

# Breaking Monopoly in Digital Markets

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**Abstract:** *This research analyses the existence of various Digital Monopolies in the internet space and discusses the factors that leads to the creation of monopolies in digital space and contrasts it with normal markets. The effect of Networking and Availability of data with the major monopolistic giants have on the market dynamics and the entry barriers has also been discussed. The paper discusses three case studies centered around Facebook-Myspace, Google-Bing. And Various messaging apps around the world. The niche markets and data collection strategy play a particularly important role in breaking the monopolies around the world. Digital Monopolies work by creating an ecosystem of the various elements around their core product which makes it even more difficult to compete with them. During the research a comparison of the core product of various companies and their supporting ecosystem has been done in detail. The Paper has analyzed various companies that entered the digital Markets and captured their fair share of customers/users breaking the existing monopolies*

**Keywords:** Digital Markets, Monopolies, Networking effect, Niche Markets

## 1. Introduction

Companies nowadays have a tendency of becoming too big to fail. Monopolies exist in every imaginable market, more so in the online domain as anywhere else. Through this paper we will look at how some companies came to become the monopolies that we know exist today.

We will look at how monopolies have risen up and how some companies have successfully mitigated the barrage of problems that arise out of competing with monopolies and still succeeded.

We looked at sample cases from the Online Messaging, Search Engines and social networking sites to see the various factors behind the popularity of products belonging to this domain.

### 1.1. Why should I care?

A major power to all the tech giants is data. They have the option of exploiting data in an uninterrupted way, because there are a few alternatives for the people to switch providing equal quality. In the frenzied world of today, data is as important as any form of currency. Computer prodigies have applied Machine Learning techniques to almost all kinds of data and obtained results so fascinating that an older generation can't even dream of. And when data in all the diverse areas is used in synergy, the impacts this data has on our lives just explodes. Activities no longer remain independent from each other.

While all this data has vastly simplified our lives, it has a massive potential harm or even ruin it. There have been cases where people are denied or issued insurance at higher premiums because of their social media accounts. The recent case where personal user information of a large fraction of the population on Facebook was exploited to influence the

electoral process is an extremely strong example of exhibiting how this same data can be used to play against ourselves.

In the following sections, we outline how the tech giants have become monopolies (and duopolies in some cases) and have come to influence people in their markets. In next section on factors playing out in digital markets, we briefly look at the various kinds of advantages that play in favour of these monopolies as also factors that pose threat to them. Next few sections present cases where we present how some smaller companies came out to give the giants a run for their money, and even overthrow their rule as in the case of Facebook to Myspace. The final section of the term paper summarizes the ideas from around the paper and presents a few places where a new budding company might play well to later compete with a mainstream giant.

### 1.2. Factors Playing in Digital Markets

In this section, we consider a few factors that play a major role in technological markets. Some of these act in favour of the tech giants while others make them prone to higher threats when compared to a regular non-digital market company.

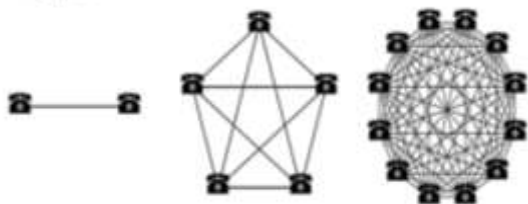
**Entry Barrier into the Market:** Market barrier to entry into these markets is relatively low. Anyone can just get up, think of an idea, design an app or a website to fulfil those requirements and launch his/her product. Unlike other market spaces where one might need to invest a large capital in product development and manufacturing plant, the cost of doing so in the tech space is relatively low. This in turn encourages making of many start-ups. More and more college students are coming up with their innovations and making companies out of their ideas, since it takes almost no monetary effort to launch a tech business.

