MARKETING 4.0: IMPACTS OF TECHNOLOGICAL DEVELOPMENTS ON MARKETING ACTIVITIES[1]

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Abstract

Technological developments, which have transcended just being an innovation, have a profound influence on production processes and daily life of consumers by changing their habits and behaviors. Comparing the production technology and daily life of the 1950s with today, the changes are apparently noticed. Therefore, proceeding in a parallel manner with the changes in technology, marketing activities have converted to Marketing 4.0. Thus, in the light of literature, this study systematically aims to reveal the changes in marketing activities based on technological developments and to explain the distinctive features of each marketing stages. Hence, in this study firstly the changes in marketing activities are investigated in terms of changes in industry, markets and consumers. It is understood that marketing activities can be examined in four stages namely; Marketing 1.0, Marketing 2.0, Marketing 3.0 and Marketing 4.0. The differences of all stages are explained in detail. Finally, the transformation of marketing mix elements has been investigated based on technological developments. Thus, the relationship between technology and marketing has been addressed in a comprehensive manner.

Keywords: Marketing 1.0, Marketing 2.0, Marketing 3.0, Marketing 4.0, Marketing Mix

Pazarlama 4.0: Teknolojik Gelişmelerin Pazarlama Faaliyetlerine Etkileri

Öz

Teknik bir yenilik olmanın ötesine geçen teknolojik gelişmeler, tüketicilerin alışkanlıklarını ve davranışlarını değiştirmek suretiyle günlük hayatı derinden etkilemektedir. 1950'ler ile günümüzdeki günlük hayat kıyaslaması yapıldığında, bu değişimler açık bir şekilde görülmektedir. Bu nedenle pazarlama faaliyetleri de teknolojideki değişimlerle paralel bir şekilde ilerleyerek, tüketicileri tatmin etmeye yönelik yeni uygulamalarla Pazarlama 4.0'a dönüştüğü görülmektedir. Bu nedenle, bu çalışmada pazarlamanın teknolojiyi takip ederek geçirdiği dönüşüm ve bu dönüşümün pazarlama karması unsurlarında meydana getirdiği değişimler sistematik bir şekilde ele alınarak, teknolojik gelişmelerin pazarlama faaliyetleri üzerindeki etkisinin vurgulanması ve her bir pazarlama döneminin ayırt edici özellikleri ile birlikte detaylı bir şekilde açıklanması amaçlanmaktadır. Bu amaç doğrultusunda, ilgili literatürden hareketle pazarlama faaliyetlerindeki değişim endüstri, pazar ve tüketici yapısındaki değişimlerle birlikte ele alınarak, Pazarlama 1.0, Pazarlama 2.0, Pazarlama 3.0 ve Pazarlama 4.0 olmak üzere dört ayrı dönemde incelenmiştir. Bu dönemlerin ayırt edici özellikleri açıklandıktan sonra teknolojinin pazarlama karması unsurlarında meydana getirdiği değişimler detaylı olarak ele alınmıştır. Bu nedenle bu çalışmanın teknoloji ve pazarlama arasında ilişkiyi kapsamlı bir şekilde incelediği düşünülmektedir.

Anahtar Kelimeler: Pazarlama 1.0, Pazarlama 2.0, Pazarlama 3.0, Pazarlama 4.0, Pazarlama Karması

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Introduction

The history of humanity can be divided into various periods based on the materials, tools, equipment, machinery and eventually technology used in a time span. In this context, Crawford (1991) divided society into four categories namely; primitive, agricultural, industrial and information. Technological developments have been a significant role on economic and sociological changes of the world. Particularly, the invention of steam engine and uses of basic machines working with steam power has changed firstly manufacturing and then daily routine of people leading industrial revolution with the transformation of agricultural society to industrial society. According to historians, industrial revolution has covered a long period which has started at 18th century and has been continued until present (Lasi et al., 2014, p. 239). However, industrial revolution has been examined in four stages, namely Industry 1.0, Industry 2.0, Industry 3.0 and Industry 4.0 (Drath and Horch, 2014, p. 56). Industry 1.0 was regarded as the starting point of industrialization with the use of steam engine (Wahlster, 2012). After almost a century, development of assembly lines has increased mechanization in manufacturing, hence Industry 2.0 has emerged (Baygin et al., 2016, p.1). The digital programming of automation systems has been used in production leading to Industry 3.0 (Drath and Horch, 2014, p.56). Finally, Industry 4.0 has begun with the uses of internet technologies in production (Lasi et al., 2014, p. 241). Hence, the developments of technology have altered production from Industry 1.0 to Industry 4.0 and these improvements have led to increase in the production capacity of organizations. Technological developments have not only affected production capacity but also markets to reach. With the help of the developments in communication and transportation technologies, businesses have expanded their target markets and started to operate globally. Fax machines, telephones, mobile phones, computers and internet have made it possible to communicate all around the world easily (Moncrief and Cravens, 1999, p. 329). In addition to communication technologies, transportation technologies have developed rapidly and helped to reduce the costs and time of shipping of most products. Thus, businesses have begun to operate globally leading to emergence of global markets.

