Chapter 7
Adopter Fatigue Phenomenon in Diffusion of Innovations

Augustine O. Ejiogu
Imo State University, Nigeria

ABSTRACT

This chapter examines the adopter fatigue phenomenon in the diffusion of nanotechnology and microelectronics innovations. It is hypothesized that innovations spread through a social system in an s-curve and that the speed of technology adoption is determined by two variables p and q where p represents the speed at which adoption takes off and q the speed at which later growth occurs. However, this two-variable model has been criticized as an over-simplification of a complex reality hence the need to examine adopter fatigue phenomenon defined as the hesitation, delay, or refusal by an individual to adopt an innovation on account of prevailing circumstances including the rapid evolution of new technologies. This phenomenon is particularly relevant to nanotechnology and microelectronics products and processes which are characteristically continuously refined and upgraded. Because the phenomenon is a symptom of poverty, it is recommended that overcoming adopter fatigue be achieved through multidisciplinary approach including empowering individuals by subsidizing the cost of adoption, and developing ancillary infrastructure such as electricity. Both governments and non-governmental organizations, in the spirit of public-private-partnership, should act in synergy in solving the poverty-linked problem of adopter fatigue.

INTRODUCTION

Any society can be construed as consisting of organized system in which individuals and all artifacts are complementary parts connected in a myriad of ways (Hagerstrand, 1972). If in a subregion of the system, a hitherto unknown concept is brought in, for example, a new technology, this forms a disturbance. Under certain conditions, this disturbance can be spread to the conterminous regions and be propagated. In the course of time, the entire social system will become permeated and to some extent be transformed.

DOI: 10.4018/978-1-61692-006-7.ch007

A permeation of this nature, whether total or partial, is central to the socio-economic development of nations. The attendant new technologies play catalytic role in the development process. Nanotechnology and microelectronics technologies which engender new technologies are also a player in the development process. Nanotechnology generally involves developing materials or devices or structures of sizes equal to or less than the size 100 nanometers. Nanotechnology can create many new materials and devices in electronics and energy production. Some of the products of nanotechnology include, but not limited to electronics and computers, health and fitness items, food and beverage goods for children and home and gardening products. A subfield of electronics, microelectronics is the study and manufacture of electronic components which are very small (Economic Expert, 2009). Nanotechnology and microelectronics processes and products have wide-ranging applications in information and communication technologies. Hence they aid in economic growth and development.

In spite of the pervasive impact of these innovations on daily lives and businesses, the technologies have not yet diffused globally (Ekekwe, 2009). In most instances, innovations spread through a social system in an S-curve. This is brought about by early adopters selecting the technology first followed by the majority, until the technology or innovation is well diffused in the society or system (see Figure 1). It is further theorized that the speed of technology adoption is determined by two variables *p*, which is the speed at which adoption takes off, and *q*, the speed at which later growth occurs. A cheaper technology might have a higher *p*, for example, taking off more quickly, while a technology that has network effects (like a fax machine, where the value of the item increases as others get it) may have a higher *q* (MSU, 2009*)*. The S-curve (see Table 1) is a robust yet flexible framework to analyze the introduction, growth and maturation of innovations and to understand the technological cycles (Scocco, 2006).

However, this model has been criticized as being an over-simplification of a complex reality. Hence, there is the need to critically examine the adopter fatigue phenomenon in the adoption process. Many developing nations, being adopters, are in most cases associated with this fatigue. Adopter fatigue may be defined as the lack of motivation on the part of an adopter to acquire

Figure 1. S-Curve (Source: BCT Partners, 2009)