

## Consumer engagement days through Marketing 4.0 and Big Data

### Jornada de engajamento do consumidor por meio do Marketing 4.0 e o Big Data

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#### ABSTRACT

Connectivity and technology changed the way we approach marketing. Marketing 4.0 has become the most innovative marketing approach so far, due to the huge volume of data, big data, information flow and consumer behavior in the digital environment, so it is the Marketing 4.0 - from traditional to digital through the convergence of all these factors, human-centered. More than monitoring, metrics, platforms to monitor, measure and deliver products and services everything is done to a human being and not computers, the protagonist is the consumer. Much has been speculated, but academic journals have little published on Marketing 4.0. Perhaps because the complete understanding of the Marketing 4.0 requires first a thorough understanding of the evolution of marketing, and secondly, an analysis of how a range of technology, and the Internet and social media can be used for marketing strategies in the digital environment enhancing the consumer-brand relationship and their insights into innovative products and services. Taking into account how consumer behavior has changed with the Internet age, we will review concepts of Marketing, analyzing how Big Data can be used to enhance the brand-consumer relationship.

**KEYWORDS:** Marketing 4.0; Big data; Web 2.0; Engagement.

#### RESUMO

Conectividade e tecnologia alteraram a maneira como abordamos o marketing. O Marketing 4.0 tornou-se a abordagem de marketing mais inovadora até então, por conta do imenso volume de dados, Big Data, fluxo de informações e comportamento de consumo no ambiente digital, assim se constitui o Marketing 4.0 – do tradicional para o digital através da convergência de todos estes fatores, centrado no humano. Mais do que monitoramento, métricas, plataformas para acompanhar, mensurar e oferecer produtos e serviços tudo é feito para um ser humano e não computadores, o protagonista é o consumidor. Muito tem sido especulado, mas revistas acadêmicas têm publicado pouco sobre Marketing 4.0. Talvez, porque a total compreensão do Marketing 4.0 requer: em primeiro lugar um conhecimento profundo sobre a evolução do marketing, e em segundo lugar, uma análise de como uma gama de tecnologia, além da Internet e as mídias sociais podem ser usados para estratégias de marketing no ambiente digital melhorando o relacionamento marca-consumidor e seus insights para inovação de produtos e serviços. Levando-se em conta a forma como o comportamento dos consumidores tem mudado com a Era da Internet, vamos rever conceitos de Marketing, analisando como o Big Data pode ser usado para melhorar a relação marca-consumidor.

**PALAVRAS-CHAVE:** Marketing 4.0; Big Data; Web 2.0; Engajamento.

Submission: June 26, 2018  
Approval: December 18, 2018

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## 1 INTRODUCTION

Companies seek new ways to influence the decisions of individual consumers, but also to look to win the hearts and minds of consumers. A new context became apparent, where the emerging social and economic trends increasingly visible highlight the need for alternative and more sustainable ways of living, create and consume. In the last decade, this need has become more widely recognized and technologies to consumers become increasingly possible (Bagozzi, 1995).

The new consumer displays a purchase behavior and socially responsible consumption. As this is a demanding and informed consumer, it has more power with regard to the company being referred to sometimes be able to actively participate in the development of certain business processes. In this context, companies should reconsider how they interact with their customers (Birkinshaw, Hamel, & Mol, 2008). Develop new actions to achieve their full participation and active consumers, and your emotional involvement, is essential to the survival of businesses. The key may be in the new approach of Marketing: Marketing 4.0 from traditional to digital is especially crucial for businesses, since they have increased the understanding of their consumers (Corstjens & Lal, 2012). Online retailers can track not only what customers buy, but also what else they seek; as they navigate through the site; how much they are influenced by promotions, reviews, and page layouts; and similarities between individuals and groups (McAfee, Brynjolfsson, Davenport, Patil, & Barton, 2012). All this flow of information increases the power of the company's strategy, if you have the right tools and also know how to use them. Through this scenario, we intend to offer evidence about the ways that companies use marketing to enhance their relationship with consumers, respectively examine how Big Data can be a strategy to know, understand and measure the needs and behaviors of new consumers (Turban, King, Lee, Liang, & Turban, 2015). We will review the evolution of the 1.0 Marketing, Marketing concept to 3.0. Then we introduce the concept of marketing 4.0, as the evolution of Marketing 3.0, when used intensively with technology. Finally, once renowned marketing 4.0 and Big Data, we will analyze the philosophy and strategic changes exhibited by companies to better serve their customers. This section ends with some conclusions and key management recommendations for companies. For example, companies must know how the use of Big Data has the potential to transform traditional businesses, offering them even greater opportunities for competitive advantage. Managers can measure and therefore manage more accurately by analyzing the collected data provided. Besides that, (Hoffman, Praveen, & Thomas, 2010).