**Availability of Data:** As pointed out in the introduction, data has a huge role to play in the tech world. Not only it

aids in designing a better product for the user, it helps in continuously improving the platform or the product using the ideas of online learning and reinforcement learning. While data is such an important resource, having ample amount of data to train a good enough system for user likability is a challenge newly entering companies might have to deal with. Already established companies of course already are collecting the data from their platforms, with or without user knowing (or at least noticing)

**Compute Resources Affordability:** Importance of this factor in some sense correlates with the availability of data. As more and more data becomes available to an individual or a firm, challenges in being able to handle them grow. While hosting a website can be as easy as using AWS Free Tier for about a year, being able to crunch large amounts of data can force companies to invest in larger amounts of compute resources which can have a major burn onto their pockets. Cost of renting a state of the art, GPU enabled machine can go as high as 1.5 lacs per month. Buying of course is out of question unless one wants to go through the pains and costs of self-maintaining the data centre (though a smaller one)

**Network Effect in Tech Markets:** Apart from the obvious factors discussed above, this is one of the most important factors playing largely in technical markets. It is a phenomenon where increased number of users improve the quality of a product or a service. It can be rightly understood with the help of the infographic below:



**Figure 1:** Networking effect in markets

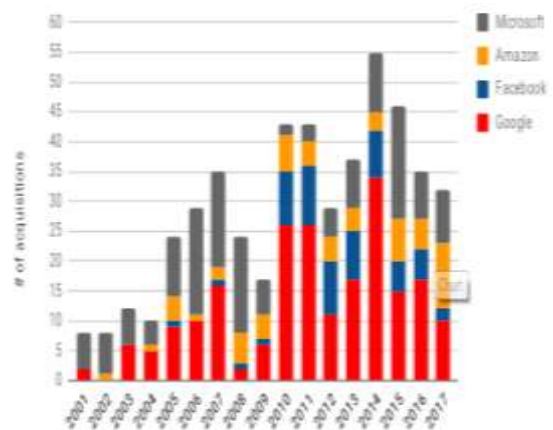
Here, the telephones are the users and the number of links is the strength of the network. As clear from the image above, the strength of the network might increase exponentially with increasing number of users.

The idea of network effect plays but is not restricted to social networks. For example, in a cab-hailing company like Ola or Uber, more riders do not necessarily improve an individual's experience but it does attract more drivers, which in turn helps company improve the user experience.

**Patent of Technology:** This idea plays out well when a company has a specific set of technology that it can file patent for (or the ability to simply keep it a secret), which it uses to improve the quality of its platform. This idea can turn into a very powerful weapon as we have witnessed in the past. A couple of PhDs coming across to form the world's most popular search engine Google, when Yahoo and AOL dominated the world as Google does it now. This factor creates obstacles for the other competitors who then have to reinvent the wheel of a similar quality to reach their competition.

**Market Momentum:** Technology changes fast. And so market dominators have to work hard and keep up with its pace to avoid phasing out in an older technology. It is important that companies keep open to new ideas and avoid too much commitment to a technology they once built and happily used. Like Nokia being stuck in its own operating system when Android was leading the smartphone OS revolution.

**Firm Acquisitions:** Motivated from the previous point in the market momentum, large firms tend to acquire newly formed innovative companies to a) keep up with the market innovation pace and b) possibly avoid a future market competitor. A rough analysis on the acquisitions of smaller companies by tech giants give mind boggling number of around 487 acquisitions by just 4 major tech monopolies.



**Figure 2:** Acquisition data by Microsoft, Amazon, Facebook and Google

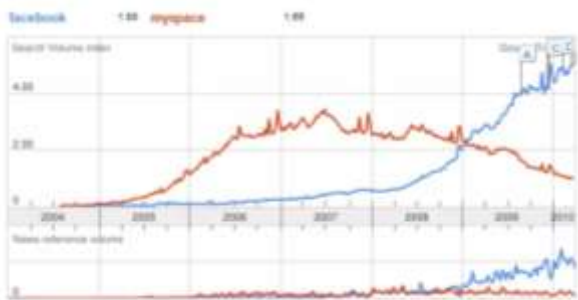
A large fraction of newer companies that can be potential competitors to the established giants, end up getting acquired and come out as a new product line of the company. So this in a way helps sustain monopolies.

## 2. Case Studies

In the next section we will elaborate on 3 case studies, which will entail how a monopoly was broken by a company (the case of Myspace vs Facebook), how an existing company is competing with a Monopoly (The case of Bing vs Google) and finally how new players are trying to enter the markets.

