How inventory barcodes can improve a company's marketing strategies and competitive advantage

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Abstract. This paper points out how inventory barcodes can improve a company’s marketing strategies and competitive advantage. With all the knowledge and technological developments that 21st century reached, this research paper explores new innovative, creative, and novel ideas that can affect companies’ marketing strategies positively and competitive advantage. Barcodes are known to be a form of data storage and are used for inventory purposes. The research opens the door to use barcodes in increasing company’s market share, profitability, sales, distribution coverage; and lowering its cost at the same time. The idea was theoretically proven to be highly efficient and accepted by customers when we used a survey/questionnaire on 2000 random participants in which many of them liked and accepted the idea. Moreover in this research, some analytical benefits are introduced to notify how useful product barcodes codes are in the marketing area. Lastly, the conclusion reassures why this paper should highly be considered academically and professionally.

Keywords: Quick Response Code, Marketing & Quick Response, Selling & Quick Response

1. Introduction

Product codes take a variety of forms, the most popular form being the barcode. Barcodes have been the least expensive form of data carriers. Since their introduction in the 1970s they have become ubiquitous in retail for facilitating inventory control, stock reordering, and checkout [1]. The quick response (QR) code is “a two-dimensional, black-and-white square barcode that links directly to a URL of one’s choice” [2] and can also contain text or other data. They have greater storage capability than standard barcodes, are free to make and use, and can be read quickly with most Smartphones [3] [4] [5]. Moreover, QR’s are easy to put on just about any product and are highly recognizable/visible to the curious consumer, “A
QR barcode ...adds a whole new dimension to your marketing campaigns, making them more engaging and interactive” [6].

Though its’ intended use was simply descriptive, barcodes have developed into QR's which can now be read by smartphones, thus allowing for a whole new marketing paradigm to emerge. Nowadays, QR's represent more than just a product description or ingredient list – it is an essential, effective, and informative tool being used by marketers worldwide. “Used correctly, QR codes offer a cool way for marketers to grab audiences’ attention and target them with optimized advertising” [7]. Due to its success, many companies are now using some form of QR stunt in their marketing campaigns. In a recent study sponsored by the Mobile Marketing Association and mLighement, it was suggested that “spending on mobile recognition, of which QR codes are a primary component, ought to almost double this year to reach $164 million, before continuing to grow strongly, reaching $364 million in spending by 2015” [8]. However, the increased use of QR's does not necessarily echo in its effectiveness and willingness of customers to partake in the exercise of scanning. Due to the continuous complaint that marketers are misusing QR’s, most customers have become immune to the iconic binary figure and have rarely scanned anything lately. “I know that there is research that shows that an increasing number of people are ‘scanning a QR code,’ but what I haven’t been able to find are statistics that show repeat usage.” [9]. Though companies are increasingly using QR's, marketers face the challenge of enticing the consumer with various ways of participating. Apart from the obvious downloading of information related to the product, QR's can be made to represent and serve an even bigger purpose.

The main objective of this paper is to explore a new concept in service marketing; that is the use of product codes with high technology internet connected screens, and the use of product codes on regular devices, such as laptops; and enable consumers to order products by scanning a product code into their Smartphone, and then paying via an application on that Smartphone, and get it delivered to a chosen location. This new type of marketing is allowing for a whole new dimension to arise by “...bridging the online and offline components of the campaign,” [10]. Not only does this offer a new incentive for consumers to scan the QR's, it is also a gateway to a whole new shopping experience.

2. Literature Review

High technology screen, internet, and product codes have strong implications for marketing generally, and specifically service marketing. In Japan where QR codes are ubiquitous; they use them in store windows and magazines and even on McDonald's wrappers with information on ingredients/nutritional content [3]. From a marketing perspective, QR codes, for example, can be used to promote brands and attract customers in new ways and thus their use in advertising is experiencing exponential growth across the world [11]. They are likely to become main stream with the rapidly increasing number of Smartphones and Internet-enabled cell phones, mobile site creation by many businesses, easy social network access, and the increasing number of popular mobile apps [3] [12]. High efforts now are being put in barcodes, and mobiles reading it; more of those efforts now has expanded to even coloured barcodes; “The focus throughout is on recent developments and two-dimensional (2D) barcodes, including the research and development steps towards colour barcodes for mobile devices".
Thus, in service marketing it can be concluded that product codes have a strong implication and can be majorly used to service customers, and of course, marketing; and not only as it was used as an inventory and database warehousing tool. Therefore, and since the mixture of internet, high technology, and product codes are becoming a main stream, this research paper presents a new concept in service marketing that can have vast implications on, customers, companies, and the economy as a whole.

