Discovering Patterns in Textual Data Using SAS Visual Analytic

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Abstract

Today's generation are more tech savvy than previous generations. They tend to complete their everyday tasks from making their daily schedule to purchasing their daily necessities on the internet. Due to the boom in this culture, e-commerce retail stores have increased their retail sales. According to the United States of America's Census Bureau, the retail online sales in the year 2012 has peaked at $45.6 billion from the year 2001. This is an increase of 26.9%. This proves that the digital economy is growing and will continue to grow further. In e-commerce platforms there will definitely be a large requirement for logistics which develop a cross organisational support between supply chain management and retail sales. Using text analysis an in depth review of understanding customer satisfaction towards logistical issues to further enhance product delivery and logistical improvements in terms of logistics operations. Mainly using sentiment analysis. Challenges to product delivery are discussed and viable solutions to overcome current or existing logistical issues are presented in this paper.

Keywords— Text analysis, sentiment analysis, negative, product delivery.

1. Introduction

Text comes in many through many sources which includes, social media, survey responses, product review, support tickets and many other ways [1]. But when there are numerous pathways at which massive quantities of unstructured data are retrieved and sorted. It can be a huge hassle to perceive each and every data and to understand manually. Today with the help of text analysis tools it makes processing and understanding huge amounts of unstructured data. Moreover text analysis tools are able to organise such data in a swift. So what is text analysis? Text analysis is a machine learning technique which automatically extracts value from text data assisted by natural language processing (NLP) [2]. Thus text analysis tools are able to extract, and analyze from unstructured data with much ease using algorithmic logic. There are a few types of text analysis, text classification, sentiment analysis, text extraction, keyword extraction, entity extraction.

In this article, sentiment analysis will be utilized to understand customers behaviour towards a companies service in this case it is product delivery. What is sentiment analysis? Sentiment analysis detects human emotional feedback and undertones in texts in a customer's review or responses. This helps organizations recognise a customer's feedback towards a product or a service offered. Why use sentiment analysis? By utilizing sentiment analysis a company obtains the ability to gain live insights of understanding customers mood changes in each of their feedback, furthermore, it allows the organization to reduce negative customer feedback and allow for an overhaul to their service targeting specific customer groups and increasing overall customers satisfaction [3].

2. Business Issues

2.1 Operations

Hydra is one of the leading companies in the world. The company oversees online and mobile presence in the marketplace of both wholesale and retail trade. Hydra's corporate vision is to promote a healthy lifestyle among the society and for its development. Hydra has created multiple e-business platforms enabling it to establish its brands

presence globally and domestically. Hydra's global success and its ability to thrive is undeviatingly due to its operational strategies through business to business and business to consumers platforms. The company's ability to triumph is because of its suppliers, factories, and its clients. The success of Hydra has been credited to its founder and leader, Kathi, who holds one of the top positions as the top 50 richest asians with a net worth of $2 billion.
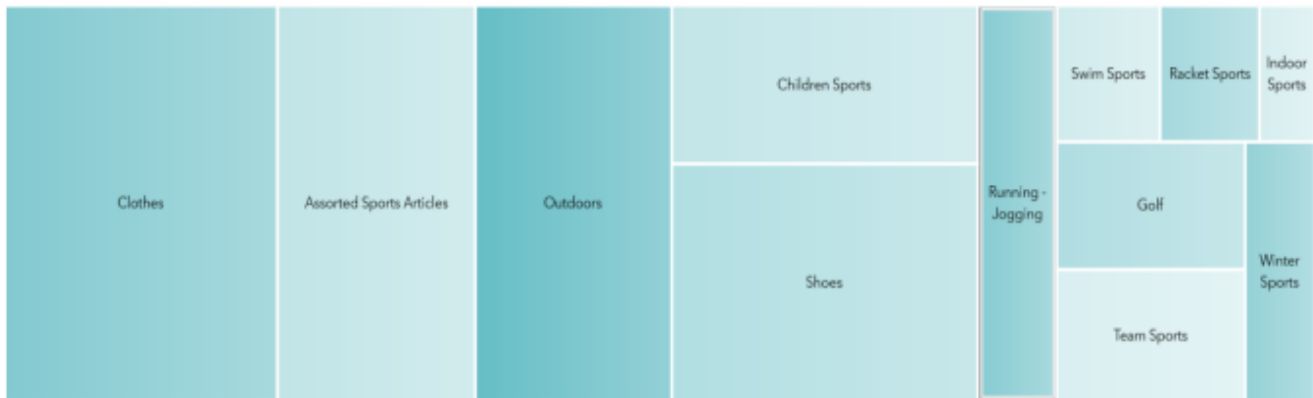

