

# Contribution of QR-Codes to the Marketing Mix – A Case Study

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**Abstract** The mobilisation of IT-applications over the past few years has opened up new opportunities for business companies to develop mobile marketing strategies. QR-Codes, as the most popular way of mobile tagging, enable a pull mobile marketing strategy, wherein customers can request information about products or services that interest them by scanning a code with their mobile devices. This study provides an assessment of the potential contribution of QR-Codes to marketing mix elements, using the familiar framework of the four Ps (product, price, promotion, place) and the four Cs (customer, cost, communication, convenience). In order to investigate the influences of QR-Codes in the context of marketing mix elements, a case study about QR-Code based mobile marketing activities of B/S/H/ Turkey (one of the leading electronic home appliances companies in Turkey) is presented.

**Keywords** QR-Codes, Marketing Mix, Mobile Tagging, Mobile Marketing

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## 1. Introduction

The fast development of networking technologies and mobile devices gives rise to mobilisation of business processes and as a matter of course, influences companies' marketing strategies. Marketing strategy is defined as the marketing logic by that the company decides which customers to be targeted and how to serve and satisfy them [1]. Mobile marketing is based on a marketing strategy that helps companies to promote their products and services through interaction with customers via their mobile devices [2]. Mobile tagging is one of the many possibilities to provide mobile marketing that enables customers requesting information about products or services by scanning a bar-code with their mobile devices [3]. QR-Codes are a popular way of mobile tagging because of their ease of use and production [4]. Smart phones with a camera and an appropriate reader application can be used to scan a QR-Code.

By developing its overall marketing strategy, the company designs the details of the marketing mix that is made up of factor groups such as *product, price, promotion* and *place* [1]. Even though mobile marketing is a part of direct marketing which is one of the possibilities of the promotion mix such as advertising, personal selling, etc. [1], it also affects other marketing mix elements [5]. One important factor for the success of mobile marketing is its ability to adapt to every

marketing mix element [6]. Therefore by developing a QR-Code based marketing strategy, it has to be examined how QR-Codes can affect the marketing mix elements. Earlier studies about QR-Codes are either technical, explaining how QR-Codes function [7, 8, 9, 10, 11], or present various forms of QR-Code usage scenarios for different business purposes [11, 12, 13, 14] or exploratory and present results of case studies and surveys about QR-Codes [15, 16, 17, 18, 19, 20]. On the other hand, the studies about mobile marketing have a more state-of-the-art review character, and they are more about the general definition [21, 22, 23, 24, 25], classification [26, 27] and success factors of mobile marketing [28] and less about the combination of mobile marketing and marketing mix. Smutkupt et al. studied the effects of mobile marketing on marketing mix elements in their work and state that mobile marketing has a tremendous impact across all marketing mix elements [5].

This study aims to provide an assessment of the potential contribution of QR-Codes to marketing mix using the familiar framework of the four Ps (*product, price, promotion, place*) and the four Cs (*consumer, cost, communication, convenience*). The four Ps framework is a product-oriented approach of marketing mix and the four Cs is a customer-oriented one. The reason for taking both frameworks into consideration is that they regard identical topics from different perspectives which can be relevant for determining QR-Code effects on marketing mix.

The research about QR-Codes indicates that mobile marketing through QR-Codes contributes more or less to all marketing mix elements (4Ps and 4Cs), particularly to the element *promotion* because of the informative character of

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QR-Codes. In order to investigate the contributions of QR-Codes to the elements of marketing mix in practice, a case study will be examined. The case study is about B/S/H/ (Bosch Siemens Hausgeräte) Turkey, which is one of the leading electronic home appliances companies in Turkey, represented by four different brands in the market.

This work is structured as follows: First, basic information about QR-Codes and mobile marketing is presented, followed by a short summary of marketing mix and the impacts of QR-Codes on its elements. Then the case study about B/S/H Turkey's QR-Code based marketing activities and its results are presented. The article ends with concluding remarks and suggestions for future work.