Though the one-dimensional use of QR’s is proven to be successful, expanding the use of the invention is not only inevitable, it is also necessary to keep the paradigm alive. “With over 50% of people in the U.S. now possessing a smart phone, you would think this technology would be gaining in popularity. It’s not.” [9]. It seems that there is a general interest in the concept, however, most companies have been repeatedly using it for what is considered not-so-much of an incentive. The act of taking out one’s cell phone, scanning a product simply to obtain information or discounts is simply outplayed and outdated. " It’s one thing to say ‘People used the QR code!’, but how do we know they didn’t throw their phone in frustration or immediately give up after scanning once?” [9]. Marketers should continue to push boundaries and look for more enticing ways of offering a tested and tried product. This is where the idea of providing QR's as a means of quick, easy access & easy repeatable on-line shopping proves to be study-worthy, However, with the need for product development presumably comes a hefty price. If a company was to consider an upgrade in their product, it would surely have to adjust and/or enhance their current systems in order to meet the technological requirement of such an approach. It may seem costly and unnecessary at first. But, scholars argue that it is well worth the price. “Implementing new software systems or applications in organizations can be a difficult task; nonetheless, efforts are worthwhile for branding.” [13]. Not only will the adoptive company be at the forefront of technology, they will also be looking at a not-so easily imitated competitive benchmark. “Modeling strategic management for the development of competitive advantage of firms and organizations in different sectors may employ new technologies and social media which will contribute to their marketing strategies.” [14] [15] [16] [17] [18] [19] [20] [21].

In this paper, the use of the new product code approach is examined and argued to be an advantageous solution to all those invested in the project. The paper also aims to show how companies, in specific, and the society in general can benefit from using this new product code approach. Furthermore, a detailed account of how the system would function as well as how to tackle privacy issues is given, which highlights the main concerns of those willing to adopt QR’s as methods of online shopping and/or payments. Also, a briefing of the research methodology along with a survey of the subjects is provided with results. Moreover, a review of various scholarly works is examined to prove how inventory barcodes can improve a company's marketing strategy and competitive advantage. The results of the survey are then analyzed and portrayed in various tables showing numbers and percentages.

3. The new concept, and how it works

The new concept can be labelled a“WinWin” – since it is a win win application to all parties that have a vested interest in it (company, customers, suppliers, distributors, etc). In other words, it is a winning situation to all of these mentioned parties, and everyone is winning from using it. Companies are able to sell more and
cut cost down, customers are more convenient with saving time and efforts, suppliers and distributors inventory turnover ratio increase, etc. More details are available in the coming sections.

Explaining the concept in its simplest way is as follow: installing new high quality, clear, plastic, touch screens with different sizes and that can be reshaped as deemed appropriate. I.e. Cylinder shape if around pillars in metro stations, rectangular shape if installed in bus stations, flat thin screen if in malls, cubical or vending machine shape if in gas stations, etc. Those screens can be installed in metro stations around pillar, bus stations in the waiting areas, airports, malls, street, office, etc. consider an example of a customer who wants to grocery shop from anywhere and get the product delivered to his house by the time he reaches home, or delivered to anywhere else. The customer approach the screen while he is in the metro station, select the brand of the grocery shop he prefers to shop from (e.g. Carrefour), then select for example the types of grocery he wants (e.g. Soda), then select among the selections the brand and size he wants, then scan the product code of his selection thru the WinWin application installed on his Smartphone. The WinWin application allows the user to select quantity he wants of the product, write down the delivery address he wishes the groceries to be delivered to, and pay for the groceries, and maybe the delivery service. The application is internet connected with the stores, banks and telecommunication couriers in the country. The purchaser can choose either to pay via his debit or credit cards, or the bill can be added/deducted to/from his telecommunication service provided by his telecommunication courier.