Figure 1 Product Category

Hydra's portal is a platform which allows its suppliers of sports equipment and apparels to connect with its clients. The platform becomes an intermediary between its customers or clients, sellers and suppliers. In this case clients can be as small as households or small community organisations and to as big as businesses following the brick and mortar formula having local stores in designated areas.The brand Hydra as an e-commerce platform has its influence of a far reach covering multiple continents which includes North and South America, Europe, Africa, Asia and Oceania. Moreover with such huge influence over the vast population Hydra has made its platform a trusted destination for numerous brands from different countries to showcase and retail their products and to further their global presence. Through which hydra earns through the margins of transactions on its web portal. It has also made available premium membership at a cost to its membership. Through its memberships Hydra offer discounts and bonuses on purchases made through its web portal enhancing its earnings.

2.2 B2B & B2C Platform

Hydra is currently the best business to business and business to customer service, this is evident in the sales track record from the year 2012 – 2017 (Figure 2). Considering the track record Hydra was the first company to implement such a service connecting both buyers and sellers of the product. Thus have created a significant amount of influence before other competitors could jump on board. Through its platform Hydra has provided the possibilities for international and domestic buyers to communicate and coordinate with their suppliers. As part of bringing out the most on customers experience on its platform, Hydra charges only a small amount as part of its subscription fees, by subscribing users then are exposed to more retailers and brands with higher ratings and to more special discounts. This proved to be the most effective route the company has taken to drive its sales in a positive manner and furthermore creating a global impact through its platform [4].

2.3 Competition

In this fast paced globalization era where technology growth is at its peak, new technology is always being launched every day and alongside it new companies are established. With all these new technology and services there comes increasing competition and increasing customer needs. Which till today Hydra is able to stay in its top position and is able to operate under immense technological pressure thus bumping up in sales and maximising profit [5]. One key factor that Hydra has utilized to its industry leading potential is its convenience of online payment service for its clients. This service is charged to the customers at a fair price as well. Hydra is able to deliver this service for the convenience of its client because of its integration technology to its platform. Thus allowing Hydra to monitor and safeguard all transactions through its platform and minimizing fraud in its platform [5].
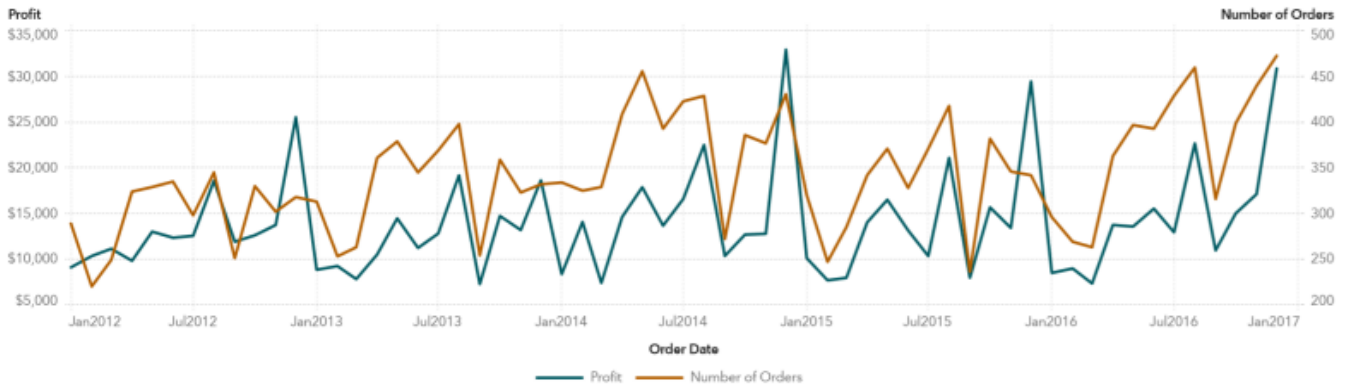
Figure 2 Annual Sales

