

The Development of Telecom Equipment

--Taking Huawei as an Example

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Abstract. The telecom equipment industry is one of the most competitive industries globally. It is characterized by a few big corporations that dominate the industry. The industry is also among the industries that have been leveraging Data Analytics, especially Big Data Analytics. One of the big players in this industry is Huawei. Huawei is a Chinese multinational company that is involved in the sale of production and sale of telecommunication equipment, smart devices, and various consumer electronics. This shows how Huawei applies Data Analytics to manage its human resource, accounting, and finance, product design and development, supply chain and logistics, sales and marketing, and support services. The report also makes predictions of what the future of Analytics will look like for this industry. It is predicted that data volume for companies will continue to grow, creating space issues. It is also projected that the use of machine learning will accelerate, and advanced analytics applications will be needed.

Keywords: Huawei; Telecommunication Equipment; Data Analysis.

1. Introduction

Huawei Technologies Co., Ltd is a Chinese multinational technology company headquartered in Shenzhen, Guangdong. The company operates in over 170 countries worldwide and is involved in producing and selling telecommunication equipment, smart devices, and various consumer electronics. It was founded in 1987 and is now one of the global R&D investors. Some of its most significant competitors include Cisco and Motorola Solutions. The company has been doing well despite operating in a highly competitive industry. For instance, the company reported US\$108.5 billion in profits in 2018. Despite its international success, the company has faced several challenges in some markets, such as the US. For instance, after developing the microchip that powers 5G wireless network services. the US raised issues about the development, arguing that it should be severe or dangerous or alarming. And. they must improve to meet the standard and build their footprint in the US.

Essentially, the Huawei industry is highly competitive, operating as an oligopoly market. The industry is characterized by a few giant corporations that dominate the market. Some of the most dominant giants in the industry besides Huawei, Cisco, and Motorola Solutions, among other big companies. The massive investment needed to operate and win in this industry creates a barrier to entry and makes it hard for small companies to enter and succeed. Huawei Tech Market Research (2022) shows that the telecom equipment market is currently valued at US\$510.6 billion. The value is expected to continue rising owing to the boom in the smartphone industry. The industry is one of the industries that have made considerable investments in big data analytics.

Data analytics is the science of analyzing raw data and using it to make decisions. It helps organizations make sense of performance and market data in faster and more effective manner. Current applications of Data Analytics in the telecom industry are vast and across many functions.

The contributions of this paper are as follows: First, in the era of global digital transformation, Huawei has determined its direction. Although the data and information may still fall far short of the ideal goal, it has continuously progressed. Second, extensive data analysis further expands the overall market demand, enabling digital transformation and operations for all enterprises and operators. Third, take the first step in successfully developing Huawei's telecommunications equipment in China to promote the development speed of the world's telecommunications equipment.

2. The overall status of each branch of Huawei

2.1 Human resource management

Organizations are now using data analytics to manage people at work through a concept known as HR analytics. They analyze people's problems and answer critical questions regarding the organization's human resources challenges and opportunities. Huawei appreciates dedicated employees, so it supports and keeps employees motivated by rewarding them based on the results of fulfilling their responsibilities. With over 190,000 employees, Huawei has been relying on Data Analytics to manage these people. According to Li and Zheng (2021), the use of Data Analytics in Huawei's human resource management has enabled the company to make appropriate human resource decisions, increasing employee satisfaction. For example, during the company's first few years of operation, each new employee was given a blanket and mattress, a need discovered through analysis of available data.

2.2 Accounting and Finance

Finance and accounting are other fields where data analytics is instrumental. Accountants use data analytics to get valuable insights about organization finances and develop ways of improving efficiency and controlling risk. The use of Data Analytics also helps to automate activities as well as predict future outcomes. Huawei has been developing big data infrastructure platforms for financial institutions such as banks to manage their finances and accounts. The company uses Data Analytics to prevent financial fraud, manage the organization's finances, and make predictions. The fact that they build infrastructure used by computers (where analytics is performed) is not relevant or an example of the company using analytics for their benefit.

From my understanding, Huawei's data analysis is based on its understanding of operators, users, and networks. Comprehensively use the data of various operators to conduct extensive data modeling to achieve the ultimate commercial success of user retention, service improvement, network efficiency improvement, and external value realization. Huawei's solutions for the operator industry are mainly divided into four levels. At the first-level infrastructure layer, it adapts telecommunications field data such as user behavior data and external data. In the second-level data processing layer, a unified big data platform is used, combined with the third-level service layer to form the FusionInsight platform, which integrates cross-domain data downwards and supports different applications upwards; the last fourth-level application layer is mainly business-driven applications in the telecommunications field, including intelligent operation, marketing, intelligent care, customer experience management, and other applications. After this series of data analyses, Huawei quickly won customers' trust and helped customers build a highly reliable, enterprise-level big data platform that is highly secure, easy to manage, and easy to develop.