Almost everyone nowadays owns or has access to a smart phone. The WinWin concept is a merged concept between the physical concept itself, and the application that is made specifically for it and to be installed and used on smart phones. The application expenses will be, of course, sponsored by the shops that are going to use them. This concept can be applied in any other form of shopping (e.g. clothes, restaurants, etc).

Customers showed high interest for the new concept, yet some of them expressed an important concern about privacy while choosing their products in public. Thus, to solve the issue of privacy, we are presenting the solutions below:

1. Flat screens can be protected with screen stickers that are currently used on computers. They allow only the person who is viewing and facing the screen to view what’s displayed; others that are standing from any angle will only see a black screen. This type of screen sticker or screen is called monitor filter or privacy screen; “... use for monitor filters is privacy as they decrease the viewing angle of a monitor, preventing it from being viewed from the side; in this case, they are also called privacy screens” [22]

2. Users can minimize the icons of the products to a very small scale that are similar in size to the icons on their smart phones, which will ensure that others will not be able to clearly view what they are doing. Companies can develop such a size minimizing application to help users minimize icons and maintain privacy. It should work similarly to reducing the sizes of windows in your electronic devices to small thumbnails.

3. Certain screen can be placed inside a booth (like telephone booths). “A telephone booth, or phone booth, is a small structure furnished with a payphone and designed for a telephone user’s convenience” [23].

4. Last, screen can be made using the same designs that are used for banks’ ATM machines; which is side protected from anyone who may sneak a look. This will be similar to a type of ATM booth called Privacy and Sun-control
ATM Booth [24]. It is a “Freestanding ATM booth offering customer privacy and sun-control. Booth may be bolted to external walls or erected on steel columns at shop fronts or in specific locations as required” (Sterling Products, 2007). People need to know that security elements exist. Ethics are essential and need to be carefully managed for online marketing [25]; perceptions, actions and emotions of people regarding ethical decision making should be taken into consideration [26] so that people are not offended in any way.

4. Research design & methodology

As an exploratory study interested in developing new theory on this topic, this research primarily used qualitative and quantitative methods. Specifically, a concurrent research design was used in which qualitative and quantitative data were used simultaneously [27]. Data was collected using open-ended interview questions on a randomly-selected population of 2000 users of smartphone technology, in order to evaluate the usefulness of implementing the new concept introduced in this research. Also, a 3-question questionnaire was used to determine how many people currently owned Smartphones and use internet connection on them. The differences in ethnicities, religions, genders, ages and social backgrounds of the randomly selected sample helped in getting better and more accurate results for the research purpose. The data was collected around the last quarter of 2013 in Kuwait.

5. Results & implications

From the collected data, most people surveyed owned a smartphone as opposed to a regular non-smartphone (Table 1); and all of those owners use internet services on their cell phones. Below it shows that out of the 2000 randomly selected diversified participants/owners of smart phones, 1972 of them are using mobile data service, internet service. (Table 2)

<table>
<thead>
<tr>
<th></th>
<th>Participants</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smart Phone</td>
<td>1972</td>
<td>98.60%</td>
</tr>
<tr>
<td>Classical Cell Phone</td>
<td>28</td>
<td>1.40%</td>
</tr>
</tbody>
</table>

Table 1: Number of participants who carry Smart Phones vs. classical Cell Phone:

<table>
<thead>
<tr>
<th></th>
<th>Participants</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uses Internet</td>
<td>1972</td>
<td>100%</td>
</tr>
<tr>
<td>Do not use internet</td>
<td>0</td>
<td>0%</td>
</tr>
</tbody>
</table>

Table 2: *Number of participants who use internet service via their Smart Phone:

In Table 3, more than 80% of these users, exactly 1582 participants, favored using the new presented shopping concept in this paper. In addition, 2.74%, 54 participants, were neutral; which means that they don’t mind using it when it is available, and accordingly they may be considered a secondary target market. Moreover, the ones who favoured the In-store shopping expressed that they like to touch the products and/or its materials before they buy; thus, the concept for them
is not completely rejected if the products are not to be touched or is a service (e.g. telecommunication service, internet subscription service, appliances, etc)

<table>
<thead>
<tr>
<th>Participants</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>The new concept</td>
<td>1582 80.20%</td>
</tr>
<tr>
<td>In-store shopping</td>
<td>336 17.06%</td>
</tr>
<tr>
<td>Neutral</td>
<td>54 2.74%</td>
</tr>
</tbody>
</table>

