

An Emerging Model of Innovation for Maine

by Renee Kelly

Maine began making significant investments in research and development in the late 1990s, aligning those investments with industry sectors that draw upon the state's traditional strengths as well as emerging industries such as biotechnology. Renee Kelly notes that this strategy, largely built on the cluster theory of economic development, can be challenging to implement in rural areas, in part because of their less dense social networks. She suggests that developing more efficient social networks will build stronger clusters and make rural areas more successful in innovation.

The importance of innovation to economic growth is well documented. Economists Joseph Schumpeter and Robert Solow demonstrated how creative destruction and the introduction of new products and processes account for most economic gains. On a micro level, individual companies must innovate and provide unique offerings that meet customers' needs or face competition from lower-priced rivals. This reality is even more pronounced in a global economy where competitors for many products and services can be located anywhere in the world.

Seeing the prosperity achieved through innovation in areas such as Route 128 around Boston and Research Triangle in North Carolina, the state of Maine in the late 1990s began to support innovation and research and development (R&D) investments as an important aspect of its economic development strategy. There have been several notable successes. CashStar, which employs approximately 85 people and provides digital gift card solutions to companies such as Starbucks and The Gap, has received funding from the Maine Technology Institute to develop its products. In 2013, Cianbro was awarded a \$100 million contract to fabricate platforms for the Cape Wind offshore wind project in Massachusetts based, in part, on the expertise the company has developed through its partnership with the University of Maine on offshore wind R&D.

However, the benefits of Maine's investments have taken time to develop. Furthermore, support for innovation at the state level has been inconsistent as lawmakers have been challenged by budget shortfalls and concerns about the level of state borrowing, and as priorities have

shifted in the implementation of innovation efforts in economic development strategy. In addition, there is concern that the benefits of innovation should touch all parts of the state, particularly the most rural parts that have faced the highest unemployment rates and a steady loss of population.

MAINE'S INNOVATION MODEL TO DATE

Most of Maine's innovation programs have been organized around seven technology sectors established by the state legislature. These sectors are biotechnology, composites and advanced materials, environmental technologies, forest products and agriculture, information technology, marine technology and aquaculture, and precision manufacturing. Research and development bond funding through the Maine Technology Asset Fund investments to build innovation capacity in the state must fit into one of these sectors. The Maine Technology Institute also provides grants, loans, and equity investments to companies in these sectors to encourage commercialization activities and boost private-sector investment in R&D.

The alignment of innovation programs with these sectors is based on the cluster theory of economic growth developed by Harvard business professor Michael Porter. This theory suggests that a geographic concentration of interconnected companies in related industries leads to innovation and economic growth through both competition and collaboration among the members of the cluster. Cluster members also include university R&D centers, education programs and trade

associations that support innovation, workforce development, export development and industry partnerships (Porter 2000).

The Maine Technology Institute also funds initiatives within the seven sectors to strengthen clusters. These efforts often include activities such as workforce training, market research to identify new business opportunities, promotion of the cluster outside the state to increase exports, and technology development that will benefit companies throughout the cluster. Maine Economic Improvement Fund investments in the University of Maine System's R&D capacity are also intended to strengthen the research and commercialization infrastructure for the seven sectors.

These sectors were chosen for their potential to build on Maine's existing strengths and emerging opportunities. For instance, the composites and advanced materials sector was selected because of the state's historic strengths in textiles and boatbuilding as well as the then-developing world-class composites center at the University of Maine. These selections also had the promise of reaching all parts of the state. The forest products and agriculture sector is largely based in the most rural parts of the state. The marine technology and aquaculture industry is dispersed along the state's long coastline from York to Washington counties.

However, there are challenges to using cluster development as a model for growth in a rural state like Maine. Barkley and Henry (1997) identified several barriers to developing clusters in rural areas. Inevitably, the selection of clusters to support is, to some extent, an exercise in picking winners and losers. They note that the competitive advantages of a region change over time, and thus it is difficult to project the growth of specific industries. Clusters also take time to develop, and market forces may completely change the opportunity for which a cluster was originally envisioned. An example of this phenomenon is in the composites and advanced materials sector. Many of the early initiatives in this cluster focused on expanding boatbuilding as well as defense and homeland security technologies. However, as the recession affected spending on luxury items such as boats and as a drawdown of forces in the Middle East began, these opportunities have diminished. Many players in this sector are now focused on renewable energy opportunities, particularly in wind energy.