Globalization has proliferated the variety of the alternative products in the market, hence the level of competition in the markets has increased. Marketing strategy has become significant for organizations to facilitate and sustain competitive advantages (Kotler and Keller, 2006, p. 329). The increase in number of products with different brands has not been the only alteration in the market. As the choice of products has increased, consumers have begun to compare the products. Especially the developments in information technologies have facilitated to gather information about products for consumers. Thus, consumers have become more conscious.

Technology has also changed consumers' daily routines by altering their daily way of engagements (İnal, 2009, p. 108), this leads consumers to gain new attitudes and behaviors (Koufaris, 2002, p. 206). Especially, information and mobile technologies have been known as initiators of a new era named information society due to their tremendous impacts on daily life of consumers (Webster, 2006, p. 8). Nowadays, smart devices, mobile technologies and wireless internet connection have been used by the large part of the human population. According to the statistics, one in every four has used smart phone (Ntalkos et al., 2015, p. 540). These kinds of mobile technologies help consumers to communicate continuously and to obtain information easily. Therefore, these digital consumers are different from those in the past (Kotler et al., 2016, p. 26). Since the developments in technology have affected important surrounding factors of marketing such as production facilities, markets and consumer behaviors, marketing activities has changed in parallel manner with the technology.

Against the background briefly presented above, the aim of this study is to determine the effects of technological development on marketing activities. For this purpose, in the light of current literature, marketing activities are examined in four stages respectively; Marketing 1.0, Marketing 2.0, Marketing 3.0 and Marketing 4.0. The main features of each marketing stages and the differences among them are examined. Finally, the effects of technological developments on marketing mix elements are studied. Since this paper explains the relationship between technology and marketing comprehensively and holistically, it is believed that it makes a significant contribution not only to the body of knowledge but also to the practitioners to help them to understand the issue from a wider angle.

Marketing Evolution

Many radical changes have taken place in the world since the Industrial revolution. Especially rapid developments of information technologies increased the pace of the changes in the last decade. Nowadays the world has become a global place where both geographic and cultural boundaries between nations have become transparent and people all over the world have connected each other via social media and the internet. Technology and globalization have also changed the rules of trade. In business life the data has become the most important asset of the companies and the companies which manage data properly have possessed the key of achievement. Keeping pace with the changes is required for sustaining the business life. Thus, marketing activities have transformed from Marketing 1.0 to Marketing 4.0 in parallel manner with the technological developments.

Marketing 1.0.

Marketing 1.0 was the first stage of marketing which has consisted of various concepts namely production concepts, product concepts, selling concepts and mar-

keting concepts. It is noteworthy that industrial revolution had induced to emergence of Marketing 1.0 (Jara et al., 2012, p. 854). Therefore, Marketing 1.0 started with production concepts as a result of the Industrial revolution. In the early days of Marketing 1.0, there were a small number of businesses engaging in production in the market and these businesses focused on achieving high production efficiency with low cost (Kotler and Keller, 2006, p. 15). In order to ensure this, businesses used industrial machines and so that they could manufacture standardized products massively. In that term, consumers were regarded as passive and they had no impact on production process of businesses (Nowacki, 2015, p. 313). Henry Ford, the founder of automotive industry, declared in a meeting any customer can have a car painted any color that he wants so long as it is black. In marketing literature, many researchers came to a consensus on that this speech summarized properly the production concept of Marketing 1.0 (Mucuk, 2010, p. 8).

With the economic developments, the number of businesses in the market began to proliferate. As the alternative products in the market rapidly increased in time, businesses believed that customers would choose the product that offer high quality. Thus, they varied their business strategy to product concept rather than production (Kotler and Keller, 2006, p. 15). Businesses concentrated on manufacturing high quality products and differentiating their products from others in order to attain competitive advantage. In this stage, consumers were still passive but businesses realized the significance of consumers leastways. After a while, businesses noticed that quality and innovativeness were not sufficient for selling the products. Consequently, the selling concept came into prominent topic. Businesses attempted to sell aggressively with promotions and advertising (Kotler and Keller, 2006, p. 15). The focus point of organizations was to persuade consumer to buy more. The accuracy and validity of the messages given in advertising campaign were not important so that organizations implemented aggressive selling activities at the cost of deception of consumers.

In the middle of 1950s, it has been understood that misleading selling activities could not yield profit in the long run. Businesses discerned that customer satisfaction was the key factor of business success. Businesses shifted their strategy to marketing concept. With the marketing concept, the businesses converted their strategy from finding right costumers for their products to finding right products for their customers (Kotler and Keller, 2006, p. 15). However, businesses merely focused on manufacturing products that satisfy customers' physical need even in marketing concept.

