



Study on the Application of Big Data in Business Operations as the Core Strategy

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Abstract. Big data is used as the core strategy by companies as the key to success. In this paper, the author illustrates three different kinds of companies – the company that makes business decisions based on big data at the first stage, the revolutionary company that utilizes big data to achieve their ultimate goal and the traditional industries that rely on big data to transform for secondary development to prove the effectiveness of applying big data in business operations. Based on the classification and analysis of the company, the author concludes that using big data as the core strategy can help the company make faster and accurate decisions.

Keywords: Big data · New retail · Luckin Coffee · Tesla · STO

1 Introduction

Data has become an indispensable part in almost all business activities these days. As a business decision-maker, it is reasonable to consider how you can make the best decision, gain the maximum profit for the company, as well as grab most consumers' attention in the market. It is critical for business decision makers to be able to quickly identify flaws and understand how to adjust their strategy to outperform their competitors ultimately. In the past, investors and corporate decision-makers often took action by relying on their experience subjectively. For instance, they always decide the specific kind of goods which they will produce or predict the direction of the stock and property markets through news; however, they found that it is more effective and accurate to apply data to their decision-making process nowadays. This paper will analyze three kinds of companies to illustrate the effectiveness of applying big data as the core strategy in business operations. The first is the company that makes business decisions based on big data, which is Luckin Coffee. The second one is the revolutionary company that utilizes big data to achieve the ultimate goal, which is Tesla. The third kind is the traditional industries that rely on big data to transform for secondary development, which are Sunin.com Co and Sto Express Co. Based on the success of those companies, using big data as the core strategy can help the company make faster and accurate decisions.

	For the three months ended or as of					
	December 31, 2017	March 31, 2018	June 30, 2018	September 30, 2018	December 31, 2018	March 31, 2019
Total stores	9	290	624	1,189	2,073	2,370
Pick-up stores	4	83	356	903	1,811	2,163
Relax stores	5	15	22	45	86	109
Delivery kitchens	0	192	246	241	176	98
Cumulative number of transacting customers (in thousands)⁽¹⁾	11.1	485.0	2,917.8	5,984.3	12,529.5	16,872.3
Average monthly transacting customers (in thousands)⁽²⁾	4.0	179.5	1,207.6	1,877.4	4,325.9	4,402.0
Average monthly total items sold (in thousands)⁽³⁾	8.6	487.5	4,001.0	7,760.3	17,645.1	16,275.8
Freshly brewed drinks	8.0	451.7	3,743.7	6,220.4	13,418.8	13,077.2
Other products	0.5	35.8	257.3	1,539.9	4,226.4	3,198.6

(1) The total number of transacting customers since our inception.

(2) Average monthly transacting customers of the three months during the quarter.

(3) Average monthly total items sold is calculated by dividing the total number of items sold during the quarter by three.

Fig. 1. United States Securities and Exchange Commission – Luckin Coffee Inc., 2019, <https://www.sec.gov/Archives/edgar/data/1767582/000104746919002450/a2238391zf-1.htm>.

2 The Company that Makes Business Decisions Based on Big Data -- Luckin Coffee

Luckin Coffee -- which applied technology to their initial strategy -- achieved rapid development. As Luckin Coffee claimed, they collected data through their app so that they can track the specific time and the frequency that consumers order coffee. Moreover, they could also be aware of different kinds of coffee that different people prefer to better improve their service and develop much quicker and efficiently [16]. On the other side, the traditional catering industries always launch specialty products, provide comfortable environments and services at the initial stage to build a reputation and accumulate fans for future branches, and lay the foundation for future profits. For Luckin Coffee, they launched traditional coffee drinks at the beginning, such as latte and mocha, while they provided lots of amount of coupons and discounts with convenient delivery and pickup options from 2018, which attracted a huge number of consumers in the market and become the most famous coffee brand in China. As a technical company, their promotion was not only aimed to acquire customers with good prices but also collect consumer data in this way to make business decisions. In fact, as they only offered online purchases, the customers have become the contributors to their app. By operating as pop-up shops -- with just one or two employees, they can process online orders more efficiently at a low cost. Even though Luckin faced complaints from consumers, such as poor taste and no specialty products, they still expanded rapidly relied on its data collection.

