

Significance of Internet of Things (IoT): Preview of Porter's Five Forces Model

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Abstract: Digitization is revolutionizing the rules of business competition with the existing companies being the most at risk in falling behind. The development of products for smart, connected devices, what are embedded in wider systems, is radically reshaping businesses and competition. This paper sorts to establish the significance of Internet of Things in business competition with respect to Porter's five forces model.

Keywords: Digitization, IoT, Competition, Product Design, smart connected product

INTRODUCTION

According to Porter and Millar, Information technology is transforming products [1]. Once they are constituted exclusively of electrical and mechanical components, products have turned into complex structures that merge hardware, software, microprocessors, data storage, sensors, and connectivity in a myriad of ways. The establishment of smart and connected products through immense advancement in processing power and device reduction and by network gains of ubiquitous wireless connectivity have unleashed a new dimension of competition. Smart and connected products give exponentially wide opportunities for new functionality. As [2], it offers far greater reliability, much greater product use, and capabilities that transcend and cut across conventional product boundaries. The dynamic nature of products is also disrupting value chains, forcing businesses to reconsider and retool almost everything they do both internally and externally. The Internet of Things has unleashed an age of competition.

Waves of IT-driven Competition

Porter argues that over the last five decades there have been three waves of information technology-driven competition and development. During the first upsurge, occurring between the sixties and seventies, IT systems allowed the automation of particular activities in the value chain, computer-aided design, and industrial resource organization. The second wave was the emergence of the internet in the eighties and nineties. The second wave came along with the business opportunities. The IoT currently forms the third wave of IT-driven growth and competition. However, unlike the first two waves, IoT impacts not only the value chain but also transforms the products. Under this wave, Information technology constitutes the integral component of the product itself [3].

IoT-drove Competition

Porter believes that the new and improved smart products will offer a new leap in productivity levels. Besides, their production will transform not only already current value actions, such as product design, production, marketing, sales, and customer care, but also form new undertakings like product data analysis and security [4]. As a result, a significant improvement in value-chain based productivity will be achieved. Therefore, IoT will alter the competitive landscape more drastically than the internet did. Porter projects a scenario where the enormous productivity potential will soon result in a new phase of prosperity. [5] Observes that IoT reshapes the competition landscape by reshaping industry structure which can be observed through Porter's five forces model.

Buyers' Bargaining Power

Hirt and Wilmott (2014) point out that founded on the Porter's five forces model, the Internet of Things will change the shape of the product industry. Smart, connected products will lower the buyers' ability to bargain. This is because competition will not be hugely based on price but will be more involved with product differentiation. Understanding how consumers practically use the products improves a business's capacity to segment customers, tailor products, fix prices and extend value-added services. Smart connected products enable businesses to grow close relationships with clients [7]. By accessing historical records and product-usage, the costs for buyers to switch to new suppliers will be raised. Additionally, IoT enables companies to reduce their reliance on distribution or service associated hence achieving more profits. As a result of this power offered by smart connected products, the firm can significantly mitigate buyers' bargaining power.

Rivalry among Competitors

Smart, connected products will cause a reduction in rivalry among competing businesses as many emerging opportunities for value-based services and product differentiation arise. The products enable the company to design products that are more specific to segmented markets. It allows the firm to develop further personalized products for individual customers and enhance differentiation and prize realization. Nonetheless, the raised opportunities up-front costs for development of software and product design. This particularly impacts the high costs of providing and supporting the necessary IT infrastructure by resulting to price pressure as businesses will look to spread their fixed costs over a larger volume of units sold. However, greater expansion of abilities in smart connected products could tempt firms to get into feature and function competition with competitors. This results in giving way too much of the enhanced product performance hence cost escalation and erosion of industry profitability [4].

Threat of New Entrants

In the smart connected world, new entrants face a myriad of new barriers, beginning with high fixed costs of highly-complex product design, embedded technology and numerous layers of new IT infrastructure. Widening product definitions can result in a raise in barriers to entrants. Barriers to entry also go up when active occupants capture key first-mover benefits by gathering and accruing product data and using it to enhance products and services and to redefine after-sale services. Complex product design and skyrocketing costs will form significant new barriers for new entrants into the market. Other contributing obstacles to entry may include heightened switching costs and customer loyalty.

Threat of Substitutes

Unmatched performance, customization, and customer value, smart and connected products will encounter little rivalry from conventional products. This reduces threats to product substitution and enhances industry development and profitability. Nevertheless, in most sectors, smart connected product form new types of substitution threats, which include broader product capabilities that subsume traditional products. New business models facilitated by smart connected products can produce a substitute for a product ownership, reducing general demand for a product [8]. For instance, the product-as-a-service business model allows users to have unlimited access to a product but only pay for the amount of the product they utilize.

Suppliers Bargaining Power

Burkitt (2014) argues that smart, connected products are revolutionizing the customary supplier associations and redistributing bargaining power. Smart, connected products will significantly lessen the bargaining power of traditional suppliers of physical product constituents. Conventional suppliers will offer less value in comparison to the smart and connected constituents and can be commoditized or even substituted by software over time. The significance of traditional suppliers to the entire product cost will often fall, and their bargaining power will decline [4].

CONCLUSION

IT is transforming product designs and business competition. Smart, connected products are offering comparatively broad opportunities for new functionality. IoT is reshaping business industry competition. Porter's five forces, buyer's bargaining power, rivalry among competitors, the threat of new entrants, threats of substitutes, and supplier bargaining power, model offers the distinct ways in which IoT is impacting the industry. Smart connected products are transforming how value is achieved for consumers, how business compete, and the confines of competition itself. The shifts will impact virtually every sector either directly or indirectly. IoT reduces buyer's power since the price is no longer the main subject of the bargain. Smart, connected products shifts competition among rivals to the creation of product differentiation. Threats of new entrants will be raised with the emergence of IoT as new barriers are created. Due to a superior product, personalized and high-value products, the threats of new substitutes is highly mitigated. IoT causes a redistribution of bargaining power and revolution of traditional supplier association. Such a move significantly declines the bargaining power of the suppliers.

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