### 2.1. Case of Social Networking Sites

At the height of its popularity in the mid-2006, Myspace was the most visited site in the United States with daily hits more than Google and Yahoo! Myspace introduced and led the concept of social networking during the growth stage of the industry and exerted its dominance over the industry for many years. It was able to establish this dominance due to a variety of reasons including being the introductory website to the networking concept, funding backed by giant companies and a clear chain of command. However, this success was short lived as Myspace started to decline in popularity and was finally surpassed by Facebook in terms of total active monthly users in February, 2009.



**Figure 3:** User data of Facebook and Myspace

We can see that in the initial years Myspace had leapfrogged into the first position amongst the rivaling social networks and gained a sizeable market share.

We will analyse the factors behind the fall of this social networking monopoly which existed and how Facebook managed to break down this massive entry barrier.

### 2.1.1. Degree of Personalisation

A key aspect of all social networking websites is the choice that it gives to its users to express their own unique personalities. This is manifested in terms of the levels of personalisation that the social networking sites offer to their users.

Myspace profiles existed with high levels of personalisation which enabled users to change the layout of their homepage. Users could change the entire home page to suit their interests. This resulted in non-uniformity across different pages which led to user dissatisfaction over a long period of time. Users expected to see similar content as they had shared on their own page and hence when Facebook offered this to them where they could go ahead and find a particular type of information at a predetermined location on the page they preferred using Facebook.

The difference in personalisation of user pages also led to higher loading times of pages which further increased user dissatisfaction as they wanted content faster.

### 2.1.2. Issue of Internet Anonymity

Myspace forced users to use anonymous internet handles to make their own pages and hence individuals couldn't connect directly with their peers if they chose to remain anonymous. This reduced the personal interaction of people as even if they had friends sharing photos on Myspace they sometimes missed them as it remained anonymous. Therefore, the online community was not able to mature in the case of Myspace as they weren't closely related to each other. On the other hand, Facebook allowed users to express their individuality through their names and sharing photo which would reach relevant audiences as they were "friends" with their social circle online. Hence the community building exercise by Facebook was more successful in terms of long term connections formed with people.

### 2.1.3. Exclusivity

Facebook managed to effectively take control of the market by creating a well linked network effect through the strategies it used in enrolling its product. The website

allowed only people from Harvard to be enrolled in it at the beginning and then expanding to various other colleges across US and then abroad.

This allowed Facebook to earn a tag of exclusivity along with it as it was converted into a product which was desirable for the young demographic. College going students now wanted to see the lives of their own classmates and not miss moments from it, something which they weren't able to derive from Myspace. Therefore, given features like personal status updates, about your sections on pages and sharing ability of relatable content amongst your friends group online, Facebook was able to edge out Myspace by introducing itself in a small market and then expanding to gain larger market share.

### 2.1.4 Work environment and Corporate Takeover

A big factor in the decline of Myspace and the subsequent rise of Facebook was the work culture that came to be associated with the two companies.

Myspace was acquired by NewsCorp in early 2005 and a complete revamp of the entire organisational structure occurred at the company. Executives were put in charge of each and every division who were brought in from the outside and hence the entire company was given a corporate makeover. Decisions taken by creative and content teams were put under scrutiny and changed to generate maximum output to the company even if it meant compromising on the creative novelty that Myspace had started to be associated with the company.

Due to the competitive and creative nature of the social networking market constant innovation is required to keep up with the new trends existing in the market to gain the public eye. This spirit of innovation was stifled with the growing influence of a corporate media conglomerate calling the shots at the helm of Myspace.

Facebook on the other hand was not tied down by big corporate owners and hence had the freedom to go ahead and take decisions which would be less restrictive. Therefore, Facebook was able to mould and perfect its product based on the natural direction that the social media market was taking. This company attitude allowed them to constantly innovate and evolve.

**Egg** Myspace pages became increasingly cluttered due to a barrage of advertisements which were published. This reduced the aesthetic appeal of the entire website as it became increasingly cluttered. Due to this Myspace greatly reduced in popularity amongst the younger generations.

Facebook on the other hand didn't use advertisements until long after its inception. This allowed Facebook to be seen as a product with greater appeal.