## 2 BACKGROUND: THE ETHICAL CONSUMPTION AND A NEW APPROACH MARKETING

As technology evolves consumers and especially businesses and other organizations to adopt in order to improve their activities. Initially this application technology for commercial activity on the network were known as electronic or e-marketing marketing, based on the use of ICT (Information and Communication Technologies) in marketing. But this use has gone beyond just marketing, revolutionizing the way this information is obtained and used in the process of business decision making (Cova & Holstius, 1993).

Traditionally, companies deploy technological complex applications that collect, analyze, store and distribute information, which are used in decision-making processes (Barry, Helstrom, & Potter, 2016), systems that ultimately make up the heart of intelligence the organization. But the fonts and sizes of the available data are changing, more and more companies are able to quickly analyze a large and varied amount of data they generate and their consumers (Ahuvia, 2005). To a large extent, these changes are caused by connectivity, interactivity and information processing capacity, thereby allowing the use of technology. The first two features are more typical of the information and communication technology, particularly the Internet, and the third is more suitable for certain types of software designed for the collection, processing and analysis of data (Fotis, 2015).

## 2.1 Connectivity and interactivity: The growth of Web 2.0 and social media

People and organizations are more interconnected than ever. This allows them to share a virtual space with global reach in order to obtain information, to communicate, interact and exchange information, knowledge or any other product, thereby overcoming time and space, without geographical barriers (Fortis, 2015; Turban et al., 2015).

On the other hand, the high degree of interactivity that is possible through communication with these technologies allows the different actors involved in the value creation process - in particular consumers - can develop a more active role in their relationship with the company ( Dholakia, Zwick, & Denegri-Knott, 2010). In this line, Copeland and Malik (2005) show that the new technology enables connectivity and interactivity of individuals and groups, and to facilitate the spread of word-of-mouth and sharing information. The new wave of technology allows people to change from mere consumers to prosumers. A prosumer is a person who consumes and produces media. It is derived from "prosumption" (Toffler, 1980), a business term dot-com meaning "production for consumers."

Through technology, web 2.0 and especially social media have become a tool that allows users to express and collaborate with other people. In this situation, customers can take new ideas, entertain and consume the contents of others (Botsman & Roger, 2010). Social media is a broad and comprehensive term as various social media platforms, on different lines. Communication platforms that include social networking sites (eg Twiter, Facebook, LinkedIn, etc.), Wikis (eg Wikipedia), multimedia sharing sites (eg YouTube, Pinterest, Instagram and Flickr), Virtual Worlds (eg, Second Life), (Kaplan & Haenlein, 2010). These media bases are famous that are used for generation, sharing and dissemination of data like Web 2.0 (McAfee, 2006). Social media and Web 2.0 are used interchangeably. In fact, as social media and web 2.0 are two different terms and concepts. Web 2.0 is related to online software applications; it is an Internet-based technology that allows them to be used, with the aim of sharing information and sharing (Jara, Parra, & Skarmeta, 2012).

Considering that social media refers to the social aspects of using web 2.0 applications, these social uses include participation, transparency, interaction, conversation, community and connection (SpannerWorks, 2007). These social aspects are based on four "principles of openness (of Patterns and external involvement), the production of peers, sharing and acting globally". According to Tapscott, Williams and Herman (2007) social media tools provide a common platform for people in all nations and cultures to generate and share knowledge, information, media, ideas, experiences, opinions, and so on.

The unique features of social media that differentiate it from traditional and online media are: Social media is user-generated and they have more control over their content generation and use. Social media tools not only allow users to generate, publish and share content, but also allow them to critique and classify content online (Dickey & Lewis, 2012). In addition, social media is ubiquitous in nature. It provides opportunities for many people across the world and across cultures to interact with each other and form a global community based on common experiences and interests (Edwards, 2011).

