LIVING INNOVATION

From Value Creation to the Greater Good

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From Value Creation to the Greater Good

BY

SANG M. LEE
University of Nebraska-Lincoln, USA

SEONGBAE LIM
St. Mary's University, USA

United Kingdom – North America – Japan
India – Malaysia – China

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INVESTOR IN PEOPLE

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ABOUT THE AUTHORS

Sang M. Lee, PhD, is University Eminent Scholar and Distinguished University Professor Emeritus at the University of Nebraska-Lincoln, USA. His seminal work on multiple objective decision-making, global strategy, innovation, and convergence revolution has been globally recognized. He has published over 50 books and 350 plus journal articles and delivered over 500 speeches in more than 350 universities and professional organizations in 70 countries. He is Fellow of the Academy of Management, Decision Sciences Institute (DSI), and Pan-Pacific Business Association (PPBA). He directed large US government projects in Eastern Europe, Central Asia, and Southeast Asian countries over 15 years. He served as President of DSI and currently serving as President of PPBA. He has received five honorary degrees, the Presidential Medal of the Albanian government, and Distinguished Global Leadership Award from PPBA. He currently serves as Editor in Chief of *Service Business* and *International Journal of Quality Innovation* (both are publications of Springer) and Senior Scientist of the Gallup Organization. He has produced 140 PhDs during his university-teaching career. His most recent book is *Convergenomics* (2010), published by Gower Publishers in the UK.

Seongbae Lim, PhD, is Professor of information systems and Chair of Department of Finance and Quantitative Management at St Mary's University, USA. His prior teaching

experience includes the University of Nebraska and State University of New York. Lim specializes his teaching and research interests in the areas of innovation management, service management, and entrepreneurship. Recent works have appeared in *Service Industries Journal*, *International Entrepreneurship and Management Journal*, and *Service Business*. He has done more than one hundred special lectures and keynote speeches about innovation and convergence management for world-renowned institutes, such as University of California at Berkeley, Peking University, Seoul National University, and The National Assembly of the Republic of Korea. Lim is active in the Association of Information Systems, Decision Science Institute, Korea Academy of Management, and Pan Pacific Business Association. He has also served as an Editorial Board Member for *Service Business*, *Korea Association of Information Systems and Management, and Journal of Convergence Information Technology*. Lim has been selected for Marquis Who's Who in America along with Who's Who in the World since 2005. The *International Herald Tribune* has featured Dr Lim regarding his role in building the relationship between US and Korean universities. In addition, as a columnist, Lim contributes regularly about spiritual capital to *Guideposts*. Dr Lim has been a visiting research fellow of Asian Community Research Center at Jeju National University, Korea. He also has been a St Mary's representative to the United Nations. Lim got his PhD from University of Nebraska at Lincoln.

PRELUDE

P.1 HUMAN HISTORY AND INNOVATION

The human history can be summarized as a continuous struggle for innovation and value creation. In the hunting and gathering economy, humans worked day and night to search for food, adequate shelter, and clothing. They had limited choices and often had to do with whatever they could find. However, with accumulated experience and knowledge of the environment, humans began to innovate to make better weapons, tools, and collaborate with others for creating value. Soon people began to learn how to cultivate crops and store the harvest, and also domesticate animals, to have a more comfortable living with a steady supply of food throughout the seasons. Thus, the agricultural economy was born.

With the advanced knowledge for toolmaking and producing goods and services, technological development ensued. With the arrival of Industrial Revolution, organizations were formed to systemize the blending of machines and manpower. In the nineteenth and twentieth centuries, a massive industrialization took place for mass production of goods in factories. The continuous innovation efforts for more effective and efficient production, supply chain, and services lead to the consumer-centric age, supported by technological advances for data processing and automation. The information

revolution led to the full-blown Internet-based Industry 4.0 and digital economy where computers are used not only for designing smart factories but also for knowledge creation and sharing for improved quality of life. Several megatrends also occurred simultaneously, notably globalization, changing industry mix, changing demographics, the exploding emerging economies, and the increased concern for the environment.

Today, we live in the convergence economy, where innovative value creation has become possible through convergence of heterogeneous technologies, ideas, and concepts. With the advent of advanced information and communication technologies (ICT), a new world is being created. Now, computing is ubiquitous with wearables (watches, glasses, patches, clothing, etc.), artificial intelligence (AI) (machine learning and deep learning), a massive number of sensors for data generation and autonomous control, smart analytics to create knowledge from big data, smart robots that can reason and also share knowledge with humans, other robots and devices, etc. The Internet technology has enabled Internet of Things (IoT), Internet of Everything (IoE), and even Internet of Brains (IoB) that can help create new knowledge networks for communication, decision-making, and value creation. 3-D-driven innovations are exploding in such areas as medical imaging, new scientific discoveries, and virtual world. The age of big data has brought various technological advances for adaptive, pervasive, and invisible analytics for trend tracking, risk analysis, and decision support. The cloud computing technology has opened new possibilities for value creation through Software as a Service, Platform as a Service, and Infrastructure as a Service. Blockchain, referred to the Internet of value, is incurring disruptive innovation in all aspects of business through creative applications of peer to peer (P2P) technology.