Another challenge cited by Barkley and Henry is that new clusters may not be competitive in comparison to well-established clusters (1997). New clusters will not

have the same level of infrastructure, the depth of workforce, or the embedded networks that exist in established clusters in other regions. This issue suggests that new clusters need to build upon specializations and unique local resources. Maine's emerging biotechnology sector, for instance, likely will not ever compete with clusters in the Boston, San Francisco, and San Diego regions, but may be able to build upon niches such as veterinary health.

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ENHANCING THE MODEL: BUILDING ON SOCIAL NETWORKS

An enhanced model for innovation in Maine could use a more networked approach that expands beyond the notion of sectors. Social networks in this model are not the online platforms such as Facebook and LinkedIn. Rather, they are a system of personal and professional connections among individuals. Information and resources are shared through these connections, and groups and alliances are formed with these contacts. Sometimes these alliances are formal such as in the case of trade associations or business partnerships, and other times they are informal groups with common interests.

A key feature of successful clusters is the embedded networks among multiple firms from related industries, along with supporting players such as financial institutions, law firms, and marketing companies, and educational and research institutions. These relationships are what create the knowledge sharing that leads to productivity gains and the development of new products and services. However, in rural areas, these types of networks can be "thin."

In the social networks that comprise personal and business relationships, thin networks are less dense, meaning they have fewer connections. Applied to

business clusters, thin networks in rural areas simply mean that they have fewer companies and supporting resource providers to participate in knowledge sharing. While the connections among a smaller number of companies may be quite strong, fewer companies means fewer connections, which leads to fewer opportunities for collaboration and knowledge exchange.

This social network model recognizes that a great deal of innovation happens at the intersections of disciplines and sectors. In fact, innovation is, to a large extent, a process of combining existing seemingly unrelated concepts in new ways to create better solutions. A classic example of this result is the creation Velcro. A Swiss engineer taking his dog for a walk noticed how well burdock burrs stuck to his clothing. He took one off at home and examined it to discover its barbed hook structure that grasped the tiny thread loops in fabric. He then worked with a weaver to invent the hook and loop tape used for fastening clothing. The combination of engineering, the biology of seed transport, and textile weaving came together in an innovation that is now used around the world.

The National Science Foundation has recognized that interdisciplinary research will be required to solve many of the world's largest problems. In fact, many of its funding programs require proposals that include researchers from multiple disciplines. The Forest Bioproducts Research Institute at the University of Maine, which received a significant portion of its startup funding from the National Science Foundation, brings together chemical engineers, wood scientists, foresters, economists, and microbiologists, just to name a few, to understand the potential for making chemicals, fuels and plastics from wood.

Indeed, many applicants to the Maine Technology Institute's funding programs for companies have a difficult time selecting in which sector to submit their proposal. Their technology innovations cut across sectors. Is a software program that helps track brain activity in the information technology sector or the biotechnology sector? Is a structural panel made out of wood and reinforced with fiberglass a technology in the composites sector or the forest products sector?

Porter (2000) noted that strong clusters span multiple industrial sectors. In the case of the development of wind energy technology in Maine, participating companies and researchers are crossing sector lines to form a new cluster that spans advanced materials, construction, environmental technology,

geographic information systems, wildlife biology, and marine technology.

These intersections demonstrate how social networks can be expanded to help alleviate the thin network problem. Andrew Hargadon, an expert in entrepreneurship and technology management, argues that breakthrough innovations happen when networks are created, shifted and reorganized to use established knowledge to create new ideas (2003). Small communities rarely develop recombinant innovations because they do not interact outside of their networks as often as they should and therefore do not make useful connections. Closed networks can stagnate and even develop a form of groupthink without injections of new ideas.

Economic sociologist Mark Granovetter (1973) was among the first to show the value of making connections among different communities. The strength of bonds among the participants is an important factor in the innovation process. When individuals have strong ties, such as with coworkers and family, they share a great deal of common knowledge. Individuals have weak ties with people to whom they are associated but are not closely related and share different communities, knowledge and experience. Granovetter demonstrated that weak ties are actually the most fruitful for finding useful and unique information because the information comes from outside one's existing shared knowledge base.

