

The Role of Big Data Analytics in Influencing Artificial Intelligence (AI) Adoption for Coffee Shops in Krabi, Thailand

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ABSTRACT

This study aims to explain the role of big data analytics and artificial intelligence (AI) adoption in coffee shops in Krabi its effect towards brand authenticity, brand sentiment, and customer services. The data was collected through in-depth interviews from six purposive samples of coffee shop owners in Krabi. The study findings shows that the coffee shop owners perceived big data analytics and artificial intelligence (AI) is necessary for businesses. The implementation of new technologies and transforming the coffee shops into digital enterprises aid success. The results could benefit coffee shop owners by improving their brand authenticity-brand sentiment and services to respond to customer behavior in a digital era. Furthermore, owners in any industry could improve data analytics and artificial intelligence (AI) management to adapt the business model to their consumer behavior and increase customer satisfaction and loyalty. Finally, high business performance will incur.

Keywords: *Big Data Analytics, Artificial Intelligence (AI), Brand Authenticity Sentiment, Consumer Behavior Analysis*

1. INTRODUCTION

1.1. Background of the Research

Massive amounts of data are currently being collected, stored, and analyzed by numerous organizations in a wide range of industries. This data is commonly referred to as "big data" because of its sheer volume, the speed with which it arrives, and the variety of formats in which it is available. Big data is transforming data management for decision-support purposes (Watson, 2014). Big data analytics can benefit from artificial intelligence (AI) techniques such as machine learning and evolutionary algorithms, capable of producing more precise, faster, and scalable results. There is no comprehensive survey of the various artificial intelligence techniques for big data analytics available anywhere despite this interest (Rahmani et al., 2021). In the business world, social media has

brought about a revolution and mandated a paradigm shift in the operational strategies of organizations around the world. Due to the massive amount of data being collected from various social media channels, it has become necessary to use this data for business intelligence purposes to keep up with the times (Ram et al., 2016). Across a wide range of application contexts and domains, the concept of Big Data has been hailed as a new solution to aid in policy and practice. The impact of much data collected and stored over several years by various public and private organizations has led to many innovative data analytics technologies (Ogbuokiri et al., 2015). Big data analytics and artificial intelligence benefit Starbucks in brand authenticity and brand sentiment literature. Brand authenticity sentiment analysis may pave the way for further research into sentiment analysis for all other brand constructs and in several related domains, such as electronic Word-of-Mouth (e-WOM) studies. It provides marketing practitioners with a reliable and valid decision support system that allows them to evaluate the level of sentiment towards a brand more precisely and accurately, ultimately recommending appropriate strategies to strengthen their brand authenticity (Shirdastian et al., 2017). While Big Data analytics is essential for business intelligence, there has been little research into the implications of using Big Data analytics for the qualitative approach (Ram et al., 2016).

1.2 Problem Statement

In 2018, there were 8,025 coffee shops in Thailand, up 4.6 percent from the previous year. The total coffee market in Thailand was worth 36 billion baht, with 20 billion baht went to instant coffee, 1.2 billion baht to premium coffee, and the rest went to other segments. Amazon, Starbucks, Doi Chaang, Coffee World, and All Cafe were among the market's major players (Jitpleecheep & Hicks, 2019). The coffee shop industry is one of the highest competitive sectors in Thailand for the past four years. In Thailand, there were 70,149 new restaurants opened in 2019. However, only 10% of those restaurants had been profitable in the last three years which indicates significant problem that have taken place in this sector. The foremost indicator of this phenomena is lack of technology skills and knowledge especially the coffee shops owner located far away from the urban area, and what more intriguing is that some of these localities are tourist hotspots and Krabi is the classic example of this lacking.

1.3 Research Objective

This study aims to explain the role of big data analytics in influencing artificial intelligence (AI) adoption for coffee shops in Krabi, Thailand. It could help the business owner to enhance the use of artificial intelligence (AI) technology via internet connectivity in the coffee shop business model in Krabi, Thailand.

1.4 Research Question

How big data analytics and artificial intelligence (AI) adoption could be used to help the coffee shops in Krabi, Thailand?

2. LITERATURE REVIEW

2.1 Big Data Analytics Theory

Big data analytics is not a new concept. Many analytic techniques, such as regression analysis and machine learning, have been available for many years. Even the value of analyzing unstructured data, such as e-mail and documents, has long been recognized. New is the convergence of advances in computer technology and software, new data sources (e.g., social media), and business opportunities. This convergence has resulted in the current level of interest in and opportunities for big

data analytics. It is even spawning a new field of practice and study known as “data science,” which encompasses the techniques, tools, technologies, and processes for making sense of large amounts of data. (Watson, 2014) The growing recognition of both the social and economic benefits of data analytics and data science has resulted in increasing demand for these disciplines.

