

Social Media Statistical Analysis of UK Pizza Industry

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Abstract— The use of popular social media platforms has become primary part of routine life in modern and fast developing society. Different international companies like Facebook, Twitter etc. offer popular and developed social media platforms where people can easily approach to their required product and also share their opinion over there. By using of different popular social media platforms most of international and local business industries can easily engage with customers and spread their products over world. This research paper is related to marketing of different kind of products and how do we can compare our performance, our customer engagement with other revival businesses. In our study, we analyzed authorized Facebook platform of selected pizza chains from United Kingdom: Pizza Hut, Dominos, Papa John, Pizza Express and Prezzo. To analyze customer engagement, we collected one year (2018) relevant data from their Facebook pages. Customer engagement were considered most dominant thing in business growth. We performed different social media statistical analysis techniques to retrieve the customer engagement results. With the help of these results we show that who have most post frequency can engage more customer than other and highest number of followers cannot impact on customer engagement. This study also describes that posting timing or posting intervals are most important thing to engage with customers. At the end of this paper, we will recommend some most important points about posting frequency and posting quality which will be very helpful in making new social media marketing strategies and to engage with people.

Keywords— *blockchain, bigdata, cryptocurrency, bitcoin, iot, review*

I. INTRODUCTION

No one denies that social media plays a significant role in today era. In today's life, social media playing beneficiary weapon role to engage with people and enhance business across community. Social media is one of the top and pivotal platforms where people can engage and the strength of community on social media now more than 1.5 billion. Most of the people use social media to share their opinions about products and to engage with strangers for making new friends or meet with old ones. When companies use social media for marketing purposes than it gives boost to marketing and get

more customers. Social media marketing has performed changes the mind set of people or their way of thinking. Companies can boost their product sales by giving new and hot promotions, boost customer following towards their products. With the popularity of social media most of the food chains now developing their social websites, creating different marketing social media pages, adapting social media as their primary marketing weapon to engage with customers, to solve customer problems, to know the primary needs of customers, to improve their product quality also social media helps them to get customer loyalty, strength and social media marketing increasing sales and revenue of business. Social media supporting and promoting most of the marketing techniques like digital marketing, brand advertisement etc. As we know that adaption of social media is increasing day by day, so social media competitive analysis is very important and basic need to monitor businesses, customer activities and specially to monitor social media platforms of their revivals. One of the primary requirements of business is to analyze their social media generated data by using different social media statistical analysis tools like Excel, SPSS etc. and make decisions on the base of generated results. Social media analysts believed that competitive analysis of social media generated data helps in business reforms as well as improve in social media marketing strategies. In this research paper we are using quantitative analysis and competitive analysis techniques to compare social media content of large pizza chains from United Kingdom. To analyze social media content, we conduct in-depth study and using developed framework and compare social media content which are generated from Facebook pages of largest Pizza chains Pizza hut, Pizza express, Dominos, Prezzo and Papa john from United Kingdom and applying statistical analysis techniques by using SPSS. The remainder of research paper is sort as follows:

Section I: Introduction, Section II: Literature review which include overview of social media, Statistical Analysis, Section III: Social media competitive analysis, Section IV: Proposed Framework, Research Question, Data Sample and Procedure, Section V: Results, Discussions in depth, Section VI: Recommendations, Section VII: Conclusion and Future work.

II. LITERATURE REVIEW

This section aims to elaborate the previous studies about related topic and this section includes separately about all pizza chains.

A. Social Media

Social media is totally free of cost for users where they can share easily their feedback and unique ideas. In 21st century new generation can engage easily with their friends and family also with new people through social media. Generally social media provide high tech online communication platforms like Websites and Web Apps which are used for sharing content including photo and video sharing and also used for social networking [1] [2] [3]. As compared with old traditional media, social media provide new gateways to run businesses on social media platforms and create their online business communities where they can utilize their social media expertise to engage with customers and new business tycoons [4]. Now a days, there are many different social media platforms in market like Wikipedia, Twitter, Instagram, WhatsApp, Facebook etc. which are used for social networking and business purposes but most popular social media platform is Facebook because in term of large number of social media users, and widely using for business to communicate with customers [5]. Social media has largest community of users in which almost over two billion people are involved with each other on different social media platforms and social media has become game changer for businesses [5]. Social media platforms are best medium to develop businesses and maximize new opportunities to connect and collaborate with new customers [6] [7].