## 2. QR-Codes in the Context of Mobile Marketing

For years, barcodes are being used to identify products especially in logistics. A two-dimensional code called "Quick Response Code (QR-Code)" is one of the most commonly applied codes in many areas due to its large data capacity. It is also used in mobile marketing applications [11]. In this section, the application of the QR-Code technology for mobile marketing is examined. In this regard, at first, QR-Code technology is introduced, subsequently, the definitions of mobile marketing and various possible QR-Code supported mobile marketing strategies are specified.

### 2.1. QR-Code Technology

The QR-Code, represented in Figure 1, is a sort of barcode developed in 1994 by the Japanese company Denso Wave, which is active in the vehicle production sector [4, 11, 14]. QR-Codes are open codes, which are easier to produce than other two dimensional codes such as DataMatrix, mCode, Aztecc, etc., which have more data capacity and can be

scanned faster and easier [11, 17]. While the classical barcode contains data in just one direction, the QR-Code technology contains horizontal and vertical data such that it can encode the same amount of data on a smaller space [11]. The production as well as the reading of QR-Codes is easy for the user, and both activities are supported by appropriate software [11]. Software used in the synthesis of QR-Code can be applied without special programming skills and hence QR-Codes can be produced fast and easily. The decoding of QR-Codes is performed with a freeware on a mobile phone with a camera that is used to read the code from a certain distance. The mobile phone is held before the code and the scanned code activates the appropriate software to decode it. As seen in Figure 1, the user gains access to any form of information (text, URL, image, audio, video, etc.) after the code is decoded by the application [29].

### 2.2. Mobile Marketing

According to the standard definition of Mobile Marketing Association [30], mobile marketing is the set of practices that enables organisations to communicate and engage with their audience in an interactive and relevant manner through any mobile device or network. Shortly defined, mobile marketing is marketing of products and services via mobile devices of customers [2]. The goals of mobile marketing are the same as traditional marketing, such as increasing customer retention and satisfaction, customer acquisition, branding and market research, which can be achieved by different ways enabled by mobile technologies. Mobile marketing offers new opportunities in customer communication and in time- and location-sensitive product offerings [5, 31, 32]. Based on these definitions for mobile marketing, its unique characteristics can be summarised as follows [5, 31]:

- *Ubiquity/Portability*: Mobile marketing activities are ubiquitous. The users are able to receive information and to perform tasks wherever they are and whenever they want with their portable and small devices.