## 2.2 Getting Started with Big Data - Accessing Information

Technology enables organizations to quickly access and manage a large amount of information that is key to their decision-making processes (McAfee, 2006). In this regard, there are many companies that have installed information systems to capture orders, processes and communicate information effectively and efficiently. Some systems, such as CRM (Customer Relation Management), allow the company to monitor and measure the contact with its customers and thereby automates the connections, according to the information it holds. This value is added to the offer made by the company, to differentiate the brand from its competitors and improve the quality of customer service (Brown & Vessey, 2003).

Other systems, such as ERP (Enterprise Resource Planning) provide comprehensive information, making it easier to flow information between departments or company activities. ERP is defined as enterprise management software, a set of integrated applications that are used to collect, store, manage and interpret data from many different business activities. These include: product planning and purchase materials; manufacture or provision of services; marketing and sales; inventory management; and transportation and payment. This system provides an integrated view of business processes, often in real time, using common databases maintained by a database management system (Ravald & Grönroos, 1996).

The applications that compose the system part data through various departments (manufacturing, purchasing, sales, accounting, etc.) that provide the data can be carried out through an ERP that facilitates the flow of information between all the business functions and manages connections with external agents. However, as we can see in the next sections, for online companies the main technological advancement in the field of marketing, is the emergence of software tools that in real time allow the capture and analysis of information generated by the behavior of consumers online (Maglio and Lim, 2016).

In summary, we can see that technology makes it possible to deal directly with customers as well as suppliers and partners. Companies can even use technology to establish relationships with direct and collaborative customers. But, as we shall see, technology also implies the loss of business power with regard to consumers. Thus, the role of consumers is changing due to the intensive use of new technologies (Edwards, 2011).

Consumers are no longer isolated individuals: instead, they are connected with each other. In decision-making, they are no longer unconscious, but informed. They are no longer passive but active in giving useful feedback to companies (Pralhad & Ramaswamy, 2004).

### **2.3 The New Consumer Profile: Why Do Companies Need a New Marketing Concept?**

Over the last decade, the above mentioned changes, particularly evident in Western societies, have favored a shift in the buying and consumption of individual trends. Consumerism involves the accumulation, purchase or consumption of goods and services considered to be non-essential (Kacker, 1986).

The same is considered a direct consequence of a social and economic model that promotes the acquisition of wealth as a sign of social status and prestige. In recent years, consumerism has been seen as one of the causes of the economic, social and environmental crisis we are experiencing (Ahuvia, 2005).

In response, there are emerging new social and cultural trends that advocate sustainable development as well as responsible and environmental consumption. In markets, its impact is evidenced by (a) the development of new business models in companies; (b) a strong concern for society regarding the responsibility of organizations such as social agents, and (c) the emergence of a new consumption model (Birkinshaw et al., 2008).

The new consumer, also called ethical consumers or green consumers, is characterized by being responsible: that is, they are concerned with consuming what they need in a sustainable, responsible way (Boztepe, 2016). For such a consumer, the purchase also involves a series of economic, social and environmental processes. This is a type of person who, at the time of purchase, questions what is expendable and what is not, while judging his own financial capacity to buy (Polonsky, Vocino, Grimmer, & Miles, 2016).

In addition, in relation to the product or service, these consumers make the purchase decision based not only on price or quality (Bostman & Rogers, 2010), they also try to protect and respect the environment and are concerned that manufacturing companies or service providers to respect the rights and principles of social justice and human rights. For example, Biwas and Roy (2015) show that green consumers will try to protect the environment in a variety of different ways (eg recycling, checking that a package is made from recycled material, buying green products, energy saving, etc.).

According to Laroche, Bergeron e Barbaro-Forleo (2001), these types of behaviors are expected in these ethical consumers. But consumers do not always base their buying decisions on their attitudes toward the environment, even if those attitudes can have a strong influence. In this sense, Strandvik, Rindell and Wilen (2013), note that ethical consumers reject certain brands, especially those that focus their image on the positive aspect of consumption.

Boycott a brand is defined as a deliberate rejection or abandonment of a brand (Lee, Motion, & Conroy, 2009), which can result in a number of different responses, depending on the strength of the feelings and behaviors that consumers express (Hogg, Banister, & Stephenson, 2009).

Access to technology has supported the emergence of such consumers. Information and Communication Technologies (ICTs), especially the Internet, provide a means to seek information, but also to communicate and disseminate their opinions and experiences. This demanding and informed consumer is not limited to looking for information online about the products and companies that sell them. They also have sufficient capacity and power to be heard and to demand a certain type of behavior from companies (Mourali & Yang, 2013).

