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An Innovation Strategy for the Downturn

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Historians of the future will pay special attention to the year 2008. As this precedent-shattering year drew to a close, and a new American president prepared to grapple with possibly the worst financial and economic crisis since the 1930s, the country teetered on the edge of economic calamity.

In Massachusetts, as in so many other parts of the country, uncertainty has enveloped almost every aspect of economic life. Even as familiar economic indicators enter uncharted territory, the crisis underscores the crucial importance of unquantifiable resources like confidence, trust, and optimism. With enough confidence in the future—with enough ‘animal spirits,’ in Keynes’ memorable phrase—economies can literally create miracles. Without them, even the simplest tasks become immensely difficult.

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No economic activity is more deeply affected by a loss of confidence than innovation. At its core, the act of innovation is an expression of confidence in the future. Innovation occurs because innovators believe that their efforts will yield benefits large enough to outweigh the many risks involved in bringing new products and services to market. Innovators are typically among the most optimistic of people.

In modern economies innovation is almost never a solo activity.

Whether the outcome is a new technology or a new business model, many people are usually involved in bringing it about. Entrepreneurs and their financial backers are fond of referring to innovation as a ‘contact sport.’ This is at once a statement of the obvious—to innovate, people need to interact—and a pleasing image of rugged independence and robustness. Yet it is also true that the continuing flow of innovations in dynamic regions depends on the presence of an innovation ‘ecosystem’—an interacting community of entrepreneurs, financiers, researchers, educators and others—that is as fragile and vulnerable to disruption as any natural ecological community.

What happens to such communities when their single most important intangible asset—confidence—is suddenly in short supply? This is the situation we now face in Massachusetts, and it demands our urgent attention. Every economy must innovate in order to grow, but the continued prosperity of the Commonwealth depends on innovation to an unusual degree. As the preceding reports in this series have amply documented, for many years Massachusetts has been at or close to the forefront of per-capita performance in many innovation-related activities, including federal and corporate R&D spending, venture capital investment, patenting, entrepreneurial activity, and educational attainment. Other analysts, drawing on similar indicators, recently ranked the Commonwealth first out of all American states—for the fourth consecutive time in the last decade—as a center of innovation and knowledge-based industry.

But today our vaunted innovation engine is operating in low gear. The region's research universities, the source of so much new technology-based business formation, are cutting budgets and halting construction of new facilities as endowments shrink and debt markets dry up. Venture capital firms are hunkering down. The volume of initial public offerings has fallen almost to zero. Many large firms in technology and financial services are reducing head count.

What to do in the face of this difficult outlook depends on the answers to three questions:



First, will innovation continue to be important for the Massachusetts economy? The answer is surely yes. No matter how bad the current downturn, it will eventually come to an end, and innovation will again be a major driver of our economy, as it has been throughout the Commonwealth's nearly four-hundred-year history.

Second, can actions be taken to strengthen our innovation system during the downturn? Once again the answer is surely yes. During periods of prosperity it is easy to ignore weaknesses, but these are more difficult to hide when times are bad. Now would be a good time to take a hard look at our innovation balance sheet—at our liabilities, as well as our assets. At such a time, moreover, the motivation to address problems should be greater.

A good place to start would be the institutional fault-lines that crisscross our state—once famously described as missing a 'collaboration gene.' There is much work to do in bridging the gaps that still divide the area's 'old' and 'new' industries; that divide our large, well-established firms from their younger, entrepreneurial counterparts; that divide our public and private universities; and that divide Greater Boston, with

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its entrepreneurial resources and research universities, and other parts of the state, with more space, lower costs, and a powerful desire to participate in the ongoing reshaping of the Massachusetts economy. And if any more justification is needed to focus our attention on the innovation agenda, consider that other regions, both here in the US and overseas, continue to pursue ambitious, sophisticated and well-funded strategies to build tomorrow's hubs of innovation. The rest of the world will not stand still even during the current downturn, and the competition for the key resources that have fueled our innovation engine in the past—talented people, risk capital, R&D funds—will only intensify.

Third, will there be new opportunities to innovate even during the downturn? Economic activity doesn't come to a complete stop even in periods of deep recession, and neither does innovation. Though opportunities will be scarcer, Massachusetts is well-positioned to exploit at least some of those that are likely to arise. Demand for the health-related product and service innovations developed by our prolific life sciences supercluster should remain fairly strong even in

a downturn. And clean energy technology, a strong point of our region and the foundation of what many expect to be the next big innovation-driven industry, will likely receive a boost as part of the incoming administration's economic stimulus program. The new President understands that the nation's difficult economic situation may actually be a very good time to step up the pace of the transition to a low-carbon energy system. He and his administration will be looking for effective models. Massachusetts, with all of the necessary ingredients of a successful energy innovation system, should be ready to step forward.



An innovation strategy designed for the downturn should focus on sustaining the flows of capital, knowledge, and people that are so central to the successful functioning of innovative regions. It should concentrate on eliminating obstacles to these flows, both within Massachusetts itself and between our region and other important innovation hubs. It should support

the development of more public spaces where researchers, entrepreneurs, and financiers can rub shoulders and share ideas about the future direction of technologies and markets (MIT's Deshpande Center is one model of how to do this). It should recognize that the make-up of innovation systems varies by sector, and that a one-size-fits-all approach will not succeed. In life sciences, for example, the proximity of world-leading fundamental research in area universities to state-of-the-art clinical practice at our great teaching hospitals is the keystone of the supercluster. In energy, by contrast, the key ingredient may turn out to be the connections between small, entrepreneurial energy innovators and the large, established energy firms whose access to capital and customers will be necessary to bring the innovations to scale.

Most important, an innovation strategy for the downturn should avoid the mistake of assuming that we know what is coming next. The ingenuity of innovators and entrepreneurs always surprises. When policymakers and pundits were debating how to escape the recession of the early 1990s, no one



Bentley University's trading room

foresaw the emergence of the internet just a few short years later, and the remarkable spurt of economic activity that followed, with more than 20 million new jobs created in the United States alone during the rest of that decade.

At this writing, the eventual magnitude of the current downturn is uncertain. No one really knows how long the recession will drag on, but conditions will likely get worse before they get better. In this difficult climate there will be many deserving demands for

short-term assistance, not least from the most vulnerable and least fortunate members of society. But it is also during such times that the seeds of long-term growth take root. Planting these seeds will require imagination and leadership in equal measure. Fortunately, the innovative history of our Commonwealth gives grounds for optimism that such qualities will come to the forefront once again.