The appetite for more data and advancements in machine learning have resulted from this increased demand. Big data (BD) and artificial intelligence (AI) are direct concepts and terms that are being deployed as enablers in this brave new world (Boire, 2018). The use of big data also allows marketers to predict better decisions, both in terms of prediction and knowledge of marketing behavior. It helps to make the best predictions of business decisions and promote production success. All marketing environments demonstrate the positive impact of marketing behaviors and the market turbulence model and method regarding early decision-making and production development (Huang et al., 2021). Big Data and artificial intelligence (AI) have captured the public imagination and profoundly shaped social, economic, and political spheres. The interrogation of the histories, perceptions, and practices that shape these technologies to problematize the myths that animate these systems' supposed magic. The increasingly widespread blind faith in data-driven technologies (Elish & Boyd, 2018). Ogbuokiri, et al. (2015) recommended that data analytics help organizations better understand the information within the data and identify meaningful data to the business and future business decisions. Still, it also can manage many innovative data analytics technologies. Nowadays, data analytics are no longer just for big companies with big budgets. Small businesses can benefit from data analytics to make wise, data-driven decisions to grow their businesses.

2.2 Artificial Intelligence (AI)

Business intelligence (BI) includes two different basic meanings related to the use of the term intelligence. The primary is the human intelligence capacity applied in business affairs and activities. Business intelligence is a new field of investigating human cognitive faculties and Artificial Intelligence (AI) technologies to manage and decision support in different business problems (Ranjan, 2009). Artificial Intelligence (AI) is the magic word that has changed the personal and working life. It is made up of two words: artificial, which refers to something created by humans, and intelligence, which refers to the ability to think for oneself, resulting in artificial intelligence being defined as "thinking power created by humans." The adoption of AI is being treated as an important one in industry 4.0. Since its emergence, it brings a lot of opportunities to different sectors as well as challenges. Thus, many AI-powered technologies have been developed with the potential to improve the economy by improving the quality of life significantly in many sectors (Dhanabalan & Sathish, 2018). Riley (2018) has stated that a way to gain competitive advantages are first to understand the data. Artificial Intelligence, Cloud Computing, and Big Data are some of the most popular technologies in recent years.

2.3 Brand Authenticity

According to Ghani et al. (2020), brand authenticity is a strategic imperative known for achieving significant results for a business. It examines customer perception toward marketing for a fast-moving process of customer goods or services. The use of advertising, social media, sponsorship, and corporate social responsibility to promote the authenticity of products or services to achieve the company's mission is referred to as brand authenticity. Social media is a type of brand marketing communication used to determine the effectiveness of brand authenticity. Brand authenticity is one of the most effective online communication channels for spreading information.

2.4 Brand sentiment

Katz (2020) defined Brand Sentiment as a marketing term that refers to the emotion behind customer engagement. Brand sentiment, also known as brand health, is determined by monitoring, and analyzing brand awareness from mentions, comments, and reviews. It is a component of a social listening strategy. At its most basic, brand sentiment analysis seeks to gauge and quantify public attitudes toward a brand at any given time. Brand sentiment analysis informs businesses about what is beneficial to their brand and what is impeding growth. Brand sentiment is one of the most effective ways to help a brand to improve its products or services.

3. RESEARCH METHODOLOGY

3.1 Research Strategy

The purpose of the qualitative research is not only to explore every context of why people or groups of people make decisions and act in the way they do but also to explain why that precisely observed phenomenon occurred that way (Recker, 2013). In this study, the qualitative approach is used as a research strategy. Qualitative methodology is one of the traditional research methodologies used to speculate evidence for theory through the information gathered from people. In-depth interviews were conducted to clarify the role of big data analytics and artificial intelligence (AI) adoption for coffee shops in Krabi, Thailand. Semi-structured interviews of six participants were employed in a data collection process.

3.2 Sample and Sampling Technique

Purposive sampling involves the researchers using expertise to select the most useful sample, and it is often used in qualitative research. The objective is to gain detailed knowledge about a specific phenomenon, or the population is specific. (McCombes, 2019) The sample of this research consisted of six key informants who were coffee shop owners in Krabi, Thailand. The data was collected through purposive sampling. The criteria of participants include: 1) A participant is a coffee shop owner or partner in Krabi, Thailand. 2) A participant has successfully been running a coffee shop for over a year. 3) A participant has experience in big data analytics and artificial intelligence.

3.3 Data Collection

The researchers reviewed the secondary data (documentary method) for appropriate key survey questions through in-depth interviews to accomplish the primary data results. The survey interview questions are shown as follows.

Q1: What are the considerations relating to decision-making to adopt big data analytics and artificial intelligence (AI) in your coffee shop?

Q2: Which big data analytics and artificial intelligence (AI) platform or application have you recently used for your coffee shop?

Q3: How do you implement big data analytics and artificial intelligence (AI) to analyze customer satisfaction in your coffee shop?

Q4: What are the potential benefits after implementing big data analytics and artificial intelligence (AI) into your coffee shop?

Q5: Are big data analytics and artificial intelligence (AI) helping to support or promote the brand authenticity of your coffee shop?

Q6: What would you say about the investment of using big data analytics and artificial intelligence (AI) versus with benefit in return? Is it worth giving it a shot?

Q7: Would you recommend other coffee business owners invest in big data analytics and artificial intelligence (AI) in their coffee shops?

Q8: What can you predict about the likelihood of changes or significant impacts that big data analytics and artificial intelligence (AI) can do in the future?