2.4 Technological initiative

On the other hand to upkeep its standards and to stay on top in the market fighting against other companies and start-ups. Hydra also focuses some attention on its retail suppliers as well. To ensure that they are at their best performance, Hydra awards them with badges to its retailers where Gold is the best retail brand, Silver and Bronze meaning that the brand is at its sustainable sales. This way it ensures that Hydra only ventures with the best retailers to retain its best customers experience. Moreover it does not only keep the clients happy in achieving their goals, but ensures retailers satisfaction from the platform sales is optimal. Thus bringing more retail brands and customers to the platform enhancing operations of the Hyda e-commerce platform. Furthermore, this further ensures trust and reliability and all users and delivers the best experience for everyone. Thus both customers and retailers cohere to the platform otherwise in search of other platforms [6].

2.5 Integration of Strategy

Hydra operates in an intertwined ecosystem which allows it to handle its issues internally and advance its growth in the marketplace. Due to its diligence Hydra has always been trying to revamp its services to secure its retailers and customers satisfaction. To which the company has invested in Big Data Analytic. Today Data analytic has become an abstract as information is key value. Using data analytic Hydra is able use this vital information to understand, interpret study patterns which help improve their operations. Furthermore, in the logistics department data analytic is used in interpreting Hydra's large logistic network to bring out the most effective system for client deliveries [7]. To which Hydra upkeeps to be the most viable competitive position in the marketplace.

2.6 The Challenge

Being in the market over many years and dominating with its strategies in achieving its goals have been important and crucial to Hydra. Thus it is important to understand that many asian countries such as China have a volatile and outright business impression when compared to western countries, this can be a risk to an e-commerce business model like Hydra's where certain measures can be conflicting which can cause certain misunderstanding between business operations [8]. Thus this is why Hydra's committed to providing extensive support to its retailers, suppliers and stakeholders. This approach ensures that all operations within Hydra are prioritized to embrace positivity, teamwork, integrity and commitment. This ensures that the logistics department is always working in regards to improving its operational network to satisfy all clients' needs [9]. In this case extending operational support to small and medium retail brands and boutiques in the locality of different countries to increase their businesses online presence globally through Hydra is crucial and becomes a step up in achieving Hydra's goal.

This prompts as an issue for Hydra in its logistics perspective in a global landscape. As accurate deliveries are key in providing an utmost satisfaction for Hydra's clients. This is where Data analytics become a key element to assess the situation [10]. Using analytical tools to identify and understand issues where location pinpoint is crucial in this case. Understanding issues from clients are crucial to business development. Delivery of product in many cases from the study shows it has been at risk. Using text analytics to identify key locations have shown many have either a fraudulent case or mistakes caused by delivery partners. Since not all suppliers tend to counter check the