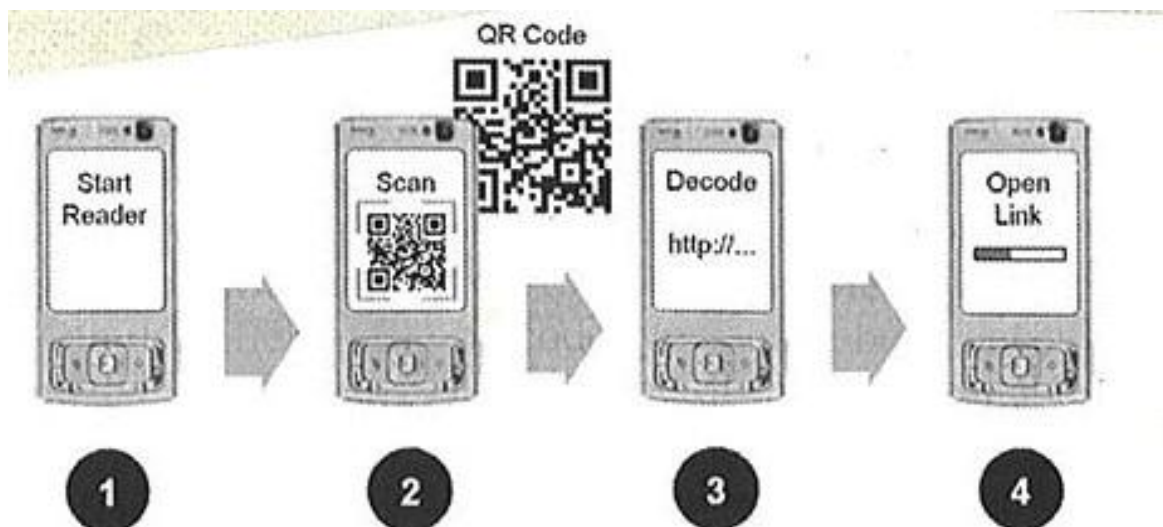


Figure 1. QR-Code Scanning [29]

- *Two-way-communication/Interactivity*: Easy connectivity with mobile devices used in mobile marketing activities enables more frequent interactions between the marketer and the customer in either direction.
- *Personalisation/Customer Adaptation*: Promotional information or services can be personalised for each user. The information content can be adapted according to user's attributes, for example special advertising content for disabled people.
- *Localisation*: The possibility of identifying the user's geographical position through various location-based technologies provides marketers the opportunity to target location sensitive promotional offers to mobile device users.

There are many possible technologies and tools enabling mobile marketing such as short messaging and multimedia messaging services, mobile online sites, interactive voice response (IVR), ringback tone (RBT), location based services, mobile games, mobile payments, mobile TV, mobile social networking and mobile tagging [1, 25].

### 2.3. QR-Codes and Mobile Marketing

There are two main types of mobile marketing depending on which domain (the marketer or the customer) the initiator of the marketing activity is [32]. There are push-based and pull-based mobile marketing. In push-based mobile marketing, the marketing content is sent to the customer, just like sending an SMS to the customers' mobile devices. Pull-based mobile marketing, also known as *reverse mobile marketing* or *on demand mobile marketing* [27, 33], requires consumers to initiate the process of seeking product information (e.g. over the Web) and communicate with marketers with their mobile devices. Pull-based mobile marketing is possible with technologies like mobile internet, e-mails or SMS, wherein the customer sends an e-mail or an SMS to the marketer and expects an appropriate response or wherein the customer performs a web-based search for product information via his/her mobile phone. But these technologies can be also used by the marketer to initiate the marketing activity in the context of push-based mobile marketing strategies. When compared to the technologies discussed earlier, QR-Codes constitute an exclusively pull-based mobile marketing technology.

Customers scan a QR-Code only when they wish to get more information about a product or a service or to participate in a marketing campaign. Therefore, QR-Code based marketing activities are classified under pull-based mobile marketing. Among other technologies enabling pull-based mobile marketing strategies (such as searching for special product/service information on the Web or sending messages for participating in marketing campaigns), QR-Codes are more effective, because they can pack various forms of information which can be reached easily by the user and they can be created and modified easily by the marketer [34].

QR-Code usage in mobile marketing can be classified into

two different types based on the following: The placement of the code and the information it contains [14, 35]:

a. Possible (but not limited) places, where QR-Codes can be placed, are:

- Billboards
- Posters
- Product brochures
- Brand catalogues
- On the product or its package
- Newspapers and magazines
- Websites
- Social media channels

b. Possible (but not limited) information that can be contained in QR-Codes are:

- Advertising slogans
- Product information
- Product picture/audio/video
- Price information
- Instruction manuals
- Telephone number
- URL of a Web site
- Product comments
- Campaign information
- Discount coupons
- Tickets
- Games
- Ring tones

The places and the information can be combined in all possible ways which results in different applications and different marketing strategies. For example, a product video can be accessed by scanning a QR-Code on a billboard or a discount coupon retrieved by scanning a QR-Code on a newspaper advertisement or the price information of a product can be accessed by scanning a QR-Code on a product brochure.

## 3. Impacts of QR-Codes on Marketing Mix

The marketing mix is at the core of marketing and is useful in helping marketers to structure their marketing activities [36]. Novel technologies, such as QR-Codes, influence the elements of marketing mix. In this chapter, after introducing the elements of the marketing mix, the impacts of QR-Codes on marketing mix are analysed.

