Innovating for Tomorrow

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But how do we innovate? How do we get someone to create successful software apps? These questions came from a delegation that had traveled to Silicon Valley to learn the method behind its success. They were from a part of the world in economic decline: local industries had been disrupted by distant plants that used new technology and more efficient processes. The delegation had come to California to learn how to innovate and develop a system that would bring new wealth.

We spent the day discussing the structure of the software industry and Silicon Valley. With the Hoover Tower visible through the conference room window, we talked about the role of industrial parks and universities, the rise of business incubators and entrepreneurship, the importance of government research, and the ever-present open market competition.

I spent an extra hour explaining competition’s role in the tech industry, as it provides an antidote to many of the Silicon Valley myths, notably the claim that it became successful because it allowed smart people to work without interfering with what they did best. Silicon Valley did indeed put smart people to work on challenging problems, but it used competition as an incentive—a way to encourage workers to find successful solutions. Not every product of the tech industry creates wealth, as the former employees of failed companies such as Bendix, Borland, AOL, or Alta Vista can attest.

Over 70 years, we’ve created a process for innovating that echoes engineering processes. A classic study of the industry noted that this innovation process can be applied to many kinds of institutions, but that it generally has five key qualities: diversity, community, synergy, complexity, and flexibility. We build a community of people with widely varying skills and encourage them to share their insights on common problems. We are asked to be patient when the work wanders through complex steps and patient when it first fails to succeed. “Together,” concluded that study, “these elements have helped the US maintain a strong presence in computing and communications.”

Our innovation system was shaped by many elements of the American industrial experience. In the modern computer and software industries, you can find elements of early 19th-century factory communities’ entrepreneurship and aspects of Gilded Age entrepreneurship. The system supports the complex structures of 1920s manufacturers, the improvisation of wartime research, and the agile methods of the 1980s. Yet it remains a system, a process that recruits good people; gives them sufficient resources; and places them in a diverse, community-centric, synergistic, complex, and flexible environment.

Our innovation system has evolved over the past century, through changing markets and social conditions. For much of the 20th century, we subscribed to an innovation system that tried to generate value through economies of scale and continual refinement of production methods. Henry Ford was the original advocate of this idea. “Put brains into the method,” he wrote. “Do things better than ever before and by this means all parties to business are served and benefited.”

But this innovation process revealed its weakness as the world economy matured in the 1970s. The companies that focused on production methods often found that they were locked into a product that could no longer compete, and that they lacked a method for creating new goods and services. The crisis of the 1980s forced many an organization to look for better methods of creating products and generating wealth.

The group didn’t seem pleased with the competitive nature of Silicon Valley’s innovation system. One member pointedly asked whether governments can do anything to guarantee success and didn’t seem to like the answer that it can’t. Our industrial age has great faith in systems and processes. This faith can hide the fact that such systems don’t always work, that they work only under certain conditions, or that they eventually reveal unanticipated weaknesses. Our innovation system works for today but that shouldn’t stop us from considering new approaches to innovation for tomorrow.