With an overview of Marketing 1.0, although Marketing 1.0 has been a long period that experiencing many transactions between production concept and marketing concept, businesses generally focused on products, not customers in this term (Tarabasz, 2013, p. 128). Therefore, Marketing 1.0 was evaluated as pro-

duct-based marketing. Businesses targeted to manufacture high quality products which provide customers functional benefits (Kotler, 2011, p. 133). Marketing 1.0 strategy consisted of basic marketing mix elements namely product, price, place and promotion strategies (4P) and these were thought sufficient to persuade consumers to buy products (Jiménez-Zarco et al., 2017, p. 8). The main marketing communication channels were traditional media so, marketing communication with customers were unidirectional (Erragcha and Romdhane, 2014, p. 138).

Marketing 2.0.

Rapid progression in technology, globalization and economy led to change social and business life radically. On the one hand, the buyer power has increased in connection with economic conditions and the choice of goods in the market that customers could purchase have continued to increase with globalization, on the other hand, communication and access of information have become easier thanks to technological developments. Especially Web 2.0 technologies altered the communication from monologs to dialogs (Tarabasz, 2013, p. 126). These developments have begun a chain of particular changes in marketing.

First of all, on account of plenty of similar goods in the market and the facilitation of internet technologies to access information, consumers started to search, question and compare the products before they gave buying decision. Additionally, the buying power of consumers has increased, consumers started to purchase products not only to get functional benefit but also emotional benefit. Marketers realized that consumers have bought more consciously under the influence of different motives compared to past. For this reason, businesses had to change their marketing strategies as customer-oriented marketing in order to retain their current customers so businesses tried to establish strong relationship with customers thanks to efficient communication. Beside to communication, businesses operated marketing researches to learn the needs and desires of customers and to discover new opportunities (Jara et al., 2012, p. 854). As a result of these changes in marketing, businesses reorganized traditional marketing mix elements as 4C with the aim of sustainable marketing (Kumar et al., 2012). 4C was an abbreviation that consisted of the first letter of customer solution, customer cost, communication and convenience. It was thought that 4P reflected vender point of view, whereas 4C that reflected customer point of view (Mucuk, 2010, p. 33). Becoming a customer- oriented organization required to think like customers and to provide customers various benefits so that businesses begun to consider to find a solution for customer needs with their products, to determine the real cost of product possession for consumers, to communicate with customers efficiently and to make products available in convenient place. Therefore, Marketing 2.0 focused on 4C in contrast to Marketing 1.0.

Another difference between Marketing 1.0 and Marketing 2.0 was the way of communication. In Marketing 2.0 businesses not only used traditional media but also, they started to use internet for communication and promotion activities (Tarabasz, 2013, p. 126). Especially Web 2.0 induced significant differences in marketing activities. With the use of internet as a marketing tool, unidirectional communication turned into double-sided so that businesses could operate marketing communication with their customers interactively (Aldhaheri and Bach, 2013, p.6). Additionally, Web 2.0 made personal treatment to each consumer possible for businesses (Jiménez-Zarco et al., 2017, p. 2). This led to fortify the relationship between businesses and their target markets. Moreover, Web 2.0 technologies allowed anyone to create and share content so that consumers left their passive role in marketing behind and undertook a co-creative role. These consumers who contributed to production and marketing process of organizations voluntarily were called prosumer. Prosumer was firstly defined by McLuhan and Nevit (1972). However, prevalent usage of Web 2.0 technologies facilitated consumers' participation into business processes. Hence, prosumers who have special need and desire or who want to differentiate themselves from others started to demand customized products (Nowacki, 2015, p. 314). Therefore, product differentiation and tailored products became the key marketing concepts of Marketing 2.0 (Kotler et al., 2010, p. 4). Businesses started to behave their customers as if they were king (Craven, 2005).

Marketing 3.0.

Marketing 3.0 is known as value- driven marketing applications (Kotler et al., 2010, p. 4). The center of interest shifted toward human as a whole in Marketing 3.0 (Varey and McKie, 2010, p. 330). In Marketing 1.0 businesses focused on merely functional benefits and these benefits were regarded as sufficient to satisfy mind of customers. In Marketing 2.0 beside to functional benefits, businesses strived to promote their products with emotional benefits in order to enter into the heart of consumers. Because Marketing 3.0 treated consumer as a human being who has mind, heart and spirit, a new benefit as spiritual benefit was added in Marketing 3.0 era (Erragcha and Romdhane, 2014, p. 137). Businesses should create value in order to appeal to the soul of consumers. The environmental and social factors emerged as a result of intense industrialization and globalization sensitized customers in terms of social issues. Therefore, businesses that struggled for making the world a better place with social responsibility projects can touch the soul of consumers (Nowacki, 2015, p. 314). Because social, environmental and economic problems concern everyone in the world, businesses have collaborative role. They have to stimulate all their entities such as stakeholders, employees and customers to work together with the aim of finding solutions for social welfare. Therefore, Marketing 3.0 demonstrated spiritual and collaborative issues as its concerns (Jiménez-Zarco et al., 2017, p. 104).