### 2.1.5. Key Takeaways

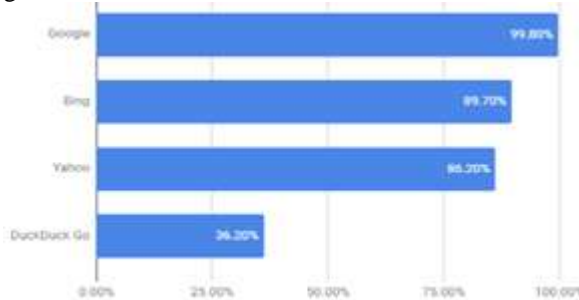
- We can see that the main reason why the monopoly of Myspace failed was the **corporate makeover** of the work culture of Myspace.

- **Brand Image:** The company did not accurately gauge the market and the shifts in the market which existed which led to the public not finding Myspace desirable anymore and hence flocked to Facebook, a “cooler” product which was in line with the youth culture.
- We can observe how Facebook accurately made use of the **Network Effect in building up exclusivity** and gaining a high market share in relevant demographics of university going students, a strategy which proved to be very effective.

## 2.2. Case of Search Engines

### 2.2.1. The Search Engine Story

A web search engine is a software used to search information on the world wide web and produce listings of the results often referred to as SERPS. The information is mixed of web pages, images, videos and other files that have matching keywords. Various Search engines have been launched over a span of 25 years. Yahoo! and Google one of the oldest. In the current scenario the market for search engines is highly monopolistic with Google being the giant firm. Yahoo! Was introduced in 1995, Google was introduced in 1998 and Bing was relaunched (from MSN) in 2009. In a survey conducted in IIT Delhi Fig 1 shows the statistics about awareness of various search engines. Google tops the list with 94.80% and Bing is not far behind with 89.70%

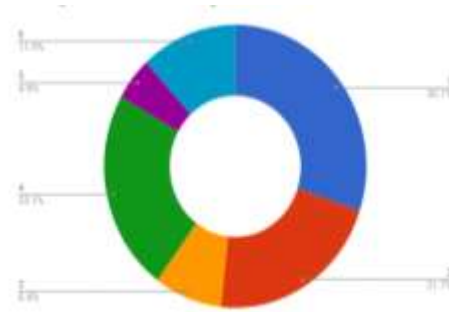


**Figure 4:** Histogram showing awareness of various search engines

An interesting observation from the survey was that 93.1% percent of respondents mentioned Google as their primary choice of search engine while the rest 6.9% was divided between the other three. Although 20.7% of the users claimed to have tried Bing for searching, 24.1% have tried Yahoo! and 29.8% have tried Duck Duck Go. This difference only suggests the lack of turnover(retaining) capabilities of the first time users to loyal customers.

To probe further we surveyed the respondents on the factors influencing choice of Search engines. Following factors were narrowed down

- Relevance of Results
- Quick accessibility of additional features such as Gmail, MSN, YouTube
- Attractive Result Pages
- Popularity of the Search Engine
- Privacy of the Search
- Using the default web browser search engine



**Figure 5:** Factors influencing the choice of search engine

Looking at these survey Results Relevance of Results is the most important factor followed by Popularity of the search engine and the third most dominating factor is Quick accessibility of additional features. Interestingly privacy does not make it to the top three decision making criteria's.

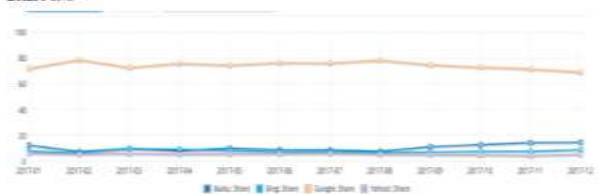
### 2.2.2. A peek into search engine model

Search engines follow a self-learning algorithm for listing search results to any query. These self-learning algorithms improve with more referential data points. Every search on a search engine provides a data point to the search engine and helps in customising and ranking the results displayed to the user in accordance with his/her earlier noted preferences. The core product of any search engine company in the digital market is the “quality of results” and the “relevance of the results”, this in addition to other augmented services being provided by the search engines build a consumer base for the company. Search Engines earn their revenue from various sources, Advertisement still forms a chunk of it. AdWords users are another sector of consumer for Search Engines.

### 2.2.3. Bing Vs. Google

#### a) Breaking the Google Habit: Time to change

Google is the most dominant player in the search engine Market with statistic showing that it owns about 74.54% of the market on desktop searches, while the market shares of other search engines like Baidu, Bing and Yahoo averages around 5-10%.



