

**MINISTRY OF HIGHER EDUCATION, SCIENCE AND  
INNOVATIONS OF THE REPUBLIC OF ZBEKISTAN**

**TASHKENT STATE UNIVERSITY OF ECONOMICS**

**DADABAYEVA RANO AKRAMOVNA,  
ABDULAXATOV MUZAFFARJON MASHRABJON OGLI**

**DEVELOPMENT TRENDS OF DIGITAL MARKETING**

**Monograph**

**Tashkent 2023**

## CONTENT

	<b>INTRODUCTION.....</b>	<b>3</b>
<b>Chapter I</b>	<b>COMPARATIVE ANALYSIS OF TRADITIONAL AND DIGITAL MARKETING.....</b>	<b>9</b>
1.1.	Comparative analysis of traditional and digital marketing.....	9
1.2.	Traditional marketing verses digital marketing	12
1.3.	Digital marketing communication tools analysis.....	21
<b>Chapter II</b>	<b>ANALYTICAL TOOLS OF DATA PROCESSING.....</b>	<b>31</b>
2.1.	Analytical tools of data processing.....	31
2.2.	Data Warehouse Architecture.....	32
2.3.	Objectives, types and methodology of CRM system selection .....	40
<b>Chapter III</b>	<b>THE ROLE OF IMAGE DETECTION IN DIGITAL MARKETING.....</b>	<b>54</b>
3.1.	Image detection applications in society.....	54
3.2.	The role of information communication technologies in digital economy.....	57
3.3.	Types of image detection application in business and its advantages.....	63
<b>Chapter IV</b>	<b>THE EFFECT OF DIGITAL MARKETING STRATEGIES ON BUSINESS.....</b>	<b>71</b>
4.1.	The effect of digital marketing on a company's overall commercial growth in Uzbekistan.....	71
4.2.	The examples of digital marketing strategies of foreign companies.....	78
	<b>CONCLUSION.....</b>	<b>96</b>
	<b>THE LIST OF THE USED LITERATURE.....</b>	<b>97</b>

## **Introduction**

The world is evolving constantly, and this has an impact on how we perceive time. There are no longer isolated regions of the globe, and visiting relatives, meeting people, or waiting for a message no longer require months-long trip. Accessing the Internet only requires a few quick clicks to complete everything. The Internet, a well-known "substance" that has been seamlessly incorporated into modern society like mushrooms and tree roots, has undoubtedly benefited all players in this game. It is difficult to pinpoint exactly what occurs in the world of numbers, but it alters reality and makes time fly.

The internet and online purchasing have expanded the possibilities of marketing and given rise to new sectors, tactics, and varieties of it. Here is where digital marketing expanded to include not just television and radio but also the online environment, which is brimming with clever and practical promotional techniques that are currently in use. Even more so, it produced a highly competitive climate for businesses vying for web leadership.

Retailers face the greatest problem since, unlike technology and innovation firms, they do not create anything new; rather, they sell items (particularly in cases where the firm is dealing only with online sales). Manufacturers must find a means to enhance the value of their products and guarantee not only their high quality but also their distinctiveness. This explains why all firms must engage with digital marketing in one form or another.

This work will also attempt to demonstrate how businesses that do not use digital marketing strategies will find it difficult to compete with their rivals and will be unable to expand. The question "What is making customers buy?" frequently asked in practically every business worldwide. There is not a single solution that is acceptable and applicable for all organizations, but there are unique sets of characteristics and challenges that are specific to each industry, along with certain common drivers. Similarities are common and should be relate to psychology and human nature, so the solution to the question above might be straightforward.

The use of CRM is becoming increasingly important in the modern day as the prevalence and importance of innovation continue to grow. It increasingly recognized as a coordinated commercial foundation that supports or organizes several utilitarian offices rather than merely a subset

of IT or marketing. From a business readiness perspective, the question “Will our CRM framework be successful?” is no longer sufficient; instead, businesses should ask which CRM strategies are more effective? and “by what implies might such CRM methods impact the working of the organization?” (Kim, 2012).

Uzbekistan prioritized digitalization and development of information-communication technologies (ICT) yet in early 2000s. For instance, Uzbekistan has been implementing an integrated program of National Information and Communication System Development 2013-2020, the National Action Strategy on Five Priority Development Areas 2017-2021, the “Digital Uzbekistan – 2030” Strategy and the latest the Development Strategy of New Uzbekistan for 2022-2026 to implement digital transformation in national economy, industry and society in general.

Consequently, in a relatively short period of time, Uzbekistan has achieved visible results in the sphere of digitalization and ICT development. In particular, substantial progress has been observed in introducing e-government and ICT in public sector for the last few years, when in 2013 was launched “Single portal of interactive government services” – central e-government service of the country.

Moreover, digital and IT infrastructure of the country has remarkably improved, considerable amount of resources were invested which built solid foundations for better ecosystem of the ICT.

As a result, in the country, according to the State Committee of the Republic of Uzbekistan on Statistics, in the field of Information and communication during 2017-2021, the gross value added increased more than 2 times and reached 11.8 trillion UZS (more than 1 billion US dollars) in 2021.

In addition, since the creation of IT parks in Uzbekistan, the industry’s export volume has grown 50 times and reached 46 million US dollars. The number of park residents increased from 147 to 500, more than 300 new companies were opened and 8,500 highly paid jobs have been created. Currently more than 11 thousand young people work in IT parks.

The total length of fiber-optic communication lines in the country has been remarkably expanding since 2017. For instance, during 2017-2022 it has increased almost 6 times and reached 118 thousand kilometers as of January 2022.

Since 2017, the overall bandwidth speed of the international networks has been increased more than 28-fold – from 64.2 to 1800 Gbit/s in January 2022.

As of January 2022, in Uzbekistan following the public administration reforms and digitalization of the sphere 56% public services provided through the portal of interactive public services (e-government portal). The number of public services on the e-government platform of the country (my.gov.uz) reached 307 and 1.3 million citizens are actively using such electronic public services. Whereas, the total number of Internet users in Uzbekistan reached 27.2 million.

At the same time following the revealed vulnerabilities and challenges in the sphere, the government has revised and upgraded its national digitalization strategy under the impact of the global pandemic.

Meanwhile, Uzbekistan recognized the power of digitalization in transforming society, whereas the COVID-19 pandemic has made that transformation essential.

In this vein, the President of Uzbekistan Shavkat Mirziyoyev's Decree on October 5, 2020 has approved countries Strategy "Digital Uzbekistan – 2030" and "Roadmap" for its implementation. According to the document from all state obligatory payments such as fees and fines are being made through provided online payment-services. Furthermore, in line with the Strategy "Digital Uzbekistan – 2030" more than 400 information systems, electronic services and other software products in various areas of socio-economic development are being carried out automatically [1].

Among expected results of "Digital Uzbekistan – 2030" Strategy are high-quality and inexpensive Internet and mobile communications, the reduce of the digital divide between cities and villages.

Adoption of the "Digital Uzbekistan – 2030" Strategy and the "road map" for its implementation in 2020-2022 creates, first of all, a legal basis for the transition to a digital economy. The document includes such priority areas as the development of digital infrastructure, e-government, the national digital technology market, education and advanced training in the field of information technology.

The strategy considers approval of two programs: digitalization of regions and digitalization of industries. Thus, two approaches were considered as territorial and industrial. Undoubtedly, it will provide the most comprehensive coverage and effective implementation of the document.

The most important conditions and guarantees for the successful implementation of the Strategy is to ensure funding and increase the digital literacy of the population. So, according to the document, the Ministry for Development of Information Technologies and Communications of the Republic of Uzbekistan, together with other relevant governmental bodies will take measures to complete the digitalization of preschool education, health care and secondary schools by the end of first stage of the implementation period.

The implementation of the Strategy will ensure the provision of high-quality digital services to the population, reduce corruption, increase the level of citizen involvement in government decision-making processes, modernize the system of higher and secondary education in order to ensure the competitiveness of citizens not only within the country, but also in the regional and global labour markets.

The Strategy contributes the implementation of other national strategic documents and programs and, first of all will be important for achieving the national goals and objectives in the field of the UN Sustainable Development Goals for the period up to 2030, as well as the Development Strategy of New Uzbekistan for 2022-2026.

The Development Strategy of New Uzbekistan for 2022-2026, which has been adopted on January 28, 2022, covers seven priority areas of further reforms regarding a good governance, public administration, and the rule of law, economic development, social policy, spiritual enlightenment, and security as well as an open, pragmatic and active foreign policy. In turn, the seven priority areas identify hundred target goals to be achieved by 2026.