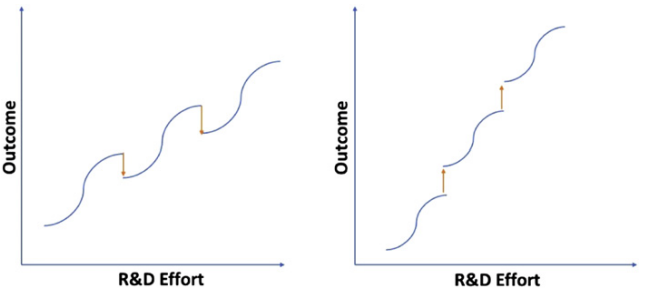
The convergence economy (convergenomics) has transformed many possibilities into realities. Convergence of components/products/services, organizational functions, technologies, industries, and biological and artificial systems has generated revolutionary new products and services. Some of the best examples of convergenomics would be medical tourism, co-innovation organizations (Nike, Apple, Samsung Electronics, etc.), collective intelligence (NineSigma, crowdsourcing), sharing economy (Uber, Airbnb, 99dresses), Da Vinci surgical robot, edutainment, massive open online courses, PillCam (for endoscopy), Ray (a digital cane for the blind), the brain-wave controlled wheel chair, and the like.

P.2 NEW MARKET FORCES

Today, every business organization is a global firm. It does not matter whether a firm is a global giant or a family-owned small business, it will be influenced by global market forces in securing financing, purchasing materials, producing or assembling components, distributing the finishes goods/services, or finding customers. In the convergenomics age, the following are important new market forces that affect the innovation efforts of every organization.

(**1**) *Commoditization of management innovations*: Many organizations have adopted innovative systems to bolster their competitiveness such as the just-in-time (JIT) system, total quality management (TQM), business process reengineering (BPR), Six Sigma, lean approach, and enterprise resource planning (ERP). However, most organizations already have implemented many of these systems. Thus, these innovations have become

Figure P.1. Innovation S-curve: Past (Left) and Future (Right).



commodities that no longer produce competitive advantage for the organization.

(2) *Ever-shortening product life cycle*: Because of the accelerating technological advances and fierce global completion, the product life cycle is getting shorter all the time. We have seen a series of new smartphones come to the market with the advances in mobile technologies, from code division multiple access (CDMA) to 2G, 3G, 4G, and now 5G (Long Term Evolution–Advanced). The same is true about electronic goods, new drugs, and even light bulbs (LED light bulbs). That means that firms must continuously reinvent innovation S-curves to stay ahead of competition, but new S-curves start from above the peak of the previous one (see Figure P.1).

(3) *Business gravitation to low-cost regions of the world*: Thomas Friedman proclaimed that the world is flat. Although it has become much flatter than before but is far from being completely flat. That is why it is important to continuously evaluate the global supply chain and find new opportunities and sources to create

value more effectively. The outsourcing rush to China has slowed considerably as China's wage inflation rate has reached 10%–15% per year. Many firms have moved to Vietnam, Indonesia, or Cambodia as a new outsourcing destination, and some firms have reshored (coming back to the USA) their operations from overseas.

(**4**) *New global firms in the emerging economies*: There have been many businesses in emerging economies that were outsourcing firms to global corporations in advanced economies. They have since matured as formidable global firms themselves through their work experience with world-class enterprises. Today, we are quite familiar with such leading global firms as Samsung, LG, and Hyundai of South Korea; Huawei, Baidu, Lenovo, and Alibaba of China; Infosys and Tata of India; and HTC and Foxconn of Taiwan.

(**5**) *Competitive advantage and value innovation*: In the past, firms emphasized product-focused innovation to secure competitive advantage. However, such innovation is no longer sufficient in the age of service-dominant logic. Today, firms must develop service-focused innovation to develop an ecosystem for the product. Apple's iPhone has its competitiveness not because of its technological superiority over other smartphones but its ecosystem including services and numerous apps.

(**6**) *New customer value*: The traditional customer value included utilitarian attributes of the product, such as "fit to use," reliability, price, quality, and the like. Then, the global competition forced firms to include more advanced values as speed and customization. Today, customers want more than such traditional values. They want opportunities to experience, learn, participate in

cocreation, and other hedonic characteristics such as the sense of safety, aesthetics, and excitement. Thus, to be competitive in the global market, firms must provide these new values to the customer.

(7) *The groundswell effect*: People used to rely on governments and corporations to get what they need (information, products, services, etc.). However, today people often rely on other people as producers of what they want and need. The social network system (SNS) is providing user-generated contents, user reviews, and first-hand experiences about almost everything. Thus, the sharing economy through SNS has become an important source of customer value.

(8) *The new economic model*: The old economic model is where many producers work to satisfy the needs of many customers. At the peak of its operation in 1988, Kodak had a total of 145,000 employees serving millions of people around the world with their photographic needs. In 2012, Kodak filed Chapter 11 and declared bankruptcy. In 2013, Instagram was serving 400 million customers with only 13 employees. The new economic model is to provide extraordinary value to a very large number of customers with a very few employees, using convergenomics. Such economic model is possible in the digital age where "access" is more important than actual "ownership" of production factors and "agility" is more critical than "scale."

P.3 THE BRAVE NEW WORLD OF LIVING INNOVATION

Today, the advanced ICT and Internet technologies provide dynamic capabilities to create value for individuals, organizations, governments, and nations. There are context-rich systems that can provide situational and environmental information on people, places, things, and organizations. Also, software-defined apps and infrastructures are available on demand that are not restricted by hardware or available networks. Smart learning machines, including robots, based on AI-supported Deep Learning and Deep Mind can help create new or additional value. The innovation ecosystem has become organic as the heart of the organization. This is the age of living innovation. Living innovation is effective in sensing what is needed in the market and then creating value on demand. However, living innovation should have a nobler and more aspirational purpose, "doing well by doing good" so that a smart future can be created where people are happy, organizations thrive, and the environment flourishes.