hub and spoke business model is applied and its tools are used.

## *4. Reinforce Entrepreneurial Behavior and Develop Serial Entrepreneurs.*

Entrepreneurs create wealth and opportunity. In Rhode Island, there are innovative ideas, idle manufacturing resources, and capital. A missing ingredient is seasoned serial entrepreneurs who can take ideas to market and do it again and again. SCPM seeks to identify and nurture entrepreneurs enabling them to work successfully with other business partners in new commercial ventures.

SCPM provides seasoned talent and systems to build trust among partners with diverse backgrounds and learning histories. Designing contingencies that share risk and reward (equity) among core partners is an essential step in venture building. Action plans that specify the significant events required to launch a business provide structure and direction. These act to sustain efforts until market success is achieved. Innovators unfamiliar with business development may find the process bewildering and abandon efforts before commercial success is realized. SCPM provides ready access to seasoned mentors who provide coaching and guide the process. Communicating performance measures with all partners encourages recognition of the contributions being made by all members of the team and helps maintain their commitment to the venture. SCPM also organizes networking opportunities with other venture builders to build a community of business developers with interest in the local economy.

## *5. Codify the Process*

SCPM seek to launch multiple successful ventures. Replications with successes and failures will foster development of a robust technology for technology transfer and develop a reservoir of resources for sustained growth. Perhaps most interesting is SCPM's ability to serve as a platform for studying the shaping of entrepreneurial behavior and the design of partnership contingencies that might be reproduced in other locations

Dr. Mark Alavosius is a graduate of Clark University and holds an M.S. and Ph.D. in Psychology from the University of Massachusetts at Amherst. As President and CEO of EduSafe, Inc., he works with specialists in instructional design, multi-media interactive systems, software development, business strategy, and performance management to develop and provide behavioral systems to improve performance in business and industry. As a partner in the Slater Center for Progressive Manufacturing, Dr. Alavosius works with business leaders to enable entrepreneurial behaviors important for the commercialization of innovative products.