requirements of the clients and moreover profit margins from smaller clients tend to be small thus at times it can be deliberate at times where goods can be delivered anyhow causing unsatisfactory [10]. This further is voiced out by unsatisfied clients on the platform putting Hydra's reputation at stake. The logistics department is a crucial and important front face of the company when it comes to buyers and it is a big challenge. Words association to reviews such as risks and dissatisfy accounts to 4407 reviews received by Hydra in the year 2016.
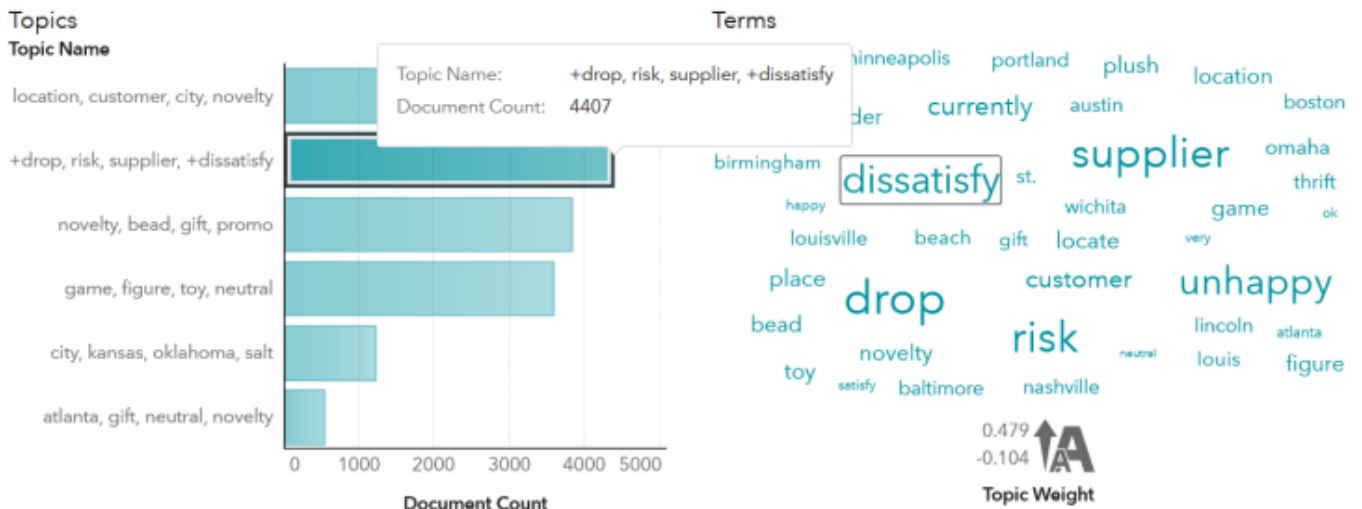
Figure 3 Text analysis on negative words based on documents.

3. Problem Solutions

3.1 Issues and Key Strategies

Today as e-commerce is at its peak, the competitive business model of an ecommerce platform has involuntarily organised a structural ecosystem for delivery systems and its customer service. With increasing demand, delivery modes have to be made in such a way that it adapts to different types, shapes and quantity of items. Such conventional structures have caused some fundamental issues along the way in its span, which should be addressed by the e-commerce platform of its environment [11].

3.1.1 Client Availability Problems

Household clients contribute to 32% of sales on the Hydra platform from around the globe. But they do as well contribute to one of the highest complaint and unsatisfactory rates, which is 47% of total reviews with at least a single negative word used in its sentence. Understanding the analytics it does also show is not all negative based on home deliveries. Since the major success to e-commerce platforms are home deliveries can be completed if the client is in the vicinity of their home or not. It is one's social economical standpoint which has caused the inflexibility in completing a successful delivery [12]. For example ones working hours or single person households or long commutes can be the reasons for delivery failures. Which cost customers unsatisfactory and indirectly driving higher operations cost.

3.1.2 Delivery Strategies

Thus to counter react to such inflexibility in operations companies have to develop different strategies or systems. So if a customer is not in their vicinity at the time of delivery, alternative solutions can be proposed here. One proposition could be organising a new delivery at a different day or time at the conscience of the customer. On a positive note the customer would be satisfied and contribute to more positive reviews. But the down side would be that operations cost would hike up which the retailers would then have to bear decreasing their profits. This option is currently being implemented in the real world.

Another suggestion would be to pre-arrange delivery time and date with the customer through Hydra's e-commerce platform while checking out. This implementation would not be fancied by all parties. But if implemented it would be an additional service which the client would have to bear. On the other hand, retailers and suppliers cost of operations will be minimised as delivery systems internationally and domestic would be better structured. As for Hydra's platform implementing this system would not be an issue and be further appreciated by

all parties. To facilitate delivery operators, customers could establish a secure reception box in their vicinity. This would mean that delivery operators wouldn't have to redeliver to unattended locations and packages would be safe from theft and unwanted weather caused damages to goods. Moreover this would literally translate to minimal delivery cost for all parties. In the real world, this system is implemented only in some places and only in certain first world countries. But if implemented in most countries this would greatly reduce local delivery operations cost and further increase post delivery efficiency.

