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# WAYS TO PROFIT FROM BIG DATA AS A BUSINESS

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**ABSTRACT:**

Big Data could offer different improvement possibilities for companies and enterprises if they use it with the right toolsto analyze customers purchasing habits in real time. For years, companies have been implementing technologies to optimize their operations. Now in the age of big data, they can capture much more value by gathering information and as much data as possible to gauge customer preferences and needs [1, 2]. As big data analytics dictate, the way enterprises do business; data-driven strategies are becoming an important requirement for competitive differentiation, higher rates of productivity and better profitability. In the following paper, we will look at the ways companies are achieving such a higher level of productivity with the rise of big data.

Big data is about exploiting opportunities that were hidden within the historical data [3].It consists of a large volume of structured (zip code, address,)and unstructured data (emails, tweets, Facebook likes) that cannot be processed using traditional IT tools [4]. Analytics and software firms are needed to help companies deal with big data, like Apache Hadoop.

Actually,E-commerce is growing tremendously around the World. In the U.S., 5.8% of total sales in the U.S. sales are E-retail [5]. Hence, big data analytics are needed by E-merchants

and companies to gain competitive advantage. By using data analytics, e-retailers can predict what will happen to sales in the future and thus they can enhance their profitability.

Companies and E-Commerce Companies use Big Datain a variety of ways [6]: Dynamic Pricing, Customer service, Personalization and Predictive Analytics. In terms of Dynamic Pricing, big data could help companies compete on price with other websites. Data is gathered from many different sources to decide what the right price should be.

Companies could use different ways to create value, improve segmentation, increase shareholder value and offer personalized communication [7]. By using big data analytics, consumers could be treated as individuals without causing the additional fixed expenses usually associated with the improved services. Actually, BI tools can create data "cubes" by collecting abstractions like units sold and margin by department, by date, by product, by store, taken from transactions. In other words, the data used to take informed decisions is captured in an abstracted form. Data of many types is actually collected and integrated. It could be shopping behaviors, traffic flow or demographics. Cloud services are needed for the implementation of Big Data analytics, and the amount of data depends on granularity (which is the measurements number) and intensity or bits/measurement.

Companies can use Big Data to increase their conversion and their repeat sales by using the data gathered from social networks to know who their customers are [8, 9]. Theycan generate a 360-degreesprofile for their customers by combining the customer touch points within the company and social data with the transactional data. As such, they can develop some understanding of the needs and interests of their customers. As a result of such insight, they can offer the right product to the right customer and at the right time, without disturbing the customers, especially when the process includes recommendation engines.Furthermore, big data will provide very quickly all the needed information about the potential customers and this will reduce the research time spent by sales representatives (which is about 24% of their time). Thus, big data will help companies retain their customers and develop churner and attrition prediction models based on demographic and engagement data. They would be able to identify customers who would be likely to churn so that they can do something to prevent losing them.

On the other hand, the way Macy's uses Big Data presents a good example how to increase the conversion rate by analyzing a massive set of data points, like the out-of-stock rates, prices during promotions, etc...Then by performing optimizations in combination with SKU data. Moreover, Macy's collects data such as frequencies of visits, customer preferences and styles, and they use the data to create incentives at checkouts and a personalized customer experience. In addition, they can send 500.000 different mailing versions of a single message [10].

The largest amounts of data to commercialize are available in the financial and telecommunications sectors [11]. Companies in such sectors usually sell data to companies that do not have good quality data of their own for their own analysis. As an example, millions of transactions collected at the National Australia Bank are used as data (after removing personal information) by a joint venture that the bank itself created with Quatium, a company providing insights to other consumers. Another example is Tesco's collaboration with Dunnhumby to set up a business analyzing transactions. The results about customer's behavior are sold to big manufacturers like Unilever, Heinz, Nestlé and others.

This is often the strategy for startups who build a business model to helpcompanies to use effectively their big data[12, 13].As an example, a Silicon Valley company, edo interactive, performs analysis of credit card transactions and identifies patterns in the purchasing behaviors of customers. Thus, it provides the credit card company with real time insightful results about the transactions completed by its customers and delivers offers of discounts directly at the transaction locations.

On the other hand, in the case of targeted advertising, the data about consumer behavior could be a source of revenue for some companies analyzing and commercializing the collected big data. This is the case of companies in social media. The resulting understanding of consumers' behaviors is injected into targeted advertising for the companies and is then used to decide about the content of the promotions. The advantage is that there will more advertising to the right people, and therefore more improved revenue is expected. Therefore, with big data, marketing will be about launching targeted campaigns [9]. It is a waste of money to send emails to the entire customer base, and customers would unsubscribe altogether anyway. The messages would then be ending up in the spam folders. By selecting the relevant customers, the campaign would be more effective.