### 3.1. Marketing Mix

The so-called 'marketing mix' is a conceptual framework that is particularly useful in structuring a marketing strategy [36]. The four basic elements of marketing mix, first proposed by McCarthy, are the 4Ps— **P**roduct, **P**rice, **P**romotion and **P**lace (or Distribution) [37]. 4Ps marketing mix elements are generated from the product's point of view [38, 39] and do not recognise customer needs directly. Later, in 1990, Lauterborn proposed a 4Cs classification—Customer,

Cost, Communication and Convenience which is a more consumer-oriented version of the 4Ps [40]. Table 1 shows the correspondence among 4P and 4C marketing mix elements and their common definitions [1, 5, 36, 41].

The *product* element of the 4Ps and the corresponding *customer* element of the 4Cs deal with efforts to study customer requirements and needs with the objective of best product design. While the *product* element addresses new product development from a marketer point of view, the *customer* element addresses a customer oriented product development with the aim of maximising the customer value and respects customer needs while developing products or services [5, 41].

The marketing mix elements, *price* and *cost* handle factors influencing the price setting and the production costs. The *price* element considers the cost of purchasing a product and the *cost* element incorporates the total cost of acquiring, using and disposing a product which also includes the product price [1, 5, 41].

The 4Ps marketing mix element, *promotion*, and its corresponding 4Cs element *communication*, incorporate all

promotional efforts to present and to sell products by communicating with customers [1, 5, 41]. The marketing mix element, *promotion* deals with encouragement of consumers to buy a product especially with advertising content, whereas the element, *communication* intends to intensify the promotional efforts with a high level focus on consumer communication.

The last element of marketing mix, *place/convenience* deals with the best possible allocation of products. The *place* element is engaged with distribution channels such as shops or the online market while the element, *convenience* is based on the easiest way of delivering the products to the consumer [1, 5, 41].

### 3.2. QR-Codes and Marketing Mix

In order to analyse the effects of QR-Codes on marketing mix elements, it is advantageous to examine first the influences of electronic marketing, especially of mobile marketing on the elements of marketing mix because QR-Codes is an enabling technology of mobile marketing, and mobile marketing is a subset of e-marketing.

**Table 1.** Marketing Mix

4Ps	4Cs	Definition
Product	Customer	Efforts for studying of customer wants and needs for the best product design.
Price	Cost	Factors effecting the price and the cost of products, in which price is only a part of the total cost of ownership to satisfy a want or a need.
Promotion	Communication	Promotional efforts to present and to sell a product by using the right form of customer communication.
Place	Convenience	Factors effecting not only the place where a consumer can buy a product but the ease of finding the product, finding information about the product and buying the product.

**Table 2.** Influences of e-marketing and mobile marketing on Marketing Mix [5, 6, 41, 42, 43, 44, 45]

Marketing Mix	E-Marketing	Mobile Marketing
PRODUCT COSTUMER	Greater customisation of new products Faster discovery of customer needs	Mobile device as an efficient channel for product development (collecting customer opinions and attributes) Location based product offerings
PRICE COST	Increasing competition drives to price standardisation Cost reducing	Unique price for each customer Mobile discounts, coupons
PROMOTION COMMUNICATION	New channel for global advertising Interactive communication with customers Constant accessibility	More directed promotional activities in a personalised and interactive way Mobile campaigns Location independency
PLACE CONVENIENCE	Distribution without barriers	Ubiquitous information and distribution

E-marketing developed in the era of e-business can be simply expressed as the usage of electronic communication technology to achieve goals of marketing [36]. As marketing on the Internet is an entirely different process from traditional marketing, it required changes in marketing mix elements [42]. Mobile marketing as a part of mobile commerce is based on the novelties stemming from e-marketing and has also led to some improvements in the marketing mix. Table 2 summarises the impacts of e-marketing and mobile marketing on the marketing mix elements – 4Ps and 4Cs.

