Examining Innovation Culture: Review of *Does America Need More Innovators?*

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Does America Need More Innovators? is comprised of fifteen contributions about innovation, innovators, and innovation programs in America. The contributions are organized in three sections: Champions, Critics, and Reformers. The diverse perspectives offer a balanced and rich examination and reflection on what the editors describe as the "innovation imperative." A timely topic because of its implications on our everyday life—for the innovation imperative can not only create an idealized notion of innovation, but it also presumes a positive correlation between innovation and economic growth and progress.

The notion of innovation imperative, however, should not be confused with innovation or innovation culture. As the contributions of this volume show, "innovation" has the connotations of creativity, novelty, openness, entrepreneurship, value, and so on, even though, as Godin's careful analysis in his chapter, "How Innovation Evolved from a Heretical Act to a Heroic Imperative" suggests, the term has only acquired a positive meaning of its instrumental function socially and politically in recent decades. Nevertheless, innovation today is often associated with qualities including open-mindedness, empathy, empowerment, and humility; more importantly, it is understood that a supportive environment is the backbone of innovation—a view shared by the Champions, the Critics, and the Reformers in this volume.

Most notably, Maryann Feldman's "Making Innovators, Building Regions" (Chapter 6), shows that the most critical factor for the success of an innovative region is "the temporal process of constructing shared meaning over time: the way local actors build institutions and create social capital during the sequential and dynamic process of creating an industrial cluster" (85). That is to say, conditions such as technological infrastructure, government, national and international networks, while necessary, are not sufficient.

Varieties of Innovation

Feldman's arguments resonate with two chapters in the Critics section. On the one hand, Eric Hintz's "Failed Inventor Initiatives, from the Franklin Institute to Quirky" (Chapter 10) tells us how two professional organizations, centuries apart, have nurtured innovators "by providing mechanisms for training inventors, transmitting inventive culture, evaluating ideas, and bringing together the people and resources necessary to commercialize new inventions" (183). On the other hand, Sebastian Pfotenhauer's "Building Global Innovative Hubs: The MIT Model in Three Start-Up Universities" (Chapter 11) shows that a successful innovation model cannot be simply transplanted in an institution. In other words, innovation cannot be achieved by merely putting together the "ingredients" such as government investment, equipment and facilities, and science policy because they do not necessarily cultivate a sense of community or culture which is often sustained by professional organizations. These stories tell us that while innovation initiatives can be designed and implemented, the development of innovation culture, like other human activities, depends upon an assemblage of cultural, social, and political affordances.

However, innovation culture (or the innovation imperative) is not without adverse (side) effects, particularly when it is seen as the sole purpose of being involved in engineering and science and technology. In the chapter, "Make Maintainers: Engineering Education and an Ethics of Care" (Chapter 13), Andrew Russell and Lee Vinsel convincingly and passionately point out that innovation should not be seen as a value in-and-of itself, and that "innovation-speak" often discounts the value of maintenance which much of our day-to-day activities depend on. More importantly, they maintain that "innovative speak" can create expectations and judgements that the winners do innovative work, while the losers do maintenance work—an ideology that should be replaced by "a balance between pedagogies that value maintenance and innovation" and an ethics of care. After all, Errol Arkilic's "Raising the NSF Innovative Corps" (Chapter 5) clearly states that most innovative projects lead to failure. It seems that innovation policy should deliberate on investing in long-term and high-risk projects and responsible innovation (see also Chapter 18) rather than fixating on creating immediate economic value and growth. Most importantly, an innovation culture should not downplay the essence and importance of maintenance and care, not to mention other creative activities (e.g., the arts) in our society at large.

Yet, some questions remain: Is innovation an imperative? Should innovation an imperative? And, does America (and the rest of the World) need more innovators? While there are certainly no clear or simple answers to these questions, it seems to me that it would be fruitful to consider whether innovation is a common good—that is, rather than economic good. As the editors suggest, the innovation imperative is a consequence of a dependence on innovation as an engine to power economic growth.

The Innovation Imperative

One worrying aspect of the innovation imperative is its reach to scientific communities and universities. As research proposals are increasingly required to describe their innovation prospect: commercialization, intellectual property, patents, and licensing, the innovation imperative can undermine research and scholarship that does not have tangible or explicit "value for money" and hence have implications on knowledge production, including the imbalance between pure and applied research. Another question has also been raised in the volume: Is the innovation imperative for everyone?

Lisa Cook's "The Innovation Gap in Pink and Black" (Chapter 12) suggests that the innovation culture is predominately white and male, individual women and African Americans often lack the social capital and connection since they were barred from joining professional societies. Similarly, Lucinda Sanders and Catherine Ashcraft (Chapter 17) note that unconscious bias, subtle dynamics, and institutional barriers as the major hurdles for women to succeed in what is called the "innovation industry". These issues must be tackled if innovation is for everyone.

All in all, this edited volume gives a clear sense that innovation is something 'good' not necessarily in economic sense, but overwhelmingly described in terms of morality and values—empathy, humility, creativity, openness, and not the least, inclusiveness and it offers

different perspectives as to how innovation culture can be nurtured and what issues ought to be tackled. The entire volume is a joy to read—no matter if you are a champion, a critic, a reformer or an observer of innovation, you learn about the good-will of those who create innovation programs and their challenges, as well as the reasons for the rise and fall of innovation organizations and initiatives.