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Review Article

The Proliferation of a New Market Disruptive Innovation: Personal 3D Printers

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Abstract

The new technology uses various materials and innovations where some of the relevant employ plastic filament extruded through a nozzle. In other words, 3D printing technology is linked to the third industrial revolution plus a technology that have the potential and ability of changing the world in a better angle. Disruption is an ideal example that continues to be a tremendous source of various growth concepts in the economic setting. The theory of disruptive innovations is with no doubt the most and used innovation theory that is influential.

Keywords: *Disruptive, Technology, Innovation, 3D Printers, New Market, Proliferation*

1. Introduction

Additive manufacturing or the 3D printing is an innovation technology that gains more media visibility for the last few years. It's a technology that refers to a situation where element built and designed in respect to three-dimensional computer designs. The new technology uses various materials and innovations where some of the relevant employ plastic filament extruded through a nozzle. In other words, 3D printing technology is linked to the third industrial revolution plus a technology that have the potential and ability of changing the world in a better angle. Research indicates that the theory of disruptive innovations used in explaining competitive changes in a wide array of fields in the current technology operations. These explanations are part of the modest; hence the 3D printing's develops to the limelight where it focuses on the hype or bubble (Espalin & Wicker, 2013).

2. Literature Review & Discussion

Theory of disruptive innovations applies towards explaining the concept of competitive changes that comes in a wide array of industries. In simple terms, it refers to the concept or phenomenon in that an entrant company may displace an incumbent that seemingly develops inferior product. Based on a study developed by Schmidt & Druehl (2008) there exist few terms in the literature on innovation management that widely applied as the phrase disruptive innovation. It's a theory that has gained significant prominence and on top it has a phenomenon that seeks to explain the major implications for any given economy and industry operation elements. Disruption is an ideal example that continues to be a tremendous source of various growth concepts in the economic setting. The theory of disruptive innovations is with no doubt the most and used innovation theory that is influential. Research shows that the disruptiveness is expressed relative to the key business model of the firm and its rivals, hence developing relativeness in the concept of disruptive innovation (Tellis, 2013).

Basing an argument on the above concept, it's essential to examine deeper into 3D printing technology that helps discover the ideal setting of disruptive and its potential. The technology within 3D is not new, but various developments have established for the purpose of creating a new picture on this technology. In 1987, 3DSystems, Inc. established the first 3D printers. These machines were sold to research and development based firms that needed high-quality objects plus they are in a position to afford the premium price (Euchner, 2011). Unlike other technology situations, it's something that has evolved from the expensive systems to better and more affordable printers, to the current state of the ultra-low priced personal 3D printers. Since the development of the first 3D printer system, technology within these printers has developed the low end of the industrial printer setting.

2.1 Disruptive Innovation Characteristics

In respect to the theory of disruptive innovations that talk about disruptive technology, it develops the work of Clayton Christensen. He is a professional who

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operated and popularized the concept, enabling its rise and defining certain amount of academic discussion on that setting. It articulated the ideology of disruptive technology and further established different concepts that help innovators in respect to the said technology. Most relevant plus profitable innovations sustain that innovations in the current technology growth allows realizing and achieving various economic needs of a society (Gershenfeld, 2012). It's believed that disruptive innovations, do not attempt to develop products so as to establish clients, in the markets. They do redefine and disrupt the trajectory through the introduction of services and products that don't resemble the current products. Research has it that disruptive technologies comprises no new technologies, instead it works with components developed around certain technologies. They are put in a novel like manner so as to offer the best services to the end users (Sood &Tellis, 2011).

Incumbent technologies that get displaced from the target market by technologies helps to reactivate underperformed elements. These are the relevant concepts to the mainstream consumers who do shifts purchases of the products based in the invading technology. The product offer inferior results based on the expected key performance dimensions plus the incumbent firms reacts on the disruptive technologies (Yu & Hang, 2009).

2.2 Innovation Related Categories

Mechanisms and concepts that relate to the theory of innovation from the earlier setting have stretched characteristics. Most kind of disruptive innovations that related to personal 3D printers helps to explain the technology growth and its development. Various technologies advancement contains effects as well as produces various results to the end users. It is considered as the breaking the phenomenon down to the finer claims that assists in proper explanation of the technology growth. It is essential to know that few business platforms are intrinsically disruptive or sustaining in character. With no doubts, they are the extremes in a continuum as well as innovations described relative to firms, other related technologies and to the end users who are customers (Yin, 2009).