Digitalization of several important spheres such as public services both at central and local levels by improving “e-government”; the judicial system; law enforcement; the traffic control system; healthcare system; social services as well as social protection, banking and agriculture sectors and other main spheres of the national economy have been targeted in the new Development Strategy.

In particular, improvement of the e-government of Uzbekistan and bringing the share of electronic public services to 100 %, implementation of “Mobile ID-identification” system of a person in the provision of public services, introduction of “digital passport of citizens” and “digital authority” project have been prioritized to digitalize public administration and optimize administrative procedures at central and local levels.

By maintaining stable growth rates of it is planned to reach 4,000 US dollars GDP per capita and join the group of countries with “upper-middle income” by 2030. In this regard, the development of the digital economy is also defined as the main “driver” with an increase in its share by at least 2.5 times by the end of 2026. Moreover, it is planned to expand the volume of the software products industry 5 times, and software export - 10 times, up to 500 million US dollars, the level of digitalization of production and operational processes in the real sector of the economy, in the financial and banking sectors to 70% by the end of 2026. Moreover, digitalization of urban planning and construction, development of cities in accordance with the concept of “Smart City” has been prioritized.

Certainly, in the context of the global pandemic and in general digital technology and services play a central role in recovering from the pandemic and building resilient economies. Therefore, expanded digitalization and digital transformation should be the main priorities for developing countries, like Uzbekistan. For the last decade, Uzbekistan has achieved remarkable results in the sphere of digitalization and ICT development, especially, in provision of digital public services. Meanwhile, along with ongoing cooperation with South Korea, Russia, Estonia, China it is necessary to attract more technologically advanced countries such as Germany, United Kingdom, United States, Singapore, Japan and others to ICT sector of the country by diversifying geography of international partners. Investing in digital eco-system, ICT infrastructure and qualified IT services will further facilitate modernization of national economy and accelerate inclusive growth in all spheres.

Also, "Digital Uzbekistan - 2030" is of great importance in achieving the tasks stipulated in other national strategic documents and programs, in particular, the national tasks according to the UN Sustainable Development Goals until 2030 and the goals set in the “Development Strategy of New Uzbekistan” for 2022-2026.

The Government of Uzbekistan is consistently working to increase the share of the digital population. In particular, in the Development Strategy of New Uzbekistan for 2022-2026, approved by the Decree of the President of the Republic of Uzbekistan dated January 28, 2022, No. UP-60 at 25, the goal is designated as “Defining the development of the digital economy as the main “driver” with ensuring an increase in its volume by at least 2.5 times” [2].

Given the status of the company in the world market and its importance for the development of international trade in Uzbekistan, the problem of using modern marketing technologies is timely and relevant. Therefore, this study is devoted to the:

- analysis of trends in the development of digital marketing technologies and their utilization in Uzbekistan;
- development the framework for CRM system selection. For this purpose, “Ajoyib group distribution” company was chosen as the object of the study. In addition, a questionnaire survey was conducted and the results of processing were presented.

The aim of this study is to examine the trends and development of technological means of digital marketing and to develop a framework for CRM system selection.



# **Chapter I. COMPARATIVE ANALYSIS OF TRADITIONAL AND DIGITAL MARKETING**

## **1.1. Comparative analysis of traditional and digital marketing.**

In the recent past, most businesses employed traditional marketing to promote their products and services to potential customers. This form of marketing reaches customers and audience offline through the old forms of marketing such as the print media, big signs or billboards that are placed by the roadside. It further covers a wide array of advertising forms including to broadcasting, poster campaigns as well as well as radio broad casting that seek to attract customers to a product or service regardless the cost. According to Tarik & Adnan (2018), traditional marketing relies on one-way communication in sharing messages to the audience. This form of marketing plays an important role only in reaching local customers. Startup businesses may put their trust on these traditional forms of marketing with the hope of the methods offering good services. However, it is a matter of time to realize it does not work effectively on their favor to reach out to many customers as anticipated and the business may fail to remain afloat due to dynamic marketing strategies. This kind of marketing majorly rely on Ansoff model to identify opportunities of business growth which links the marketing strategy of an organization to its strategic direction.

Figure 1 illustrates traditional marketing and the strategies that are incorporated by this type of conventional marketing. Most of the digital marketing strategies above fall under four categories; print which includes newspapers, magazines, flyers and brochures and any printed material to be distributed, broadcast which includes Radio and television, materials mailed direct to consumers such as flyers and brochures as and what we see almost daily (Billboards).

The term "traditional marketing" encompasses a wide range of marketing and advertising strategies.

According to Durmaz & Efendioglu (2016), the main objective of traditional marketing is to provide time, place, and possession utility, to create value for customers and convince them to buy what the company is selling. All the channels that were used for marketing before the advent of digital marketing are referred to as traditional marketing. It is typically divided into two categories: ATL (above the line marketing), which uses

high-reach channels like TV ads, conferences, billboards, and radio ads to reach more people than just the target audience, and BTL (below the line marketing), which aims to only reach the target audience using guerilla campaigns, mail, telephones, and sponsorships (Sloan, 2020).



**Figure 1. Forms of traditional marketing<sup>1</sup>**  
(Source: [www.marketing.com](http://www.marketing.com))

In the last few decades, traditional marketing might have changed and advanced, however, selling techniques used today, depend heavily on well-known four P's of marketing: price, product, placement, and promotion. Although it could seem that digital marketing is different from traditional marketing, it nevertheless adheres to the four Ps of traditional marketing. Instead, it makes use of each of them uniquely, frequently better than traditional marketing does.

**Digital Marketing.** As an alternative to more conventional media like television, print, and radio, digital marketing is the active promotion of goods and services using digital distribution channels. Focusing on interactive components that invite customers to participate in the marketing process is the aim of digital marketers.

The majority of individuals in this day and age, where more than 4.5 billion people use the internet everyday (according to Statista), should be familiar with the fundamentals of digital marketing because it offers a

---

<sup>1</sup> This figure was created by Lawrence et al. 2018, representing the different methods of traditional marketing

variety of options for people to advance and expand their enterprises. All marketing initiatives that make use of technology or the internet fall under the category of digital marketing.

To lock in with display and potential clients, businesses utilize advanced channels counting look motors, social media, mail, and other websites. 2020 (Alexandar) In other words, through an assortment of computerized promoting stages that are basic to utilize to reach the company's target clients, computerized promoting helps businesses in advancing their items or brands.

Digital marketing is essential for brand awareness and business nowadays, and organizations who find it difficult to adapt these methods and incorporate them into their daily operations risk falling behind their rivals and eventually going out of business.

While traditional marketing strategy and its reliance on Ansoff matrix marketing strategy may work out to some business, it may not take long before it is phased out due to shortcomings of this marketing strategy (Dawes,2018). It fails to capture some details of business markets or its position such as competitors. Because of its simplicity, much more thought and effort must be put into it. Due to fierce market competition, small and new retailers find it challenging to differentiate out. This type of traditional marketing is no longer used. The global Covid-19 pandemic, which began in 2020, should also be noted because it "meant that both stores and consumers had to switch to digital reality instantly" (Alexandar, 2020). The commercial landscape has been dramatically upended by the Covid 19 age and the automated economy, making traditional marketing ineffective. "The digital method will function well if SMEs have digital transformation so that they can compete intensely," claim Indriastuti & Fuad (2020). For the sake of ease and safety, the strategy entails shifting their offline business to internet transactions (p.1). However, digital marketing is a contemporary, superior, simpler, and successful technique of expanding a company's consumer base, and no new organization should ignore this sizable contemporary sector. Digital marketing is the use of digital channels to advertise products or services to reach customers. It has changed and shaped the way companies attract their customers and revenue generation in Ireland. The internet and it's in build features especially search capabilities have utterly transformed how small and Medium Enterprises market themselves. The number of potential customers which is found online is far away higher that the tally that can be attracted locally. Use of digital marketing reaches an enormous

audience in both measurable and cost-effective way. It is possible for new businesses to interact with their prospects and be able to understand exactly what the customers are looking for. Further, digital marketing allows one to know his or her audience and as well allow them to know him or her in person which helps in creating brand loyalty. Through digital marketing, a new company may track the results of its marketing efforts right away. In recent years, a large number of new enterprises operating in developing economies have started using their websites, social networking platforms, and online banner ads. Planning for internet sales and general digital marketing techniques. In 2019 (Vieira et al.). To be effective with digital marketing, a company should have implemented the following:

i. An online store that enables the purchase of goods or services from a business.

ii. Email marketing, which enables a company to contact clients directly from their inbox messages.

