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## Technology in Retail Market

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**Abstract:** Technology play in retail industry and the business model that utilizes technology advancement to optimize the effectiveness of business operations, business returns and customer experience. Business model that could benefit from beacon technology.

**Keywords:** Business, Beacon technology.

### I. INTRODUCTION

The increased technology advancement in the 21st century has influenced the mode of engaging in business due to its expansion in the avenues that business entities can relate with clientele. The breakthrough technologies have been affected by the diversification of the social media and the initiation of applications that support these provisions [1]. Since the effectiveness of the retail market is significantly influenced by the ability to reach out customers and communicate to them regarding new offers, the initiation of these trends has been inclined towards enhancing outreach. Importantly, there have been numerous technologies including the use of phone applications that operate based on the location of the client. The greatest opportunity in the retail market is the utilization of the technology advancement to optimize the business returns and customer experience. The modern setting creates a facilitative platform in the progress of these technologies since the acquisition of technological devices and internet usage have been increasing at an alarming rate. The combination of these aspects creates an excellent platform for ensuring that the opportunity is optimized. A business model that could benefit from the opportunity is a retail that utilizes the internet as the platform to deliver their goods and services. Notably, this business model would require the establishment of enhanced technology structures that increase the access to crucial information and delivery of goods promptly. Therefore, the utilization of business applications and software including NCR Counterpoint would be essential in optimizing the optimization of the opportunity. Even though the retail market has been characterized by a wide range of possibilities, the enhancement of the technology is the significant opportunity that can be used to optimize the effectiveness of business operations.

### II. THE GREATEST OPPORTUNITY

Ever since the 1990s, the rate of technology advancement has been increasing at an elevated rate with amplified innovation influencing the invention of different devices and concepts that are used in undertaking various processes including communication and storage of data. Therefore, it has led to the continual improvement of these concepts and devices based on different factors including the demand for consumers and research development among the technological companies. The availability of gadgets ranging from laptops and tablets have been enhanced with a majority of them being portable and infused with improved features [2]. Further, the advancement in the technology devices has been based on increased network and internet connectivity. Consequently, it has led to a greater digitization of different processes due. Notably, the increased research and experimentation among tech companies including Apple and Samsung have led to the continual improvement in the efficiency of the gadgets as well as speed. As a result, the existence of such evolving nature of the technology presents businesses entities with opportunities to advance optimize their returns.

The increased advancement of this technology is a major opportunity for the retail market to maximize the returns. Since the modern consumer is more inclined towards relying on these technology devices, the aspect of developing

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business strategies based on these element is would be an opportunity. Although a significant of methodologies have been formulated in the past including online platform, the scope of opportunities is rather broad. The use of smartphones, which is an essential component in effective technology use, has been on the rise with a majority of the Western countries having high rate ownership. The United States has 72% smartphone ownership, which infers that majority of the retail customers are in possession of these devices [3]. The high ownership of the smartphones is an illustration of a consumer base that is well informed and is willing to use technology provisions to increase their access to the market.

Importantly, the use of beacons is a significant opportunity that can be utilized effectively by the retailers to run their stores. This technology relies on micro-location technology as it can render information regarding clothes and other displayed items through the mannequins. The message provided to the customer include the price range for the items as well as the variety of the stores that can be sourced the items. The beacon technology can detect customers within a 50-meter range through the use of Bluetooth sensors, which is ideal for communicating the intended message [4]. It infers that loyal and potential customers with facilitative mediums including phone applications can gain knowledge on the available merchandises. The combination of the two attributes of enhanced proximity detection and provision of product detail is an aspect that could steer the retail market to revolutionize its approach to business. The delivery of product information in such proximity is an element that increases the relevance of the communication as the customer can conveniently use his or her phone to ascertain if it meets their expectations.

Notably, the retail market can optimize on the beacon technology opportunity through the integration of a rating feature and feedback platform for the items displayed. The information can then be assorted through the use of applications and software such as customer relationship management (CRM). The collected information is very critical for the retailer market as the modern business setting has been dynamic and increased comprehension of customer needs and expectations would facilitate in developing enhanced strategies. For instance, increased demand among the customers for a particular brand of the product would be an illustration that product choice diversification is an issue that ought to be addressed. Consequently, it will ensure that the retailers maximize their productivity as they have adequate technological mediums that provide essential data regarding the potential customers. With the availability of this information, the retailers can match the product specifications based on the client needs.

The issue of employee and customer relation is a subject that influences the productivity of the retail market. The relationship that exists between these two entities is one of the primary drivers of useful improvement of business operations [5]. Importantly, the beacon technology concept increases the ability of managers to track the different methodologies employed by workers to tackle consumer concerns. The aspect is facilitated by the existence of a time tracking since the initiation of a complaint from a customer. Based on the time used regarding the resolving of the issue, the relevant personnel can discern if the issue was resolved based on the required parameters. Therefore, retail store managers will be capacitated to initiate and enact facilitative regulations within the enterprises, which is paramount in maintaining a satisfied customer base. The employee can be empowered with adequate knowledge regarding the means of handling different, unanticipated situations as means of ensuring that employee satisfaction is optimized. Consequently, the beacon technology concept would present the retail businesses management with the required opportunity to make sure that the employee capability is matched with the different dynamics defining the consumers.