By relying on their own collection of customer data, classify and analyze customers based on their age, occupation, and region, Luckin could establish customer portraits to adjust the location and distribution of future stores, which is impossible for traditional beverage stores. This is also Luckin's core business model, which is the new retail. In the expansion of traditional retail, franchisees and headquarters will conflict with each other due to different personal experiences and inference with limited operation and management capabilities, which lead to slow expansion. However, Luckin has a data analysis department and a business analysis department to apply big data, AI, machine learning, and other technologies to judge the production, circulation, and sales of commodities, so as to establish a database and make decisions about the company's development. As shown in Fig. 1, By March 2019, Luckin had opened 2370 stores and was officially listed on NASDAQ on May 17, 2019 [14].

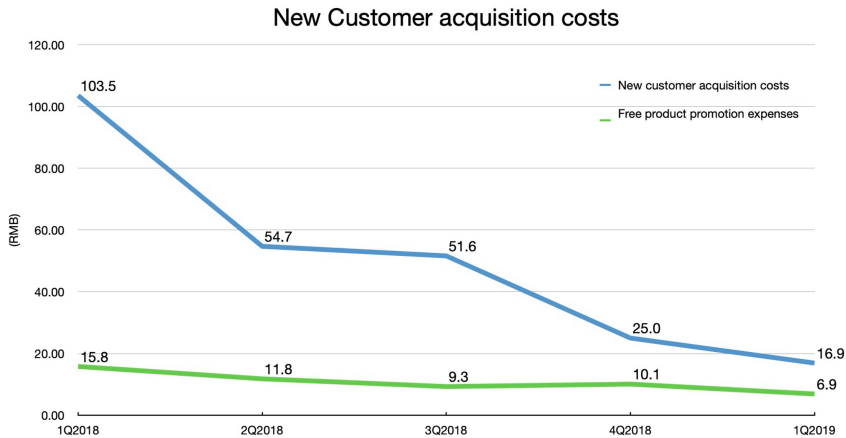


Fig. 2. United States Securities and Exchange Commission – Luckin Coffee Inc., 2019, <https://www.sec.gov/Archives/edgar/data/1767582/000104746919002450/a2238391zf-1.htm>

According to Luckin Coffee's official document for their investors in Fig. 2, it shows that their cumulative number of transacting customers has boosted about 1534 times and the new customer acquisition cost has decreased about 6 times [14].

Try to imagine if they had not used the strategy to collect and analyze the data through the app -- what they have done was opened their shops on time every day and waited for customers to come -- it seems impossible to make this progress in such a short time. Even if serious problems occur at a later time, it is undeniable that the choices of consumers and investors have proved the right model and direction -- on April 15, 2021, Luckin coffee announced that they signed a financing agreement with existing institutional investors for a total amount of 250 million dollars, which included 240 million dollars from Dazheng capital and 10 million dollars from the oy capital, and they also stated that they would be willing to invest an additional 150 million dollars under certain conditions [4]. It also proves that the huge amount of data and the new retail model has made Luckin stand out in the fierce competition. Therefore, due to the huge progress that the Luckin Coffee made, it is obvious to see how the application of big data helps companies make decisions efficiently and accurately.