Brokers, people who span and connect networks, play an important role in this process. They see opportunities to connect members of the different networks to build innovations, form partnerships, strengthen ties, and add value to the overall network (Hargadon 2003). Sometimes this process also leads to the formation of a new, more interconnected network, and ultimately might spur the development of a new cluster. People within companies, university researchers, service providers, or economic development professionals can all serve this important brokering role.

As a rural state, one of Maine's biggest challenges is the size and density of its networks. The state simply does not have as many people as urban areas to easily make connections and share knowledge that will lead to innovations. In fact, Maine's entire population is only approximately one-quarter of that of the Boston metropolitan area. Furthermore, this smaller population is spread over a larger geographic area. Maine also has fewer corporate and public R&D centers with people particularly interested in generating new innovations.

Entrepreneurs in Maine frequently cite the need for more connections to capital and mentors as one of their biggest challenges to growth. While these connections are important to an entrepreneur's success, the density problem extends far beyond money and advisors. In fact, many entrepreneurs with good ideas can find significant financial resources through the Maine Technology Institute and other private and public sources. Most of these companies also need connections to strategic partners, manufacturers, suppliers and distributors in order to commercialize and scale operations.

To overcome the density problem of Maine's networks, its networks need to be more productive and efficient. Efficiency in rural networks could primarily be achieved through two methods: (1) more deliberate brokering and network development could increase the number and quality of connections among existing entrepreneurs and innovators in companies and R&D centers; and (2) creating a higher concentration of people specifically interested in innovation than is typically found in the general population by encouraging more people to pursue innovation and by providing them with the requisite skills to innovate.

By increasing the number of innovators and encouraging more connections, the number of high-potential innovations will increase as knowledge sharing takes place and the number of innovative ideas increases. There are nascent efforts taking shape in the state that are using these strategies to build upon the power and opportunity of social networks to ignite innovation and strengthen clusters. These efforts are forming a new, emerging model of innovation in Maine.

A FRAMEWORK FOR INNOVATIVE PERFORMANCE

Brenner and Broekel (2011), in an attempt to develop better methods for measuring the innovation performance of regions, emphasized the need to develop greater numbers of innovators. They note that innovations are not developed by regions or clusters, but instead by people within the region. They identify people who contribute directly to the development of innovations as *innovation generators*. Without any generators, a region would have no innovations. However, the number and productivity of innovation generators is influenced by other factors. *Innovation facilitators* are the conditions within a region that make innovation generators more productive. They identify

culture as an important facilitator. Features of a culture that facilitate innovation include openness to collaboration and attitudes that reward and support innovation and risk taking. Furthermore, public policy can facilitate innovation generation by supporting research in public universities and research institutes and by providing for a supportive tax, investment, and regulatory climate. In addition, the economic structure of the region and the presence of clusters and strong social networks that allow for collaboration increase the generation of innovations.

Innovation attractors are the characteristics of a region that cause more or fewer innovators to locate in a region. Brenner and Broekel note that there are only two ways to increase the number innovation generators: *attract more innovation generators to relocate to the region* and *create new innovation generators within the region*. Thus, education plays an important role in developing new innovation generators with technical and innovation skills. The geographic location and economic activities within a region attract other innovators. For instance, a company might move its R&D staff to a region to locate near other like-minded firms. In general, a larger population attracts more innovators. Additionally, public research centers attract innovation talent both to work in the centers and to collaborate with experts in a technology.

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With this framework in mind, increasing the percentage of people who become innovation generators in Maine will have a direct impact on the innovation success of the state. Moreover, strengthening networks that cut across industry sectors will increase the productivity of the state's innovation generators. That being said, the state's existing policy efforts to support public R&D capacity and provide a nurturing economic environment for innovative companies and entrepreneurs will attract more innovators and enhance their productivity. It is worth noting, however, that other states and regions around the world are engaged in similar efforts to attract and facilitate innovation.

Thus, there is significant value in stimulating a culture that creates more innovation generators from within.