B. Pizza Industry and Social Media

In recent years pizza industry has seen its golden peaks and collected revenue above \$426 billion in 2017. As we know that social media is reviving fastly, so most of the largest pizza chains taking part in social media marketing to polish their digital marketing skills and engage with new customers with the help new technological innovations [8]. So, some of largest pizza chains who are taking interest in social media marketing to engage with new customers are enlist below.

C. Dominos

One of the famous pizza chain Dominos founded in 1960. It has above 5,700 branches almost all over the world, furthermore it adopting quickly social media marketing platform to enhance their business [9]. They are focusing on technique called buttering influence which focus to change customer minds through using social media [10]. From 2017 dominos primary focus on social media to create creative digital marketing strategies which has changes their business worth in customer eyes [11].



D. Pizza Hut

Pizza Hut known as leader of all pizza chains because pizza hut largest pizza community around the world including above 64,000 branches [12]. They have astonishing grip on social media and having most intelligent social media strategic team which they are managing all social media marketing strategies to engage with customers [13]. Due to enormous rivalry in pizza industry pizza hut has appointed creative and competitive social media team to control their digital marketing [14]



E. Papa John

Papa john pizza is fastest growing pizza industry all over the world including above 1,500 branches [15]. Recently papa john pizza chain entered in social media marketing actively and smartly to engage with customers and planned to spend more power and expenditures on social media campaign [16]. After entering in social media world papa john's gaining their community which are above 2.5M [17]



F. Pizza Express

Pizza express is most prestigious pizza industry in world and it was sold to Hony Capital company based in China [18]. Recently they developed their social media platform to engage with their customers demographically [19]. In recent years they had run more powerful and famous social media campaigns like Donald Trump election coupons, Donald Trump face into Pizza as a Halloween campaign stunt [20] and using newest social media technologies efficiently like Web 2.0 to get more customers [21] [22]



G. Prezzo

Prezzo is like newbie in pizza industry situated in UK and Ireland including 180 branches [23]. They have also won social media marketing award in 2013 [24]. Recently they had launched most successful New Year campaign which was impactful on customers [24]. In 2018 they had closed their 94 branches in UK due to poor social media campaigns so, now they handed over their all social media campaign work to Fourth Angel PR agency [24]



III. COMPETITIVE ANALYSIS OF SOCIAL MEDIA

Business intelligence plays an important role to compete with competitors. Big companies perceive customers feedback and make strategies according to them. If

companies need to achieve their goals therefore it is necessary for them to analyze customers data of their competitors and take advantage to compete with their revivals (Xu, 1995). Companies needs to focus to get their competitors data. There are many ways from they can get their competitors data like different social media platforms, websites etc. There are two steps on which they need to be focused first gathering of data and second is data authenticity. Now a days, there are many proactive and authentic machine learning tools available in market, by using these tools on data they can get remarkable results. Large pizza industries need to take social media platforms seriously and surely, they can beat their competitors easily. Social media is most powerful tool for enhancing business in an efficient way. There are numerous researches suggest that social media competitive analysis is better for businesses and their results are remarkable like pizza industry study on five namely Pizza chains in Pakistan and they had applied some statistical operations on their data and get result that pizza hut doing great on social media.

IV. RESEARCH FRAMEWORK AND METHODOLOGY

Figure 1 shows below framework of research, different approaches and track like data extracting using different tools and applying statistical analysis techniques for social media competitive analysis. This research framework includes different social media analysis methodologies, data collection methodologies and statistical methodologies. Different kind of statistical analysis techniques and approaches can be used in this framework. For data collection can be used different social media scrapping tools and API's can be used in an efficient way. Social media can easily allow this type of scrapping tools to get data and used for business intelligence