Another key suggestion would be for suppliers to have joint ventures with local strategic pick up points for instance petrol stations, convenience stores and other 24 hour service points. At which customers can pick their parcels at their convenience. Utilising this service would mean that all parties would be happy, at the same time suppliers delivery operations cost would reduce instead they would have to pay a small compensation towards these locations to store those customer orders. Moreover customers wouldn't have to fork out more to pay for a customized delivery service thus saving [13]. This would also mean more business to this pick up points with more walk ins. These key strategies all point towards reducing delivery problems, reducing operations cost and increase customer satisfaction.

3.2 Reverse Logistics

Another key factor that holds its place in the dissatisfaction of the Hydra's Platforms clients is receiving damaged or faulty goods. Spending huge sums of money on the platforms, clients would expect goods of quality as advertised on the platform. Unfortunately due to certain circumstances goods become damaged or faulty. Thus comes the question when goods are found to be off quality, who is to take the responsibility of those goods and the inconvenience caused to the customer which is then followed by the dispute to the customer in extension of delivery due to the delay. When bulk orders consist of damage or faulty goods it becomes a little harder to spot them immediately. Thus requiring the suppliers to come back to make an acknowledgement of the damages and is forwarded to the retailers attention to replace the goods. This process not only becomes a hassle but further increases the cost to either parties in terms of transportation, replacement and administrative cost. Most importantly the client has to go through the inconvenience as well which would also reflect onto the platform's performance. Further reducing customers' trust on the platform [14].

This event is called reverse logistics, in recent times has become a huge blow towards quality assurance which is promised by retailers and online platforms.otherwise the reverse logistics market has grown as sales on e-commerce platforms increases. It is estimated that 5% of Hydra's sales turns out to be defective outlining that 30% return rate in logistics terms from Business to business e-commerce.

4. Challenges in Implementation

4.1 Challenges

Implementation of strategies would have its pros and cons in a scenario of a real world. Some absolute strategies are disregarded at times due to its higher weightage towards the negative factors even though it may have benefits towards one or other parties involved. As such in the instance when a first delivery is not successful different date and time could be suggested to the client according to the logistics convenience or delivery structure comfort. This strategy will promote positivity to users of the platform and they would feel satisfied with the customer service provided. But on the other hand , the supply chains and the retailers would have to suffice to more cost towards their operations.

Moreover the profits at which the supply chains would decrease, as more delivery re-routes are required to complete one delivery instead. Pre-arrange delivery of time and date with the customer through Hydra's e-commerce platform while checking out. This implementation would not be fancied by all parties. But if implemented it would be an additional service which the client would have to bear the cost at which the clients may frown upon. On the other hand, retailers and suppliers cost of operations will be minimised as delivery systems internationally and domestic would be better structured. Appointing joint ventures with local strategic pick up points for within areas has the biggest pros. Which will be the greatest plus for all parties especially the logistics department. But it can turn into a huge negative if the point of interest is not interested in turning into a partnership. Which would mean that the entire strategy would lose thus not increasing efficiency not reducing logistics cost.

5. Conclusion

Through analysis, we have investigated a key issue pertaining to the unsatisfied clients. Understanding customers behaviour towards a companies service in this case is product delivery. In this case using text analysis, to further interpret I have used sentiment analysis to evaluate clients' reviews by individualising words and evaluating emotional feedback and undertones. Thus by evaluating and interpreting the data gathered it is understandable that there are common critical intonation between a wide variety of clients of Hydra when it comes to product delivery responses. Responses evaluated direct to time sensitivity. When trying to counter respond to such matters, logistics operations cost tends to increase and customer satisfaction does not reduce. To counter this issue, potential solutions or strategies have to be decided upon. Creating local pick up points to decrease operations cost. Another key attempt would be to increase emphasis on reverse logistics to address both large scale orders and smaller goods. These attempts would reduce customer unsatisfactory reviews and further reduce logistics cost.

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