Table 3: Favouring to use the new service concept versus in-store shopping:

Table 4 explains the reasons why users favored the new presented concept. Moreover, 11.9% favored the new concept because they do not have time to actually go and visit the stores, whereas 6% dislike standing in traffic at cashiers, 10.9% found it much easier to find the exact product they are looking for rather than keep searching for the wanted product in multi branches, and 8.4% were eager to use the new concept because it is effortless and at many times their laziness to make any effort stops them from shopping as they are stuck with life routine exhausting work. The major percentage portion is 62% were users mentioned that their reason for favoring the new concept is all of the previous mentioned reasons together.

<table>
<thead>
<tr>
<th>Participants</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Lack of time for visiting and shopping in the store</td>
<td>189 11.9%</td>
</tr>
<tr>
<td>Stuck in traffic at cashiers usually, and I don’t like this</td>
<td>95 6.0%</td>
</tr>
<tr>
<td>Better than visiting more than one store to find the product</td>
<td>174 10.9%</td>
</tr>
<tr>
<td>Effortless</td>
<td>133 8.40%</td>
</tr>
<tr>
<td>All of the above</td>
<td>981 62.0%</td>
</tr>
<tr>
<td>Other reasons</td>
<td>10 0.06%</td>
</tr>
</tbody>
</table>

**Based on 1582 participants who favoured using new concept ('Interview Questions – Table 3 above')

Table 4: **Reasons behind preferring to use the new concept:

The positively shocking results that out of the 2000 participants none of them did not favor using the new concept due to positive implication in saving their time and efforts in also traveling for a certain distance to buy their needs (Table 5).

<table>
<thead>
<tr>
<th>Participants</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>Yes</td>
<td>2000 100%</td>
</tr>
<tr>
<td>No</td>
<td>0 0%</td>
</tr>
</tbody>
</table>

Table 5: Participants want to purchase products but lacks time, effort, and/or distance:

The last table, Table 6, was a direct question to see if the new service concept can increase purchase power, and thus, enhance economy, increase profitability of companies, and benefits all stakeholders in general as mentioned below. 100% of
the participants who owns smart phones, that are 1972, expressed willingness to purchase using the new labeled WinWin concept if time, effort and distance problems are solved.

<table>
<thead>
<tr>
<th>Participants</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>2000</td>
</tr>
<tr>
<td>No</td>
<td>0</td>
</tr>
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</table>

Table 6: Willingness of participants to purchase if time/effort and/or distance problem is solved:

By analyzing the collected data about the agreeableness and acceptance of consumers to this new concept, and how it is considered very useful and beneficial to them; applying the new concept to company’s marketing strategies would benefit the company by lowering the company’s costs and increasing its profitability, its customers by saving up time and efforts, and the economy itself by lowering unemployment rate, increasing consumption and purchase power, and investment.

The following hypothesis presents how the new concept is highly beneficial to stakeholders in service marketing, and its valuable implications, including how cost-effective it is:

• **Wider distribution coverage**: shops can install the new concept anywhere and at any place where they are unable to open stores in because of either cost of opening, lack of space for opening a shop in that specific place, or legalities associated with opening a store in this place or in general. [28]

• **Opening new branches in places that have no available spaces for new stores anymore but are considered important in location**: Placing new branches of their shops in places they couldn’t open in before as a result availability of space. (the concept is considered a new branch since it consists of all the goods or services provided by the company)

• **Eradicate of Operational Cost associated with operating those new branches/stores**: rather than having operational costs associated with each branch the company is opening somewhere, the new concept saves the company the operational cost of each branch since it does not involve any operational cost in comparison with opening new branches and stores.