The sensitivity of consumers to social welfare was not the only change in consumer behavior but also, consumers got new habits thanks to the developments in information technologies. Especially social media altered customer behavior radically. Social media serves as an online communication channel which let consumers share their opinion and experience with other social media users. Social media is an essential platform for businesses as well. Businesses make use of social media for different marketing purposes such as gathering consumer data, establishing marketing communication with consumers and operating promotion activities (Mangold and Faulds, 2009, p. 357). Besides, social media has an essential impact on purchase decision of consumers. As competition increased, the number of advertising consumer exposed to in a day increased as well. This induced to diminish the credibility of advertising credibility on consumers. Therefore, consumers initiated to pay more attention to other users' product experience before giving purchase decision. The nature of social media encourages consumers for sharing their experience so that social media has a vital influence on purchase decision (Wang et al., 2012, p. 198). Additionally, social media accelerated viral content of businesses to reach many people (Chu and Kim, 2011, p. 48). Social media users share the interesting viral content with their friends thus; viral content is displayed by large group of people. Therefore, consumers engaged in advertising campaign of businesses in Marketing 3.0.

Marketing 4.0.

Marketing 4.0 emerged in consequence of various changes sourced from intense global competition, new type of consumers and rapid development in technologies (Vassileva, 2017). Actually, whether it is a new phenomenon or it is a modification of existing marketing implementations is discussed in the literature (Jara et al., 2012, p. 854; Tarabasz, 2013, p. 129; Nowacki 2015, p. 315). Like previous marketing concepts, customers are still the center of the marketing activities however; the difference lies behind the market conditions. Marketing 4.0 is operated in extremely cybernetic marketing system in which business transactions and customer activities can be monitored in real time (Dholakia et al., 2010, p.497).

Marketing 4.0 focuses on satisfaction of customers' needs and desires like first two generations and it tries to create value for all entities like third generation. In addition to them, it offers a direct interaction of consumers with products with enhanced technology (Jara et al., 2012, p. 854). Consumers can either display the features of the product or purchase it by scanning matrix barcode, radio frequency identification (RFID) and near field communication (NFC) tags themselves. This led consumers to become more conscious (Tarabasz, 2013, p. 132). Moreover, interrelated machines enable consumers to design or prepare their personal products without anyone (Jiménez-Zarco et al., 2017, p. 197). As the interaction between human and computer increases, marketing strategies transformed into digitalization

(Vassileva, 2017, p. 47). Traditional trade firstly converted into e-trade and then m-trade. Technology improves continuously and affects both business and social life. For this reason, the main purpose of Marketing 4.0 is to predict the future developments in the market and mould marketing activities based on this foresight. Therefore, consumer insights, data management and advanced analytics are key factors of Marketing 4.0 in order to forecast the future trends (Vassileva, 2017, p. 49). Table 1 summarizes the main differences among marketing concepts.

Table 1: *The main differences among marketing concepts*

Specifications	Marketing 1.0 (Product-centric)	Marketing 2.0 (Customer-oriented)	Marketing 3.0 (Value-driven)	Marketing 4.0 (Localized virtual marketing)
Objective	Sell products	Satisfy and retain customers	Make the world a better place	Today create the future
Enabling forces	Industrial revolution	Information technology	New wave technology	Cybernetic revolution and Web 4.0
The market seen by companies	Mass buyers with physical needs	Smarter consumers with mind and heart	Whole human with mind, heart and spirit	Collective of fully conscious buyers, co-creative products
Key marketing concept	Product development	Differentiation	Values	Mass customization, JiT
Company marketing guidelines	Product specification	Corporate and product positioning	Corporate vision and values	Values, vision and anticipation
Value propositions	Functional	Functional and emotional	Functional, emotional and spiritual	Functional, emotional, spiritual and self-creative
Interaction with customers	One-to-many transaction	One-to-one relation	Many-to-many cooperation	Many-to-many co-creation and cooperation

Source: Kotler et al. (2010) and Tarabasz (2013)

Table 1 shows the changes in technology enable the shift from Marketing 1.0 to Marketing 4.0. As markets, behaviors and values of consumers have altered align with technological developments, businesses have been obliged to comply with these changes, so new marketing applications have been emerged.

The Effects of Technological Developments on Marketing Mix

The developments in technology enable marketing activities to develop, simplify and accelerate with the use of new tools and new techniques (Jayaram et al., 2015). In the latest form of marketing, one of the most valuable assets of the businesses is the capability of adaptation to technological improvements. Therefore, businesses reshaped their marketing mix elements namely product, price, place and promotion strategies based on the present technology.

Product.

It is seen that the developments in technology cause different changes in physical products and services. To begin with physical products, the salient changes in physical products can be listed as product standardization with mass production, product shelf life extension, product diversification, personalized products and smarter products.