Social media marketing can broaden brand messages and enable interaction with prospective customers.

iv. Daily video uploads should be made to the companies' video platforms, if applicable.

In the past decade, use of digital marketing has become very vital to not only organizations but also startups with its capability to allow tailored messages reach specific audiences. It encompasses a wide array of marketing tactics and technologies deployed to reach customers and consumers online.

## **1.2. Traditional marketing verses digital marketing**

Traditional marketing, as we now refer to it, was the only type of marketing available before to the advent of digital transformation. Choosing the best marketing techniques may help businesses reach their target audiences and turn them into customers. Running a successful business involves more than just picking the correct market and having excellent products.

Older audiences value and appreciate traditional marketing more since they find it difficult to keep up with the rapid advancement of technological trends. Traditional marketing plays a key role in appealing to the local audiences. In the modern world, spending on traditional and

digital marketing is equal, however it is anticipated that digital media spending will surpass traditional media spending, as seen in figure 2.

Bala & Verma (2018) compares traditional marketing and digital marketing in ample various ways.

- Unlike the conventional traditional marketing people wait for a stipulated time frame before finding out the customer's response, digital marketing provides real time response.

- Due to the fact that customer's response is real time, it is thus possible to track whether a particular campaign is working for a particular product or not, and through the customer's feedback, it is possible for marketers to make appropriate changes campaign promotions. This feature of flexibility is not possible in traditional marketing.

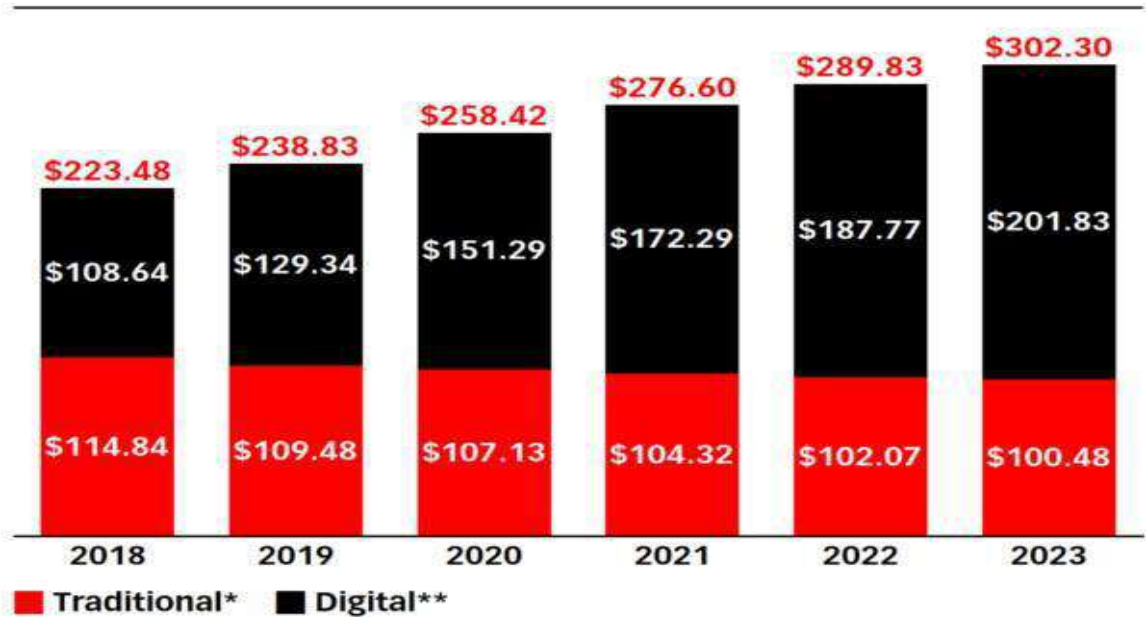
- Small retailers find it difficult to compete with big competitors in the market due to the owing cost involved as well as strategy making expertise whereas in digital marketing it is possible to reach a wider target audience with a better assurance service through a crisp website. Businesses can replace expensive traditional advertising strategies like radio, print, magazines, and television with low-cost digital marketing strategies.

- Through digital marketing it is possible for a marketer to stimulate target audiences to take appropriate actions that's interests the customers, visiting their websites, knowing their products and different services. This allows customers to express their various views on a particular product, choice of purchasing the product as well giving feedback, giving a marketer an opportunity to engage with customers which is usually diluted in traditional marketing.

- Digital marketing offers brand development and promotion better than traditional marketing especially through social media marketing websites, social media channels and emails. This usually allows targeting customer's requirements and adding significant value to their expectations.

Traditional marketing is an old school marketing technique. It refers to a way of promotion and advertisement including flyers, TV ads, Radio ads, billboards, print advertisements and newspapers which businesses used to market their products in early stage. This type of marketing has four phases which, Interest, awareness, desire and decision (Duh et al., 20218). Digital marketing is modern method of marketing where products and services are promoted and sold by use of online marketing. It uses digital media such as google, YouTube, Instagram and other forms of

digital platforms. It employs four phases: Planning, Conversation, Content, and Sequels (Miklosik et al., 2019).



**Figure 2. Total media spending in the US, traditional vs digital, 2018-2023**

Source: eMarketer (2018) [www.marketing.com](http://www.marketing.com)

The table below gives a summary of the key differences between traditional marketing and digital marketing from different literatures.

*Table 1<sup>2</sup>*

**A summary of the differences between digital marketing and traditional marketing**

Traditional Marketing	Digital marketing
Promotion and selling of products and services through Telephone, TV, banner, door to door, sponsorship and Radio	Promotion and selling of products and services via digital and electronic media such as SEO, PPC and content marketing.
Traditional marketing provides a form of marketing which is not cost effective	Digital marketing is a cost-effective technic of promotion.

<sup>2</sup> Developed by author on the base of different literatures sources.

It is a poor method for establishing a brand.	extremely quick and effective brand-building technique
Measuring the success of marketing is challenging with traditional marketing.	Analytical tools in digital marketing can be used to gauge the effectiveness of marketing campaigns.
Some methods of traditional marketing include: <ul style="list-style-type: none"> <li>• Radio</li> <li>• Tv advertisements</li> <li>• Broadcasts</li> <li>• Banner ads</li> <li>• Print ads</li> <li>• Sponsorship</li> </ul>	Digital marketing includes the following techniques: <ul style="list-style-type: none"> <li>• Pay per click marketing (PPC)</li> <li>• Search engine optimization (SEO)</li> <li>• Content marketing</li> <li>• Email Marketing</li> <li>• Social media Marketing</li> <li>• Web design</li> </ul>

(Source: [www.marketing.com](http://www.marketing.com))

### **Advantages and disadvantages of digital marketing**

**Advantages.** Digital marketing is, as was already mentioned, essentially the use of online channels to advertise businesses, goods, and services. The benefits of digital marketing are spreading daily to more and more people. 82% of shoppers in retail stores, according to Forbes, do their homework online (Forbes Press Release, 2016), which fundamentally implies that indeed some time recently clients realize what item or benefit they need, they go online to hunt for the arrangements for their issues and to superior get it the issue at hand. Information like this energizes indeed little businesses to actualize a few of the computerized showcasing methodologies to extend their reach.

Ajoyib company's advantage of digital marketing is the fact that marketers can analyze traffic information which helps them understand

user's habits and preferences and enables them to build their strategies accordingly.

Digital marketing has countless benefits on new businesses including reaching a lot of customers hence building a new businesses' customer base. This allows new businesses to grow very fast through creation of awareness about the startups in the social media (Dimitrova & Sin, 2018).

This further increase customer awareness which leads to boosting business relationship between a new business and a customer. Digital marketing helps in availing information to customer actively and there he or can such any company when need arises.

1. Advanced promoting is an intelligently and successful way to reach a nearby group of onlookers as well as a worldwide group of onlookers when suitable.