SPECIFIC STRATEGIES TO BUILD DENSER INNOVATION NETWORKS

To build the kind of culture that enhances innovation performance, rural states must go beyond policies and funding programs to address the underlying challenge that innovations are developed by people, and rural states have fewer people spread over a larger geography. Across the country and in Maine, some specific strategies are taking shape with the goal of increasing the innovation productivity and efficiency of its population.

Network Development

Active networks are a key facilitator of innovation generators. While Maine has many robust industry associations that provide strong sector networks, for significant innovation to occur, there must also be strong networks that span sectors. Beyond identifying and generating innovations, social networks are also important for acquiring the resources needed to commercialize an innovation opportunity. These resources might include capital, but also could include strategic partners, mentors, advisors, and economic developers. These resources also likely span multiple sectors.

Thus, there are important reasons to develop networks that are multi-dimensional, and there are clear benefits associated with building strong local networks. Good relationships stem from trust, and trust is more easily developed through regular face-to-face interactions. Research has shown that people are less willing to depend on others in collaborations when interactions are developed online or in video-based communication (Rockmann and Northcraft 2008), particularly in the early stages of a project (Wilson, Straus, and McEvily 2006). Described as the *propinquity effect* by social psychologists, frequent and regular face-to-face contact increases the likelihood of forming relationships, including business interactions. Sorenson and Stuart (2001) demonstrated this effect with venture capital investments. Venture capitalists are much more likely to invest in companies that are near them and only invest in more distant companies when they have a trusted associate located nearby.

The propinquity effect suggests another important feature of dynamic social networks that facilitate

innovation: since local networks can become insular, the brokers who connect people in different networks can play an important role in not only spanning disciplines, but also spanning geography. A venture capitalist's trusted associate is a broker who allows the investor to connect to companies in a different geographic network. Maine can help overcome its density challenge by building local networks with strong ties for innovation and entrepreneurship and then connecting networks with deliberate brokering throughout the state, thereby expanding an individual business' or entrepreneur's network substantially through a trusted intermediary.

An example of this kind of deliberate brokering is the Kansas Opportunity Innovation Network (KOIN). The initiative's mission is to "increase the number of globally competitive innovative products and services produced in rural and/or distressed Kansas communities and regions" (NADO 2011: 3). KOIN is a partnership of Kansas State University, economic development districts in the state, and industry associations. KOIN has created asset maps that compile both company and organizational capabilities and needs along with workforce skills and technologies. When a company wants to pursue an innovation opportunity, KOIN identifies potential partners and collaborators and can connect someone in an isolated rural area with a wide network of potential partners. Connections are made through Kansas State University and local economic development organizations that act as trusted intermediaries.

Second- and Third-Stage Companies

Another way to increase the concentration of innovation generators is to encourage more existing companies to pursue growth through the development of new products and services. Maine is particularly successful in its rate of new business starts, ranking fourth in the country in the number of business starts per 100,000 people.¹ However, Maine is challenged in growing these businesses into larger companies (Maine DECD 2012).

Placing more emphasis on moving companies from being small employers to larger entities requires focusing on the specific growth needs of these companies, which are different from the economic development resources developed for startups. Second-stage companies are defined as having 10 to 99 employees. This stage represents a key stage in a company's development as the

company needs to develop more sophistication in its business operations as well as new product or service opportunities to continue to grow (U.S. SBA 2006). Third-stage companies with 100 to 499 employees tend to have more established business processes, but need injections of innovation to continue to grow.

One reason to provide additional focus on second- and third-stage companies is that these businesses already have several advantages over startups for pursuing growth opportunities. They already have a management team and typically have significant capital resources such as buildings and equipment. Another reason Maine should engage existing companies is that there are second- and third-stage companies throughout the state that could grow with business assistance and innovation, while innovation-based startups tend to be concentrated in the more densely populated areas. Furthermore, priming existing companies to innovate creates opportunities for startups to be more successful through joint ventures and partnering. For instance, Advanced Infrastructure Technologies, a spin-off business from the University of Maine to commercialize what is known as the “bridge-in-a-backpack” technology, sells and designs new bridges. Rather than building its own manufacturing capacity in its early stages, Advanced Infrastructure Technologies has partnered with Kenway Corporation, a long-time leader in the composites industry, to make the bridge components.