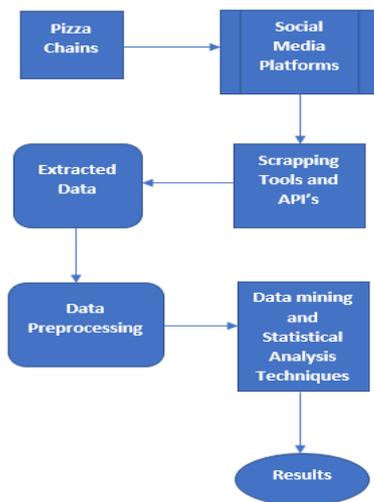


Fig. 1. Framework of Social Media Analysis

As we know that pizza is one of the most popular food chains among customers. All pizza industries use social media platforms as their marketing weapon. First of all, in this study check official social media pages and related content e-g number of likes, reactions etc. This research paper firm their

focus on statistical analysis. In this research paper firstly collects data from official Facebook pages using Netvizz tool. Next step after collecting data is preprocessing and apply statistical analysis techniques to check the insights of data and get results. This research focused on competitive analysis of five pizza chains and for this purpose data collects from their Facebook pages of 2018. For statistical analysis we used Microsoft Excel and SPSS. SPSS is very popular statistical tool and it is used by many other researchers as well.

V. RESULTS AND DISCUSSIONS

The findings of this research are totally based on quantitative analysis. In this study collects the data of one year and data is based on number of likes, comments and all kind of reactions. After preprocessing of data, Figure 1 has shown the interesting results about type of posts of all pizza chains.

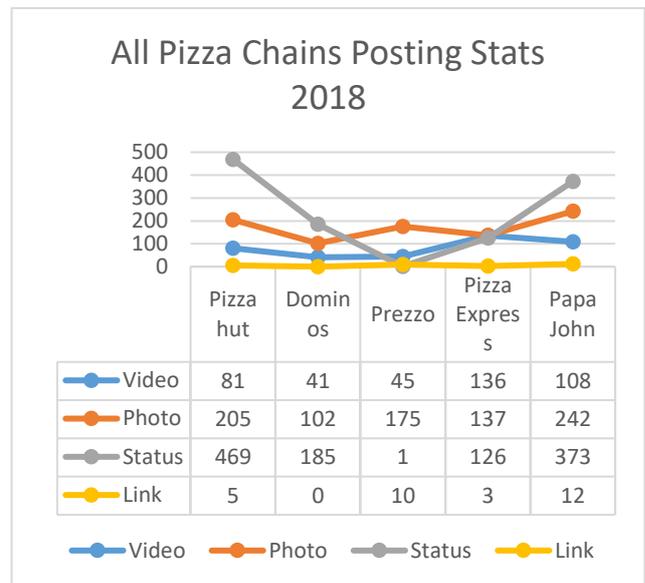


Fig 2. All Pizza Chains Posting Stats 2018

Above figure shows that only Pizza express has maintain their posting frequency in whole year as compared to other pizza chains but on the other hand highest number of posts done by Pizza Hut in whole year as compared to other competitor's pizza chains. One thing is noticeable that all pizza chains focusing on posting image type posts as compared to video, status and links. In figure 1 you can clearly see that pizza hut is the top pizza chain as compared to other pizza chains in terms of total number of posting content. It means that pizza hut has a competitive digital marketing team who posts content in pace.

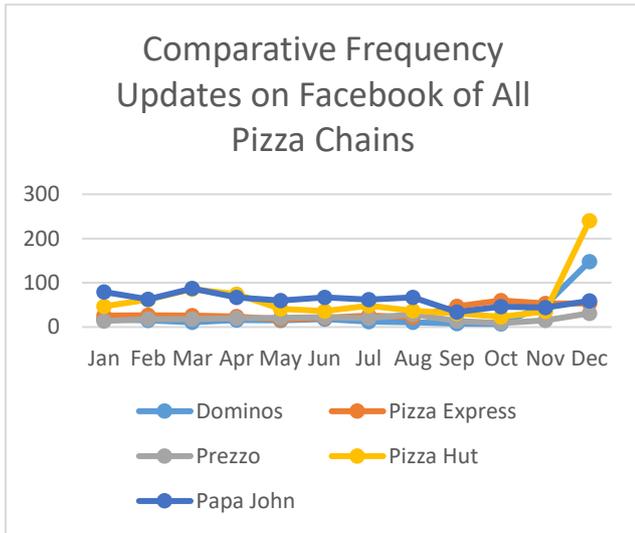


Fig 3. Comparative Frequency Updates on Facebook of All Pizza Chains

Above figure 3 has shown comparative posting frequency of all pizza chains in every month. In figure 3 we can clearly see that fluctuation has been occur in every month of all pizza chains but in November and December mostly pizza chains have increasing their posting frequency due to winters, Christmas and New year deals. Fluctuation in posting frequency in every month can impact negatively on business and engagement with customers.

