# TRENDS IN THE USE OF BIG DATA


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Concepts such as the internet of things, artificial intelligence, machine learning, cloud computing and big data are some of the buzzwords of digital technology that improve storage capacity and the progress of machine learning, contributing to a considerable increase in the volume of data (Li et al. al., 2017). The International Data Corporation (IDC) produced the Data Age 2025 report for Seagate, which predicts that the global data sphere will reach 175 zettabytes by 2025, demonstrating that the amount of information produced is so tremendous that there is no simple method to collect, store and analyse it. Big Data is a complicated concept to define precisely since the very notion of big varies in terms of the volume of collected data . On the other hand, data is a concept that refers to a set of data that exhibits various characteristics, such as:

***Volume alludes to the large volumes of data generated daily from various sources.***

***Velocity refers to specific technologies' data collection and processing speed to deliver desired results.***

***Veracity concerns bias, noise and abnormality in the data.***

***Variety refers to structured, unstructured, and semi-structured data collected from multiple sources.***

***Value is one of the most significant data characteristics, as valuable information must be extracted from large data sets.***

***Volatility is one of the biggest challenges facing big data today. It is the process by which the relevance of information is measured.***

***Visualisation refers to the way data is presented, which needs to be accessed and interpreted easily.***

In summary, the concept of big data can be defined as a large set of data that, after being processed through specific software, are quickly made available to users.

The term big data is spread a little everywhere, whether in the form of handling structured data, such as traditional organisational databases (for example, Customer Relationship Management - CRM) or unstructured data, driven by new communication technologies and user editing platforms (e.g. text, images and videos). However, advanced data analysis software systems have emerged with technological innovations that have increased the number of data and significantly shortened their analysis time. The increase in the speed of big data analysis is one of the most powerful technology trends and is transforming

countless business processes and operations around the world. Big Data helps thwart hacker intrusions and prevent fraud by setting strict security and privacy standards. It is important to create policies that regulate data access, use, and privacy in this sense. The legislation emerging around the world on data protection is a good start, but there is still a lot of room to evolve.
Big data allows for predictive analytics combined with data analysis and "smart" machine learning. Predictive analytics is the practical result of business intelligence and big data. Many companies already use predictive analytics to apply artificial intelligence algorithms and perform data mining and predictive marketing to optimise their processes. Data mining is a process of extracting insights from a given set of data, being the basis for business intelligence and big data analysis (Choi et al., 2017). Business intelligence tools make big data more available for use by lowering the computation and experience required to interpret the data. Users of these tools, even if they are not data mining experts, can perform analytical functions such as exploring datasets or performing data mining tasks as long as they know how to use these tools. However, for more demanding analysis, the roles of data analysts and data directors have emerged, and the need for these specialists is already high. In 2019, a Harvey/Nash/KPMG study surveyed 3,600 CIOs and technology executives from 108 countries and found that 67% of them faced skills shortages. The top three most scarce skills were big data/analytics, security and artificial intelligence (AI).

Predictive analytics based on big data explicitly designed for marketing purposes aims to provide knowledge to marketers to define strategies, operations and actions appropriate to the target audiences and customers they are intended for. From this concept, the term "marketing intelligence" arises, which refers to the development of information from data about consumers and customers to make marketing decisions. The data mining technique can help achieve this goal by extracting or detecting patterns or predicting customer behavior in large databases. Decision-making support is a vital issue for organisations and digital marketers, providing insights to help answer critical questions such as: what is the most suitable product for a specific market; which communication channels to use; what is the right price; which type of promotional and advertising actions are most appropriate.

AI is a technology that allows computers to perform tasks that usually require human intelligence. Some of the popular AI applications include automated customer service systems such as machine learning which is a system that can autonomously modify its behavior based on its own experience. This behavior change consists of establishing logical rules, which aim to improve the performance of a task or, depending on the application, make the most appropriate decision for the context. These rules are generated based on recognising patterns within the analysed data.

I will be embedded in a significant part of big data and analytics solutions. This AI integration will

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help automate and improve decision-making processes and increase the accuracy of data analysis. AI will help organisations analyse large data sets more efficiently and discover patterns and insights that would otherwise be hidden.

The Internet of Things (IoT) is another trend to add to the list of big data and analytics trends. IoT refers to the network of physical objects or "things" connected to the internet. These objects can include anything from wearable technology and home appliances to cars and industrial equipment. The number of devices connected to the IoT is expected to grow exponentially. As more and more electronic devices are connected to the internet, the volume of data generated will also increase.

With the IoT, Big Data has more and more data. Understanding purchase intentions, behaviors, needs, wants, and patterns are relevant to marketing. The IoT allows you to collect and store information in real-time about the product's status, how long ago it was purchased, the frequency of use, and other data that allow you to more accurately identify the most relevant moments and messages for each individual.

Streaming data analysis and interpretation allows IoT data to be analysed and deciphered as it is collected in real-time. This makes organisations take appropriate action before an issue becomes critical. In inbound marketing, which is a strategy focused on attracting, converting and delighting customers, the relevance of messages is extremely important, not only in their content but also when they are delivered, in what channel and space.

Social networks such as Facebook and Twitter have led organisations to incorporate information from these platforms into their marketing solutions. In addition to the so-called leads obtained via Inbound Marketing tools, a new way to attract potential new customers is to use Outbound marketing tools based on technologies that blend BigData and Artificial Intelligence.

This is very important when designing Outbound campaigns, as data about consumers (from demographics to everyday preferences) is needed to attract and engage them with products or services. In this way, resources that are usually used to find the right users (such as test campaigns, focus groups to define personas, remarketing, etc.) are saved and invested in Outbound. And so, campaigns are more accurate, attract highly qualified leads, and achieve higher conversions. Spotify, a music streaming platform, already uses Big Data as an ally of its Outbound Marketing strategies. In addition to personalised lists based on each listener's choices, interests, and preferences, the company provides advertisements tailored to the user's profile.

In conclusion, the use of Big Data by companies is a trend that will grow in the coming years associated with AI and IoT. In digital marketing, big data can be a differentiating element in several processes, whether in the consumer behavior predictability or in creating marketing strategies to conquer new consumers, make sales and increase profits.