In order to make such data-informed business decisions more effective, companies should track thehigh-impact metrics, which determine the conversion rates [14]. For instance, Facebook Likes should not be monitored in a blind way. For online marketing, important data could be the number of website visitors, traffic or where they come from. There are many tools to use, such as Google Analytics. Another key metric is the sales and in particular sales because of promotional offers, and the time of purchase and the device used. This will allow companies to maximize their conversions rates and send tailored promotions in the future. Actually, the way big data works for businesses is by using new tools, such as checking the changes in the volumes of messages, monitoring search terms, the sentiment and how people react about the product and brand or other keywords. Then the company can get some insight how the response is shifting and therefore modify the strategy according to the changing consumers feeling and opinion [15].

With the emergence of big data, the old way of treating customers like individuals is coming back. The purpose is to build long-term relationships with them [16]. Big data is allowing companies to know exactly what customers wanted before these latter ask for it. Purchases will increase, as customer satisfaction will be enhanced. The tons of data that companies collect are about purchases, the type of websites, the interaction of customers on social media and their locations, their response to the changes in the brand and their comments on social media. In the age of big data, any company's aim would be to offer more individualized service and be ready with the right product for the right customer. Thus, companies need to do predictions. That is what Amazon has already tried to do for so long by recommending books and toys to customers according to their interests.By leveraging big data this way, customer service is therefore taken to a higher level. The representative will have all the data in front of him and can solve problems more smoothly without the need to ask questions that are more detailed.

Some companies are using big data to solve Human Resources problems related to health care benefits [17]. Health insurance claims for the 65,000 employees and their families atCaesars Entertainment Corp. areanalyzed in order to be able to control the expenses. Thousands of

variables are included and tracked: the number of ER visits and whether employees choose brand-name drugs or generic ones. The resulting savings were $4.5 million due to recommended cheaper alternatives.

Hiring and recruitment are also changed by using big data. A company in Baltimore, Catalyst IT Services, replaced the slow screening process for 10,000 applicants with an online assessment. That is also what Google does by the way. Huge amounts of data and millions of data points are collected about each candidate: What attributes the candidate could bring, how the candidate answers, what he answers, how he reacts to unexpected questions, how he might skip some questions and come back to them, how quickly he answers, and how he could deal with challenging questions. This approach will eliminate human bias and allow less subjective decisions.