**Figure 6:** Market Share of Various Search Engines

A recent increase from has been observed in Market Share in desktop searches of Bing and Baidu since August, 2017 but Google still highly dominates the internet searches on mobile phones. Market shares as follows Google: 90% Bing :1 % Baidu: 5.44% and Yahoo: 1%.

The reason for Google’s dominance in the mobile phone sector can simply be attributed to easier accessibility of chrome, indexing to show quality search results and UX Design.

We conducted a survey on the choice of search engine of the customers on various parameters and compared the following search engines on them:

**1) Relevancy of the Results:** The definition for Relevance is very dynamic when it comes to Search Engines. It has evolved over time from simple matching of keywords in the web database to ranking of the results (website links) using various algorithm in order of importance (determined by factors such as - how many times a particular website has been linked on the world wide web to a specific keyword). The current state of relevancy of results is very customer centric. The ranking of the web links is based on the previous searches and experience of the user, the geographic region, the current location and happenings around the user. This practice has not only improved user experience but has also lead to creation of monopolies by the data holders. Google not only hold most of the search data which it can constantly uses to improve its algorithms, it also holds the ability of shaping the way the user perceives and receives the information. Google receives about 3.4 million searches per day. Interestingly in the survey conducted by us in IIT Delhi, concern for privacy of data is considered far lower in the preference while choosing a search engine. This can be concluded as one of the reasons why google enjoys the customer loyalty even after threat to the data theft it poses to its customers. Relevance of the result was voted as the most important factor while deciding a search engine

**Bing's Solution to the problem:** To improve the listed results and collect more data points in 2009 Bing and Yahoo! Joined hands together. Bing powers all searches for Yahoo! Customers while sharing profits. This not only is a way to battle monopoly of a single giant but also an amazing solution for self-improvement. Bing has also collaborated with Facebook i.e. it's social media integration strategy. All Facebook results are also powered by Bing, and the users can share the results.

In 2011 Bing also added the "Instant Search" Feature to enhance the search experience. Bing collaborated with Windows, Kindle Fire and Apple to be the default search engine in the devices. To further the data searches and innovation Bing has run various campaigns like Bing it on! And Bing rewards program in 2010. In Bing rewards program the users were given points for every search and users were promoted to various loyalty levels. The point could be redeemed while shopping etc.

**2) Popularity of Search Engine:** About 23.1% Participants in the survey responded positively for Popularity and Peers using a search engine as the second most important factor that influences their choice. This is the sort of networking effect in digital markets that created monopoly - "Because my peers use this, I will also use this". Google being the market first leader has not only enjoyed the advantage of being known by the most customers but also it had built a google ecosystem in and around the consumer mind. Google in itself offers so many other services that come under the same umbrella and resemble each other. The colour scheme of chrome, Google Play etc. all remind the users of the core product - the Google Search. All of these free day to day essential services has led to creation of the Google Habit in minds

of the users. The core product of the Google - Google Search is well protected inside this ecosystem and hence any competitor trying to battle it will have to battle this entire ecosystem and break it down. Interestingly this easy availability of quick essential of Google on the homepage of the search engine is the third important reason for choosing Google Search Engine.

**3) Bing's Solution to the problem:** Over 25 years' phrase "Google it" has become synonymous with searching on internet. When in 2009 Bing entered the market a major challenge for them was to break the consumer habit. Bing started with aggressive awareness campaign marketing itself as the "Decision Search Engine"- A solution to the information overload syndrome in conventional methods of web searching(Google). A search engine for users who quite don't know what they are looking for and search engines helps them decide by clearing out nonsensical information. The campaign clearly aimed at finding a flaw with the obvious choice of the users - Google and it quite worked, Bing's awareness as a "new generation search engine" has been on the rise. Bing also ran various campaigns like "Bing it on" that head on questioned the choice of the consumers hinting at the fact that they are choosing the habitual but not the best. "**Bing It On!**" was an online challenge that showed two different results to users one from Google and one from Bing and asked the users to choose the one they liked more. When the users didn't know which of those belonged to Bing or Google every 3 out of 5 users prefer Bing over Google. As explained above Bing is venturing into creating an ecosystem for itself acting as the default search engine for various web browsers such as Firefox and Siri. Major tech giants denouncing Google for Bing definitely has given a start Bing was looking for.

