

Science Fiction and Innovation: Prototyping the Future from Uncertainty

Sinai Galeana, Azael Capetillo and David Güemes-Castorena

School of Engineering and Sciences

Tecnologico de Monterrey

Av. Eugenio Garza Sada 2501 Sur, Tecnológico, 64849 Monterrey, N.L, México

a01655250@itesm.mx, azael.capetillo@tec.mx, guemes@tec.mx

Abstract

Science fiction is an instrument for innovation. It has inspired generations to endorse the value of science and it has helped shape the future through the unceasing speculation of what it could look like. In recent years, science fiction has been employed as a tool for design. As a device to explore alternative future scenarios, it encourages developing solutions that require groundbreaking thinking. Additionally, it serves as a resource to discuss the ramifications of the technological innovations that it prompted in the first place. Innovation is repeatedly labeled as the process that uses the current knowledge and technologies to create something new or improve something existing. However, the innovation process is fraught with uncertainty, mainly when dealing with sci-fi methods. The knowledge of the future will always be incomplete, and there will always be technologies that will remain undiscovered by the time the prototyping occurs. What if instead of trying to abate that technological and knowledge uncertainty, we could adopt them as agents of the model to create better futures? To date there is no standard approach that considers these two criteria of uncertainty as the vehicle to achieve different results. Moreover, previous research considers them as objectionable aspects. This paper proposes a new methodology based on the assumption that developing new products challenging the future and its unpredictability is possible. Furthermore, taking advantage of the uncertainty that this process inevitably involves, it is attainable to discover and build the path to the technological development of the sci-fi ideated product. To construct and evaluate the usability of this tool it was necessary to: i) track the leverage of popular sci-fi technologies and its mutual influence in innovation, ii) review and synthesize previous studies and methodologies, iii) create a new methodology, iv) design a specialized workshop to test it, and v) map the path through which determined sci-fi ideas have the potential to become a reality.

Keywords

Science fiction, Technology, Innovation, Prototyping and Uncertainty.

Biographies

Sinai Galeana is a bachelor student of the Innovation and Development Engineering program at the Monterrey Institute of Technology and Higher Education through the Leaders of Tomorrow Award. With a major in Innovation and a minor in Prototyping and Alternative Energies, she began her research work focused on prospective methods and technological development. She presided in the Innovation and Development Engineering Alumni Society, and she has been an active member of diverse engineering student organizations working in the design and manufacturing of disruptive technologies in the industrial sector.

Azael Capetillo is a PhD graduate from the University of Leeds, and a full-time professor at Tec de Monterrey. He has experience as Technology Innovation Leader in the automotive industry in Mexico and product development engineer in the HVAC industry in the UK. His research work focuses on innovation management, product development, and technology-based entrepreneurship, and intrapreneurship. Working on developing new products, incremental design of existing products, disruptive innovation, technology research, development, management, launching new ventures, and discovering new business models. He is the Director of the Innovation GYM at Tec de Monterrey and the National Director of the Innovation and Development Engineering program at Tec de Monterrey.

David Güemes-Castorena is a Full Professor of Strategic Management of Technology and Innovation at Tecnológico de Monterrey, Campus Monterrey. He received his D.Sc. from The George Washington University in 2001. His

research interest involves technological strategy and applied technological foresight. In 2018-2019 he was a visiting scholar at the MIT Sloan School of Management, studying regional innovation systems.