

Innovation and Its Enemies: Why People Resist New Technologies

Book Review:

Innovation and Its Enemies: Why People Resist New Technologies, by Calestous Juma. Oxford University Press, New York, 2016, 432 pages, U.S. \$29.95 (hardback), ISBN: 9780190467036.

In book "Innovation and Its Enemies" Professor Calestous Juma takes us to a fascinating journey of disruptive technological innovations that took place across the world impacting lives of several billions of people for generations. In the beginning, the author indicates "This book identifies the dynamics of social opposition to innovation" (p. 1). New technologies are outcomes of disruptive innovations for satisfying the changing societal needs. New technologies are the matter of public scrutiny, which could be opposed by a group of people concerning the social norms, health implications, social disruption, while some other groups could be influenced by prejudices or human ignorance. The innovation is essentially a creative process for economic transformation of creators and entrepreneurs making the new technologies available to the larger consumers. Gradually, modern society becomes more technology savvy than the people lived in the pre-modern era.

The book explores the multi-layered dimensions of socio-political resistance faced by nine specific new technologies representing different centuries in modern times. The technologies chosen for the book are namely, the coffee brewing, printing press, margarine, farm mechanization, electricity, mechanical refrigeration, recorded sound, transgenic crops, and genetically-engineered salmon. The selected topics are so diverse that necessitate individual chapter for each topic. Thus, the readers get detailed accounts of nine specific technologies in nine chapters, elaborating how these technologies overcome the socio-political barriers. The recent biomedical innovations have been struggling with the bottle-necks in the regulatory system and process, due to evolving nature of a matured ethical-legal framework in the countries in Americas and Europe.

The book begins with the theoretical framework of the innovation ecosystem, where both the innovators and the entrepreneurs take painstaking pathways of creative

destruction through their disruptive innovations or disruptive technologies. Juma argues, "Disruptive technologies may start off underperforming relative to established technologies. Through technological improvement and marketing, the disruptive technologies eventually end up dominating the market. They are typically cheaper, simpler, smaller, and frequently, more convenient to use." (p. 18) Then, the author describes how vested interests could play a vital role in opposing new technologies. In the following chapters, the author describes various kinds of vested interests opposing the respective technologies. It is fascinating to note who were the pressure groups or lobbyists behind the opposition to new technologies. But, mostly the industry associations or industrial lobbyists representing a particular genre of the industrial segment were opposing the newcomers or new technologies disrupting the markets and market shares of dominant groups. In fact, many of them gradually withdrew their pressure tactics seeing the new technologies are winning consumers' confidence due to novelty in their products or approaches.

Not every technological innovation sees the day of success, without going through the process of acceptance by the consumers and regulators. However, some failures in getting acceptance make the innovators and entrepreneurs wiser for their future endeavours. With this context, the author identifies entrepreneurs as the risk takers and adaptive to changing needs of regulatory process. Mapping of socio-political scenario in a new market is also very crucial for the promoters of new technologies.

There is a constant rise in demand for foods and nutrients due to the exponential population growth. Although many genetically modified foods assure food security in the world, the strong opposition from the anti-GMO (genetically modified organisms) lobbies delays the regulatory process. The anti-GMO groups are strong in most of the countries in the developed world. As a result, many

regulators deny market access to genetically-engineered foods for human consumption. In chapters titled “Taking Root: Transgenic Crops” and “Swimming against the Current: AquaAdvantage Salmon” Juma gives several examples of how regulatory processes and norms are evolving in the countries such as the United States. Multiple regulators are being established in those countries for regulating new products introduced by the agricultural-biotechnology firms.

In the concluding chapter titled “Oiling the Wheels of Novelty”, Juma opines “In time, the technologies that foster creativity and innovation also become the sources of cultural inertia. The ability to harness the power of technology and engineering to solve social problems must be accompanied by complimentary adaptations in social institutions. These advances will in turn demand the emergence of more scientifically and technologically enlightened societies guided by democratic principles in the social, political, and cultural arenas” (p. 315). Thus, the democratic societies must induct the future policy-makers who will pay greater attention to bridging between rapid technological innovation and the slow pace of institutional adjustment.

The book is recommended for the scholars of innovation and entrepreneurship studies to understand the conceptual frameworks and pragmatic approaches to disruptive innovations. The book will also help the innovators and budding entrepreneurs in identifying possible sources of social opposition to new technologies and their counter strategies.

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