

What Is the “Special Sauce” for University Innovation?

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Cornell University is partnering with the Technion-Israel Institute of Technology on its new technology-oriented Cornell Tech campus in New York City. According to a recent article in the *Chronicle of Higher Education*, the reason is largely because Cornell wants to take advantage of Technion's innovative and entrepreneurial ethos, and not any particular organizational innovation at the Technion, which is similar to many top-ranked research and innovation-focused universities worldwide.

According to the Technion professor leading the New York venture, the institution's focus is less on creating “spin-out” companies and more on developing “spin-out people.” While the Technion has been highly successful in producing innovative graduates in Israel—42 percent of its graduates set up their own company—it is not certain this will be duplicated in New York. Rarely does academic culture or particular kinds of innovations transfer easily from one institutional culture to another.

LESSONS FROM MIT OR ELSEWHERE?

The example of the Massachusetts Institute of Technology (MIT) might be illustrative. Without question, MIT produces some of the brightest and most innovative graduates in the world. Further, the university seems to have a unique culture that spawns an entrepreneurial spirit and new ideas. MIT hires some of the smartest and most innovative professors from around the globe and works to ensure that they will fit the institute's ethos as well. It provides an environment that facilitates the process of translating ideas developed on campus into products and innovations with useful application in the “real world.” Additionally, the institution offers support for faculty and students who want to operationalize their ideas.

For these and other reasons, MIT has been asked to help universities in other countries to develop “mini-MITs”—providing the “special sauce” that will turn a highly resourced institution into an innovative and entrepreneurial world-class one. MIT has engaged in a range of collaborative programs, in some cases helping to establishing new universities, and in others providing significant input

to improve existing ones. Institutions MIT has helped create include the Skolkovo Institute of Technology in Moscow, the Masdar Institute in Abu Dhabi, and the Singapore University of Technology and Design. The MIT Portugal project helped build scientific and technological systems, and the Cambridge-MIT Institute has for several decades collaborated with Cambridge University in the United Kingdom on a variety of programs.

While full-scale analyses of these programs have not been published, it is probably fair to say that all of them have faced challenges and none has in significant ways achieved that “special sauce”—the top secret recipe—that makes MIT so outstanding. All of these initiatives have been lavishly funded by the partner institutions themselves or deep-pocketed benefactors, resulting in considerable income for MIT. All show the difficulty of transferring an academic culture from one institution to another, even more complicated in a different national context.

MIT and the Technion are not the only prototypes available to the planners at Cornell Tech. It is also possible to look at other highly successful university models directed at generating innovation. Stanford University, has been tremendously successful in spawning start-up companies and graduating individuals who have made impressive contributions to IT and related industries in Silicon Valley, where it is located. ETH Zurich is also well known for its excellence in technological education as well as its links and contributions to industry and technology. Both are quite different from MIT. While the numbers of universities that combine outstanding quality with contributions to industry are fairly small—there are many examples of different models that work.

THE KEY INGREDIENTS ARE NOT ENOUGH

Figuring out what are the main requirements for a top quality research-intensive university is not “rocket science.” Our book, *The Road to Academic Excellence: The Making of World-Class Research Universities* (World Bank, 2011), provides case studies of successful new universities. All have built impressive research profiles in a short time, and most are contributing successfully to their countries as well as making rapid progress in the global rankings. But none can be called uniquely original or innovative in terms of organization or academic characteristics.

Among the key ingredients necessary for creating a new research-intensive university are the following—adequate financial resources to get started and sustain excellence over time; a governance model that includes significant participation from, but not total control, by the academics; strong leadership, not only a visionary president, but a professionally competent administrative staff

able to implement the university's mission; autonomy from the interference of governmental or private authorities, but that allows for a reasonable degree of accountability to external agencies; academic freedom for teaching, research, and publication; top academic staff who are committed to the university's mission (including teaching) and who are paid adequately and provided with appropriate career ladders; highly qualified and motivated students; and a firm commitment to meritocracy at all levels.

None of these elements provide the "disruptive innovation" that many regard as necessary for university excellence in the 21st century. All of them are tried and true characteristics of successful universities during the past century. No university is perfect, but all successful research universities have most if not all of these characteristics. These are the "universal principles" of excellence.

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DISRUPTIVE INNOVATION

The characteristics discussed here do not guarantee entrepreneurial vigor, or a dynamic start-up culture. The Technion may find it just as difficult to export its entrepreneurial culture as MIT has. Why? Transferring a highly complex academic culture from one university to another is quite challenging. Imitating, copying, or adapting the successful recipe of others is not easy. Innovative universities arise from a unique value proposition that reflects an original vision and the capacity to transform that vision into reality. This can happen through (1) niche programs in new multidisciplinary areas, (2) interactive, collaborative, and experiential teaching and learning approaches, and perhaps most importantly, (3) the unique combination of 21st century competencies (initiative, teamwork, communication) and the kinds of positive character traits (curiosity, grit, social responsibility) that drive outstanding professionals and successful change agents.

Franklin W. Olin College of Engineering, located in Massachusetts, may be one of the best examples to illustrate what it takes to set up a new institution that is truly innovative. Olin College opened its doors in 1999 with an audacious charter: offering an experimental laboratory for transforming engineering education in the United States. Olin College operates with several unusual features. The

curriculum combines engineering, entrepreneurship, and humanities in a unique way. Olin benefited from significant start-up resources from the Olin Foundation, and initially offered a free education. Olin recruits both faculty and students who believe in the school's innovative mission, and are willing to invest their careers in an untested start-up institution. Olin's success lends credence to the benefits of developing "home grown" models over adapting existing models that have been successful elsewhere.

CONCLUSION

Perhaps there is no universal "special sauce" for producing innovations in higher education, and "disruptive innovations" may not always result in positive change—in fact, disruption for its own sake may be counterproductive. In the end, the verities of university development may after all be the best approach to building innovation. Whether the Technion's innovative DNA can be effectively replicated elsewhere with outside technical assistance remains to be seen. ■

International Branch Campuses: Evolution of a Phenomenon

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IHE regularly publishes contributions from CBERT, the Cross Border Education Research Team, headquartered at the State University of New York at Albany. See <http://www.cberty.org>.

International branch campuses (IBC) represent one element of a larger trend in transnational or cross-border higher education, whereby universities create physical presences in multiple countries. Since 2009, the Cross-Border Education Research Team (CBERT) at the State University of New York at Albany has been tracking the development of such institutions around the world. In fact, IBCs are becoming a more mature