3.4 Data Analysis

Caulfield (2019) suggested that thematic analysis to be an excellent approach to qualitative research where a researcher tries to observe something about people's views, opinions, knowledge, experiences, or values from a set of qualitative data – for example, interview transcripts, social media profiles, or survey responses. Also, to perform the analysis, intelligent verbatim transcription will be used as a method to analyze the research. The researcher employed thematic analysis to analyze the qualitative data through in-depth online and face-to-face interviews. Moreover, interpretation and analysis were based on NVivo, a qualitative data analysis software.

4. FINDINGS

The results of interviews with the coffee shop owners in Krabi, Thailand, are discussed. The six respondents are shown in table 1. Table 1. shows the respondent's demographic profile

Name of Coffee shops	Respondents' age	Gender
Sprucy Cafe	26	Male
Cafe Amazon Klong Phon	27	Female
Owl Coffee Krabi	27	Male
May and Mark's House	28	Female
Lekker Cafe' Krabi	25	Female
Nanung Nanon Nature Cafe	31	Female
		Male=2
		Female=4

This section mainly explains the roles of Big Data Analytics and Artificial Intelligence (AI) adoption to coffee shops in Krabi, Thailand. The brand authenticity-brand sentiment, service to their customers regarding the consumer behavior (5W1H: who, what, where, when, why, and how), and purchase decision-making process are related to big data analytics-AI adoption. The findings reveal three significant themes.

Theme 1: Big Data Analytics and AI and Social Media Branding Analysis

Theme 2: Big Data Analytics and AI and Customer Satisfaction Analysis

Theme 3: Big Data Analytics and AI and Customer Loyalty Analysis

4.1 Theme 1: Big Data Analytics and AI and Social Media Branding Analysis

Referring to the interviews, all coffee shop owners place a high value on branding. Social media is one of the most valuable sources of information for supporting and promoting a brand. Facebook is a type of social media where people with similar interests share their thoughts and comments in a virtual environment. Besides, Facebook advertising is beneficial because it allows for the interactive collection of feedback and demographic information from targeted customers (target segmentation-5W1H). Facebook advertising provides the opportunity to build up your brand and engage with customers on an extensive social network. Facebook has introduced a new AI feature called Facebook Lookalike. A Lookalike Audience is a way to reach new people like the best

existing customers and are likely to be interested in your business. The respondents always use Facebook advertising to support and promote their coffee shop brands. Consequently, AI is beneficial for Data Analytics and mainly from Facebook.

“We have our own Facebook page so that people can write reviews, give us stars, and importantly, get information like promotions from us.” Interview 2: Manlika (a 27-year-old female), co-owner of Cafe Amazon Klong Phon PTT Gas Station, was interviewed at 09:30 a.m. on August 20, 2021.

“We pay Facebook Ad for our official page, named Owl Coffee Krabi.” Interview 3: Veerapat (a 27-year-old male), Owl Coffee Krabi’s owner, was interviewed at 10:30 a.m. on August 21, 2021.

“Well, I think our Facebook Official Page is a good platform to get data or information about customer satisfaction as people can write reviews and give us stars if they are happy with us, either with our products or with our services.” Interview 4: Suchaya (a 28-year-old female), co-owner of May and Mark’s House was interviewed at 01:40 p.m. on August 23, 2021.

“Well, since it’s a family-run business and to reduce costs during this COVID-19 pandemic, we are on Facebook, and our official page is Nanung Nanon Nature Cafe.” Interview 6: Kanjane (a 31-year-old female), Nanung Nanon Nature Cafe’s owner was interviewed at 01:00 p.m. on August 24, 2021.

4.2 Theme 2: Big Data Analytics and AI and Customer Satisfaction Analysis

The respondents perceived customer satisfaction in a coffee shop business as one of the essential elements of the service business. It links to positive business outcomes such as repeat purchases, positive electronic word of mouth (e-WOM), or customer loyalty. For their customer satisfaction analysis, the respondents drew information from their social media platforms. According to the respondents, most of their customers would rate and review them on their Facebook pages. Most of the reviews about how customers were satisfied with the coffee shops' products or services. They also stated that they would know their strengths and weaknesses due to customer reviews, allowing them to develop a better plan or strategy for operating their coffee shop businesses. Thus, Big Data Analytics-AI is related to consumer behavior analysis and customer satisfaction (e-WOM and repeat purchase).

“Our business is a franchise, so customer satisfaction is the first thing to be considered. The company (franchisor) offers a website, namely www.cafe-amazon.com. Its applications allow customers to write reviews to see if they are happy through Oh and Facebook reviews! We also have our own Facebook page so that the customers can write reviews, give us stars (rating), and importantly, get information like promotions from us.” Interview 2: Manlika (a 27-year-old female), co-owner of Cafe Amazon Klong Phon PTT Gas Station, was interviewed at 09:30 a.m. on August 20, 2021.

“On our Facebook page, we do update our daily menus, promotions, and so on. Well, most people (Thai) have Facebook accounts, so it’s convenient for us. Fa-

cebook-AI focuses on connecting customers, and our Facebook page will pop up on their feeds. I have to say most people like it because it's easy. Like when we have promotions, they will see advertising from their feeds. You can also write reviews and give us stars as a compliment." Interview 3: Veerapat (a 27-year-old male), Owl Coffee Krabi's owner, was interviewed at 10:30 a.m. on August 21, 2021.