As industries have developed with technologies, the capacity and the speed of production have increased with the use of assembly line technologies in manufacturing so that businesses started to mass production (Adetayo et al., 1999, p. 691). As a product-based approach, Marketing 1.0 focused on production in large amounts. Regardless of the desire of consumers, businesses aimed to maximize their profits by diminishing cost of manufacture with standardized products. Therefore, it was understood that variety of products in the market was low in that term. As competition has increased and manufacturing technologies have improved, businesses tried to differentiate themselves with high quality products. For this reason, key marketing concept of Marketing 1.0 was product development.

The developments in communication and transportation technologies have allowed businesses to trade in global markets. With the effect of globalization, the variety of the products in markets began to rapidly increase. The only obstacle on trade in the global market was the shelf life of the products (Karafakioğlu, 2013, p. 75). Shelf life was considered as a very restrictive factor especially for products that need to be consumed in a short time. Advances in technology, such as heat treatment, rapid cooling, microfiltration, high hydration pressure technology, stressed electric field and genetic modification applications, are important to extend the shelf life of the product (Capon and Glazer, 1987, p. 3; Çelik and Turgut –Balık, 2007, p. 15).

Information technologies caused to emergence of Marketing 2.0 applications. Internet provided consumers easy access of product information and wide variety of product choice. Consumers became more conscious and demanded personalized products that exactly met their particular needs and desires (Rust and Espinoza, 2006, p. 1073). Thus, it can be understood that production, which became massive with the industrial revolution, began to become individualized with information technologies. Therefore, consumers engaged in the production process with Marketing 2.0. As technology develops, the products continue to change as well.

With the transition to information technology, a new era for products has begun. In this period, the rise of technological products in markets attracts attention. It is seen that technological products such as mobile phone and laptops become smaller, lighter and smarter in Marketing 3.0. On the other hand, environmental sensitivity is another significant feature of the products in Marketing 3.0. Products such as household appliances are designed in order to consume less energy and water.

In Marketing 4.0, human-machine connection increases. Therefore, businesses produce and packages products in order to encourage this interactivity. Businesses start to use barcodes and QR codes on the package of the products and advertising messages so that consumers can access all information by scanning these codes. Besides, a radical change in product strategy occurs thanks to internet of things (Zhang et al., 2012, p. 1069). Internet of the things technology connects physical things to the Internet so that machines can be controlled with remote sensor (Kopetz, 2011, p. 307).

In addition to physical products, technology has also affected the basic characteristics of the service. Consumers can easily get information about the services they are interested in through search engines, web sites, social media environments, blogs, forums, satellite images, animations, videos and photos (Sarı and Kozak, 2005, p. 261). Moreover, virtual reality applications provide consumers a digital experience of service. Thus, the intangibility feature of the service is converted to almost tangible (Guttentag, 2010, p. 644). Variability arising from the service organizations can be reduced with the technological improvements so that the quality of service can be standardized with the use of interoperability technology (Buhalis and Law, 2008, p. 614). Thus, the variability feature of the services can be controlled over. Taking into consideration the differences in product strategy till Marketing 4.0, it is observed that the developments in technology have essential impacts on both physical products and services.

Price.

Technological developments play an important role in determining the pricing strategies of products. Developments in globalization and information technologies have transformed countries into open markets (Albay, 2010, p. 214). The ability of businesses to access resources all over the world has provided a significant cost advantage to businesses. On this account, enterprises can provide cost savings by directing to regions where they can recruit raw materials easier and cheaper. Moreover, mass production also diminishes the unit production cost of the products. Therefore, these kinds of cost savings strategies of businesses induce a decline in price of the products.

In addition to providing cost savings and competitive advantage, modern technologies have also reduced the cost of accessing information and joining global markets (Acs and Preston, 1997, p. 1). Particularly selling on the internet provides specific advantages to businesses such as employing fewer employees, reducing cost of establishing store front and eliminating intermediaries. Furthermore, e-commerce transactions are taxed at lower rates, or taxes are not levied on e-commerce transactions in some countries, such as the United Kingdom, (Sharma and Sheth, 2004, p. 700). The difference in the cost elements of the businesses in the electronic environment can also be reflected in the prices of the products

and therefore, it is seen that the prices in the electronic environment are lower than the prices in the physical environment (Çıtır, 2013, p. 484).

Another effect of information technology in prices is the shift to open pricing instead of closed pricing (Sharma and Sheth, 2004, p. 700). Thanks to the Internet, businesses have become transparent and businesses share their products and prices so that consumers can compare the prices easily. Because products are similar in terms of quality, qualification and price, the price of the product determine the purchasing decision of the consumers. Thus, consumers become more sensitive about price (Kotler, 2012, p. 100).

Information technology also altered the agent who sets the price. Price-determining role passes from the seller to the consumer. The consumer can determine the price of the product by auction or open auction method. During the auction process, consumers indicate price quotations. When the time has completed, the consumer who offered the last bid purchases the products. However, on sites such as Priceline.com, the vendor indicates to the merchant how much they will pay for a product without the auction or open auction. If the seller accepts the price offered by the consumer, the sales transaction takes place (Kotler, 2012, p.100).