2.3 Product design and development

Organizations also apply Data Analytics when designing and developing products. Huawei has been able to conquer the industry due to its massive investment in research and development (Troisi et al., 2019). Huawei uses Data Analytics to get insights into what the market needs before developing or designing its product. According to Troisi et al. (2019), the company used a big data-oriented approach where it considers people's opinions and analyzes the data to make key decisions regarding product design and new product development.

2.4 Supply chain and logistics

Data Analytics is also very useful in supply chain management. Organizations use Data Analytics to predict future demand, which helps them to make better decisions regarding production. According to Lening (2020), Huawei uses big data analytics to create efficient logistics and intelligent supply chain operations. The use of Data Analytics has helped the company achieve supply continuity as it has enabled it to build digital and proactive supply chains.

Huawei combines the supply chain system with blockchain technology to reconstruct the logistics business: using Huawei's powerful blockchain information sharing capabilities, combined with the GIS function of smartphones, to transfer commercial logistics to traditional paper. Instead of signing for goods, use mobile phones to verify the consignee, destination, and receipt, automatically generate electronic tickets, improve the quality of logistics services, and promote the healthy development of the logistics industry. This reform has enabled Huawei to reduce high costs, save time for customers and the company itself, improve market efficiency, and promote the rapid development of the entire supply chain system, which is conducive to the rapid growth of the overall market.

2.5 Sales and marketing

Data Analytics is instrumental in sales and marketing. According to Smith, Stober, and Ulrich (2020), the use of Data Analytics has helped sales and marketing representatives get valuable behavioral data from historical sales and marketing efforts. Companies have been able use data from individual deals and interactions with sales representatives to identify patterns and get valuable insights about what behaviors can help in winning most deals. Huawei has also been leveraging Data Analytics in its sales and marketing operations. According to the company's Vice President of Marketing, Huawei has developed a SmartCare solution that provides comprehensive data analysis of user behaviors -and network status. The use of Analytics in sales and marketing has enabled the company to increase its sales over the past few years, According to Smith, A. S., Stöber, J., & Ulrich, J. (2021).

2.6 Support services

Providing effective support services is the other area where Data Analytics can be beneficial. Organizations that use Data Analytics can predict forthcoming trends, deliver personalized customer experience, adjust their pricing, and make better decisions. Huawei has the Huawei Enterprise Global Service, a platform that provides one-stop service for its enterprise business customers. According to the company's Senior Engineer, Mu Mingjing, the platform combines cloud, big data analytics, and artificial intelligence (Mingjing, 2019). The company uses big data to identify some of the common issues with its products and predicts risks.

Future Applications of Analytics

As seen above, Data Analytics has helped organizations like Huawei perform several critical functions. The applications of Data Analytics have kept on evolving. They may keep on growing and allow organizations to perform more complex functions. According to Kramer (2021), analytics' future is invisible. Technology trends like self-service, data visualization, and business intelligence have been with us and are now gone. In the telecom equipment industry of Huawei that 6G will be the next-generation advanced mobile communication system, but it will go far beyond communication. 6G will serve as a distributed neural network, providing communication links, integrating the physical, network, and biological worlds, genuinely opening an era where everything can be perceived, connected, and intelligent, According Huawei Tech Market (2022). Sensing and AI will be two new usage scenarios that will flourish in the 6G era. It shows that Data Analytics has helped organizations to perform complex functions. For instance, Huawei has been using big data to perform different complex functions. Many of the organizations in this industry have used innovation as a way of competitive advantage. Therefore, Data Analytics is expected to change how these organizations engage in their operations radically.

3. Conclusion and Implications

This article uses Huawei telecom equipment as an example to further introduce organizations using data analytics to perform different functions. Can use Data analytics for human resource management, accounting and finance, product design and development, supply chain and logistics, sales and

marketing, and support services. This article uses Huawei's various departments to reflect the company's financial status, operating conditions, and future development trends.

This article gives us a more comprehensive understanding that although Huawei is at the forefront of the global communication equipment market, in this digital age, Huawei has not obtained complete digital data analysis and is even developing in the vast global market. Under pressure, it has caused economic or R&D hidden dangers. Still, Huawei continues to improve and perfect extensive data management and is inspired to become a leader in telecommunications equipment.

Data volumes for most companies continue to grow. Therefore, there is a need for radical innovations in data analytics and storage. Additionally, it is expected that data acceleration will demand real-time faster data analysis. Therefore, Huawei will need the industry's advanced Analytics applications; It also will be widely needed for those predictive and prescriptive analytics. Otherwise, it also will be required widely for those predictive and prescriptive analytics. These analytics have been used since the pandemic, and their use is expected to accelerate. The future will also be characterized by increased dependence on large data networks. The growth in machine learning is predicted to accelerate. These changes will enable companies in this industry to develop products and designs that resonate with the customers' needs, make better decisions, manage human resources more effectively, and improve customer experience.

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