"Well, I think our Facebook Official Page is a good platform to get data or information about customer satisfaction. The customers can write reviews and give us stars if they are happy with us, either our products or our services. We can get that information so that we can know if our customers are satisfied. If even a thing is not right, we could find a way to do it better because we love our customers." Interview 4: Suchaya (a 28-year-old female), co-owner of May and Mark's House, was interviewed at 01:40 p.m. on August 23, 2021.

4.3 Theme 3: Big Data Analytics and AI and Customer Loyalty Analysis

As perceived by the respondents, the customers should be at the center (heart) of the business. In simple terms, the customers affect the business' income. Business owners must pay attention to their customers. Understanding customer behavior is essential to providing excellent customer services and developing brand loyalty. The respondents perceived that if the brands (coffee shops) satisfy their customers, they will return and not switch to their competitors. The promotions and discounts could induce customers' attention on social media platforms and persuade them to return. When the customers are satisfied with a good deal, brand loyalty is likely to increase. Big data analytics and AI play a critical role in achieving this goal. Consumer behavior analysis relates to customer loyalty in positive word of mouth and repeat purchase benefits from big data analytics and AI.

"Our services are online such as a menu, reward card, and payment. It does help because we do a reward card campaign via the LINE application where you get one star for every 200-baht purchase, and with 11 stars, you get a 75-baht free drink. People like this campaign. Moreover, we've added our information in the LINE application, and some people will reserve a table and order cakes and drinks from the application. Most of our customers know they can get more benefits from Sprucy's LINE account, and they like it." Interview 1, Anonymous, male, Sprucy Cafe's owner, was interviewed at 10:16 a.m. on August 18, 2021.

"There is an application called PTT Blue Card that people can collect points and use them as discounts here. For every 20-baht purchase, you get one point, and if you have 100 points, you get a 20-baht discount at Cafe Amazon. By doing these kinds of campaigns, we've got interest from people. It's a free registration. Well, I have to say people, including me, like free stuff and discounts. It's good marketing and advertising strategies, and I have to say they do work well!"

Interview 2: Manlika (a 27-year-old female), co-owner of Cafe Amazon Klong Phon, was interviewed at 09:30 a.m. on August 20, 2021.

“On our Facebook page, we do update our daily menu, promotions, and so on. Well, most people have Facebook accounts, so it’s convenient for us. Facebook AI focuses on connecting people, and our Facebook page will pop up on their feeds. I have to say most people like it because it’s easy. Like when we have promotions, they’ll see from their feeds.” Interview 3: Veerapat (a 27-year-old male), Owl Coffee Krabi’s owner, was interviewed at 10:30 a.m. on August 21, 2021.

5. DISCUSSION AND CONCLUSION

5.1 Discussion

Big data analytics and artificial intelligence (AI) benefit coffee shop owners in Krabi, Thailand. Big data analytics and artificial intelligence (AI) adaptation can assist the coffee shop owners in Krabi, Thailand, by enhancing brand authenticity, sentiment, and services to their customers. The results supported by Ractham & Charoendechathon (2020) that implementing technologies and transforming their business into a digital business aided the long-term success. Tending to incorporate these technologies into their online and offline operations are practical. Despite being in the early stages of using data technologies, the coffee shop owners in Krabi, Thailand, recognized the value of collecting and analyzing basic information such as customer data and purchase history. Using fast and inexpensive technology such as POS and Facebook Ads supported by Jain & Aggarwal (2020). The data could assist in answering several businesses' questions about brand authenticity, brand sentiment, and customer services that corresponded to the studies of Khatri (2021), Satish & Yusof (2017), and Shirdastian et al. (2017). Furthermore, extracting hidden information from available data could help them expand the business or improve operational efficiency that confirmed by Chaing (2018). The importance of exploring information and investing more time, budget, and additional IT staffing to begin adapting to learn how big data analytics and artificial intelligence work confirmed Davenport et al. (2020) and Ractham & Charoendechathon (2020).

5.2 Conclusion

Big data analytics and artificial intelligence (AI) play an essential role in the coffee shop business in Krabi, Thailand. Technologies are now being used to stay ahead of the competition. Big data analytics and artificial intelligence (AI) help enterprises support and promote value in various ways. Artificial intelligence (AI) features are now available in multiple applications such as Facebook and LINE. Facebook currently employs artificial intelligence (AI) to deliver relevant content to users across text, photos, and videos and influence how its ad product operates. It has significant implications for many businesses in the digital era. Account is also equipped with a variety of artificial intelligence (AI) features that can assist customers in learning about the differentiation of brands, products, and services. In terms of coffee shop owners' perspectives on using big data analytics and artificial intelligence (AI), they realized that big data analytics and artificial intelligence (AI) could be important for their best practices in the process and strategic branding. Furthermore, data collection should be considered and prioritized by operations. If data is correctly aligned with business processes, it can lead to significant improvements in their performance and the quality of decisions. Meanwhile, coffee shop owners are concerned about the investment usability and usefulness of big data analytics and artificial intelligence (AI) because technology tools depend on the availability of potential resources. The coffee shop owners should enable all aspects of their business, including the use of technology. It could be identified as a barrier to Thai workers adopting technology, so big data analytics and artificial intelligence (AI)-based technology could be improved and considered. Lastly, coffee shop owners should be aware

