Title: Phoseon Technology Competitive Advantage Strategy: First-Mover Advantage (FMA) Theory

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Instructor: **Dr. Charles Webber**
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Author: **Pengsee Her**

Abstract:

Product design innovation begins with an idea and ends with the successful launch of a new product. By definition, First-Mover Advantage (FMA) is an individual or company who first makes advances into a new market [1]. First-mover advantage was initially talked as critical to the Internet economy, although now there is a growing criticism against it. First-mover advantage can be influential in building market share, but this may or may not translate into business success. Typically, first-movers have an advantage because they do not have to share profits until another competitor enters the market. Among other things, being first typically enables a company to establish strong brand recognition and customer loyalty before other entrants to the market arise. There are several reasons why these benefits may develop, but research has shown that being the first-mover does not always provide advantages. However, there are first-mover disadvantages too, where companies that enter a market later can achieve greater results to those achieved by the first-mover organization [2]. This paper will focus on the advantages and disadvantages of FMA and conclude by utilizing Porter's Five Forces Model to measure, if the FMA theory has enabled Phoseon Technology with competitive advantage over its competitors.

Introduction:

In business and engineering, new product development (NPD) covers the complete process of bringing a new product to market. The use of best practices and the elimination of barriers to communication are the main concerns for the management of the NPD process [3]**.** New Product Development (NPD) has been shown to be an issue within many organizations. Every organization's has their own NPD process implementation that fits within their business structure. With technology rapidly evolving and competition becoming more demanding for improved quality and reliability, it stresses the requirements of value and affordability. This paper will focus on the advantages and disadvantages of FMA and conclude by utilizing Porter's Five Forces Model to measure, if the FMA theory has enabled Phoseon Technology with competitive advantage over its competitors. The earlier adopters will always be the visionaries who are ahead of the technology through innovation. Being able to respond to the needs of the market and innovating an end product that will add value to customers, which is beneficial for the success of the manufacture providers. Diversifying the push and pull sales method takes time, however once the brand have been successfully established within the industry, it will be rewarded with customer loyalty.

In marketing strategy, being the first company to sell a new product may provide long-lasting benefits or competitive advantages. Most researchers use the term, "first-mover" to refer to the first company to enter a market, not the first company to develop a product. First-movers are also called market pioneers. The benefits of pioneering may result in market dominance and higher than average profitability over time [2].

Typically, first-movers have an advantage because they do not have to share profits until another competitor enters the market. Among other things, being first typically enables a company to establish strong brand recognition and customer loyalty before other entrants to the market arise. There are several reasons why these benefits may develop, but research has shown that being the first-mover does not always provide advantages but the opposite disadvantages, as discussed below.

First-Movers Advantages:

First-movers in a market will always be followed by competitors that attempt to imitate the first-mover's success and gain a share of the market for themselves [2]. The first mover advantage is not usually a single advantage but rather a set of advantages that a company obtains by being first to develop and market a product. However, it is often the case that the first-mover has established sufficient market share, customer loyalty and other advantages to allow it to maintain the majority share of the market [2].

Being first enables a company to obtain a number of prime advantages that strengthen its position in the marketplace. A first-mover often has the opportunity to lock in relationships with suppliers, leaving few necessary resources for potential rivals [2]. It is important to know that, first-mover advantage refers to the first significant company to move into a market, not merely the first company [2]. For example, Amazon.com may not have been the first seller of books online, but Amazon.com was the first significant company to make an entrance into the online book market [2].

First-Movers Disadvantages:

As we know, sometimes there are first-mover disadvantages too. Such as, allowing late-movers the chance to compete more effectively and efficiently against early entrants. The first-mover in an industry has a longer learning curve that frequently enables it to establish more cost-efficient means of producing or delivering a product [4]. Also, the first mover has large start-up costs that sacrifices its profit margins and exceed revenues projectors [4].

Phoseon Technology Background:

Started in 2002, Phoseon is a privately held Light Emitting-Diodes (LEDs) technology company located in Hillsboro, Oregon. With over 250 patents and trademarks, Phoseon Technology pioneered the use of LEDs for Ultra-Violet (UV) curing applications using the polymerization process to dry inks, coatings, adhesives and other UV sensitive materials [5]. They have developed a UV LED energy source that provides maximum UV energy for superior performance, and long-term reliability while also improving workplace safety through the elimination of harmful substances such as ozone and mercury [5].