The economic development strategy of economic gardening, which focuses on growing existing companies, began in Littleton, Colorado, arising from the observation that there was a relationship between innovation and growth. By focusing on the specific needs of second-stage companies, rather than targeting specific sectors, the town realized a significant opportunity to grow the city’s employment base. Christian Gibbons, the leader of this initiative in Littleton, noted that businesses could be “frozen—a state in which nothing moves or adapts and no information is transferred; chaotic—where so much change occurs that the organization doesn’t have an identity; or stable—where identity is retained, but adaptation is possible...They adapted through experimentation and by learning from many small mistakes, which helped them avoid the big fatal ones” (US SBA 2006: 166). Economic gardening builds adaptive companies by developing the social networks that involve and support companies, providing training and market information to help companies grow, and strengthening community infrastructure.

Inspiring and Training More Innovators

Another important strategy to increase the density of networks is to provide the skills and training that allow more people to become innovation generators. In particular, emphasis should be placed on educating the workforce to develop the skills and interest necessary to become innovators. These skills include not only technical skill sets, but also innovation skills such as creativity, communication, collaboration, and the ability to test ideas and learn from failures. With these skills, individuals can become innovation generators in their own ventures or in Maine’s startup and existing companies, helping them to expand and grow through innovation.

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The University of Maine has led the country in developing a curriculum to foster innovation skills through its Innovation Engineering program. This program is offered as either a minor or graduate certificate and is designed to enhance the expertise developed in any major. It provides students with a toolkit and system for innovating in their field, whether it is music, food science, forestry, or engineering. This program complements the university’s entrepreneurship courses because it focuses specifically on innovation skills, and it encourages more students to pursue innovation whether they envision themselves starting a business or not. It teaches students a system for identifying innovation opportunities, generating ideas, communicating those ideas effectively, and a “fail fast, fail cheap” approach to building viable business models. This program has been shared with all seven campuses of the University of Maine System to broaden statewide impact. In addition, other universities around the country are now licensing the curriculum from Maine to develop their students’ innovation skills. Also, the University of Maine and other partners are training business leaders and helping

companies implement this systematic approach to continuously growing and adapting.

It is also important to inspire individuals to pursue these skills by celebrating entrepreneurial and innovation success stories in Maine. Many schoolchildren in the state know that Farmington resident Chester Greenwood invented earmuffs in the late 1800s, but few are introduced to the entrepreneurial and innovation successes of today's companies such as the veterinary diagnostics developed by IDEXX in Westbrook or the tidal energy turbines developed by Ocean Renewable Power Corporation. In addition, students need opportunities to develop entrepreneurial and innovation-related skills at a young age. There are many promising programs in the state that are beginning to build an innovative youth culture in the state such as Build-a-Biz, which encourages youth to try creating a business; Project Login, which supports robotics programs and Coder Dojo clubs; and the Maine State Invention Convention, which takes the traditional middle school science fair and turns it into an opportunity to create a real, marketable product.

AN EMERGING MODEL FOR MAINE: BLACKSTONE ACCELERATES GROWTH

Blackstone Accelerates Growth, a recent initiative of the Maine Center for Entrepreneurial Development, Maine Technology Institute, and the University of Maine, is an emerging model for innovation in rural areas that builds upon these strategies. The Blackstone Charitable Foundation has funded the effort as part of its approach to encouraging entrepreneurship across the country. While the activities they have funded in other states have focused on providing specialized services to early-stage entrepreneurs, the Maine initiative specifically addresses the rural nature of the state by working to build a stronger community of innovators by increasing the density and efficiency of innovation networks.

One of the key elements of the Blackstone Accelerates Growth initiative is the development of interconnected hubs of innovation across Maine. The hubs, in many ways, are social networks of innovation generators and facilitators that cut across sector lines. Instead, they are based on local community networks. The first two hubs were started in the Bangor and Portland regions to build upon an existing critical mass of innovators and facilitators: the Bangor region because of the innovation activity associated with the University

of Maine, and the Portland region because its more urban nature has spawned a small cluster of innovation-based companies and associated services such as intellectual property attorneys, training programs, and capital resources.