Place.

The most noteworthy aspect of the impact of technological developments in distribution channels on businesses is that the innovations in information and communication technologies enable the distribution channel management to be carried out more efficiently (Waters, 2003, p. 29). The Internet, intranet and extranet, which provide communication between distribution channel members, ensure more open, more frequent and timely communication among channel members (Kopczak, 1997, p. 231). The increase in communication facilitates and accelerates the share of information in businesses so that it improves the ability of channel members to work in coordination. Efficient communication among channel members ensures efficient inventory management as well (Tekin et al.,2005, p. 118). In addition, as a result of developments in information technology, businesses can communicate with their channel members and consumers in real-time at less cost. This provides a significant competitive advantage to businesses (Close and Xu, 2000, p. 882).

In addition to communication technologies, businesses use various labelling technologies namely barcode, frame code and RFID code. Different software that scan these labels provides information to businesses about qualification, price and availability of the products. Businesses take advantage of labelling technologies not only to operate inventory management efficiently but also to take precautions for fault of employees (Sun, 2012, p. 108). Since businesses record transactions at the moment of sale by scanning these codes, the frequency of sales of specific

products can be apparently observed (Moncrief and Cravens, 1999, p. 331). Based on these data derived from labelling technologies, the businesses evaluate how to manage inventory in the future. Thus, inventory management can be carried out more effectively by using labelling technologies.

Another technological development used in the management of distribution channels is the monitoring of the position of the products with the general positioning service (GPS) technology. Through the satellite systems, the location of all vehicles can be tracked and the businesses and consumers can be simultaneously informed about the exact location of their products.

Technological developments does not only improve inventory management but also reduce the number of channel members between producers and consumers. Nowadays, consumers are able to order their products from the web or mobile application of businesses. This situation allows businesses to work with fewer intermediaries and employees.

Promotion.

Promotion is the last element of marketing mix. Since it depends on communication with consumers in order to persuade them to purchase more, the developments in information and communication technologies have reshaped promotion activities. The fundamental transformation in promotion has been regarded as the changes in the way and the channel of communications. As it is shown in Table 1, in Marketing 1.0 businesses used traditional media to convey advertising message to customers. The nature of traditional media allows one-way communication for mass population so that customers were passive listener of mass message of businesses in this term (Chen and Hsieh, 2012, p. 543). However, information technologies have initiated a new era for promotions with Marketing 2.0. On the one hand, Web 2.0 technologies enable interactive communications; on the other hand, the communication message can be personalized for each consumer. Businesses initiated one-to-one interactive relationship with consumers. With Web 3.0 and Web 4.0, intensity of one-to one relationship with customers increases. Social media and semantic web give businesses significant opportunity for observing customer behavior. Based on the data taken from new internet technologies, businesses can manage more personalized behavioral advertising campaign (Li and Du, 2012, p. 4). Personalized advertising also increases with the mobile technologies. Consumers always carry their mobile devices. Therefore, instantaneous location of customers can be determined by the signals received from mobile phone of customers and businesses send a message to customers' mobile phone based on their locations (Chen and Hsieh, 2012, p. 545). Thus, with developments in technology, marketing communication has varied from one-way communication to interactive communication and the advertising message of businesses transforms from mass content to personalized content.

Another feature that distinguishes traditional media from internet and mobile technologies is that push-type strategies are applied in traditional advertisement, while pull-type strategies are applied in internet and mobile advertisements (Li and Du, 2012, p.2). In push-type advertising strategies, businesses transmit their marketing messages directly to consumers, while in pull-type strategies, businesses have to take permission from consumers in order to send advertising messages (Chen and Hsieh, 2012, p. 544). Hence, while the consumers are exposed to advertising in the push strategy, consumers receive advertising voluntarily in the pull strategy (Peattie and Peters, 1997, p. 148). Consequently, it is understood that consumers don't want to read irrelevant advertisings in magazines and newspapers and they switch the channels when advertising starts on radio and TV (Kotler, 2012, p. 110). However, consumers voluntarily search the advertising content of businesses that is attractive for themselves on search engines and follow the social media accounts of businesses in order to be informed on promotion activities (Xiang and Gretzel, 2010, p. 180). For this reason, internet and mobile platforms are thought to be more effective advertising channel. Additionally, businesses altered their advertising content into viral content in order to arouse curiosity in the consumers and enjoy them.

Beside to advertising, other elements of promotions such as sales promotions and public relations adopt new technologies. Businesses either send coupon as a message or share coupons on social media platforms. Compared to traditional coupons, coupons delivered to consumers via social media and mobile devices are said to be more readable and used (Chen and Hsieh, 2012, p.545). Social media also enables the businesses to manage the crisis or complaints more effectively. In this way, businesses suffered from negative word of the mouth in the past whereas social media helps businesses to control over customer complaints at the present.