of customer data security and data collection regulations regarding technology adoption. The disclosure or leak of customer information could have severe consequences for the business. Customer loyalty can be enhanced by high security and depend on brand satisfaction. To summarize, coffee shop owners could improve their brand authenticity, brand sentiment, and customer services. Furthermore, owners in any industry could enhance the quality of management to increase customer satisfaction and customer loyalty using big data analytics and artificial intelligence (AI) applications.

5.3 Research Contribution

Data mining and information could benefit strategic business planning through big data analytics and artificial intelligence to improve any business model. Furthermore, to obtain a more insightful result, it would be beneficial to research the various applications of big data analytics and artificial intelligence. On the other hand, this research only focuses on internal components such as branding capability, so that future research into external elements such as the legal environment challenges is required. In addition, the researchers recommend further research on prediction analysis and consumer behavior. It can go beyond describing consumer behavior to predicting how consumers will behave in the future based on data. Finally, it is critical to investigate the coffee shop business, not only in the Krabi area, to see the big picture of extending big data analytics and artificial intelligence adoption in the business size.

5.4.1 Limitations and Recommendation

The limitation throughout the study is the respondents were coffee shop owners in Krabi. Only one province may not be a good representation of Thailand. The recommendation is to expand more areas further.

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APPENDIX

Interpretation and analysis were based on NVivo, a qualitative data analysis software. The word frequency queries (word clouds and word trees) are as follows.



Word Cloud from Interviews



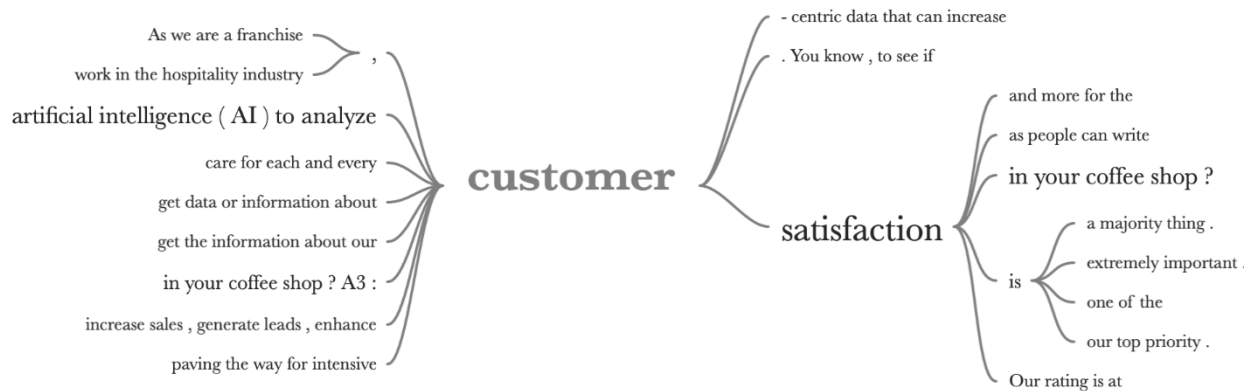
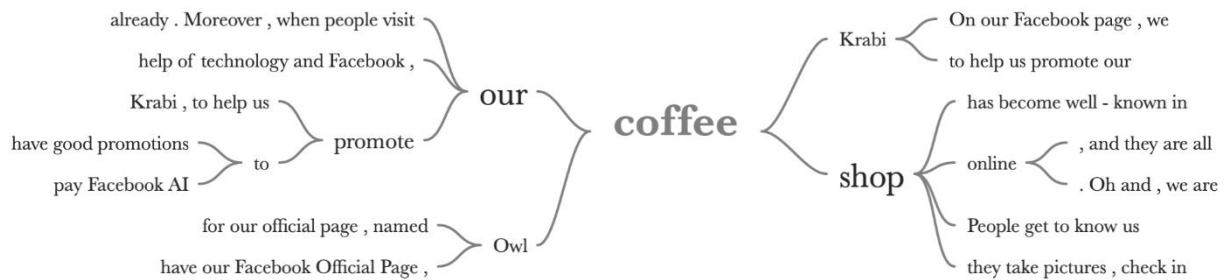
Word Cloud Interpreted Through Themes