**4) Attractive Result Pages:** The fourth important factor while making a choice of various search engines was the Design Interface and layout of the search engine. Google has a very easy to use design interface with various features to filter research.

**5) Bing's Solution to the Problem:** Bing has constantly tried to improve the user interface and some people like it more than the Google interface. It was the first search engine to introduce the "infinite scroll" while searching images. Various other filters to search were also introduced aligning with the "New Generation Engine" idea which are either only present on Bing or are not easily visible on Google. In 2015 Bing also tested a new interface which is claimed to have striking resemblance in its lay out to that of Google.

#### **2.2.4. Bing Ads vs Google AdWords**

The business model of search engines works on the revenue from the advertisement marketing in the result listing. This consumer base also is a major deciding factor in the Search Engine Monopoly. Google has dominated this space because of the sheer volume of searches and traffic on the website. On surface Google seems like a better choice for businesses to advertise but as we dig deeper Bing has very covered this gap and rather has proved itself to be better when compared in the PPC (Pay per click) Model. Bing offers more niche

marketing at lower prices and has recently added new functionalities like Diagnostic tools for the advertisements. For Budgetary reasons alone with added tools Bing will become an obvious choice for the users.

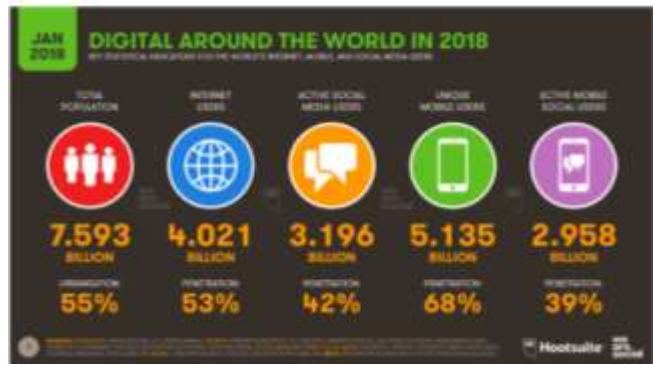
### 2.2.5. Summary

Bing has significantly and constantly improved its position in the market since its introduction in 2009. Few of the important lessons this teaches us about breaking Monopolies are

- a) The **core product/service** of the company has **no alternative**. The differentiating factor between Bing and previous Microsoft attempts (MSN, Live Search) at competing with Google is the ability of Bing to compete with Google in terms of Relevance of Results. Bing still has a long way to improve and innovate the service while collecting more data but it's definitely trying to fasten the process by various collaborations (Such as yahoo) and incentivising the Bing Searches.
- b) Monopoly in Market is Monopoly in mind of the customers. Google's market share is a clear representation of its Brand Image in consumer's mind. Google is the habit in consumer mind. In a study in 2009 various consumers concluded that Bing is as good as Google but still refused to shift to Bing. Bing has been making various efforts in **breaking this ecosystem** and all of them have been quite successful.
  - 1) Brand Image: Bing has tried to differentiate itself from Google and various other search engines by marketing itself as "Decision Engine".
  - 2) Brand Positioning: Bing is becoming synonymous with "New Generation Search Engine" that is also aesthetically pleasing.
  - 3) Brand Communication: Bing has been communication to users through TV media and online. The communication is targeted at Breaking the habits for the better.
- c) From our survey done in IIT Delhi the results concluded that Bing has awareness about its existence but only 22.1% people have tried it and even lesser use it as a primary choice of search engine which hints that Bing has to come up with user retaining strategies. Bing rewards and collaborations with web browsers has helped in retaining the mac users and Firefox users. A great way of penetrating market is through penetrating the niche sector and then expand as done in Bing Ads. Bing has also tried to differentiate itself from Google in the Design interface which has attracted many users.
- d) Google already faces threats at Global level especially in EU regarding Data privacy and immense power it holds to violate the Fair Trade commissions and Antitrust violation. This sentiment increases the need of breaking down a monopoly in the Digital Market to stop the misuse of information flow.

## 2.3. Survival in the Modern Digital Market

### 2.3.1. Global Scenario



**Figure 7:** Users of Communication apps around the world

Over half of the world's population is now online as now more than 4 billion people are now using the internet. This sudden growth in the no. of internet users is due to more affordable smartphones and cheap data plans.