Consumer empowerment increasingly has an extremely relevant and influential power on businesses. Consumers live in a world where everything is just a click away. The Internet has conditioned us to expect information and services on demand anytime, anywhere, for free. They also have the power to share experiences instantly, at the touch of a button (Fotis, 2015).

Consumers, rather than the brand, controls the interaction. As consumers, they do not need advertisers to speak directly to others; through social media and mobile phones, they can instantly share content and recommendations with your friends. They can be influenced in their purchasing decisions through third-party opinions through ratings and reviews that help them determine which products and services they want to buy (Hakanen & Jaakkola, 2012).

Brands need to engage more to be heard. And reshape the identity of the individual (eg, by interacting with others, role-playing, learn and test their social skills), the technology can improve the capacity of the individual by increasing self-efficacy and skills (Amichai-Hamburger, McKenna, & Tal, 2008). This latter form of training is particularly relevant for new customers because it offers a new ability to play a more important role in the creation of corporate value.

This behavior is determined by the desire that the individual demonstrates whether the products are produced efficiently, or if the company is sustainable in economic, social and environmental terms. This process is referred to as co-creation and can occur in a variety of contexts (Bolton & Saxena-Iyer, 2009). In general, co-creation involves the joint creation of value for the company and its network of various entities (such as customers, suppliers and distributors) called here as actors (Perks, Gruber, & Edvardsson, 2012). This concept has been extensively studied in the marketing area. In terms of marketing co-creation is a form of innovation as regards the participation of consumers, employees, suppliers in the various activities creating value needs to be incorporated into new products and or services.

According to Ranjan and Read (2016), co-creation is a two-dimensional concept. The first dimension is co-production, which involves customer participation and involvement of the customer base. The second dimension of co-creation involves value of collaborative activities in use that increase the value of the customer experience. Co-production involves customers taking an active role during the key stages of production of goods and services. This trend towards greater consumer participation has been facilitated by substantial changes in technology, consumer sophistication and regulatory environments.

In particular, the development of Internet technologies that allow consumers to have instant access to stored information and to create and disseminate text, images and voice messages at minimal cost. So the technology is generally seen as a co-creation key factor with the term referring to the customer participation in the development of core offer (Vargo, Maglio, & Akaka, 2008). On the other hand, consumers have evolved from passive audiences to "active participants". With this development, the client role and their interactions with the company have become increasingly important in generating new value for the co-creator client (Nambisan, & Robert, 2009).

The particular context where consumer co-creation is increasingly vital is the product area and

development. In this regard, it is important to take into account the fact that regardless of the loss of control over certain activities they may represent, the company finds important benefits in developing co-creation processes, profitable opportunities and interaction offered have made co-creation an appropriate means of creating value and improving the overall success of new products. In this case, consumers are able and willing to provide ideas for new products or services that can meet needs that have not yet been satisfied by the market or can improve on existing offerings (Ernst, Wayne, Manfred, & Jan-Henrik, 2010). Hauser, Tellis, and Griffin (2006) show that successful R & D depends on in-depth understanding of consumer needs and product development efforts that address these needs, and in particular, the ideas generated through co-creation that will more closely mirror the needs of consumers.

Many companies positively consider this type of behavior by the consumer. Some companies even consider that the participation of the customer must occur in all phases of product innovation (Ernst et al., 2010). However, as pointed out by Edgar (2008), consumers often vary widely in their interest and capacity to participate effectively in the co-creation tasks. Thus, only a few segments of consumers who may be especially willing and able to participate in co-creation activities. These include innovative (lead users) emerging market consumers and experts.

Second (Ogawa, & Frank, 2006), companies establish a strategic level two types of goals:

- The number of consumers with whom they have a close relationship is high;
- That the relationship established, in addition to having a behavioral dimension (a collaborative behavior) also has an affective dimension.

Currently, it reaches the hearts and minds of a large number of consumers is essential for companies and especially in marketing, is a key factor. However, values and motivations that characterize the new consumer is different from a decade ago: this raises the need for a new concept of marketing best suited to the reality of current situation (Perks et al., 2012).