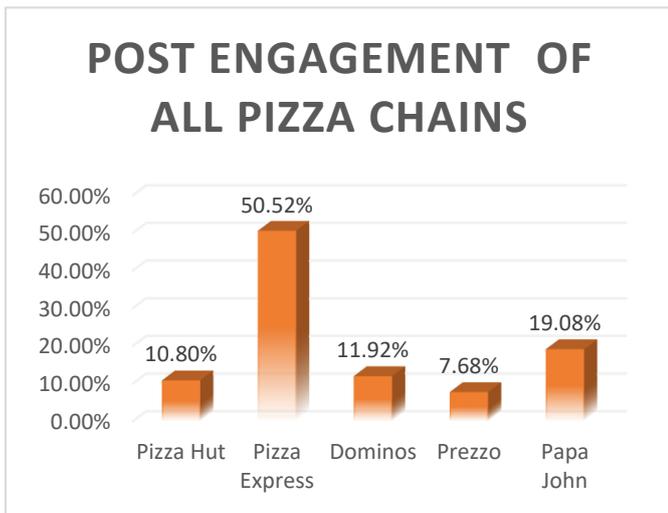


Fig 4. Post Engagement of All Pizza Chains

In figure 4 has shown the total engagement of all pizza chains and we can clearly see that pizza express has led from front in post engagement race. In figure 1 pizza hut have highest number of posting frequency but now we can clearly see that in figure 4 pizza express have highest post engagement. It means that posting quality is matter than posting quantity. All pizza chains need to improve their posting engagement specially Prezzo pizza who have lowest post engagement which 7.68%. There is only one race in social media marketing is called customers engagement. Everyone is running in its own pace to win this race.

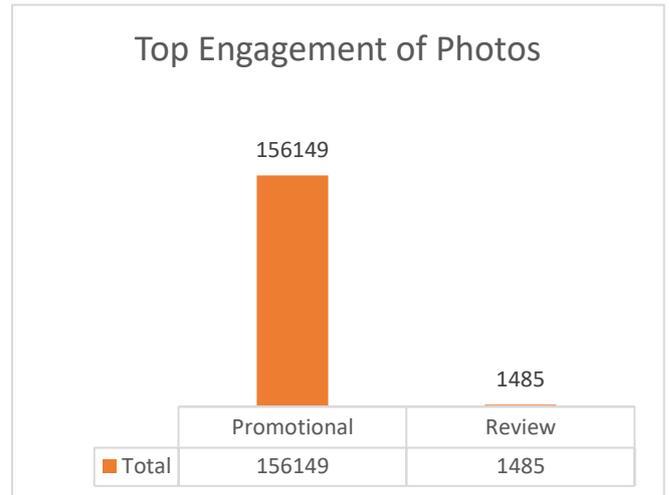


Fig. 5. Top Engagement of Photos

Above figure 5 shown top engagement of which type of image posts. We can clearly see promotional photos has top customers engagement than other type of image posts. Reviews posting by customers has second highest engagement among all type of content. In business growth, customers positive feedback plays its vital role and impact on customers mind. Customers like promotional photos in which including famous film stars, attractive offer etc.