Each hub has activities that bring innovators together, from informal gatherings such as Pub Hub in the Portland area and Big Gig in the Bangor area to more structured events such as mentor-matching nights. These events provide opportunities for individuals from diverse backgrounds to interact face-to-face to exchange valuable information and ideas. Furthermore, these events happen on a regular basis so the interactions are frequent enough that people can form trust relationships more easily. Geography is not a barrier to finding other innovators, and while the participants may not be able to benefit from sharing knowledge with others in the same field or industry, they can make new discoveries by crossing fields. In addition, they are still able to share information about resources and common experiences in taking innovative products or services to market.

Having piloted the model in the Bangor and Portland regions, the initiative is now expanding into other parts of the state, with the Midcoast area being the first addition. As in Portland and Bangor, a local hub manager helps organize, coordinate, and promote activities to make connections among innovators. Each hub may take on its own local flavor, with activities that make the most sense for the types of business activities that take place in the region, but the guiding principles for each hub are the same: provide direct assistance to high-potential companies, facilitate interactions to build local social networks of innovation generators and facilitators, celebrate the innovators in the region so that others are inspired to become innovation generators, and provide training and support systems for innovation.

Brokers play a key role in the innovation hubs. The partners in the Blackstone initiative regularly organize and participate in the hub activities. Some events are structured to facilitate specific interactions among innovation generators and facilitators. At the informal events, the partners purposefully introduce people with common interests or those in similar situations, rather than just relying upon serendipitous meetings. In addition, regional partners are engaged to act as brokers. For instance, in the Bangor region, the Chamber of Commerce facilitates a local angel investment group that brings together investors and entrepreneurs. Economic

development organizations can also play an important brokering role. Eastern Maine Development Corporation's staff refers businesses for mentoring and training and encourages participation in networking events. Furthermore, hub managers and partners broker relationships among entrepreneurs and companies in different hubs, such as an entrepreneur in Rockland with a company in Bangor or a researcher at the University of Maine. In this way, the local innovation hubs comprise a much larger, diverse statewide network.

While these network-building activities increase the frequency and quality of interactions thereby making the networks more efficient, the networks still need a sufficient number of actors to overcome the density problem of rural networks. To increase the percentage of innovators throughout the state, Blackstone Accelerates Growth incorporates several activities to create more innovation generators. These efforts include the Blackstone Accelerated Ventures program, Top Gun entrepreneurship training, the Blackstone Innovate for Maine Fellowship, and Blackstone Innovation Scholarships.

The Accelerated Ventures program seeks to take high-potential companies, including early-stage companies such as PIKA Energy and Cerahelix that have demonstrated success in attracting funding and partners but still need specific support to fully commercialize their innovations; second-stage companies such as Fluid Imaging Technologies that need assistance to achieve scale; and more mature companies that are seeking growth through the development of new products and services such as R.H. Foster and Howard Tool. While the selected early- and second-stage companies are already actively innovating, making them more successful and more prominent can create opportunities for new innovations to occur in other businesses as supply and distribution chains are developed to support them. Providing support to encourage more mature companies to innovate directly adds to the number of innovation generators.

The Top Gun program provides intensive training and mentoring to first-time entrepreneurs to accelerate scalable companies. This program has the effect of increasing the number of innovation generators by providing skills to innovate in the future even if the entrepreneur's initial idea does not work. In addition, several of the participants have been entrepreneurs who have had small enterprises for years, but then have an interest in achieving scalable growth through innovation.

Again, this activity is an example of providing resources to help existing companies originally not focused on innovation to join the numbers of innovation generators. Another advantage of Top Gun is the network that is formed among its participants. Each annual Top Gun class in the Bangor and Portland regions becomes a strong node within the innovation hub networks.

In the past year, the Maine Center for Entrepreneurial Development has created an extension of Top Gun, called Top Gun Prep. As the name implies, it covers basic innovation business principles and serves as preparation for participation in the full Top Gun program. Top Gun Prep is delivered virtually throughout the state. Though this program does not have the advantages of face-to-face interactions, it begins the process of engaging potential innovators throughout the state, regardless of their location. The program can inspire would-be innovators to become active. Northern Maine Development Corporation in Aroostook County and Sunrise Economic Development Council in Washington County have provided scholarships to budding entrepreneurs to participate in Top Gun Prep to enlarge the network of innovators in their regions.