### 3 EVOLUTION OF MARKETING: THE 1.0 TO 4.0

Over the last five decades, marketing has evolved through three steps we call Marketing 1.0, 2.0 and 3.0. In the last decade, a significant proportion of companies have adopted Marketing 3.0, especially through the use of Corporate Social Responsibility (SCR) strategies, which provide a great opportunity to adapt the company to the new social and economic environment (Kotler, 2011). The new reality forced a change of strategy of the Companies and their conception of the environment, as well as a new marketing strategy for the understanding and provision of solutions to the challenges arose (Grönroos, 2000). In the minds of consumers, many products had a distinct positioning due to the fact that they were seen as different and superior from the rest of the products on the market. Other variables, such as people, processes, physical evidence, public opinion or political power had to be considered in marketing strategy (Hoyer, Chandy, Dorotic, Krafft, & Singh, 2010). Consumers have an active role in their social and economic context, and their concerns in relation to human rights, social and environmental problems lead to find solutions to their concerns about how to make the globalized world a better place (Jara et al., 2012).

Figure 1 shows the main differences between Marketing 1.0, 2.0, 3.0 and 4.0, according to (Kotler, Kartajaya, & Setiawan, 2010; Kotler, 2016).

	<b>Marketing 1.0 Centered Product</b>	<b>Marketing 2.0 Centered Consumer</b>	<b>Marketing 3.0 Focused on values</b>	<b>Marketing 4.0 Focusing on Human</b>
<b>Goal</b>	sell products	Satisfy customers and brand loyalty	Make the world a better place	Consumers interact with products
<b>Forces propelling</b>	Industrial Revolution	Information Technology	Connection of consumers (new technologies)	Digital Age (Ubiquity)
<b>As organizations</b>	Bulk buyers with physical	smarter consumers,	Being fully human,	Talks between people

<b>see the market</b>	needs	endowed with heart and mind	with heart, mind and spirit	conducted in a human voice
<b>Key concept of marketing</b>	Product development	Differentiation	values	Value proposition and personality
<b>Proposition of value</b>	Functional	Functional and emotional	Functional, emotional and spiritual	Functional, emotional, spiritual and emotional
<b>Company Marketing Guidelines</b>	Product specification	Positioning of the company and product	Mission, vision and values of the company	humanitarian fields
<b>Interaction with Consumers</b>	A kind of transaction for	One to one relationship	Collaboration one to many	Personal conversations with customers

**Figure 1** - Evolution of Marketing

Source: Adapted from Kotler et al. (2010); Kotler (2016).

As we can appreciate in Table 1, the Marketing 4.0 concept of marketing is centered in the area of human aspirations, values and spirit. He proposes that consumers are complete human beings whose other needs and hopes should never be neglected (Kotler, 2016). This new marketing vision complements emotional marketing with the spiritual marketing. Thus, marketing practices are strongly influenced by changes in consumer behavior and attitude. Moreover, it is a more sophisticated form of orientation centered on the consumer, where the consumer requires more collaborative, cultural and spiritual marketing approaches.

According to Kotler (2016), to succeed, the new marketing must:

- Be holistic;
- Build strong brands;
- Having information and communication system to improve the performance of brand building through some marketing actions based on the promotion and electronic lead.

The axes of the Marketing 3.0 are defined as follows by the three major changes as we saw earlier characterize the new social and economic context: development of new technologies, globalization and a new consumer profile.

It is a marketing where companies can: (a) understand the community issues that concern the business; (B) determine what they are, why they are in business and what they want to become: in other words, what is the company's mission, goals and vision; and having to invite consumers to participate in product development and corporate communication (Van Zyl, 2009).

Companies practicing Marketing 3.0 in order to change the world can not do it alone. In the networked economy, they need to work together with its shareholders, with its channel partners, their employees and their customers. As shown above, co-creation is a major new trends in marketing, but the cooperation should be initiated with partners that share similar sets of values and desires (Hoyer et al., 2010).

On the other hand, cultural marketing is the second of Marketing 3.0 building block. It is an approach that focuses on the concerns and global citizens desires. Companies practicing Marketing 3.0 should understand community issues that relate to your business and puts them at the center of the business model company (O'Hern & Aric, 2009).

According to Kotler and Keller (2013), to achieve success, new marketing should be holistic and build stronger brands through performance rather than simply through promotional. They need to take electronically as well as by building superior information and communication systems.