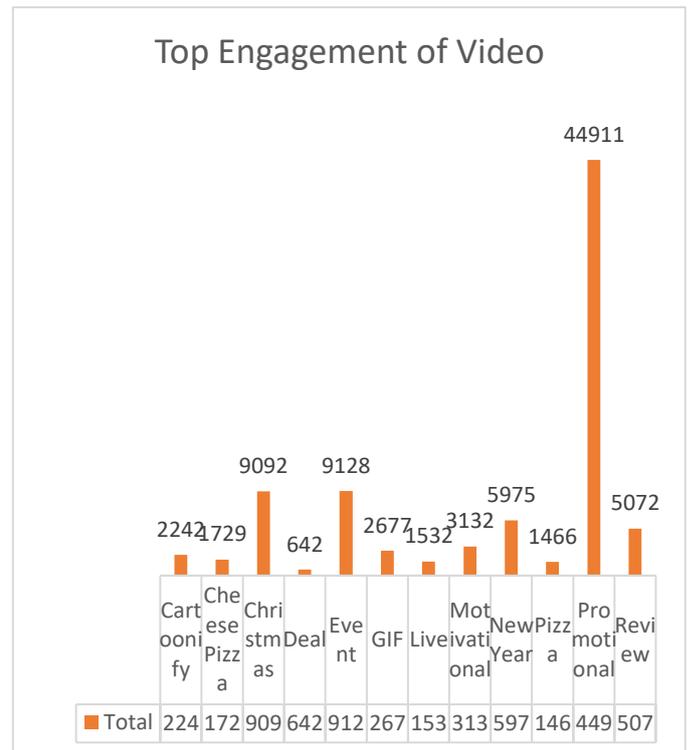


Fig. 6. Top Engagement of Video

Above figure 6 has shown top engagement of video content in all pizza chains of United Kingdom. It shows promotional video posts in which including Hollywood stars videos with extra hot deals have highest customer engagement. Good music videos with extra high-quality videos leave good impact on customers mind and divert them towards your

business. To motivate your customers than businesses has need to improve their posting quality and for sure they can get easily highest customer engagement.

engagement is like a scale, all pizza chains need maintain scale every time.

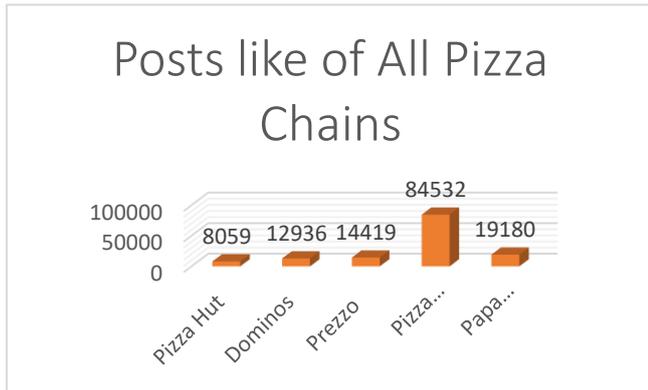


Fig. 7. Posts Likes of All Pizza Chains

Above figure 7 has shown total number of posts like of all pizza chains. We can easily observe from figure 7 is one and only pizza chain called pizza express, crossed 50K likes on their posts from all other pizza chains. Pizza express almost has get 65% likes on their all kind of posts and they performed better on social media platform as compared to all other pizza chains. They have enormous growth speed in business community. We can clearly see post likes gap between all rivalries; they have to put focus on their social media marketing strategies from where they can easily get customers engagement in improve post likes gap.

In this study, we are also using weekdays and weekend approaches to get more results about customers engagement from Facebook. Results we get from weekdays and weekend approach are given in Table 1.

TABLE I. WEEKDAYS AND WEEKENDS ENGAGEMENTS

Pizza Chains	Weekdays Engagement %	Weekends Engagement %
Dominos	93.8%	6.2%
Papa John	93.9%	6.1%
Pizza Express	91.8%	8.2%
Pizza Hut	33.9%	66.1%
Prezzo	97.6%	2.4%

We can clearly see in Table 1 all pizza chains have highest weekdays engagement except pizza hut because pizza hut almost has maintained its weekend and weekdays posts engagement which is good sign in social media marketing. For the sake of more engagement, they need to maintain their posts engagement on both weekdays and weekend. On weekdays Prezzo has get highest post engagement it means Prezzo has get lowest posts engagement on weekends. Posts