2. The information is promptly accessible and the comes about are much simpler to measure”

3. Social media enables us to communicate helpfully with bunches and indeed person clients verbally.

4. Make coordinate affiliations and contacts together with your clients through web-based social media.

5. It is 24 X 7 promoting and it finds focused on customers.

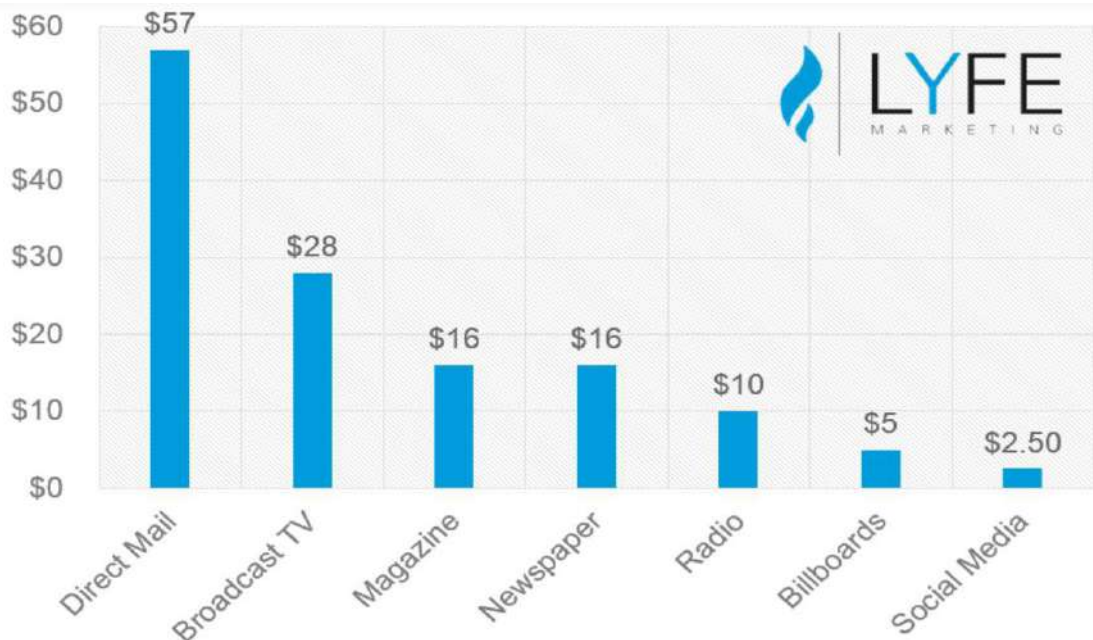
Another vital advantage of computerized showcasing is that it permits companies to pinpoint their perfect clients. By looking at social media expository devices, companies are able to recognize diverse sorts of personas to characterize each section of a company's client base. In arrange to create the picture of a persona, companies secure extra subtle elements such as customer's age, sexual orientation, leisure activities, way of life, compensation, worldview etc. (Owen, 2020). The point is to put themselves in 'customer's shoes' to recognize the issue that their item or benefit makes a difference illuminate. On the off chance that this is often tired the proper way, it'll offer assistance a company optimize their showcasing budget which their substance will reach their target clients.

In a few conventional ways of promoting such as giving out brochures, obtaining an announcement space, or sending coordinate mail marketers cannot be beyond any doubt in case individuals have bothered to peruse the substance. On the other hand, advanced promoting permits marketers to determine the precise number of individuals that.

One of the pivotal points of interest of computerized showcasing is that it is much more taken a toll viable with regard to conventional



showcasing channels. This gives openings to little businesses and new companies to respond their gatherings of people without investing a fortune of conventional promoting channels e.g. TV commercials. Figure 3 appears what the fetched of an each of the promoting channels to introduction to 1000 individuals is.



**Figure 3. Fetched of showcasing channels for introduction of 1000 individuals**

(Source: Lyfemarketing.com (2019) [www.marketing.com](http://www.marketing.com))

As can be concluded from the Figure 3, there's a huge contrast in cost to reach the same number of individuals, for illustration, it is more than 20 times cheaper to utilize promoting through social media than coordinate mail, which makes it much more engaging to utilize, particularly for little businesses.

**Disadvantages.** As Much as there are endless benefits of computerized promoting to unused commerce, there are a few challenges that cannot be neglected. Ajoyib company, over dependence on computerized promoting “can cannibalize or substitute conventional product” (Hofacker et al., 2018, p.10). The challenge of ad-blocking administrations. Individuals utilize ad-blocker program as the advertisements influence their browsing encounter which they consider it unessential and irritating. Another challenge is Advanced Video Recording innovation that grant shopper control to record recordings as well as halt transmission. At long last, computerized showcasing postures the challenge of transmitting forceful spam commercial message. The

spam message is as a rule shared through emails, versatile messages and social media.

1. The company depends on profoundly locked in clients on the Web
2. Substance must be persistently made, altered, affirmed, and published”.
3. The mindful worker must react to comments and upgrade or control destinations and promoting pages from time to time.
4. The unwavering quality of advanced promoting is unsteady.

Higher change rates lead to higher income which makes a difference companies develop their businesses and grow their operations. In spite of the fact that advanced showcasing has numerous points of interest, there are too a few downsides. Ajoyib drawback that's worth specifying is that computerized showcasing is time-consuming. Advanced showcasing assignments such as composing blogs and optimizing websites to rank higher in look motors, making online campaigns, take a part of time of a working day to be completed. Concurring to Cyber Planet (2019), 60% of advanced promoting laborers report investing at slightest 6 hours per day on computerized promoting. Moreover, look motor optimization requires time and tolerance some time recently seeing concrete prove of it really working. Numerous computerized showcasing companies state that it takes four to six months of SEO to begin seeing advance within the positioning of website. In figure 5, it can be watched that as it were 5.7% of all pages in a think about positioned in beat 10 for at slightest one watchword inside the Ajoyib year (Soulo, 2020).

Another drawback is that computerized promoting techniques are regularly subject to robbery. Numerous have replicated substance from other marketers who worked exceptionally difficult to make their substance and utilized them as them possess. Moreover, a few utilize photographs and images that are deceiving and don't speak to their businesses for what they are, which is unjustifiable towards their competitors (Vengadesh, 2019).

While on the subject of competition, it is noteworthy to point out that since each company within the world has a few sort of online nearness, the competition in computerized promoting is furious. In arrange to stand out from the others, it is pivotal to give a good amount of time, cash, and exertion to computerized showcasing. Moreover, marketers need to keep up with Google's modifying of the SEO rules. Google continually alters their calculations, which can be truly disappointing for the commerce proprietors as they may be contributing

in promoting methodologies nowadays that may be less successful within the close future (Weber, 2018).

Finally, there's a security issue. There is a parcel of programmers on the web who can hack social media accounts, breach through security and get to important private information. Extra issue may be on the off chance that the company does not display entire data almost their products or administrations online, clients may utilize this against that company and sue them. In this portion of the proposition, primary points of interest, and impediments, as well as the greatest contrasts of computerized and conventional showcasing will be explained.

Whereas advanced promoting can increment brand introduction, there are a few points of interest that conventional promoting has over computerized promoting. To begin with, conventional promoting is incredible for the nearby groups of onlookers. For illustration, radio advertisements, neighborhood daily papers and flyers are one of the foremost fruitful strategies of conventional showcasing when focusing on the neighborhood gatherings of people. Elderly are more slanted to strategies of conventional showcasing as they battle to keep up with mechanical progressions that happen each day. Usually another advantage of conventional showcasing since in created nations, the rate of elderly individuals is around 15% (nearly 20% in Europe), and those individuals would or maybe get a flyer to studied than a mail that, in most cases, don't indeed have.

Agreeing to Todor (2016), in the event that the advertisements are put suitably and in case they are reasonable for the company's focused on gathering of people, conventional promoting strategies provide speedier and more viable comes about than advanced showcasing channels that, in a few cases, can take more than a year to achieve their goals (SEO). It can be watched that tangibility is an advantage that conventional showcasing has in this advanced age. In one ponder, it was demonstrated that individuals are more likely to keep in mind what they studied in printed notice than advanced promotion (Widjaya, 2017).

People in some cases spare flyers and examined them in their claim relaxation time e.g. in case they gotten pizza flyers in their post box, instead of looking for the pizza place's offer online, they will have studied the flyer to see what the pizza put offers. Unmistakable promoting channels are valuable since, rather than holding up for the potential clients to discover you online (and conceivably within the prepare, bumble upon company's competitors), companies are able to bring their brand to the

clients. Conventional special procedures, such as sending Christmas cards with promotional offers through coordinate mail, enables companies to set up a individual association that will pull in target clients to purchase their items and administrations.

Finally, conventional promoting may be a much more tried and dependable frame of promoting, and indeed in spite of the fact that it does not reach as many individuals as advanced promoting, it includes a higher victory rate than computerized marketing. With the rise of progressed advancing, obstacles of customary advancing Numerous ordinary exhibiting methodologies are exorbitant and taken a toll prohibitive (Lilyquist, 2019). For case, buying TV commercials may be as well costly for numerous little businesses who regularly resort to strategies of computerized promoting. Normal time of a TV commercial is around 15 seconds which assist demonstrates that companies are attempting difficult to crush their messages to pay less for their commercials. In figure 3, the normal taken a toll of a 30-second TV commercial within the Super Bowl is displayed and it appears how costly it is for companies to publicize their items and administrations on prime-time TV.