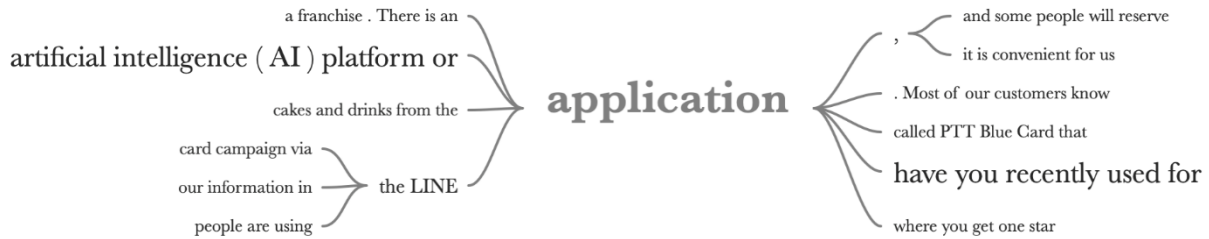


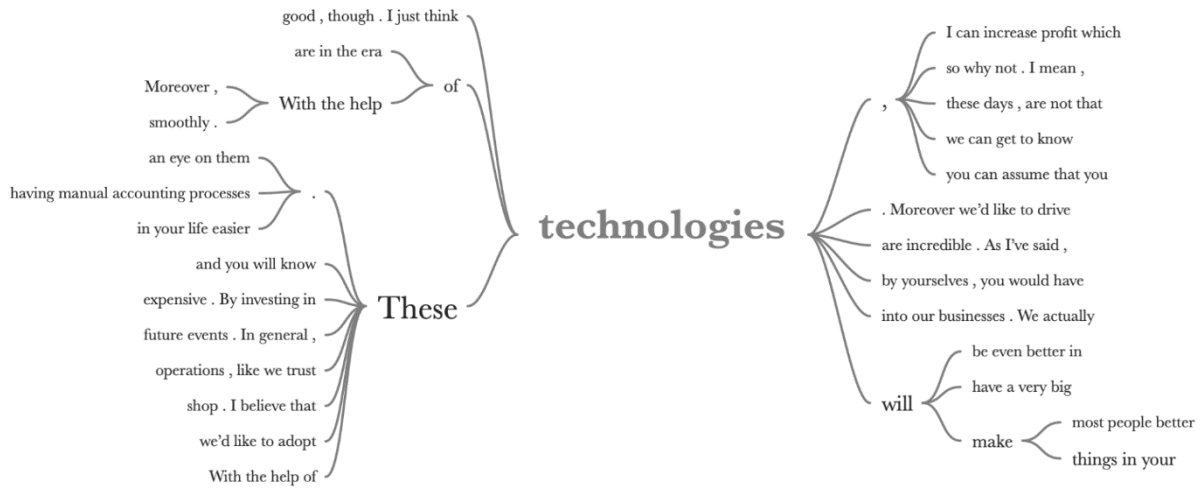
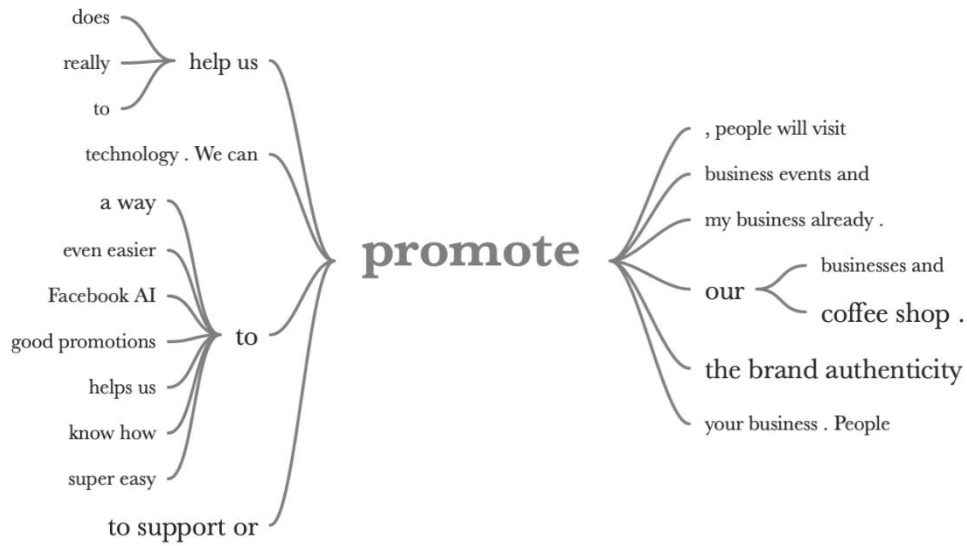
Explore