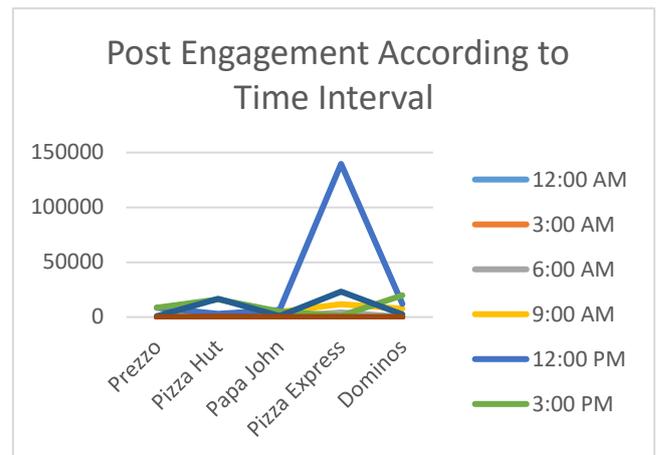


Fig. 8. Post Engagement According to Time Interval

Figure 8 has shown comparative analysis of posts engagement according to time intervals. We can clearly see in figure 8 pizza express has get highest post engagement at 12:00 pm as compared to other time intervals and all pizza chains. Figure 8 shows that average time interval of all pizza chains posts engagement is in between 3:00 pm and 6:00 pm. Time is everything in social media marketing, if all pizza chains will match their posting time with their customers visiting time, they can easily boost their strategies.

In this study we have also check the average page engagement and average post engagement to check how many customers visit their social media page and how many customers perform some activity. This technique removes the biases of results between all pizza chains and has shown Facebook pages performance equally.

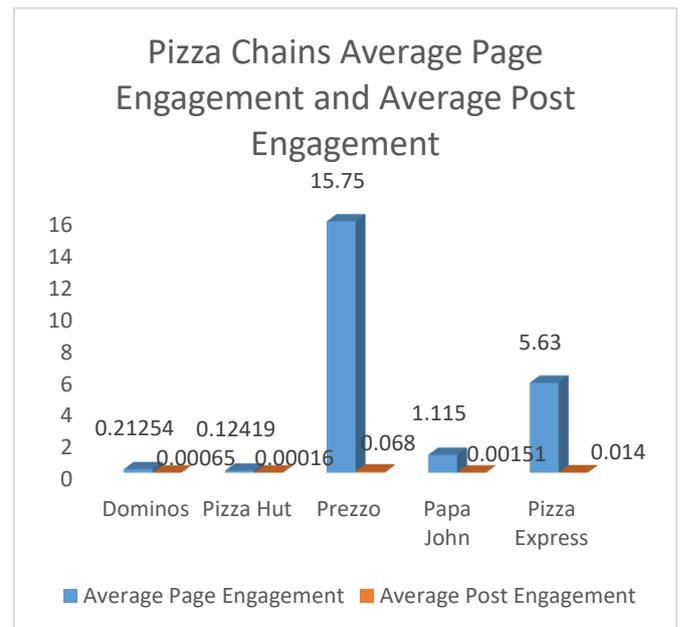


Fig. 9. Average Page and Post Engagement

Figure 9 shows the results of average page engagement and average post engagement. As we can clearly see Prezzo has leading in Average page engagement, it means customers traffic on Prezzo Facebook page is higher than other pizza chain Facebook pages, also Prezzo has leading in Average post engagement it means customers not only visit Prezzo Facebook page they also perform some activity too. One primary information we have get from Figure 8 results that number of post engagement and page engagement has not dependent on Facebook page likes it relies on what you are posting on Facebook, is posting content attract customers or not.

In the last of this study we have applied one-way Anova statistical test on our statistical variables to check positive relation or negative relation or neutral relation between them.

TABLE II. ONE-WAY-ANOVA RESULTS

Type	Dominos		
	Like	Comment	Share
Photo	0.000	0.000	0.000
Video	0.001	0.001	0.000
Status	0.034	0.001	0.068
Links	0.074	0.061	0.084
Pizza Hut			
Photo	0.000	0.000	0.000
Video	0.000	0.000	0.001
Status	0.044	0.000	0.099
Links	0.084	0.099	0.075
Pizza Express			
Photo	0.000	0.000	0.000
Video	0.001	0.001	0.000
Status	0.031	0.000	0.050
Links	0.064	0.057	0.091
Prezzo			
Photo	0.000	0.000	0.000
Video	0.000	0.001	0.001
Status	0.021	0.001	0.041
Links	0.061	0.051	0.054
Papa John			
Photo	0.000	0.000	0.000
Video	0.000	0.000	0.000
Status	0.002	0.000	0.031
Links	0.074	0.061	0.059

Above Table 2 has shown results of one-way Anova statistical test. In this statistical test, if significance value is below 0.05 than it means relation is positive and its effects on customers engagement and if significance value is greater than 0.05 than it means there is no relation between variables and having no impact on customers engagement.