These UV LED light sources are ideal for industrial and commercial vendors that want to provide their customers with equipment that performs faster, safer, cleaner, and longer-lasting. They believe its LEDs technology can be extended in many forms to allow entirely new applications, increase productivity, improve workplace safety and minimize adverse environmental impacts in comparison to incumbent technologies [5]. As a proven market leader, Phoseon has completed a large number of successful UV curing systems in printing, coatings and adhesive markets. They have led to the advancement of LED based curing systems with a wide product

portfolio serving OEM and end-user markets worldwide. Utilizing its patented technology and expertise in optics and thermal management, Phoseon has earned a worldwide reputation for innovation, quality and reliability [5].

Phoseon Technology Organization Structure:

Phoseon Technology follows the functional organization structure. They grouped people as per their area of specialization. These people are supervised by a functional manager with expertise in the same field. This expertise helps effectively to utilize the skills of employees, which ultimately helps them in achieving the organization's business objectives. The communication flows through the department heads to the top management for executive decision making.

With Phoseon Technology being a smaller company, decision are made quickly and implemented quickly. This is one of Phoseon Technology biggest advantage. This enables them to utilize FMA to its full advantage because of its market leader mentality. Being market leaders, they use their technology expertise to stay ahead of the market and always innovate to be competitive. Also, following the five stages of technology cycle innovation model as shown in Figure 1 below, enables Phoseon Technology a framework structure to be innovative and launching successful products into the market.

Figure 1: Technology Cycle Innovation Process [13]

Why Porter's five forces model?

I chose Porter's five forces to examined Phoseon Technology competitiveness of the market deriving its attractiveness within the industry**.** The Porter's five forces model looks at five specific factors that help determine whether or not the business can be profitable, based on other businesses in the industry. As shown in Figure 2 below, is The Phoseon Technology Porter's Model Analysis [6]. This will be an in-depth examination of how Phoseon Technology fits into the LED UV Curing market.

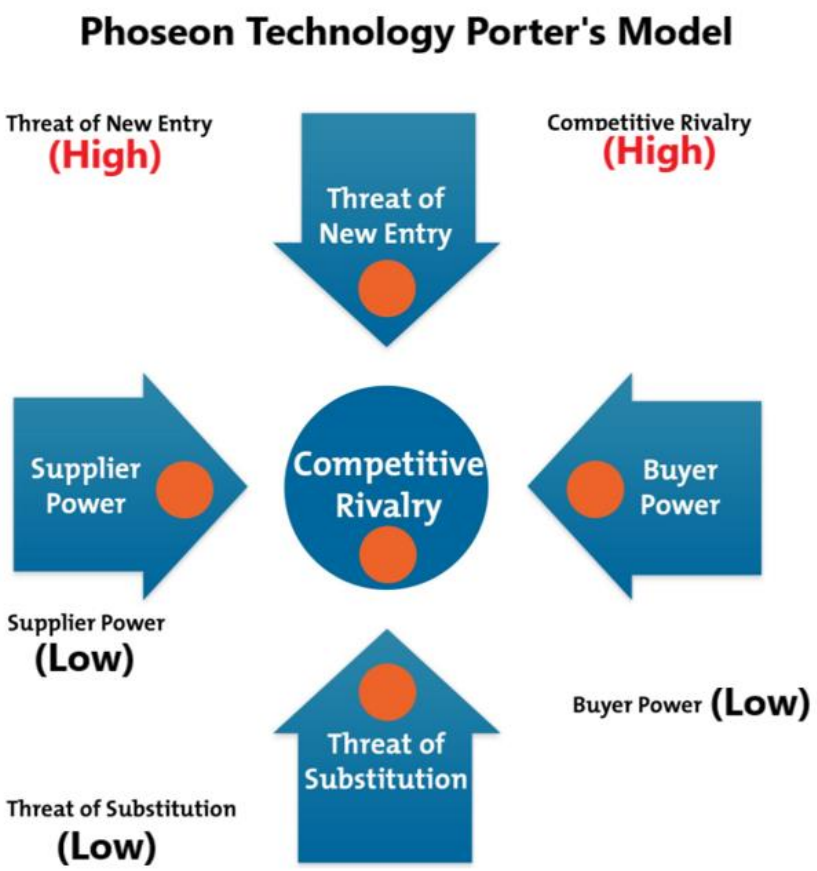

Figure 2: Phoseon Technology Porter's Model Analysis [6]

1. ***Threat of New Entry (High):***

- Entry barriers are relatively high for the LED UV Curing printing industry. As LED UV becomes standardize within the printing industry there is a high consumer switching cost. There is an increasing amount of new brands appearing in the market with lower prices than Phoseon Technology products.
- Phoseon Technology is seen not only as a LED UV application but also as a brand. It has held a very significant market share for a long time and loyal customers are not very likely to try a new brand.