E-marketing has enabled a greater customisation of new products which is supported by the opportunity to discover customer needs better in the electronic environment [42]. Mobile marketing supports this fact especially by directly collecting customer opinions or by observing the customers' behaviours within a mobile environment [5, 6]. Mobile marketing also enables location based product offerings such as sending an SMS while entering a shop to inform the customer about a special marketing campaign.

E-marketing makes marketing and purchasing processes more transparent and increases the competition among marketers resulting in standardisation of product prices [41, 44]. The total cost will be considerably reduced in the e-marketing environment since transaction costs, time and opportunity costs will be in most cases lower than the expenses for performing these activities physically [45]. Within mobile marketing, it is even possible to assign unique prices to customers. Sending mobile price discounts or coupons to the customer on a mobile environment is a possibility to create unique customer prices. Mobile devices have the advantage of being able to reduce the total cost but they may also entail high costs for customers such as the usage fee of mobile networks [5].

The online marketing environment offers a new channel for global advertising and arouses a more interactive communication form between marketers and customers. Online marketing offers companies a new way to present information about products and services independent of time and place so that customers have constant access to information sources [42]. Mobile marketing provides consumers with personalised and interactive advertising content and with campaigns organised in the mobile environment [5]. For example, time-specific mobile coupons can be sent to potential customers' mobile devices when it is most effective for the promotion of a product [5]. In addition, the location independency is more intense in mobile marketing because of the use of portable devices.

E-marketing has opened up new forms of product distribution without barriers since end-consumers and marketers are directly connected [42]. Constant accessibility and possibility of direct purchasing of products increase customer convenience. In the context of mobile marketing, it

enables a ubiquitous source of product information; consumers can access detailed information about products or services anytime and at any place [5] and purchase them immediately.

QR-Codes as mobile marketing instruments represent a pure pull-based mobile marketing technology wherein the customer just scans a code and gets the content or information, the marketer intends to send, in order to initiate the marketing activity. The advantages of QR-Codes as a mobile marketing technology for the marketers as well as for the customers can be summarised as follows:

- Enabling marketers to provide their customers a wide range of information or content offerings.
- Attracting non-interested customers because of curiosity about the code content.
- High customer satisfaction because of initiation of the marketing activity by customers, thus the marketing activity cannot be distracting and the marketer can produce the coded content optimally.

Despite such advantages, QR-Codes are not used effectively in mobile marketing strategies because of the lack of knowledge about them, since there is not enough awareness in their usage as it is a new technology. To support the development of QR-Code based mobile marketing strategies, it is advisable to identify the influences of QR-Codes on marketing mix elements, 4Ps and 4Cs. Table 3 points out possible influences of QR-Codes on marketing mix elements.

The virtual toys shop of the company *Walmart* in USA (illustrated in Figure 2) based on QR-Code technology illustrates a good example for analysing the influence of QR-Codes on the marketing mix elements [46]. *Walmart* arranges photos of toys, with a QR code attached to each product on a billboard or in the display window allowing the customers to see and explore toys without entering a real store. Scanning a toy's QR-Code leads users to a web based online shop that offers general as well as price information about the toys. Customers are then offered a choice to purchase a toy directly online.

Scanning QR-Codes offers marketers the possibility to collect customer's attributes or opinions which can be used for product development. Scanning a QR-Code may lead customers to fill in a survey to collect customer opinions in exchange for extra benefits. Another influence on the element, *product/customer* is that QR-Code is an ideal medium to contact customer service. Customer related services can be reached by scanning the QR-Code. The best example of this is getting the user manual of a product by scanning the QR-Code displayed on it. In the *Walmart* example, it would be possible to ask customers to participate in a customer survey about a toy by scanning its QR-Code. This information can then be used for further development of the toy.