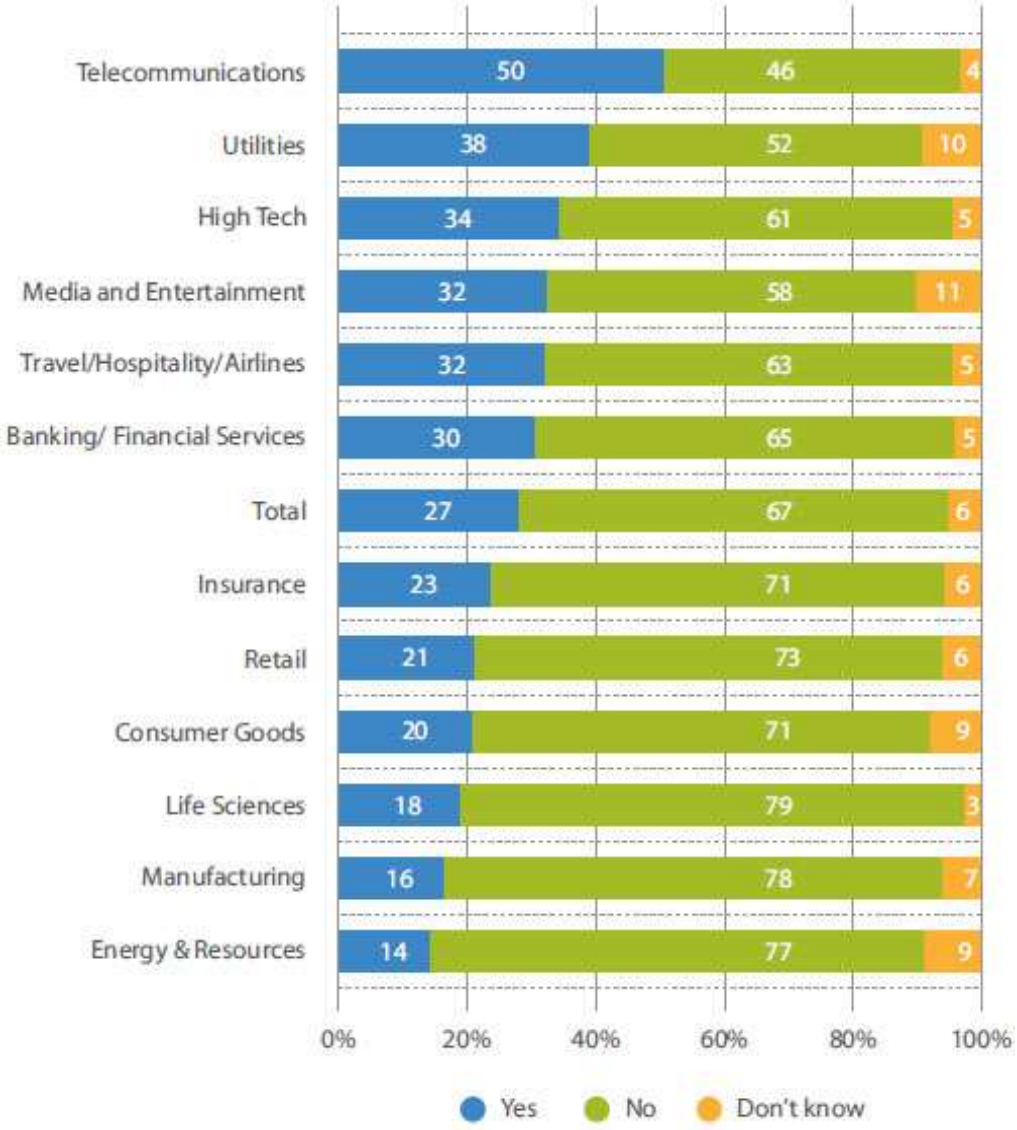
Moreover, big data and predictive analytics are used to make market research less costly and less time consuming. Predictive analytics means identifying events before their occurrence. This can be done by using sales patterns to make predictions and therefore be able to manage inventory needs and avoid running out of stock [18].

With the help of big data, it is possible to predict also the likelihood of a default on a loan or mortgage [19]. Therefore, by collecting as much data as possible about loan applicants, it can then take minutes to decide efficiently whether the applicant will be denied a loan or not. This makes a lot of difference for a business plan now that the lending decision takes days instead of months.

Let us look at the example of Ford Motor Co. who used text-mining algorithms to scrutinize 10,000 comments on websites for auto-enthusiasts and owners, in order to come up with a design for the subcompact model and the features to include like the "three blink". Thus, the less efficient traditional market research is no longer used in the product development. Actually, marketers have always used data to understand their customers. However, now with the rise of big data, they can use more personalized messages on a big scale. The InterContinental Hotels Group PLC has collected data about its 71 million Priority Club members. The details include the level of income, preferences (executive or family accommodation styles). The new marketing campaign has made use of this data warehouse and generated an increase of 35% in conversions.