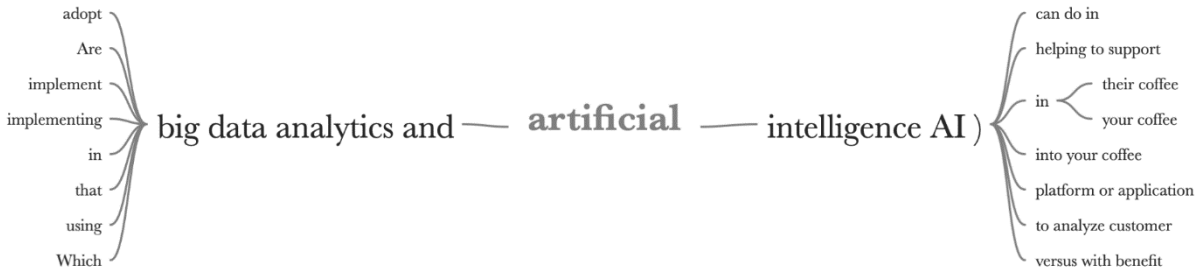
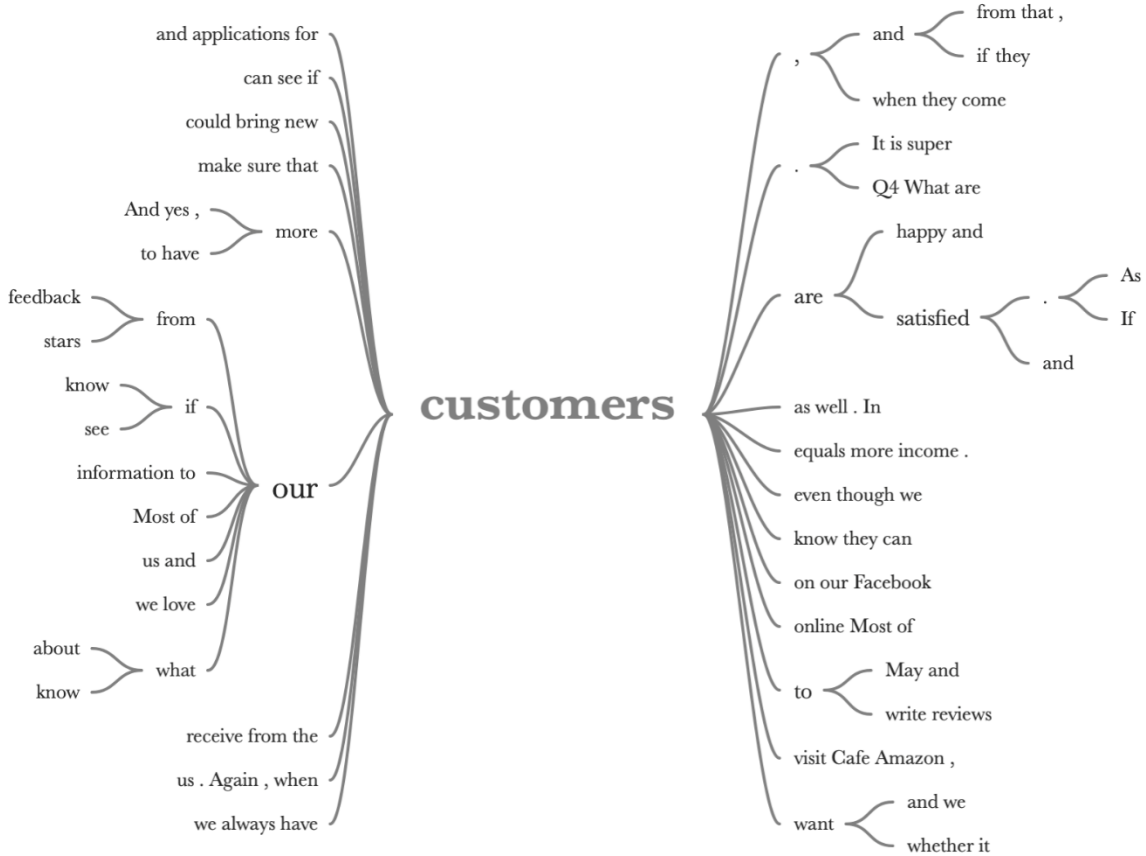
Social Media Branding Analysis	Technology	Receive	Owner	Opera...	Online	Official	New	Locat...
	Strategy	Purchase						
Customer Satisfaction Analysis	Social	Promotion	LINE	Imp...	Happy	Future	Feed...	Face...
	Service	Product	Invest					
	Satisfaction	Predict	Information	Decision	Coffe...	COVI...	Busi...	
Customer Loyalty Analysis	Review	Pay	Improve	Decide				
	Recommend	POS	Important	Compliment	Brand		Appli...	
					Better			