Figure 2. Walmart's Virtual Toy Store [46]

Table 3. Influences of QR-Codes on Marketing Mix

Marketing Mix	QR-Code
PRODUCT CUSTOMER	Possibility to collect customer attributes or opinions Possibility to contact customer service
PRICE COST	Access to discount coupons Access to special unique prices Reducing costs
PROMOTION COMMUNICATION	Arousing interest about products (curiosity factor) Access to diverse advertising contents Access to mobile campaigns Source of detailed product information Consumer initiated communication
PLACE CONVENIENCE	Possibility to purchase instantly and ubiquitously

With respect to the *price/cost* element, QR-Codes are similar to other mobile marketing technologies. Instead of sending discount coupons via SMS or e-mail, the user gets access to them by scanning QR-Codes. It is also possible to offer unique prices for customers with QR-Codes; for example, the first hundred persons scanning the code get a better price than the rest, etc. QR-Code based mobile marketing is also economical. Just like the *Walmart* example, QR-Code based marketing of goods can save maintenance costs. *Walmart* needs to pay just the rental charges of the billboard and for the maintenance of the online shop, and all the costs of a real shop including that for sales personal are saved.

The most important influence of QR-Codes is on the marketing mix element, *promotion/communication*. *Promotion* includes all the activities that attract consumers towards a product, to present a product in the best possible way and finally to sell the product. QR-Codes are very suitable for these activities especially because of their feature

as a new technology. The curiosity factor makes the consumers to scan the code even though they are not interested in a product. In this way consumers will be informed about products, which they really are not interested in. The promotional power of QR-Codes is not just attracting consumers but also granting access to diverse promotional content such as product and price information, advertisements and marketing campaigns, etc. Since the QR-Code technology offers a source for various forms of information (text, pictures, video, audio or combination of them), which can be easily and time independently accessed by consumers, its major influence is expected to be on the marketing mix element, *communication*. The key feature of customer-marketer communication enabled by QR-Code scanning is that it is consumer initiated and can be highly interactive. The influence of QR-Codes on the element, *promotion/communication* can also be ascertained by the *Walmart* example. The curiosity factor plays a key role in this case; customers view just the photos and the QR-Codes

in the display window; and there are two key reasons that prompt the customer to scan the code: 1. Due to curiosity about the code or; 2. Due to an interest in the images of toys. By scanning the code, they get the promotional content, in this case, toy's presentation. The communication between the marketer and the user is highly interactive; the customers are at liberty to initiate and interrupt the interaction anytime.

QR-Codes influence the element, *place/convenience* by making it possible to buy a product through QR-Code scanning if the code leads to an online shop which offers the designated product. The *Walmart* example demonstrates very well how QR-Codes can influence the element, *place/convenience*. The customer can gain access to product and price information just by scanning the QR-Code thereby increasing dramatically the possibility of purchasing the product.

#### 4. Case Study: B/S/H/ Turkey

In order to investigate the effects of QR-Codes on marketing mix elements in real life, a business case is examined. The study is exploratory and based on a single case [47, 48]. The unit of analysis is B/S/H/ Turkey's marketing portfolio and the method used for data collection of the qualitative research is in-depth interview. Information was provided by the managers of B/S/H/ on how QR-Codes are used in the company. The research question of the study is:

- How do QR-Codes influence the elements of marketing mix?

##### 4.1. B/S/H/ Turkey

B/S/H/ – Bosch und Siemens Hausgeräte GmbH is the largest manufacturer of electronic home appliances in Europe and one of the leading companies in this sector, worldwide. The group was founded in 1967 as a joint venture between Robert Bosch GmbH (Stuttgart) and Siemens AG (Munich). Today, B/S/H/ operates 40 factories in 13 countries in Europe, the US, Latin America and Asia with a total workforce of about 50.000 personnel.