3 The Revolutionary Company that Utilizes Big Data to Achieve the Ultimate Goal -- Tesla

As the world's largest manufacturer, Tesla's goal has always been to realize autonomous driving, which needs to collect huge amounts of data to analyze and calculate. Therefore, Tesla subverts the traditional designs, keeps simplifying the structure of cars, and produces most of the parts by itself, which enables Tesla to control costs as well. According to the press release of Tesla, the global sales volume of Tesla is 499550 [11], and model 3 is the world's best-selling EV car [2]. Every Tesla vehicle is constantly collecting data from inside and outside relying on sensors and cameras on its body; meanwhile, the data has been uploaded directly to the cloud and calculated over and over again.

Tesla's revenue from FY 2008 to FY 2020

(in million U.S. dollars)

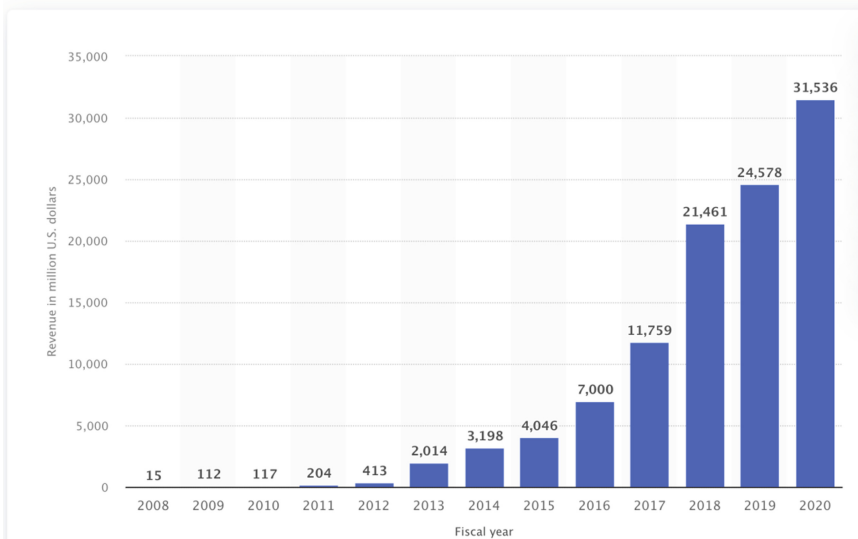


Fig. 3. Tesla's revenue from FY 2008 to FY 2020, 2021, <https://www.statista.com/statistics/272120/revenue-of-tesla/>

For consumers, Tesla can locate the problems and solve them as soon as possible by gathering the data. Moreover, the internal and external sensors could also help Tesla refine the system by analyzing the driver's hand placement by collecting a large number of samples and analyzing it [5]. This is the over-the-air software of Tesla that updates new functions for customers and enables the car to be upgraded remotely, which makes the vehicle become safer, more versatile, and powerful, which is not available in traditional gasoline cars [9]. For autonomous driving, this method of data collection is more efficient than other autonomous driving companies, which rely on experimental cars. According to Tesla's claims, the sensor data has made them create 10 times more accurate map than its competitors, which also makes them gain a nonnegligible position in the market [8]. Meanwhile, Tesla's upcoming Dojo supercomputer, which is expected to be the fifth-largest in the world, trains the neural network that powers Tesla's Autopilot and its upcoming self-driving AI [15].

On the other side, Tesla's business model is "based on direct sales and service, not franchised dealerships" [17], and as the collected data can be applied to Tesla's product design and sales in the most efficient way, without any hindrance from the dealer. According to the statistics of Tesla's revenue, we can see that it has a continuously rising trend and has even boosted from 15 million in 2008 to more than 31 billion in 2020 [1] (Fig. 3).