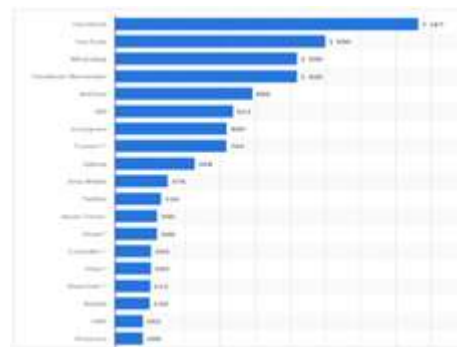
This has resulted in a spike in the growth of social media users too crossing 3 billion users per month with 1 million new users adding each day.

Being such a high pace growing market, it attracts a large number of new app based start-ups every year, majority of which fail due to high competition and dominance of large companies

### 2.3.2 Market Shares

The social media sector is highly monopolistic. Most of the market share is captured by Facebook Inc. with its four applications -

1. FB Messenger
2. WhatsApp
3. Facebook.com
4. Instagram



**Figure 8:** Histogram of users for various social networks

WhatsApp is rapidly growing as a social platform, with millions of people around the world staying in touch through the communication channel. If we combine the market share of FB messenger and WhatsApp, they form a duopoly in almost all parts of the world (excluding a few regions like China).

With those limitations in mind, could it be possible for anyone to challenge the dominance of WhatsApp in the coming years. Given is a case study on 'LINE' - a popular messaging app in JAPAN and nearby countries.

### 2.3.3 Line

Line is a Japanese app which allows users to make calls and send messages totally free of charge. Other features include - LINE Taxi, LINE weather, LINE Games, LINE Pay etc.



Figure 9: Niche markets for messaging apps

Instead of competing with FB Messenger and WhatsApp, LINE focused on specific areas such as Japan, Malaysia and Thailand and developed its product accordingly.

**Marketing Strategies:** This Japanese company developed its product with keeping in mind the Japanese culture and ways of living -

- Japanese culture involves group based interactions more than individualistic interactions. Hence Line has a better platform to form groups and for various in-group interactions.
- LINE after a good start started expanding with other features like LINE Pay and LINE Taxi. Once popular, users found it easy to use all such services in one platform. This was the reason of expansion of LINE.
- LINE has this unique feature of stickers or stamps. This was started keeping in mind the Japanese craze for Anime characters. Users can personalise their messages as well can link with the characters. This was the sole reason for the initial popularity of this app.

### 2.3.4 Key Takeaways

As explained by Handoff Matrix - there are four ways to launch a new product into a market.



Figure 10: Ansoff Matrix for messaging apps

- Since digital markets are highly monopolistic, **market penetration** is never an option for a new company.
- Companies like LINE, Snapchat and Instagram used the technique of **Product development** where they modified the usual app according to the specific need of the customers
  - SNAPCHAT - **privacy need** of users to delete messages after conversation
  - INSTAGRAM- different platform for **photography lovers**
  - LINE - specific **cultural needs** and wishes of Japanese users
- Hence we can generalise that new companies after targeting a niche consumer base and getting popularity can further expand its business to finally compete with the monopolies of that sector

### 3. Summary

Through the paper and the case studies illustrated above we have seen how entering into a monopolistic market in the digital sphere and competing with such companies is an achievable task.

We saw through the example of Myspace vs Facebook how an existing monopoly was brought down due to corporate restructuring and a loss of brand identity through misreading the core consumer base. We also saw how Facebook was able to capitalize on the network effect and build exclusivity to bring down an already problem stricken giant, Myspace.

We then went ahead to see how Bing has been able to compete effectively with the search engine giant Google by effective creation of an identifiable brand image as the decision engine and was also able to position itself to attract a particular demographic as the “New Generation Search Engine”. The relentless technological innovations have enabled Bing to gain relevance in a market which used to be solely dominated by Google.

Through our last example of LINE, we also found that companies can also focus on niche markets and then expand either overseas or in the market by establishing a regional dominance based on cultural factors.

Thus, through these cases and the studies conducted we can see how breaking into a digital monopolistic market is an achievable task.

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## Author Profile



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