Another issue is that, in conventional showcasing, marketers have a need of time to upgrade their promotions. They have to be arrange the substance of the commercial days or weeks in progress, and it is difficult to alter once the commercial is out. On the other hand, computerized marketers can upgrade their substance rapidly, at whatever point they wish to do so. In expansion, agreeing to Ashe-Edmunds (2017), conventional ads provide less data as the print and broadcast media don't offer sufficient space nor time for a company to display and clarify all of its diverse items and item data. On the other hand, clients can effortlessly discover all of the data they need on a company's website.

Whereas advanced innovations utilize customers' individual data that's accessible on websites that permit marketers to target potential clients more precisely, conventional strategies give media packs with group of onlooker's socioeconomics. In any case, once the advertisement is conveyed (print or broadcast), there are no implies for deciding in case potential clients really studied or saw the ad. Lastly, it is imperative to note that we live in a period of advanced transformation, where move from conventional to advanced is more than obvious. This implies that a few shapes of conventional promoting are rapidly becoming obsolete, which increasingly businesses and clients incline toward computerized promoting channels to conventional showcasing methods.

### **1.3. Digital marketing communication tools analysis**

Focusing on interactive components will help digital marketers engage customers in the marketing process. According to Schmitt (2010), 100, the following conditions must be met in order to launch a full and effective digital marketing start-up:

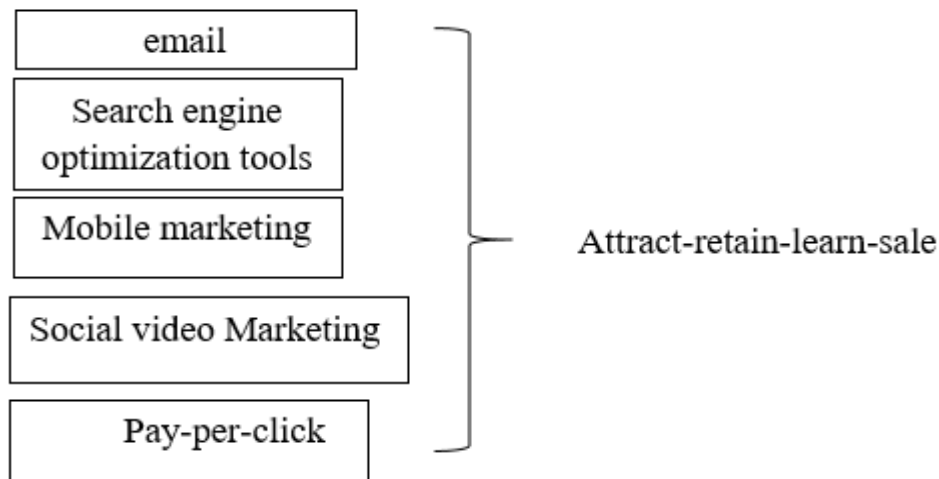
- Infrastructure needs, such as those for the internet, fixed broadband, networks, mobile telecommunications, satellite communications, and applications.
- Process criteria, which include a good quality and trademarked product or service, Seller (firm or person), Purchaser (firm or person who is interested in specific thing).

Environment requirements, such as:

- a convenient legal system;
- a payment or banking system;
- a secure electronic system;
- a shipping system, taxes;
- and trained human workers.

For marketers, the internet unlocked a whole new world of possibilities. Digital marketing channels are now considerably more prevalent because they are inexpensive and simple to use, especially for small enterprises with limited resources and staff. The most significant digital marketing channels will be described, examined, and illustrated in this section of the thesis.

Digital marketers use technology that can be of assistance to them in order to contact their target audience. Consider the most widely used online communication technologies (Figure 4).



**Figure 4. Online marketing communication tools**  
 (Source: The figure was created by author)

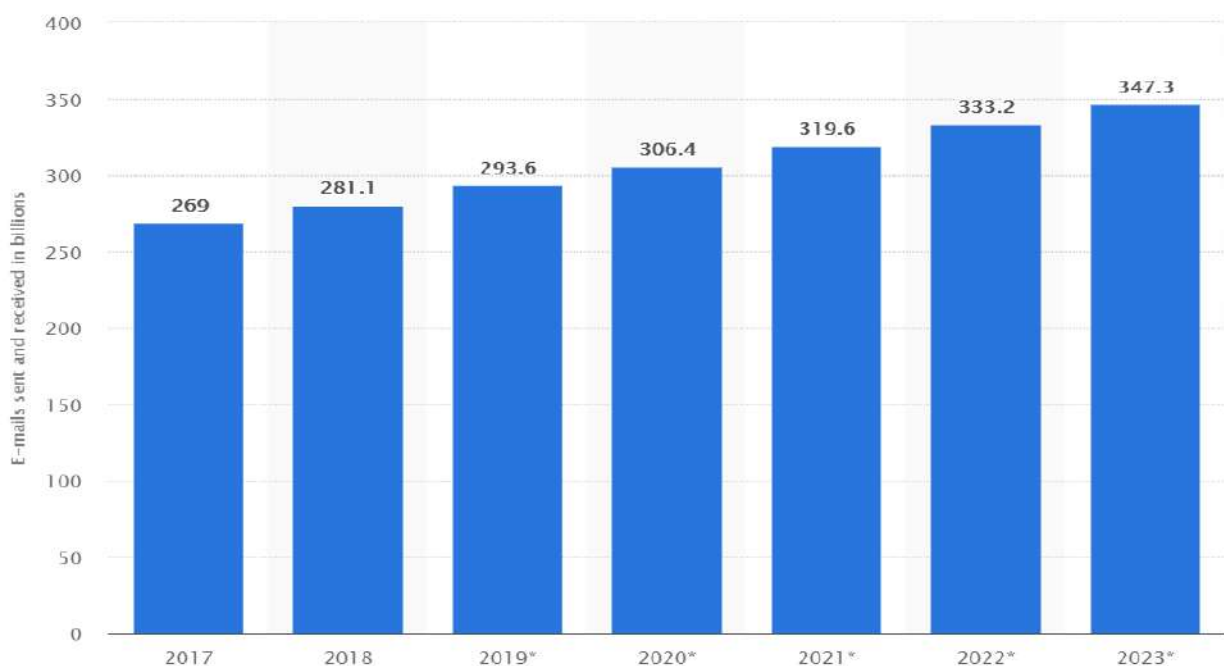
Email. Despite the rise of social media, smartphone applications, and other platforms, one of the most successful marketing strategies is email. Email marketing is the practice of sending promotional emails to a large number of potential clients (Bala & Verma, 2018, p.11). Through the use of efficient email software, a company can keep track of a list of emails that are divided based on criteria as shown by client behaviors.

According to Stokes (2011), email marketing, which use electronic means to send commercial and promotional messages to both potential and current clients, is one of the most traditional and significant types of direct marketing. According to research, there are over 4 billion email users worldwide, and that 500 million more people will use email in three years (Vujasin, 2020). Figure 5 demonstrates that emails are being sent and received at a rising rate each year, and predictions indicate that between 2017 and 2023, there will be 30% more emails sent and received.

Because everyone on earth has an email address, email marketing is therefore highly appreciated by businesses because it allows them to contact a large target audience. Promotional emails and retention-based emails are the two primary categories of commercial emails.

Email advertisements tend to be blunter and encourage users to act right away. Retention-based emails, or newsletters, on the other hand, are more concerned with giving users useful information in order to develop long-term relationships. Transactional emails, catalogs, alerts, invites, and communicational messages are other types of emails outside those that are promotional and retention-based. Utilizing email marketing as a component of a company's digital marketing initiatives has many benefits.

Companies can first divide their clientele into various categories and offer messages and content that are tailored to the tastes of each group.