2.3 3D Model Explained

The ideal manner of illustrating the process of disruption is through comparing the performance development trajectories of an incumbent technology and that of the entrant or disruptive. In a study developed by Euchner (2011), it is assumed the performance of the two concepts in explaining the ascending solids elements. Trajectory that is on the left shows the incumbent offering and the one that is on the other side indicate the entrant offering. Any market comprises of various groups of clients, who have the potential to be classified by ways that are more demanding. During the high end of 3D printers market tends to demand clients who engage in different tough situation to solve (Anderson, 2012). On contrary, when the low end of the market occurs, there are less demanding customers who do have less complex needs projected to satisfy. It is relevant to note that the disruption do happen with the introduction of a disruptive innovation. In that a situation, personal 3D printer's performance intersects with tee trajectory of the core mainstream of the market, where the actual disruption happens, and it's marked by a little star. Innovators in the printer's technology move up the market on their own (Tellis, 2013).

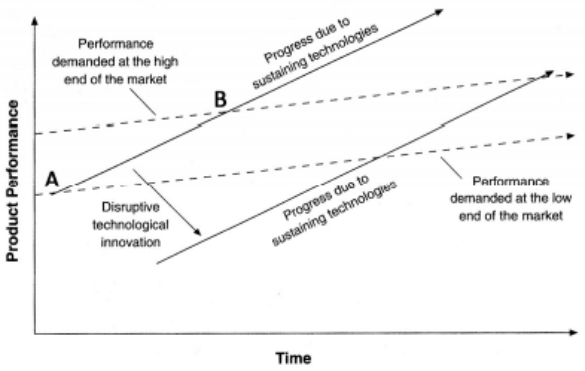

Fig.1 Sustaining and Disruptive Technological Change

Note: 3D printer selection: A decision-making evaluation and ranking model. Virtual and Physical Prototyping. Espalin, D. & Wicker, R.B, 2013. vol. 8, no. 3, pp. 201- 212

2.4 New Market Process

The new technology in personal 3D printers offers a suitable disruptive innovation model that represents new context of consumption and new clients. It constitutes new customers who in the past lacked the skills and money to purchase or get a personal 3D printers. New technology with the market process gives various situations where the personal 3D printers might be used, hence enabling by improvements in simplicity and portability cost of the product. Research shows that the target of disruptive innovation is on non-consuming clients, who in clear terms are not incumbents and do not get any unusual setting based on the product (Euchner, 2011). In clear terms, new market disruptive innovations on personal 3D printers happens during a situation where the existing products limit the level of potential consumption that takes place in centralized, inconvenient settings. With no doubts, the attribute of product performance based on the new personal printer context of consumption is different compared with the valued in the original value network. New technology offers customers various value concepts at varying distances from the original one compared to the new dimension. It is essential to view on the new market disruptive innovations of personal 3D printers for a better platform (Eriksson & Kovalainen, 2008).

2.5 Printers Diffusion Patterns

While examining the categorization of innovations within printers' new technology, experts have gone a bit further where various studies on the actual process established. They have discovered various patterns of forms or diffusion encroachment for the new personal 3D printers. It is argued that the new market disruptions might either follow either a pattern if fringe market low-end encroachment or use the detached market system. To sustain innovations in the current technology world requires innovators to follow a pattern that has a high-end encroachment system (Euchner, 2011).

2.6 Critics of Disruptive Innovation Concept

The original theory that helps defines disruptive innovation attracts critics because it doesn't offer a significant or accurate explanation on disruptive innovation. Scholars' claims that different management research offers more challenges, doubts, and critiques that relate to the theory of disruptive technology. It is not established in a better way the ideal criteria needed to determine whether a certain technology do consider a disruptive technology plus calling for the ideal essentials in the development of personal 3D printers. At initial stage, a disruptive innovation on printers might not be disruptive due to the contribution of the surrounding aspects (Sood & Tellis, 2011).

Conclusions

Personal 3D printer's technology changes the potentiality of customer perception on disruptive innovations. Disruption is an ideal example that continues to be a tremendous source of various growth concepts in the economic setting. The theory of disruptive innovations is with no doubt the most and used innovation theory that is influential. Any market comprises of various groups of clients, who have the potential to be classified by ways that are more demanding. During the high end of 3D printers, market tends to demand clients who engage in different tough situation to solve.

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