• **Reducing operational cost for existing operating branches or stores**: crowd at cashiers in existing stores will be reduced since many customers will be purchasing their goods and services using the presented concept and its scan code application; therefore there will be no need for the same number of operating cashiers, and customer service personnel. [29]

• **Increase sales**: many customers retreat from their purchases when they are faced with long waiting lines at cashiers. Additionally, customers in nowadays usually feel laziness to travel for a certain distance to purchase; with the application of the new concept, customers will not retreat from buying their needs, and will definitely, not be subjected to laziness whenever they decide to shop for a current need. (Table 4)

• **Following and recording customers’ buying habits**: “Database Marketing involves tracking consumers’ buying habits very closely and crafting products tailored precisely to people’s wants and needs based on this information”. [30]

i. **Implication on the economy in general**: Supporting economy: by using this concept, the reach of customers will increase. As consumers have more access
from remote places to purchase various products, the individual becomes more empowered as they have many more choices to choose from. Due to the expanded variety of choices, markets are bound to become more competitive, ultimately driving prices to their bottom-most. “Consumer’s buying power represents his or her ability to make purchases. The economy affects buying power. For example, if prices decline, consumers have greater buying power.” [29] (Boundless, Consumers’ Income). Thus, one can easily conclude that due to the increase in competition, the economy will be affected positively.

Companies implementing this new concept of remote shopping through QR codes will definitely need to link and interconnect their inventory systems to those distributed screens to ensure that products availability and quantities required are available when customers place their orders. Though it seems like a hefty price to pay for a technological upgrade on the company’s behalf, it is sure to yield profits as argued above.

The 6 tables portrayed above illustrate valued information that supports the new presented concept. The sample size and randomly chosen participants assured that almost all carriers of mobile phones are using smart phones. Moreover they are all using internet services on their smart phones; and none of them is not an internet subscriber, and this makes them all eligible for using the new concept. Although everyone uses internet, yet some of them still favoured to use in-store shopping more than the using the new service marketing concept discussed in this research paper. When they were asked for the reasons behind it, there was almost a consensus that they need to touch, feel and/or try the product before purchasing it to see if it fits them or not; and this is not possible if they use the new concept. Yet, when it was explained to them that the new concept is not to be used only by clothes shops and that it can be used in many industries, such as for grocery shopping, most of them have showed interest back in using the new concept. It was further explained to them again that even with outfit shops, clothes shops, those companies can give their customers more facilities when they online shop using the new presented concept by allowing them to exchange and refund if the outfits are not liked or do not fit the purchasers. Most of participants expressed their interest in using it because they don’t have enough time to physically visit the stores. Whereas the second primary reason was the direct way, and easiness, of finding the product in one single online visit rather than physically visiting several stores to find the product you’re looking for, the right size, or preferred colour. Secondary reasons were that it is effortless and by passes the problem of standing in long lines at cashiers. To assure results, and the usefulness of the new concept; a question was asked to all participants, even the ones who preferred in-store visits, if they usually face times where they’d like to purchase some products but they don’t case it of the physical distance they need to travel, or the time and effort that will be spent when doing so; expectantly, everyone agreed that they encounter those times frequently. They were also tested once again for more assurance with one last question if they would’ve purchased more products or services if the problems of physical distance, time and effort are to be solved; and again 100% of the participants said “yes”.

6. Conclusion
Technology development is rapidly growing in high pace compared to any other industry; in the matter of fact, it is one of the most rapidly growing industries in the world. Taking this advantage, it is very rationale to use technology for marketing development. In order to increase companies’ profitability and growth, and to positively serve society, this research paper sought to harness one of the most used technologies together with marketing; which is linking smart-mobile phones with barcodes via online application. And since service marketing is an ongoing and developing field in marketing; it was best to use technology to service customers and societies better.

The implications that were found from this research paper in applying the new concept are not only beneficial for companies and their customers; but extended to benefit the society as a whole. A company’s Task environment includes its customers, suppliers and distributors; whereas economy is a major part of the General environment [31], thus, it implicates the society. So in the sense of task environment; companies will benefit by having a wider span of distribution coverage, opening more stores in important locations that lack spaces, eliminating new stores operational costs, reducing current operational costs for existing ongoing branches, increasing sales, and satisfying potential and existing customers. On the other hand benefiting the society as whole comes from revitalizing customers’ purchase power that, surely, revitalizes economies and benefit societies.

This research is of theoretical importance because it is a utilizing technology, precisely smart phones, is an on growing trend in general, and marketing precisely. Marketers need to know more about how to deal with it; and this area is under-researched within the marketing literature, although there is some research within the library studies and tourism literatures. Tremendous capabilities exist from the use and implementation of social media by companies and organizations in order to be used as repositories of information [32]. It will benefit practitioners and marketers, and will increase our understanding on how product codes work in marketing contexts and the many different available opportunities for using this within company’s marketing strategies.

References