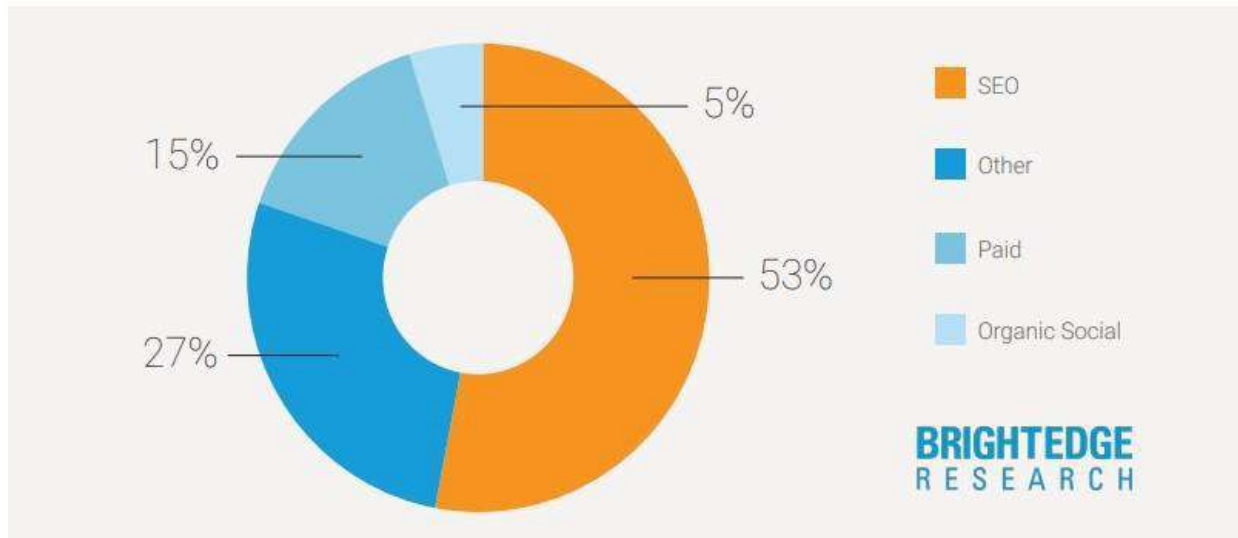


**Figure 5. Number of sent and received emails per day worldwide 2017-2023**

(Source: Statista.com 2019)

By altering substance for distinctive gatherings of people, companies make certain that their emails offer to each fragmented client bunch. One of the extraordinary preferences of mail promoting is the plausibility of totally robotizing it, by making particular triggers. The company chooses when to send personalized messages to potential clients. That trigger can be based on specific time of the day or specific activity that potential client had with past substance. For case, a client is browsing through a company's ecommerce site, and chooses to put a thing within the cart. In any case, something happens, and they choose to abandon the cart within the middle of the purchasing process, which may be a common issue within the e commerce. Various companies send a mail a day or two afterward, to remind clients of the surrendered cart, and now and then offer uncommon reduced offers for that specific thing to deliver the clients extra thrust to purchase the item. In addition, e-mail promoting strategies are simple to degree, and this is often critical for companies to get it in case their e-mail promoting methodology is working or on the off chance that it needs changes.

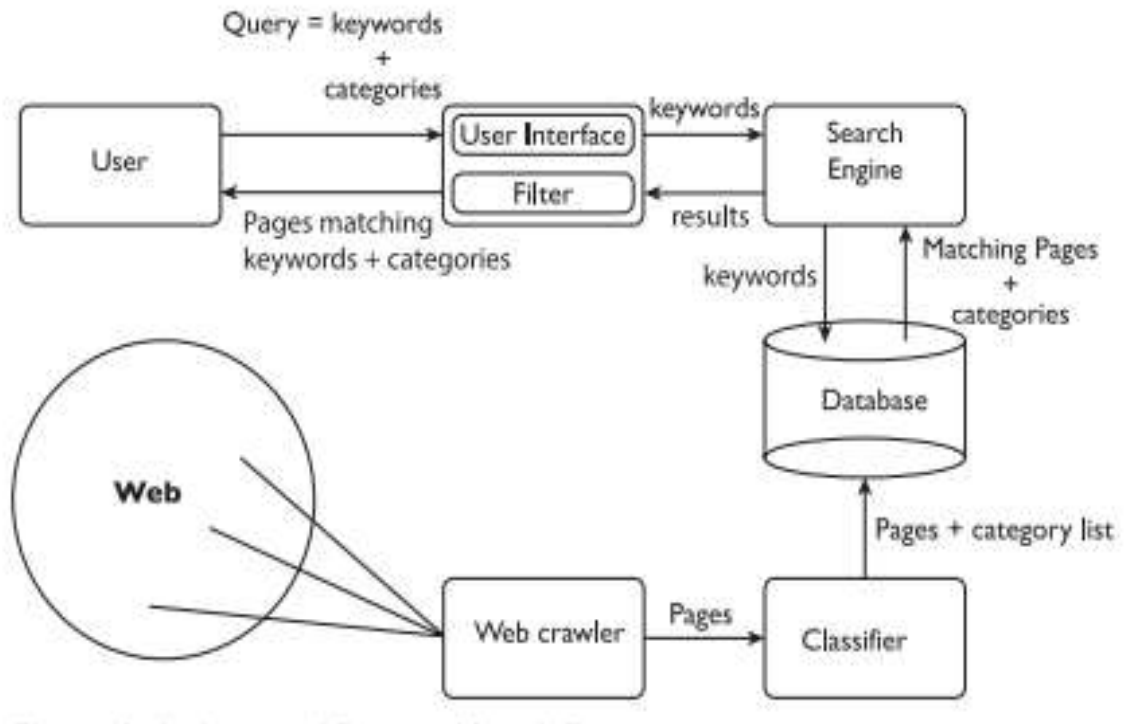
Search engine optimization, way better known as SEO, alludes to all the methods connected to look motors that progress website’s deceivability by making it rank higher in look motor comes about such as Google, Yahoo and Bing. It is one of the foremost capable shapes of advanced showcasing. As can be watched from the figure 6, natural look is the prevailing source of trackable web activity with 53% of all tractable looks being sourced from natural look.



**Figure 6. Source of web traffic in 2019**  
(Source: Bright Edge 2019)

This computerized promoting procedure has the objective of making a difference a commerce rank higher in comes about of Google look, in the long run tolling higher look motor activity to the site of the commerce. In an endeavor to have this objective finished, SEO marketers inquire about expressions and words that shoppers utilize to look data online. A SEO envelop a number of components from words on the business’s site to the way other webpages interface to the business’s site. The arrangement of forms is efficiently conducted to move forward “volume and quality of activity through look motor visits driving to particular locales by utilizing the working component or calculation the look engine” (Iskandar & Komara, 2018). Concurring to Bhandari & Bansal (2018), the engineering plan of look motor is exhausted a way that a client looks words in web crawler, in which web record has the catchphrase title looked by client which is procured exceptionally quick.





**Figure 7. An architectural design of SEOs**

(Source: The figure was developed by Barbar & Ismail (2019), to demonstrate architectural design of SEO)

Note. Barbar & Ismail (2019), to illustrate building plan of SEO, created the figure in figure 7 over is a building plan of look motor optimization. In arrange to look pages significant to what the client is trying to find and give input, SEO works essentially through three capacities to be specific slithering, ordering and positioning. Slithering makes a difference the SEO filter web substance; ordering makes a difference in organizing and putting away the substance that have been found amid slithering in classifiers and database separately whereas positioning best gives substance important to the searchers query.

Google (and other look motors) is centered on giving quality substance to their clients. They are able to do that by composing genuine time calculations to bring, what they consider to be, the most excellent comes about. Look motors have crawlers that go from page to page to accumulate data almost all the substance that can be found on the web. After all the information is accumulated, look motors construct a record (library of web pages), which is bolstered through a calculation that endeavors to coordinate all the information with the asked inquiry. In arrange to appear best comes about, look motors based their positioning on different variables.

To begin with and most critical calculate is significance, which suggests that it is pivotal that Look motors see fundamentally for closely related pages to look catchphrases, which suggests that it is vital for website to offer the data that client is trying to find (Google considers over 200 components when determining the pertinence of the content). In any case, due to the truth that there are thousands of pertinent pages for each look term, look motors don't basically rank the foremost important pages at the beat.

In arrange to put the finest substance on best of the look comes about they depend on other components of the calculation. For instance, authority. This means that look motors seek for substance that's precise and reliable. perfect way">The most perfect way to impact a page's specialist is to extend the number of joins that connect to that webpage, particularly by getting outside joins from existing tall specialist pages.

Other components that look motor calculations take into thought when deciding the rank of the site are geological area of the client, clicks, bounce rates, watchwords, meta labels, pictures, HTML of webpage and interface sorts.