Conclusion

This paper has attempted to reveal the transformative influence of technology in marketing activities. Marketing activities have firstly emerged after industrial revolution and as technology has developed, marketing has converted into Marketing 2.0, Marketing 3.0 and Marketing 4.0 respectively, aligns with the changes in industries, markets and costumers. It is pointed out that the focus points, basic objectives and implementations of each marketing concepts are different from one another. Particularly, information and communication technologies have induced a substantial change in both marketing concepts and marketing mix elements. Thanks to technological improvements, marketing has gained more innovative, interactive and personalized point of view and this provides businesses to operate more efficient marketing activities.

Although marketing concepts have varied in time, unfortunately not all businesses have complied with these changes. It is known that some of the organizations still imply previous marketing concepts. However, businesses should move to Marketing 4.0 in order to survive in the digital era. Marketing 4.0 depends on management of big data therefore businesses should invest in talent management in order to train and/or hire employees who make advanced analysis by using big data. Moreover, technology continues to improve rapidly. Thus, fast movement is the most important business asset now. Businesses should speed up their marketing activities and follow the changes continuously in order to thrive.

In order to enhance our understanding on these issues, there is a still need for intensive empirical research which can be the focus of further research.

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Genişletilmiş Özet

Teknolojik gelişmeler sonucunda üretim sistemlerinde, pazarlarda ve tüketici davranışlarında gözlemlenen değişimler pazarlama faaliyetlerini de etkileyerek, pazarlama stratejilerinde önemli değişimlere neden olduğu görülmektedir. Böylece pazarlama stratejilerinin, teknolojideki gelişmelerden etkilenerek, Pazarlama 1.0, Pazarlama 2.0, Pazarlama 3.0 ve Pazarlama 4.0 olmak üzere farklı dönemlere ayrıldığı görülmektedir.

Literatürde, teknolojideki gelişmelerin pazarlama faaliyetleri üzerindeki etkisini inceleyen sınırlı sayıda çalışma olduğu tespit edilmiştir. Bu çalışmalarda pazarlama faaliyetlerindeki değişimlerin genel hatlarla ele alındığı ancak, detaylı bir incelemenin yapılmadığı görülmüştür. Literatürde tespit edilen bu boşluğu doldurmak için bu çalışma, teknoloji ve pazarlama arasındaki ilişkiyi kapsamlı bir şekilde ele alarak, teknolojideki gelişmelerin pazarlama stratejilerine olan etkisini ortaya çıkarmayı amaçlamaktadır. Bu çerçevede, öncelikle pazarlama stratejileri, kullanılan teknolojilere göre Pazarlama 1.0, Pazarlama 2.0, Pazarlama 3.0 ve Pazarlama 4.0 gibi dönemlere ayrılarak ele alınmıştır. Pazarlama dönemleri arasındaki farklılıklar detaylı bir şekilde ortaya konduktan sonra, teknolojideki gelişmelerin ürün, fiyat, tutundurma ve dağıtım stratejileri üzerindeki etkisi literatürden faydalanarak derinlemesine incelenmiştir.

Bu kapsamda, Pazarlama 1.0, sanayi devrimi sonucunda gelişen üretim, ürün, satış ve pazarlama anlayışını kapsayan ilk pazarlama dönemidir. Pazarlama 1.0 döneminin başlangıcında işletmeler, üretim faaliyetlerine odaklanarak, kitlesel üretim ile üretim maliyetlerini düşürmeyi hedeflemektedirler. Ekonomik gelişmeler sonucunda pazarda rekabetin artmasıyla birlikte işletmeler, rekabet avantajı elde etmek için daha kaliteli ürünler üretmeye odaklanmışlardır. Böylece üretim anlayışını, ürün anlayışı takip etmiştir. Kaliteli ürünlerin zamanla pazarda alıcı bulmamaya başlaması sonucunda işletmeler satış anlayışını benimseyerek, tüketicileri satın almaya ikna etmeyi amaçlamışlardır. Bu dönemde tüketicilere iletilen mesajların doğruluğu veya geçerliliğinin önemli olmadığı dikkat çekmektedir. Ancak 1950'lerin ortalarına doğru, yanıltıcı satış mesajlarının uzun vadede işletmeye faydalı olmadığı anlaşılmıştır. İşletmeler, uzun vadede başarı elde etmek için müşteriyi tatmin etmek gerektiğini fark etmişlerdir. Böylelikle işletmeler pazarlama anlayışına geçerek, tüketicilerin fiziksel ihtiyaçlarını karşılayacak ürünler üretmeye odaklanmışlardır. Pazarlama 1.0, zaman içinde farklı anlayışlarının etkisinde kalarak değişmesine rağmen, genel olarak ürün temelli pazarlama olarak değerlendirilmektedir. Bu dönemde tüketici ile geleneksel medya araçları kullanılarak iletişim kurulmaya çalışılmıştır. Dolayısıyla pazarlama iletişiminin tek taraflı olduğu görülmektedir.