Another key strategy to increase the number of innovation generators is to accelerate the next generation of innovators. In Blackstone Accelerates Growth, this strategy is primarily focused on college students who are in the process of acquiring career skills and making decisions about career options. The Blackstone Innovation Scholarship program provides tuition for students throughout the University of Maine System to take courses in Innovation Engineering. The scholarships provide incentives to students who might have an interest in innovation to develop skills that will help them become successful innovators, whether they start their own company or become *intrapreneurs* who innovate within established companies.

Blackstone Accelerates Growth also includes the Innovate for Maine Fellowship program to connect Maine's best and brightest college students with growing Maine companies. As part of the fellowship, students receive intensive training in Innovation Engineering, professional development skills, and an introduction to Maine's entrepreneurial landscape. Each student receives an internship placement with a growing Maine company, ranging from entrepreneurial startups to established innovation-driven companies such as Auburn Manufacturing, which makes high-temperature textiles. Host companies are selected based on their growth

potential and the quality of the innovation project they present for students to work on during the internship. The students are also matched with a mentor who helps the student work through innovation challenges. Survey results from the first two cohorts of students suggest that this program is effective in both encouraging students to find work in Maine after graduation and in building their innovation skills.

Two years into the initiative, Blackstone Accelerates Growth is already seeing early positive results. The number of innovation generators and entrepreneurs is increasing through work to accelerate the next generation of innovators and entrepreneurs. Specific technical assistance is being provided not only to early-stage companies, but also to help second- and third-stage companies grow. And perhaps most important, the number of participants in hub activities is growing, innovators and entrepreneurs are getting more recognition in their communities, and resources for innovators are being coordinated more effectively.

Ultimately, success will depend upon a change in the culture that facilitates innovation and encourages more people to get involved. Policies that invest in the institutions that feed the innovation soil, support of resources that help companies innovate and grow, and an attractive business environment and quality of life are all important to innovation success and thus the prosperity of the state. However, a grassroots movement to educate and inspire more innovators and to build supportive, connected networks that cut across industry sectors is required to change the culture. Blackstone Accelerates Growth is making strides toward this goal. 🐟

ENDNOTES

1. <http://statetechandscience.org/statetech.taf?page=state&state=ME&sub=rcic&year=1>

REFERENCES

- Barkley, David L., and Mark S. Henry. 1997. "Rural Industrial Development: To Cluster or Not to Cluster?" *Review of Agricultural Economics* 19(2): 308–325.
- Brenner, Thomas, and Tom Broekel. 2010. "Methodological Issues in Measuring Innovation Performance of Spatial Units." *Industry and Innovation* 18(1): 7–37.
- Granovetter, Mark. 1973. "The Strength of Weak Ties." *American Journal of Sociology* 78(6): 1360–1380.
- Hargadon, Andrew. 2003. *How Breakthroughs Happen: The Surprising Truth About How Companies Innovate*. Harvard Business School Press, Boston.
- Maine Department of Economic and Community Development (DECD). 2012. *Maine Comprehensive Research and Development Evaluation 2011*. Maine DECD, Augusta.
- National Association of Development Organizations (NADO). 2011. *Growing Rural Innovation-Based Economies: Kansas Opportunity Innovation Network—Part 1: Case Study Overview*. NADO, Washington, DC.
- Porter, M. 2000. "Location, Competition, and Economic Development: Local Clusters in a Global Economy." *Economic Development Quarterly* 14(1): 15–34.
- Rockmann, Kevin W., and Gregory B. Northcraft. 2008. "To Be or Not to Be Trusted: The Influence of Media Richness on Defection and Deception." *Organizational Behavior and Human Decision Processes* 107:106–122.
- Sorenson, Olav, and Toby E. Stuart. 2001. "Syndication Networks and the Spatial Distribution of Venture Capital Investments." *American Journal of Sociology* 106(6): 1546–1588.
- U.S. Small Business Administration (SBA). 2006. *The Small Business Economy: A Report to the President*. U.S. Government Printing Office, Washington, DC. http://archive.sba.gov/advo/research/sb_econ2006.pdf
- Wilson, Jeanne M., Susan G. Straus, and Bill McEvily. 2006. "All in Due Time: The Development of Trust in Computer-Mediated and Face-to-Face Teams." *Organizational Behavior and Human Decision Processes* 99(1): 16–33.



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