B/S/H/ Turkey operate 6 factories, one call centre and several technical after sales service centres in Turkey. The main brands of B/S/H/ Turkey are Bosch and Siemens; with its special brand 'Gaggenau', B/S/H/ Turkey caters to the individual wishes of consumers and the regional brand 'Profilo' ensures a broad presence in their respective home market. B/S/H/ Turkey offers consultancy, montage, maintenance and repair services, pre- and after sales. Besides traditional marketing channels, B/S/H/ Turkey makes use of mobile marketing channels, such as advertisements on company's webpage, social media channels, such as Facebook, Twitter, etc., blogs and online news sites.

##### 4.2. B/S/H/ Turkey's QR-Code Marketing Activities

B/S/H/ Turkey has been using QR-Codes in different areas for different purposes since two years. The use of QR-Code

can be considered to be in its trial period; since QR-Codes are not very popular known in Turkey, hence the company does not want to invest too much in this yet. While planning QR-Codes for various marketing activities, B/S/H/ Turkey also examined how its core competitors use QR-Codes and discovered that the usage of QR-Codes is primarily limited to product brochures, leading to product information or product videos. Since B/S/H/ Turkey discovered less QR-Code oriented applications by its competitors, it sees itself ahead of their market competitors in using QR-Code technology for marketing purposes.

Four different in practice realised and five different planned QR-Code usage scenarios in B/S/H/ Turkey can be detailed. The QR Code applications that are already in practice include the following:

##### 1. QR-Codes on product-price brochures/catalogues leading to product information

Product-price brochures of all the brands are sent to dealers monthly and product catalogues are sent yearly. The brochures and catalogues are supplied in limited numbers. This problem is dealt with QR-Code support: When customers scan the QR-Code on a product brochure or catalogue, they get the same information provided in the brochures and the catalogues online in HTML format. In the example in Figure 3, the QR-Code is placed on the lower left corner of the product brochure on Bosch white home appliances. Scanning the code will lead the customer to information of all products represented in that brochure.



Figure 3. A sample product brochure

##### 2. QR-Codes on product catalogues leading to additional information

QR-Code scanning need not lead the users always to product information; additional information other than product information helps increase customer satisfaction. Users may be offered access to a recipe by scanning the

QR-Code on the catalogue for small home appliances so that they may be attracted by the meal which they can prepare with the help of a product from the brochure. As displayed in Figure 4, the QR-Code leading to the brownie recipe is placed on the lower left corner of the small home appliances product catalogue.



Figure 4. A sample product catalogue

**3. QR-Codes on customer meetings leading to conference schedule**

Usage of QR-Codes at B/S/H/ Turkey fulfils not only the objective of providing information about products but also about services. At annual marketing meetings, B/S/H/ Turkey provides its dealers the details of meeting schedule by providing QR-Code on their ID badges. Figure 5 presents an image of ID badge of a customer with a QR-Code on the upper right corner.

**4. QR-Codes on stands in exhibitions leading to product information**

B/S/H/ Turkey displays QR-Codes also on stands in exhibitions. In this case, QR-Codes minimises communication of potential customers with the stand staff. Customers can gain access to additional information about exhibited products independent of a staff member. In Figure 6, two possible placements of QR-Codes in exhibitions are demonstrated.



Figure 5. QR-Code on ID badge

In addition to QR-Code applications already in practice, plans are underway to introduce the usage of QR-Codes into other activities. The planned QR-Code applications of B/S/H/ Turkey can be summarised as follows:

**1. QR-Codes on product brochures leading to product videos**

It is planned to use QR-Codes on product brochures which will lead to special product videos to attract consumers.

**2. QR-Codes in shops leading to price information**

It is planned to use QR-Codes on product posters in shops which will lead to price information so that customers can get price information without the necessity to speak to a staff member.

**3. QR-Codes on price magnets leading to product information**

Dealers at shops use price magnets on products. It is planned to display QR-Codes on the price magnets. Scanning the QR-Codes on price magnets will lead customers to detailed product information.