Moreover, the 740% increase in Tesla's stock price over the past year is the best sign of approval from consumers and investors [13]. Furthermore, the Research and development (R&D) expenditure is also increasing as shown in Fig. 4 [12], which indicates that Tesla

Tesla – Total R&D Expenditure, in US\$ Million, 2010 – 2020

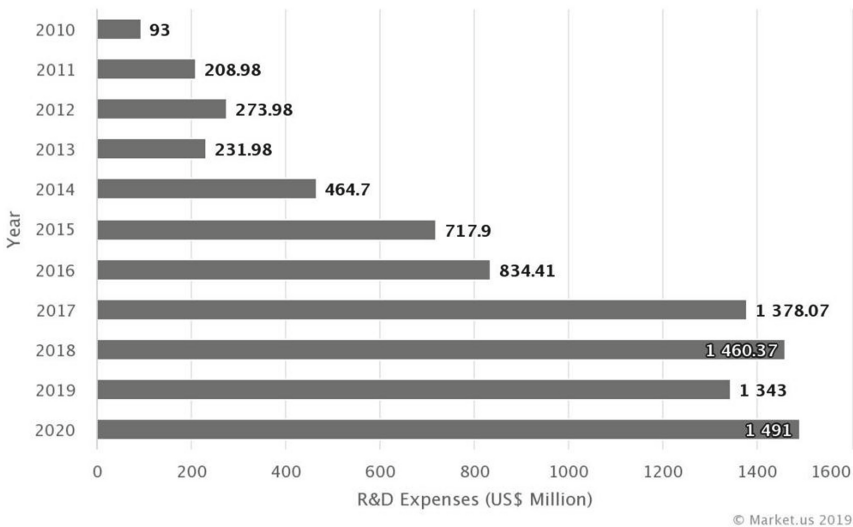


Fig. 4. Tesla – Total R&D Expenditure, in US\$ Million, 2010–2020, 2021, <https://market.us/statistics/automotive-companies/tesla-inc>

keeps making efforts to improve its products and enhance the services and these two data have further proved the benefits big data can bring.

4 The Traditional Industries that Rely on Big Data to Transform for Secondary Development

According to the prediction from Coresight Research, “10,000 closures would represent a 14% uptick from 2020 levels” [6], this is not just because of the pandemic, but more importantly, due to the pandemic has accelerated online shopping to replace the need for physical stores. Traditional industries will hardly survive if they are not reformed and digitized under the rapid development of 5G technology. Traditional stores and supermarkets have lost their competitiveness to e-commerce over the past decade. In China, you can shop everything you need without leaving the room so physical stores have been greatly impacted, and they can only survive through transforming to use the data application. For instance, as a large home appliance store, Suning also established its American R&D center in 2013, transforming into online Internet retail and offline O2O models [7]. The most typical example of big data transformation is the express industries. The traditional express industry is rising rapidly in the era of e-commerce, while the competition is becoming increasingly severe; the pressure is not only coming from the continuous “price war” but also comes from the self-iteration within the industry. It is a huge undertaking that traditional operating models can no longer guarantee when tens of millions of packages are needed to be safely delivered on time every day. However, Sto Express becomes a very successful example of transformation. Three key steps have

been shown on the annual report of 2019 and 2020 [3, 10]. First, the whole business has been moved to Ali cloud, which means that they can use and upload data by joining the Cainiao. Secondly, they applied Minas engine, which is also known as a Packaging engine that can carry out real-time processing, update, and analysis for massive packages to provide powerful data support for intelligent decision making. Finally, they upgrade the intelligence of the network by continuous investment in research to realize the digital scale application of intelligent factories. Under such a big trend, it is less likely for “Price war” to win the future competition and Sto express’s choice is to accelerate the digital transformation. Although the future is still unknown, Sto express has survived on big data.

5 Conclusion

With these three companies, we can see the effectiveness of applying big data as the core strategy. They have more efficient and accurate judgments and growth rates, and become industry giants, which all prove the importance of big data. Nowadays, many other companies are imitating their strategy or copying their success. For example, new energy vehicle companies such as NIO and Xpeng, and new beverage stores such as Hey team are using big data to compete and impact the traditional market and grow rapidly from it. The author believes that in the future, using big data, companies will develop better and gradually open the gap with other companies. At the same time, the transformation of the company can survive this development or even grow better.

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