Chapter 1
Disruptive Technologies, Innovation and Global Redesign

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ABSTRACT

Innovations from disruptive technologies drive new opportunities through provision of higher-valued products and services. They create new markets and reshape established ones, enabling changes across industries, and consequently impact the competitive landscape through formation of new business models. Disruptive innovations have recently been applied to a wide variety of sectors such as consumer electronics, micro-lending, mobile banking, portable water filters, and cell phones, which continue to capture market share in the global telecommunication industry. Data shows that innovation correlates with better quality of life when it diffuses into societies and economies. The rich nations see it as a way to stave off poverty while the poor ones are depending on it to accelerate economic growth. Indeed, it is the gun-powder of the knowledge world, at firm, nation, and regional levels. This chapter explains how it grasps the demand of a non-mainstream market, survey the unknown market, and over time, lead the whole market, resulting in cultural, social, and economic changes. A closer examination of the five habits, usually associated with the purveyors of innovation, using the gaming industry, the fastest-growing mass media and entertainment industry, is provided.

INTRODUCTION

The Schumpeterian definition (Schumpeter 1934) of innovation states that the commercialization of all new combinations is based upon the application of any of the following: new materials and components, the introduction of new processes, the opening of new markets and the introduction of new organisational forms. Luecke and Katz (2003) worded innovation as the embodiment, combination, or synthesis of knowledge in original, relevant, valued new products, processes, or services. Innovation generally refers to the creation

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of better or more effective products, processes, technologies, or ideas that are accepted by markets, governments, and society.

In this decade, product life cycles are being shortened due to the advancement of precision engineering and small-scale technologies such as nanotechnology innovation (Islam, 2008; Islam, 2010). Consequently business landscape has changed rapidly with the pace of competition offered by emerging innovations either in products, services or in business models. Innovations are being regarded as the core and critical for the survival of any enterprises as the challenge stances at companies who develop products and at the markets for which the products are destined. On the other hands, today's society is taking a more active role in determining which product or service is acceptable and which is unacceptable depending on their needs and expectations. Innovation as a result is based not only on the challenges and needs but also on the social and cultural conditions predominant in the prospective market. Therefore, the market determines the value of an innovation as the market more and more recognises social and cultural factors along with product or service quality, price and function. An example of such innovation is offered by disruptive technologies (Christensen 1997).

The pioneering work of Clayton Christensen, particularly his book '*The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail'* have greatly influenced the people's understanding of new technological change, disruptive technologies and their products, and business models. Disruptive technologies may not be initially valued by existing customers as they generate products with different performance attributes and thus require users to significantly change their adoption behaviours to use the innovation.

As explained by Christensen (1997), disruptive technologies are more simple and economical than available technologies and also more reliable and convenient from the technical perspective. Disruptive innovation (DI) mostly uses new science and technologies in renovating consumer usage and buying pattern, and letting the consumer feel that the innovation is bringing real benefits (Cumming, 1998). DI also enables the creation of new markets (Sandberg, 2002), changes and migrates activities in the supply chain field, thereby impacting leader positions in established markets (Kenagy and Christensen, 2002). Therefore, innovations offered by disruptive technologies drive different product values into the market. In the 21st century, ICT is being considered a major cause for various existing industries, as, e.g., analogue photography, typewriters, VHS-cassettes and so on. These products have become obsolete as ICT has facilitated the creation of new industries.

In brief, disruptive innovation enables technical capability to become more convenient for customers and promotes maximal consumer benefit by breaking through existing and limited production techniques and procedures, commonly deployed by incumbents in a sector or an industry. Therefore, it extends the market boundary or creates new market causing changes in the industry and consequently impact the establishment by forming the foundation of a new competitive model. The key challenge is – can disruptive innovation grasp the demand of a non-mainstream market, and survey the unknown market and win over the consumer's support in the potential emerging markets toward a successful global redesign necessitated by the diffusion of innovation.

THE PROCESS OF DISRUPTIVE INNOVATIONS

Christensen's framework of disruptive technologies and innovation (Christensen, 1997; Christensen, 2006) has raised the attention of academic scholars and business practitioners alike. Christensen suggests a broad definition of the concept of disruptive innovation. According to his DI theory, innovation refers to all changes of processes by which an organization transforms labor, capital,