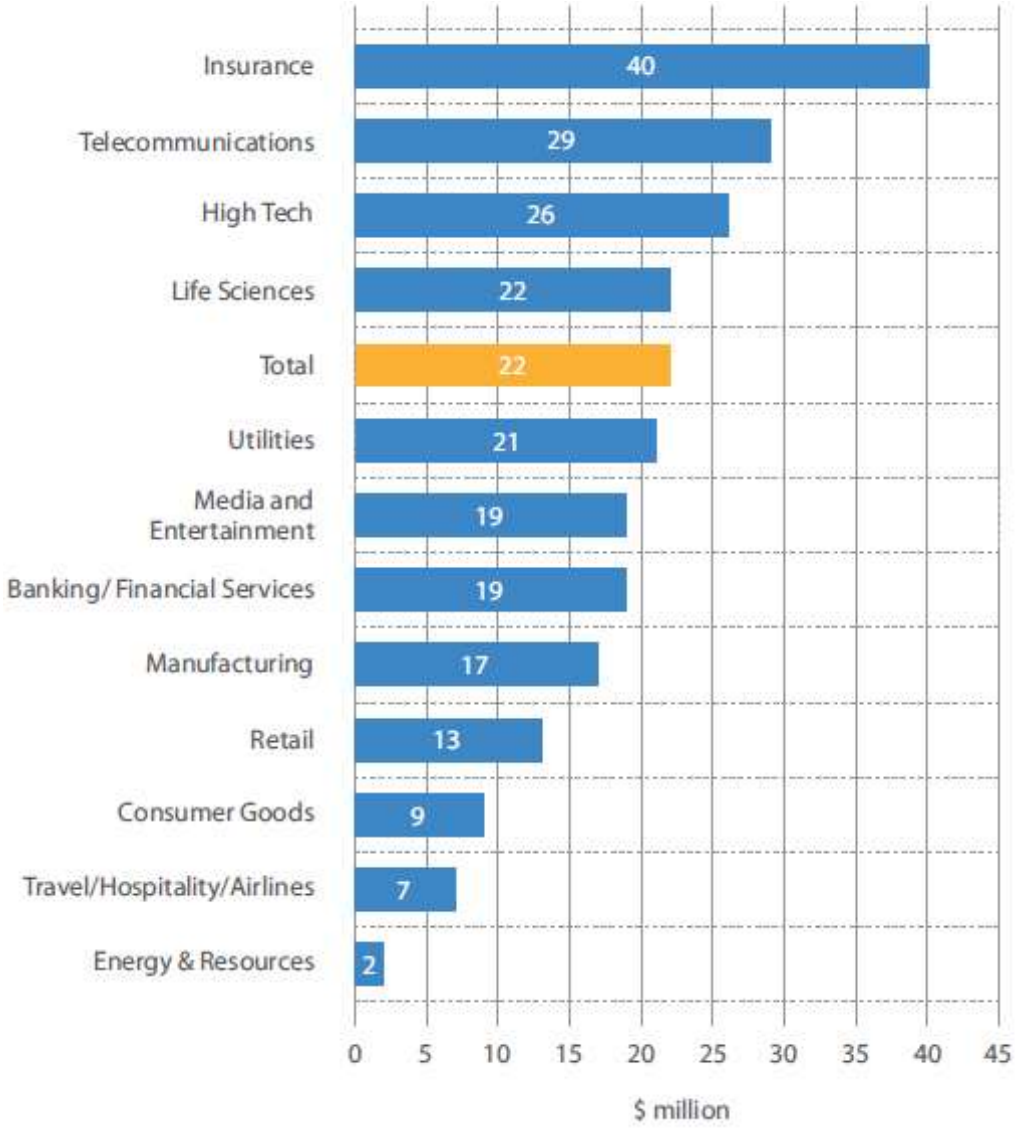
As mentioned before for the financial sector, companies can also make money by sellingtheir big data to third parties. It depends on the type of industry [20]. In the energy sector, only 14% of companies are likely to sell their data. In life science, the percentage is 18%. The following exhibit,*Exhibit I,* shows that half of the telecommunications companies sell their digital data (both *Exhibit I* and *Exhibit II* adapted from [20]).

**Exhibit I: Industries which sell their big data**




This leads to the next obvious question. Which industry makes more money by selling the big data? Even though only 23% of insurance companies sell the big data, on average, the revenue generated is the highest among other industries as shown in the next exhibit, Exhibit II.

**Exhibit II: Revenue generated by selling big data**




Now the question is how do companies store all that data to sell it. In fact, Apple uses a Teradata warehouse system [21]. However, it is difficult to find out how Apple deals with its data, as they are a little secretive about their innovations [22]. Apple actuallyuses Hadoop and applies A/B testing to improve its applications and new features. It is even thought that Apple was struggling in 2012 to catch up with Big Data and that is why they had a problem in entering the Mobile Maps Application market.

## CONCLUSION:

With the data doubling every 18 months, big data is becoming available at lower prices. Some companies are achieving innovations in customer experience with the help of big data, which is becoming the new approach and the prevailing trend. This is also due to the widely available IT tools along with business experimentation. Decisions in real time are becoming data-driven, whether it is about customer service, product development, e-commerce or marketing. The appetite for big data is everywhere. In particular, in financial services, new models have emerged using big data. For example, a vast amount of data is analyzed by algorithmic trading minute by minute, which can offer insights about possible opportunities to capture value instantly[23]. This was not possible ten years ago. Even myself, with a background, and interest in quantitative finance, and a growing interest in big data, I am looking for a good project on big data for my MBA dissertation requirement. I have been exploring with a collaborator of mine about the possibility to investigate very large portfolios (of stocks) with data mining models and big data tools. Any feedback or advice would be appreciated.

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