#### **4 MARKETING 4.0: THE NEXT STEP IN THE EVOLUTION OF MARKETING**

Marketing 3.0 is the value-driven approach, where guests are treated as human beings who are active, eager and creative. Involving a major challenge for consumer-brand relationships because consumers have their own voice, opinion and experience (Kotler et al., 2010). They demand that brands fulfill their deepest anxieties and desires and call for more participation in value creation. So it is just not only focused on the needs and desires of traditional customers. Brands humanize

relationships and create personal conversations with their customers, encouraging them to feel free to talk about their feelings and experiences. Social media become spaces of interaction where customers share opinions and experiences and provide a useful means business where consumers validate, confirm and interact with other consumers in their making purchasing decision (Ghemawat, 2007).

Companies need a new approach to marketing, as marketing 4.0 that integrates the consumer with the technology and also provides solutions based on analysis of information for consumers about their preferences, opinions and needs (Biswas & Roy, 2015).

Jara et al. (2012) show that Marketing 4.0 is more than a simple evolution of Marketing 3.0. The authors describe that the value-based approach evolves towards brand-consumer integration thanks to the intensive use of technologies. But Dunn (2015) points out that marketing 4.0 transforms business rules by changing the interaction with customers in time and space. There fore:

- Marketing objectives are described in terms of brand engagement, loyalty, retention and recommendation, while the perception of consumer quality, satisfaction and experience are the tools used to obtain them (Sashi, 2012);
- Online sales are consolidated, so marketing strategies begin to be designed according to two-dimensional web browser stores (rather than three-dimensional physical stores). In the electronic marketing environment of the last decade, the points of discontinuous connections (residential telephone, business telephone, e-mail) have been replaced by the single, always accessible mobile phone. The implications are large, characterized by network ubiquity, universality, uniqueness and unison (Kurkovsky & Harihar, 2006);
- The evolution of technology goes beyond human-computer interaction. For example, Internet of Things is a system of interconnected devices, mechanical and digital machines, objects, animals, plants or people that are provided with unique identifiers and the ability to transfer data over a network without the need of human to human or human-computer interaction (Wortmann & Flüchter, 2015); Companies can access large amounts of information about brand-consumer relationships through a multiplicity of channels that influence their decision-making process (Vassileva, 2017).

In this scenario, companies need to sort all these parts, in order to develop successful marketing strategies. Access all these parts is critical to achieving a successful market position and high performance (Wang, Wan, Zhang, Li, & Zhang, 2016). But identifying and analyzing the information is only the first step to assemble this puzzle, in the following sections we discuss the steps that companies need to take to get the benefits of Marketing 4.0 and Big Data.

#### **4.1 The first step: Big Data**

In 2013, Forbes published an article entitled Big Data, Analytics and Marketing and Sales Future. They said: "The Big Data is the greatest opportunity to game-changing for marketing and sales since the Internet went mainstream (something that is familiar to the masses) almost 20 years ago." In the following years the Big Data revolution reshaped many business practices. Companies generate vast amounts of information about the consumer's relationship with the brand through a variety of channels that influence their decision-making process. This constant flow of information about the consumer audience and their interactions is critical to design new marketing practices, such as buying programmatic media, audience segmentation, marketing trigger in real time (McAfee et al., 2012).

Second Donnelly, Simmons, Armstrong and Fearné (2015), the Big Data, in short, goes far beyond the mainstream. But this raises an important question: If everyone "drives data" how companies can obtain significant competitive differentiation through its use of information?

It is obvious that this issue raises some doubts and questions about the challenges and consequences of how the use of information can directly influence an approach business marketing strategy (Kotler, 2016). How can companies get data? How can data be part of the marketing approach in business? Or how can data analysis help develop marketing applications? All these issues are relevant to the new approach of Marketing 4.0, also called big data marketing.

## 4.2 Concept

As Beyer and Laney (2012) Big Data describes the information, both structured and unstructured, companies can access, analyze and use in decision-making. For companies, the volume of data is important, but data analysis requires them to consider five dimensions of data:

- Volume. Organizations collect data from a variety of sources, including business transactions, social media and information of the sensor or machine data for machine;
- Velocity. Data flows at an unprecedented speed and should be treated in time. RFID tags (Radio Frequency Identification), sensors, and smart metering are driving the need to handle data streams in near real time;
- Variety. Data comes in all kinds of formats, numeric structured data in traditional databases in unstructured text documents, email, video, audio, stock quotes, data and financial transactions;
- Variabilidade. Em adição às crescentes velocidades e variedades de dados, os fluxos de dados podem ser altamente inconsistentes com picos periódicos. Diariamente, cargas de dados, de picos sazonais e acionados por evento podem ser um desafio de gestão. Ainda mais com dados não estruturados;
- Complexidade. Os dados de hoje vêm de várias fontes, o que torna difícil a relação: coletar, limpar e transformar dados entre os sistemas. No entanto, é necessário conectar e correlacionar relações, hierarquias e várias ligações de dados que estão fora de controle.