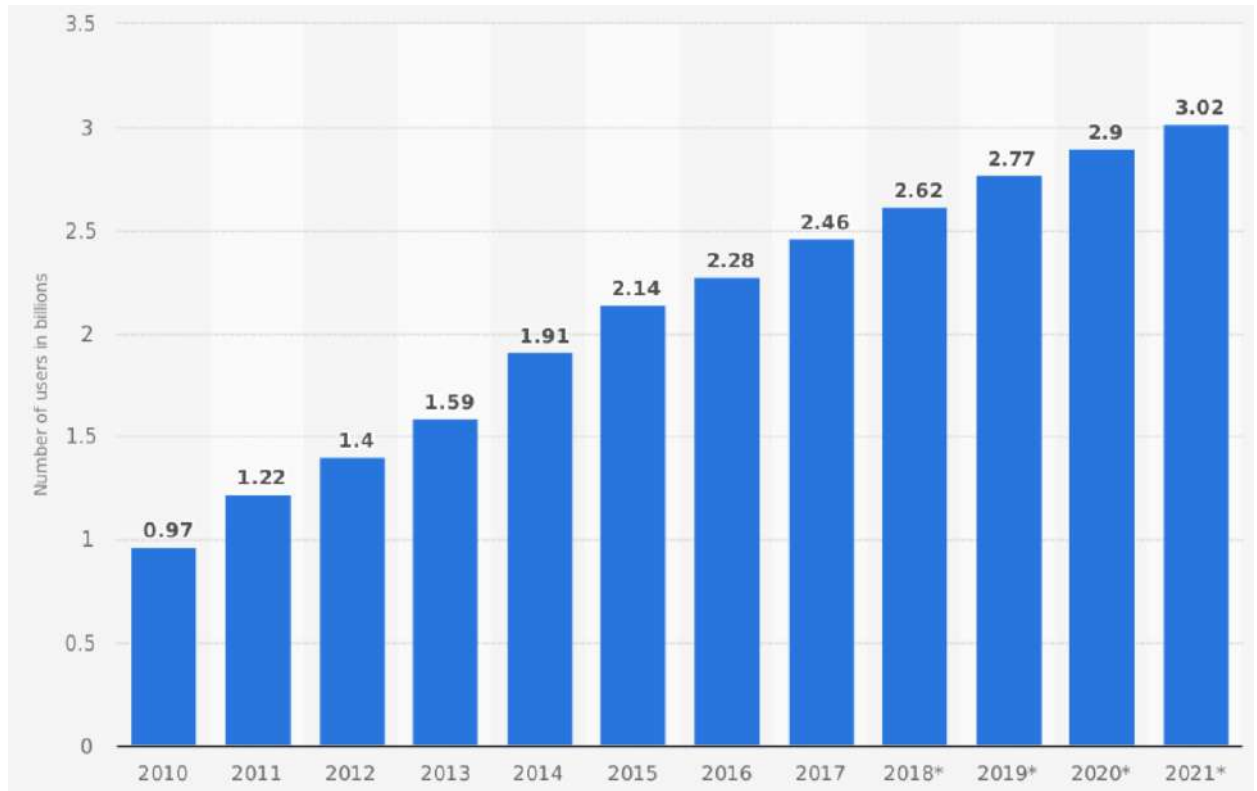
Mobile marketing. This sort of computerized promoting centers on coming to target group of onlookers of a trade on their tablets or smartphone through social media, content messages, websites, portable applications and emails. Concurring to a writing by Bala and Verma (2018), portable showcasing shapes the foremost impact sort of computerized promoting as portable clients are expanding day by day. It is becoming a progressive tool of interfacing businesses with their clients through portable contraptions at the correct time, within the right put and with the correct coordinate message.

Social video Marketing. In today's cutting edge world, social media is exceedingly intuitively and permits everybody to share their contemplations, thoughts, and convictions, which thus impacted the way that companies begun connection with their clients and showcase their items and administrations. Neil Patel characterized social media showcasing as a handle of making custom fitted substance for each person social media stage in arrange to extend client engagement and sharing.

This may incorporate a brief video clip or longer organize which is instructive and engaging, either prerecorded or indeed live gushed in genuine time. As a shape of computerized showcasing, "Video showcasing is one of the finest promoting techniques at the minute, the smaller than expected recordings shared between distinctive advanced

and versatile stages are being a victory for the dispatch of unused items or brand information” (Romo et al., 2017, p.146).

Within the final decade, social media experienced explosive growth as is obvious within the increment of the number of social organize clients within the final ten years. It can be watched from Figure 8, that the number of social organize clients nearly tripled within the period 2010-2020.



**Figure 8. Number of social network users worldwide 2010-2021**  
(Source: Statista (2020))

Social media showcasing empowers companies to straightforwardly interface with their clients which increments client dependability, progresses deals, makes a difference in building brand value and brand awareness. Well thought social media technique includes creating substance that people will share with their companions, family, and colleagues, and depending on word of mouth procedure. By doing this companies increment the reach of their messages, and their messages carry understood support when shared by individuals near to the beneficiary (Kenton, 2018). Social media promoting increments presentation which leads to the increment in activity and more revenue.

However, since most little businesses have a constrained promoting budget and they are cautious when contributing in showcasing

procedures, the larger part of them utilize social showcasing media to extend deals and reach target clients, as social media marketing is one of the foremost adaptable and fetched compelling promoting channels. The most important social media stages that affect computerized showcasing the foremost are: Facebook, YouTube, Twitter, WhatsApp, WeChat, Instagram and most as of late TikTok Even in spite of the fact that there are a lot of preferences of social media showcasing, there are moreover a few issues which will emerge. For case, in case a client is baffled in a company's item or a benefit, they are able to voice their conclusion on any social media stage, and by doing that, hurt brand picture and influence obtaining choices of other potential or indeed existing clients, particularly the ones that are near to that despondent customer.

Pay-per-click marketing. As contradicted to natural look strategies, PPC promoting may be a strategy of utilizing look motor publicizing to create clicks on the site. Agreeing to Sentance (2018), PPC promoting permits businesses promoting openings within the supported posting area of a SERP, by paying a charge each time the advertisement is clicked on. In spite of the fact that natural look is more fetched compelling than PPC, there are certain circumstances when it is more valuable to select PPC over SEO. For case, in the event that a company is in require of quick comes about, they will select PPC as their advertisements will be shown immediately for thousands of individuals to see (e.g. propelling a modern item or a benefit, or on the off chance that SEO campaign falls flat and the offer terminates before long) (Kim, 2020).

Moreover, PPC advertisements are customizable which permits for numerous little alterations to progress their execution and they are simple to degree and track return on speculation. Moreover, PPC permits companies to center on candidates based on their statistic characteristics. They can appear their advertisements and target clients based on their age, sexual orientation, instruction, relationship status or indeed leisure activities, which could be a helpful way to lead the correct individuals to a company's business to their website. Google Advertisements is the foremost well-known PPC promoting framework within the world. Clients make Google campaigns; each campaign incorporates a bunch of advertisements that contain distinctive catchphrases that clients are attempting to rank. Each of those watchwords has its possess cost depending on the recurrence that that catchphrase is being looked for. The fetched of watchwords may change from 50 cents to 50 dollars. The competition level and the industry that the company is in decide cost.

Utilizing all these apparatuses exceptionally imperative gotten to be the issue of content. As the substance is all over, particularly on the Web it showed up to be a conceivable apparatus of fascination and interaction with the client and as a result, it gave birth to the Substance showcasing. These days, Substance Promoting could be an apparatus for making a benefit through foundation tough client communication and utilization of motivating and curiously substance to draw in craved targets. It is worth to say that Content Marketing isn't a coordinate way to form incomes or to offer an item, but in the event that it is done appropriately it leads to that. It serves as a solid communicator between the company and the client, which endeavors to never halt and deliver more pertinent substance to be able to control customer's activities. Once communication circle is made it is less demanding to provide the data, advance unused thoughts and recognitions or essentially to motivate, since their consideration is as of now gotten. (Substance Promoting Founded 2016)

Coordinate client communication could be a source of preferences for the company. When the client devoured the great or benefit, the encounter is ordinarily recalled, since it made a few feelings and contemplations. For the company, client encounter can be utilized as a source of feed-back or improvement proposal. The client isn't upbeat – something went wrong. The speedier company will get the answer approximately what isn't fulfilling for one client the sooner the issue can be hindered. (Substance Showcasing Established 2016) To reach more prominent commerce comes about businesses ought to keep in mind that substance creation, as well as focusing on, cannot be coordinated to all bunches of clients because it makes everything exceptionally dubious and does not lead to anything. That's why there ought to be an fanciful representation of the company's client, whereas substance emanation. (Fast Grow 2016).