Table 4. B/S/H Turkey QR-Code – Marketing Mix

B/S/H Turkey QR-Code Activites		Marketing Mix Element
realized	Product catalogues/brochures → Product information	PROMOTION / COMMUNICATION
	Product catalogues → Extra content (Brownie recipe)	PROMOTION / COMMUNICATION
	Customer meetings → Conference scedule	PROMOTION / COMMUNICATION
	Exhibition stands → Product information	PROMOTION / COMMUNICATION
planned	Product brochures → Product video	PROMOTION / COMMUNICATION
	Posters in shops → Price information	PROMOTION / COMMUNICATION
	Price magents → Product information	PROMOTION / COMMUNICATION
	Social media channels → Product information	PROMOTION / COMMUNICATION
	Online advertisements → Product information	PLACE / CONVENIENCE PROMOTION / COMMUNICATION PLACE / CONVENIENCE





Figure 6. QR-Code on exhibition stands

#### 4. QR-Codes on social media channels leading to product information

B/S/H/ Turkey is very active on social media. Therefore, it is planned to integrate QR-Code based product information into the social media channels in order to reach consumers via the social media.

#### 5. QR-Codes on online advertisements leading to product information

It is planned to place QR-Codes on online advertisements on B/S/H/ Turkey's online shop to provide the customers with detailed product information.

#### 4.3. Findings

The findings of this study indicate that QR-Code technology is used for all the brands of B/S/H/ Turkey in different marketing activities, such as in campaign brochures, in stores, on products themselves, etc. The major contribution of QR-Codes is on the marketing mix element, *promotion/communication*. QR-Code scanning leads mostly to extra product or service information. The influences of QR-Codes on other marketing mix elements are not observed in this case study. Two planned usage scenarios alone concern not only the promotional activities but also the marketing mix element, *place/convenience* since it should make it possible to purchase products after scanning the code (see Table 4).

The increasing QR-Code applications in several marketing activities indicate that B/S/H/ Turkey believes in the QR-Code technology and intends to invest in it, but gradually. Though QR-Codes can influence also the other marketing mix elements such as, *product/consumer*, *price/cost*, and *place/convenience*, B/S/H Turkey has not yet taken advantages of these. The reason for this is that QR-Code is a relatively new technology and it is assumed that its acceptance depends on many factors. If the degree of consumer acceptance is high enough, B/S/H Turkey would decide to expand their QR-Code usage in other marketing mix elements as well.

At this initial stage, following suggestions are made for QR-Code applications while considering the other marketing mix elements other than *promotion/communication*:

- *Product/Customer*:
  - Adding customer surveys to QR-Codes on product brochures, catalogues in exchange for extra benefits
  - Offering the possibility to contact the customer services

by scanning the QR-Code on electronic devices

- *Price/Cost*:
  - Giving access to discount coupons by scanning the QR-Code on product brochures, catalogues, price magnets, etc.
- *Place/Convenience*:
  - Linking with online shop of B/S/H/ Turkey by scanning the QR-Codes at various places, such as product brochures, catalogues

## 5. Conclusions

The results of this study offer key insights to theory and practice both. Theoretically, this work investigates the effects of mobile marketing and especially, the effects of QR-Codes on marketing mix elements of the 4Ps and the 4Cs. On the practical side, the findings of the theoretical work are investigated within a case study. In practice, the outcomes of these effects and their advantages are realised gradually. The major influence of QR-Codes is on the *communication/promotion* element of marketing mix since QR-Codes give customers the possibility of easy access to various forms of information and they constitute a customer initiated pull-based mobile marketing strategy. Even when QR-Codes have been used just for the *promotion/communication* mix in the case under study, there is a positive tendency towards a wider use of QR-Codes in all remaining marketing mix elements assuming that QR-Code based marketing strategies are accepted by customers, and success is promising. In this regard, further studies can be focused on the analysis of QR-Code usage of customers with respect to its quantitative effects on marketing activities.

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