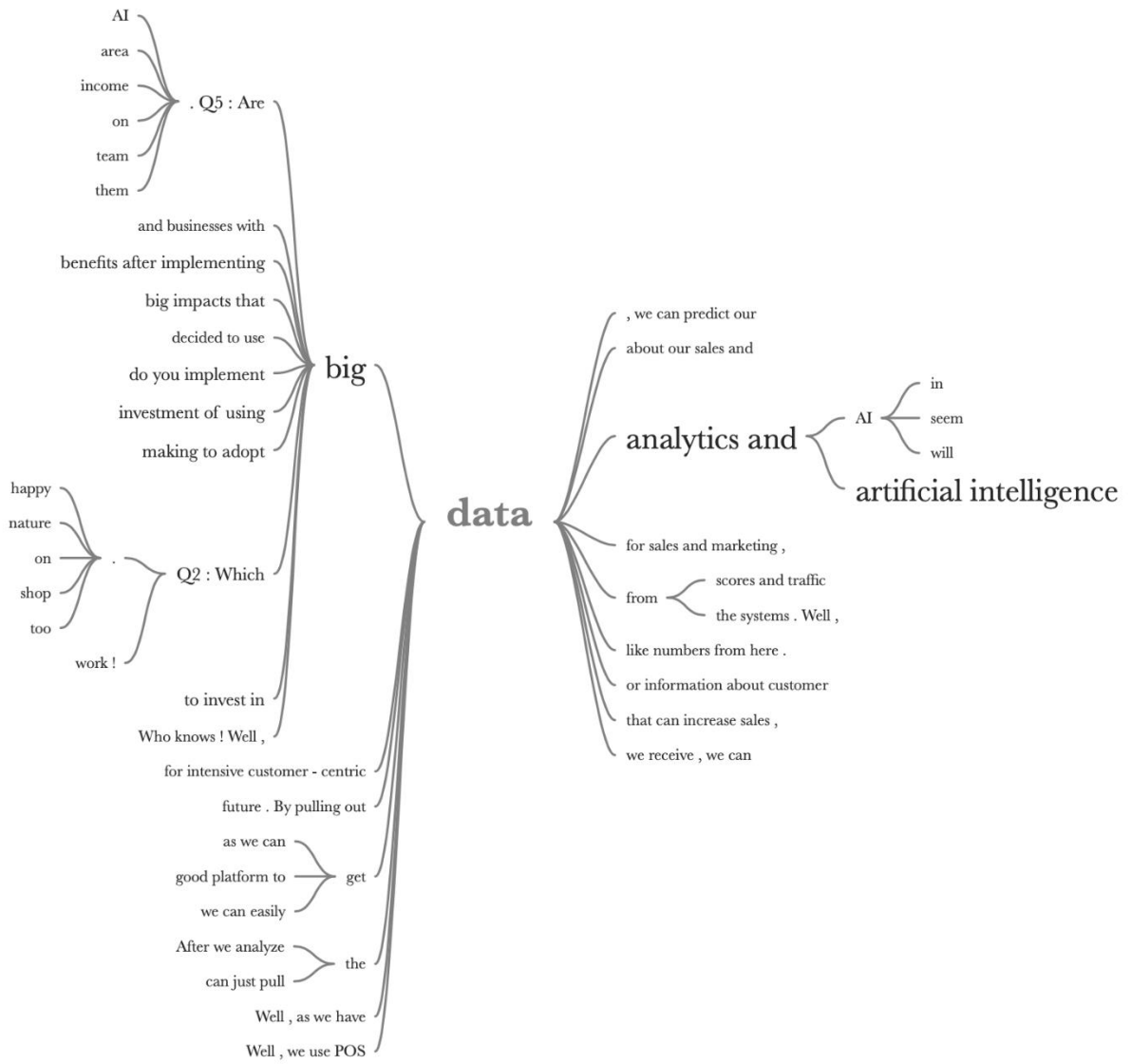
Hierarchy Chart: Tree map (Upper)

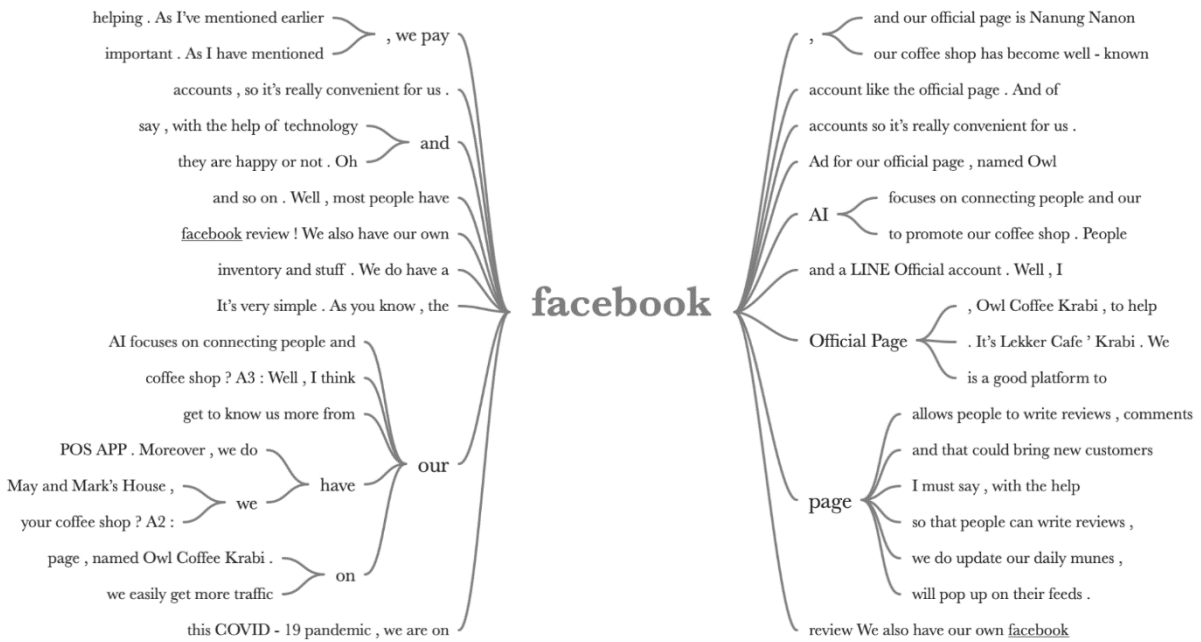












Text Search Query: Word Trees (Upper)