## 5 MARKETING 4.0 E O ENGAJAMENTO COM O BIG DATA

The Big Data is very helpful in marketing strategy, but there are some things that every organization should keep in mind to help ensure that large data lead to success. The range of possible uses for big data can seem overwhelming, so it should start by focusing on a few key objectives (Chen, Chiang, & Storey, 2012).

Once the organization has identified what data would be relevant, they need to analyze and correlate the data to obtain a coherent reading of the scene. In addition, they should note that the use of big data offers an in-depth exploration of a measure reality (Dumbill, 2013).

The knowledge gained from the initial analysis can be further explored, with richer insights, deeper and emerging at a time. These can be useful to develop some specific strategies and actions to boost growth. But companies need the knowledge and experience that managers have in order to start the design of a proper marketing strategy (Strandvik et al., 2013).

The Big Data supports and reinforces the Marketing 4.0 model using the data acquired from buying customers makes companies understand how to enhance the customer shopping experience and how to perform a more personalized approach to brand marketing leading to better involvement customer, retention and loyalty, and marketing and performance optimization (Kotler, 2016).

Watson, Pitt, Berthon and Zinkhan (2002) and, most recently, Allen (2012) show that the limits of marketing, such as the temporal and spatial separation of buyers and sellers, as well as the sequential stage in marketing planning operations They have changed. According to these authors, new marketing models allow design strategies based on the amount of information that businesses have, and according to the new virtual context in which the companies operate.

In this new competitive environment of business that is being described, the use of Big Data in Marketing 4.0 makes it possible to redefine the meaning of both concepts. Thus, in an

interconnected world, the marketing function is to be omnipresent, universal, unique, and therefore, the mark must review concepts and paradigms to improve the experience and engagement of consumers (Vargo & Lush, 2004).

With a great process of data analysis, digital marketers can know if a certain brand marketing approach is working and is able to involve and engage customers. They use this feedback to the transition of a proper marketing strategy approach until you find one that produces a better customer response and interaction of products and services (Choo, Detlor, & Turnbull, 2013).

Finally, the big data provides valuable information for the approach of Marketing 4.0, from traditional to digital that were not available before, become increasingly sensitive brands to market demands (Donnelly et al., 2015).

## 6 CONCLUSION

Marketing 4.0 is more than a simple evolution of marketing 3.0. Marketing 3.0 has emerged as a response to several factors: new technological developments, problems caused by globalization and the interest of people to express their creativity, values and spirituality. While the Marketing 4.0 is the answer in a new business context transformed by the ubiquitous integration of technology in people's lives. It is the evolution of marketing 1.0, based on the product and called for "reason" the customer through rational arguments, the Marketing 2.0 aimed to reach the hearts of customers (oriented relationship marketing). Marketing 3.0 aimed to know their customers one by one and worry about them (your emotions, your feelings, your concerns) and co-create products with them.

Now companies are moving to the Marketing 4.0. Companies that currently apply correctly Marketing 3.0 are those that have been good at marketing 1.0 and 2.0. Marketing of the future means that companies must become an organization that acts as part of a faithful partner network, where people are not just consumers but "whole persons" with "human spirit" who want to make the world a better place.

Marketing 4.0, we see how technology can press companies in many different ways. On the one hand, the use of large volumes of data; the other to change their point of view of marketing. 4.0 Marketing encourages companies to look for targets based on consumer engagement, loyalty and retention. The new marketing approach is ubiquitous, universal, single and uniformity. It promotes building strong brand-consumer relationships.

In turn, the use of Big Data marketing can help achieve the goals of the company, since it makes it easier to understand the behavior of consumers and thus designing marketing actions to personalize customer-shopping experience. So marketing 4.0 can facilitate a more personalized approach to the company's marketing model for better engagement with the customer.

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- <sup>i</sup> Norberto Almeida - Substantial contribution in design and design.
- <sup>ii</sup> Giuliano Carlo Rainatto – Literature review and manuscript preparation.
- <sup>iii</sup> Jucilene Moreira - Critical review of the manuscript regarding the importance of intellectual content.
- <sup>iv</sup> André Luís da Silva - Leadership of the research group and administrative, technical and material supervision.