Teknolojideki gelişmeler ve küreselleşme toplumda olduğu gibi pazarlamada da önemli değişimlere neden olmuştur. Bu dönemde küreselleşme neticesinde

pazardaki ürün çeşitliliği artmıştır. Bununla birlikte, Web 2.0 teknolojileri tüketicilere ürünler hakkında detaylı bilgi edinme ve ürünleri karşılaştırma imkânı sunarak, tüketiciler daha bilinçli hale gelmesine neden olmuştur. Tüketicilerin satın alma güçlerinin artması sonucunda tüketiciler sadece fiziksel değil aynı zamanda duygusal ihtiyaçlarını da karşılayacak ürünler talep etmeye başlamışlardır. Bu durum müşteri ilişkileri yönetiminin ağırlık kazanmasına neden olarak, işletmeleri müşteri merkezli işletmelere dönüştürmüştür. Bu dönemde pazarlama karması unsurları tüketici açısından ele alınarak, tüketiciye sunulan fayda, tüketicinin ödediği bedel, uygunluk ve iletişim olarak yeniden yorumlanmıştır. Web 2.0 teknolojileri çift taraflı iletişimi desteklediği için pazarlama iletişiminde yeni bir dönemi başlatmıştır. Bu sayede, tüketiciler pazarlamadaki pasif rollerini geride bırakarak işletmelerin iş süreçlerine katılabilecekleri aktif roller üstlenmişlerdir. Böylelikle Pazarlama 2.0 ile birlikte işletmeler müşteri kraldır bakış açısıyla hareket etmeye başlamışlardır.

Teknolojideki gelişmeler sonucunda hızla artan sanayileşme çevre kirliliği gibi toplumsal sorunları beraberinde getirmiştir. Bu dönemde ortaya çıkan Pazarlama 3.0, değer temelli pazarlama uygulamaları olarak değerlendirilmektedir. Pazarlama 3.0 ile birlikte işletmeler tüketicileri aklı, kalbi ve beyni olan bireyler olarak betimleyerek, tüketicilere fiziksel, duygusal ve manevi faydalar sunmaya odaklanmışlardır. Böylelikle işletmeler üstlendikleri sosyal sorumluluk faaliyetleriyle Dünya'yı daha iyi bir yer yapmayı amaçlamışlardır. Bununla birlikte Web 3.0 teknolojileri ile tüketiciler tarafından yaygın bir şekilde kullanılmaya başlanan sosyal medya platformları tüketici davranışlarında ve pazarlama stratejilerinde önemli değişimlere neden olmuştur. İşletmeler sosyal medya platformlarını tüketici verisi toplama, iletişim kurma ve tutundurma amaçlı kullanırken, tüketiciler ise, bu platformlarda geniş kitlelere seslerini duyurabilmektedir. Bu nedenle tüketiciler işletmelere karşı önemli bir güç elde etmişlerdir. Tüketicilerin bu gücünden faydalanmak amacıyla, Pazarlama 3.0'da işletmelerin viral pazarlama uygulamalarına ağırlık verdikleri dikkat çekmektedir.

Pazarlama 4.0, yoğun küresel rekabet, yeni nesil tüketiciler ve hızlı teknolojik gelişmeler sonucunda ortaya çıkmıştır. Pazarlama 4.0'da tüketici pazarlamanın merkezinde yer almaya devam etmektedir ancak, pazarlama faaliyetleri RFID, NFC, bulut teknolojileri, nesnelerin interneti gibi yeni nesil teknolojilerinden destek alarak yürütülmeye başlanmıştır. Bu dönemde, büyük veri yönetimi öne çıkarak, çevrimiçi tüketici davranışlarının takip edilmesi, verilerinin toplanması ve analiz edilmesi tüketicilerin gelecekteki davranışlarını tahmin etmek için kullanılmaya başlanmıştır. Enformasyon teknolojilerindeki gelişmeler neticesinde geleneksel ticaret önce e-ticarete, sonra m-ticarete dönüşmüştür. Böylece, bu dönemde siber teknolojiler hayatın merkezine yerleşerek, pazarlama karması unsurlarında da köklü değişimlere neden olmuştur.

Bu çerçevede, bu çalışmada teknolojinin pazarlama faaliyetleri üzerindeki dönüştürücü etkisi detaylı bir şekilde ele alınmıştır. Teknoloji hız kesmeksizin ilerlemeye devam etmektedir. Bu nedenle işletmelerin dijital çağa uyum sağlayabilmeleri için bu değişimleri takip etmelerinin önem taşıdığı düşünülmektedir. Özellikle Pazarlama 4.0 büyük veri yönetimine dayanmaktadır. Bu dönemde işletmelerin yetenek yönetimine önem vermeleri gerektiği düşünülmektedir. İşletmeler mevcut çalışanları büyük veri yönetimi konusunda eğiterek veya bu konuda bilgili çalışanlar istihdam ederek değişimi takip etmelerinin rekabet avantajı kazanabilmeleri için önemli olduğu düşünülmektedir.