Significantly, the beacon technology is an important platform for communicating with consumers regarding different issues including discounts. The incorporation of discount approach is inclined towards increasing product acceptability and marketing. The ability of a retail store or business to deliver this information promptly is an element that increases the purchasing power among the customers. The beacon technology provides a real-time update on the different price ranges for the different products, which is critical in ensuring that the customers are given with the current prices. Consequently, it aids in increasing purchasing efficiency among the consumers, which is essential in facilitating the continual growth of the retail market.

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Furthermore, the beacon technology has one of the relevant provisions of allowing users or rather the consumers to make payments for the products they have purchased. The high reliance on online banking among the consumer base is an indication that they prioritize convenient and safe payment mechanisms [6]. The incorporation of the beacon capability to support the online payments would be beneficial for the retailers as they will be able to target more consumers who desire to adopt different payment mechanisms. The attribute of receiving payments of online money transfer is also beneficial for the retailer enterprises as they can keep track of their financial operations as the availability of data is increased. The sales information is critical in developing other business strategies including marketing and product diversification. As a result, the retailers can enhance their operations efficiently. In this case, technology would be utilized as a medium to increase the ability of the retail enterprises to organize and sort critical information for increased productivity.

### III. TEXT INPAINTING

Exemplar based inpainting technique is used for inpainting of text regions, which takes structure synthesis and texture synthesis together. The inpainting is done in such a manner, that it fills the damaged region or holes in an image, with surrounding colour and texture. The algorithm is based on patch based filling procedure. First find target region using mask image and then find boundary of target region. For all the boundary points it defined patch and find the priority of these patches. It starts filling the target region from the highest priority patch by finding the best match patch. This procedure is repeated until entire target region is inpainted.

The algorithm automatically generates mask image without user interaction that contains only text regions to be inpainted.

### IV. BUSINESS MODEL THAT COULD USE BEACON TECHNOLOGY

The retail industry utilizing digital platforms to undertake business operations is a business model that could benefit from beacon technology. The modern retail market has been characterized by increased rate of process digitization, which infers that internet connectivity is a primary influence on its success [7]. Since the beacon technology is anchored on similar parameters of technology, the retail enterprises operating through the use of technology would optimize their operations. The fundamental technological requirements for the beacon technology including internet connectivity are aspects that are popular with the retailers operating digitally. Therefore, the infusion of the beacon technology would present a transformative opportunity to the retail enterprises to maximize on their business operations.

In order to make a scalable play in the market, the company would require the incorporation of several facilitative processes, software, and applications. Even though the beacon technology is influenced by a wide range of factors, its efficiency is affected by the effective incorporation and use of GPS tracker provisions [8]. The relevance of the GPS is to ensure that the 50-meter proximity requirement is actualized effectively. Therefore, the retailers ought to make sure that their stores are equipped with these provisions to certify that their operations are expertly coordinated to maximize on the consumer outreach initiatives. The efficient operation of the GPS would ensure that the communication is rendered based on correct positions, which is the main primary objective of the beacon technology.

Further, the incorporation of different applications and software is an aspect that retailers ought to consider as they influence the organization and storage of various business data. The availability of these software and applications act as mediums whereby the management can assess the progress of different initiatives within the scope of the firm. Customer Relationship Management (CRM) software is one of the major systems that retailers ought to use in their endeavor to maximize the effectiveness of the beacon technology. The CRM is composed of different business structural components that are inclined towards recording the various data trends concerning the customers [9]. The primary objective of having this software is to sort the information relating to the client based on different provisions

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characterized by the clients or even the business entity. Therefore, since beacon technology creates an appropriate platform to collect a broad range of data concerning the consumers, the CRM would influence the organization of such critical information. Further, the combination of these two approaches would facilitate the digitization process due to the existence of internet connectivity. Consequently, it would enable the retailers to have increased access to relevant information on the aspects and trends defining the consumer base. Therefore, it ensures that the different operations including marketing initiatives are adequately aligned to these new provisions. Thus, the retailer will have the necessary capability to advance the productivity patterns of the organization.

Since the beacon technological concept adopts a form of internet usage aspect, it is important for the retailers to employ a broad range of applications that help in the protection of the consumer as well as the business interests. The NCR Counterpoint is a software that is propelled towards increasing the ability of the users to make safe and secure transactions with the use of the 2-second payment and reporting on different provisions including staff performance as well as revenue patterns ("Retail Control Systems Integrates NCR Counterpoint Point Of Sale For The Cupboard In Fort Collins, Colorado") [10]. Consequently, the application would be necessary for improving the confidence level among the consumers as they will be assured that their personal and financial information is secure. The amplification of trust on the undertaking of these processes among the consumer would promote patterns of sales as the methodology is not only convenient but also safe.

## V. CONCLUSION

To sum up, through the above analysis, it apparent that although the retail market has been characterized by a wide range of opportunities, the enhancement of the technology is the significant opportunity that can be used to optimize the effectiveness of business operations. The beacon technology has been identified as the primary technological breakthrough that can bring about the necessary changes in the retail market. Given the retail stores and outlets operate on the display of the different products, their operations could be complimented by beacon technology as it is based on alerting the consumers with smartphones regarding the information on the items on display. The beacon technology would be an appropriate opportunity in the running of retail enterprises as increases the delivery of vital information to the consumers. It enables the management of the retail operations to track the mechanisms used by an employee to solve different issues as the technology supports the timing provision. Therefore, it ensures that the workers are empowered with the appropriate skills of handling customers. A business model that could use beacon technology is a retail enterprise that is digitized due to the aspect of using internet connectivity, which is also a fundamental provision for the beacon technology. The incorporation of the CRM software and NCR Counterpoint would be essential in ensuring effectivity of the beacon technology.

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