VI. RECOMMENDATIONS

We have recommended some beneficial suggestions to businesses which we portrayed from practical results and discussions.

A. Pizza Hut

As pizza hut is a very competitive pizza chain, they need to manage their social media platform in a very competent way. This pizza chain needs to hire some professional and strategic social media team who have to pay full attention on customers likes and dislikes, customer needs and customer behavior and develop strategic and competent social media marketing strategies. As we can clearly see before pizza hut

having highest number of posts but when we see customers engagement pizza hut has top from the bottom of list. This pizza chain needs to post high quality content and increase their posting frequency according to time interval also pizza chain needs to maintain their posts on weekdays. In this way pizza chain growth can easily increase.

B. Dominos

As dominos is second most popular pizza chain after pizza hut and competitor of pizza hut. Dominos needs to put a lot of efforts like as we recommended for pizza hut. Dominos posting frequency is very low, they do not post sufficient content on daily basis, monthly and especially on weekends. This company needs to hire some professionals for their social media marketing control system. This company needs to increase the frequency of their postings and especially need to check the behavior of customers efficiently on daily basis. Domino's is ignoring weekend slot; they need to put their focus on weekend slot and post content in the light of customer favorite time interval. If dominos want to remain in competition then they need to show some efforts in their social media marketing strategies.

C. Papa John

As we seen two previous pizza chains, their social media marketing strategies, customer engagement and page engagement are quite bit low. Papa john's performance is much better than pizza hut and dominos but not satisfactory. For satisfactory performance this company needs to hire some competent social media team who will manage posting frequency and also focus time intervals of content posting because time interval is matter into engaging with more customers. If their content generators performed well then surely, they will touch the peaks of success.

D. Pizza Express

Pizza express is fourth famous pizza chains amongst all. But when we see results it is totally shocking because pizza express customers engagement and customers response towards pizza express ranked on second in list. Their posting frequency is not satisfactory especially on weekends. This company needs to hire competent content generators, with the help them pizza express can easily jump on the peak of competition. If pizza express make highly effective social media strategies then they can easily compete with giant pizza chains.

E. Prezzo

Prezzo is like a newborn pizza chain. But when we see performance this newborn pizza chain tops in customer engagement and page engagement list with lowest posting frequency because of high quality content. Prezzo lags every pizza chain behind with great margin. But this company needs to maintain their posting frequency. When they will maintain posting frequency surely, they become famous in world more than other pizza chains.

This research shows that with the help of social media marketing you can easily compete with business tycoons. Social media is the best communication medium to communicate with customers. All pizza chains will be better if they will follow new trending social media marketing strategies.

VII. CONCLUSION

In this digital world any business negligence can affect to customer values and business growth. All businesses have their own perceptions to run businesses. Some businesses using social media platform as communication tool to engage with customers and some businesses using social media as digital marketing. Nowadays, social media is very important for businesses, social media can pull up business easily and also social media can pull down business. If companies have good and kind relationship with their customers than their business intelligence is become stronger for marketing purposes. This research concludes the results of five pizza chains from United Kingdom. All pizza chains are using social media as their marketing tool. It shows that social media is very powerful tool to engage with customers and make relation strong. Prezzo is main example how this business using social media and top the list. Social media statistical analysis concept is very familiar but most of the businesses did not use this concept efficiently. Primary vision of this research had to point out the social media importance in business intelligence as well as to analyze statistical data to recommends better marketing strategies.

For future work, there can be many data collection techniques division by gender and age. With the help of this data can detect easily likes, shares, and comments by gender and age wise. This will lead us for better understanding customers' expectations towards pizza chains.

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