2. ***Buyer Power (Low):***

    - The individual buyer has no pressure on Phoseon Technology
    - World-wide retailers, have bargaining power because of the end consumer brand loyalty.

3. ***Threat of Substitution (Low):***

    - There are many kinds of LED UV Curing products in the market. Phoseon Technology doesn't really have an entirely unique solution. However, Phoseon Technology try to accommodate for every customer manufacture process integration.

4. ***Supplier Power (Low):***

    - Phoseon Technology has established close relationships with supplies over the years and has standardize its core competence LEDs matrix.

5. ***Competitive Rivalry (High):***

    - Currently, there are many competitor, which also has a wide range of products under its brand. Phoseon Technology is aware of its competitors and continually innovates to maintain market leader's dominance in the LED UV curing industries.
    - There are other brands in the market that become popular, like GEW UV, because of their huge influences in the old technology, mercury arc curing. These

other brands have failed to reach the success that Phoseon Technology have enjoyed.

As you can see from the Porter's analysis, Phoseon Technology has a strong presence within the LED UV printing market or industry. Knowing how fast or slow the technology and the market are moving will allow you to understand your odds of succeeding with the resources you possess [3]. They have taken full advantage of FMA to gain brand image, which enabled them to optimize their market share over its competitors.

Literature Review:

What have others said about this subject?

This paper relies on the use of a systematic literature review technique to fully understand how organizations can utilize FMA to gain competitive advantages. The systematic literature review is a logical way to identify and interpret the available practical studies conducted on a research topic of interest [8]. The systematic literature review helps find a robust and sensible answer to a focused research question [9]. One advantage to using the systematic literature review method is gaining information of some important occurrence across a wide range of scenarios and observed methods. Which can provide evidence that will lead to an inclusive and transferable logical process [10]. Listed below are summaries of the few relative articles that investigated FMA, wither it is an advantage or disadvantage and to what extent:

Firstly, a research done by Suarez and Lanzolla in 2005 was based on literatures in regards to first-mover advantage, along with 30 cases of early entry into new product spaces. This led them

to concluded two factors that powerfully influence a first mover's fate [7]. The first fate is, the pace at which the technology of the product in question is evolving and secondly, the pace at which the market for that product is expanding [7].

Secondly, another research done by Corurderoy and Durand in 2002, develops the relationships between the early mover advantage and a firm's market share [11]. They concluded that, the results of this cross-sectional study not only support arguments for the early entry advantage but also bring new insights on the competitive moves following entry [11]. It appears that entry order plays a durable influence on market share. While pioneers seem to obtain higher market shares [11].

Lastly, another research done by Wang, Cavusoglu and Deng in 2013, investigates early move advantage of a special group of online firms. Such as, entrepreneurial e-trailers that operate on third party ecommerce platforms [12]. They argue that e-trailers, even when barrier to entry is low online, can enjoy early mover advantage because of the relatively high switching cost in the uncertain online environment, and the system design features of ecommerce platforms [12]. They concluded, with their data analysis showing strong early mover advantage effects on third party ecommerce platforms. The early mover advantage is not only sustainable, but also gets stronger for e-trailers that grow larger [12].

The literature reviews has outlined advantages and disadvantages to FMA, along with supporting that there is competitive advantages that organizations can benefit from using FMA. However, as we know, there are first-mover disadvantages too.

Conclusion:

Through FMA and Functional Organization infrastructure flexibility has enabled Phoseon Technology to establish strong brand recognition and customer loyalty before other entrants to the market arises. As a technology driven company, being able to respond and understand the needs of the market and innovating an end product that will add value to the customers; which is beneficial for the success of the manufacture providers. Phoseon Technology constantly become more innovative to further improve their technology within and to help maintain its market lead position. Thus all the many advantages of FMA, organizations have to understand and overcome their limitations too. Such as, the disadvantages that will occur with FMA. Being able to understand and respond to those disadvantages will optimize the success rate of utilizing FMA within the organization. By choosing Porter's five forces to measure Phoseon Technology competitiveness of the market deriving its attractiveness within the industry**.** As you can see from the Porter's analysis, Phoseon Technology has a strong presence within the LED UV printing market or industry. They have taken full advantage of FMA to gain brand image, which enabled them to optimize their market share over its competitors.

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