The marketers doing substance showcasing highlighted the way how the correct substance ought to be. It cannot be as well complicated but ought to be visual and well organized. The substance itself ought to be recognizable and brand related (DeMers 2013). Other than awesome sum of composed data, social media pages are strongly utilizing pictures and pictures to imagine. The picture as the center of the site structure can be seen on Pinterest and Instagram. As of late Instagram picked up an extraordinary sum of clients and it appears relentless development rates.

Already, blogs were too as it were almost composed data, but today's hones appeared that blogs are moreover influenced by visualization.

Increasingly pictures show up within the posts each day. (DeMers 2013) The data which contains pictures is continuously more important, acquainted and curiously. For illustration, a few online retailer shops such as AlliExpress permitted clients to connect pictures to their comments and surveys that draw in more gathering of people to associated with the company and other clients. In conclusion, pictures might too carry out a few basic capacities, shape and join together the content.

In today's picture substance ought to be recognizable, but not as well pushy or aggressive, since individuals are over-burden by diverse includes which are coming to them each diminutive. That's why effortlessness and clearness are exceedingly acknowledged by the present day buyer. The substance ought to be curiously and directing for the client to consider items of the company (DeMers 2013). The client shows up as a center of the substance showcasing of nowadays, so also in online and any other sort of showcasing. Substance creation does not appear tricky or cost-increasing, due to the promoting devices advertised by the Web. Substance Showcasing procedures and instruments show up nearly each day and permit businesses to select the leading and make required substance with their offer assistance essentially and nearly for free.

Summing up, properly addressed content marketing strategy is a mean that can change a lot and bring meaningful advantages to the company. Some of them are shortly listed below:

- Stimulates communication and supports established customer relationships.
- Increases traffic to the company's website and converts visitors in-to customers.
- Give a guarantee to the company that product awareness is high and the created image is perceived right.
- Shows serious intentions of the company through raising its trust-worthiness and reliability.
- Ensures presence of the company in various social media channels.
- Helps buyer think less about purchase and buy more impulsively. (Handley, Chapman 2011, 8.)

## **Chapter II. ANALYTICAL TOOLS OF DATA PROCESSING**

### **2.1. Analytical tools of data processing.**

Each business needs to understand the position of its consumers, what they need, what their interests are, and what it should do to satisfy them and boost their earnings from customers in today's rapidly changing world and with the enormous growth of data. In order to overcome this issue, the CRM approach (Customers Relationships Management) was developed. CRM involves gathering data and information to create a business strategy that will lower costs, generate revenue, and improve the relationship between customers and businesses.

Nowadays, a lot of businesses keep records of every interaction they have with their clients, but many don't realize how crucial these records are or how they might help them boost their profits even when they lack the right tools to do so.

Even if they were aware of the significance of the data they had gathered, they would still lack knowledge on the best ways to gather, store, and, most importantly, learn from the data.

An information technology management tool known as a data warehouse collects "islands of customer data" across the company by fusing all database and operational systems, including those for human resources, sales and transaction processing, finance, inventories, purchasing, and marketing. A historical record of all customer interactions is produced by data warehouses, which specifically extract, clean, process, and manage enormous volumes of data from numerous, heterogeneous systems (Eckerson and Watson, 2000). Data warehouses differ from other computer systems in that they can be seen and modified. Continuously obtaining information about clients lowers the need for typical marketing research methods include focus groups and customer surveys. As a result, information can be gathered and reported according to a product or service, a geographic area, a distribution channel, a customer group, and a specific client. All client touch points inside the company then have access to the information. CRM is made feasible by data warehousing technology, which combines, correlates, and transforms customer data into customer intelligence that can be utilized to better understand consumer behavior. All sales, promotions, and customer service actions are included in the customer data. Many other forms of data produced by internal activities can contribute significantly in addition

to transactional details. Understanding of customers and their buying habits can be improved through data on billing and account status, customer service interactions, back orders, product shipment, product returns, claims history, and internal operating costs.

Let's take an example about that, AJOYIB Distribution is a distribution company and they have a lot of customers in different regions in Uzbekistan, which makes it exceptionally troublesome to gather information from the deal focuses & extricate information from this information, and of course how to assess their work and to ponder procedures in case is it productivity or not, this cost a parcel of time and endeavors to gather and cleaning information in one frame, particularly that they come from heterogeneous sources.

The ability to examine and alter data sets data warehouses apart from other computer systems. Data warehouses are designed to store and collect and extract massive amounts of data from heterogeneous sources (csv, excel, flat files, etc.) and create a historical record of all client interactions.

The CRM purposes to authorize the oversee client needs & expectations more successfully in arrange to extend picks up benefits by extricate information from client accumulated data over numerous CRM applications for accomplish that purpose. Let us consider how information distribution center is unraveled a huge issue, and depicted prepare of the creation of information stockroom, how to extricate information from heterogeneous frameworks and sources and change it into one homogeny store.

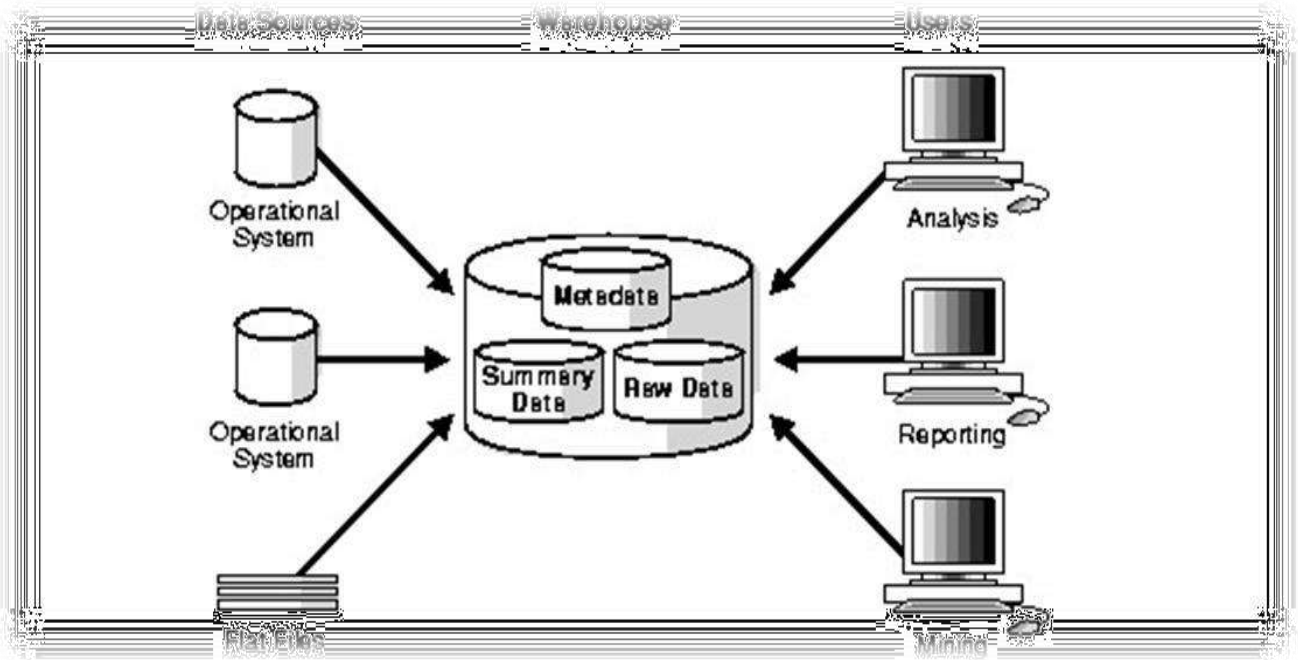
## **2.2. Data Warehouse Architecture.**

Information stockroom Engineering may be a plan that typifies all the features of information warehousing for a venture environment. Information warehousing is the creation of a central space to store complex, decentralized venture information in a coherent unit that empowers information mining, trade insights, and in general get to to all pertinent information inside an organization. Information distribution center engineering is comprehensive of all announcing prerequisites, information administration, security necessities, band width necessities, and capacity necessities. Figure 9 underneath appears a straightforward design for an information stockroom. Conclusion clients specifically get to information determined from a few source frameworks through the information distribution center. In this figure the metadata and crude



information of conventional OLTP framework is show, as is an extra sort of information, rundown information.

Outlines are exceptionally important in information distribution centers since they pre-compute long operations in development. For illustration, a commonplace information stockroom inquiry is to recovery something like Eminent deals.



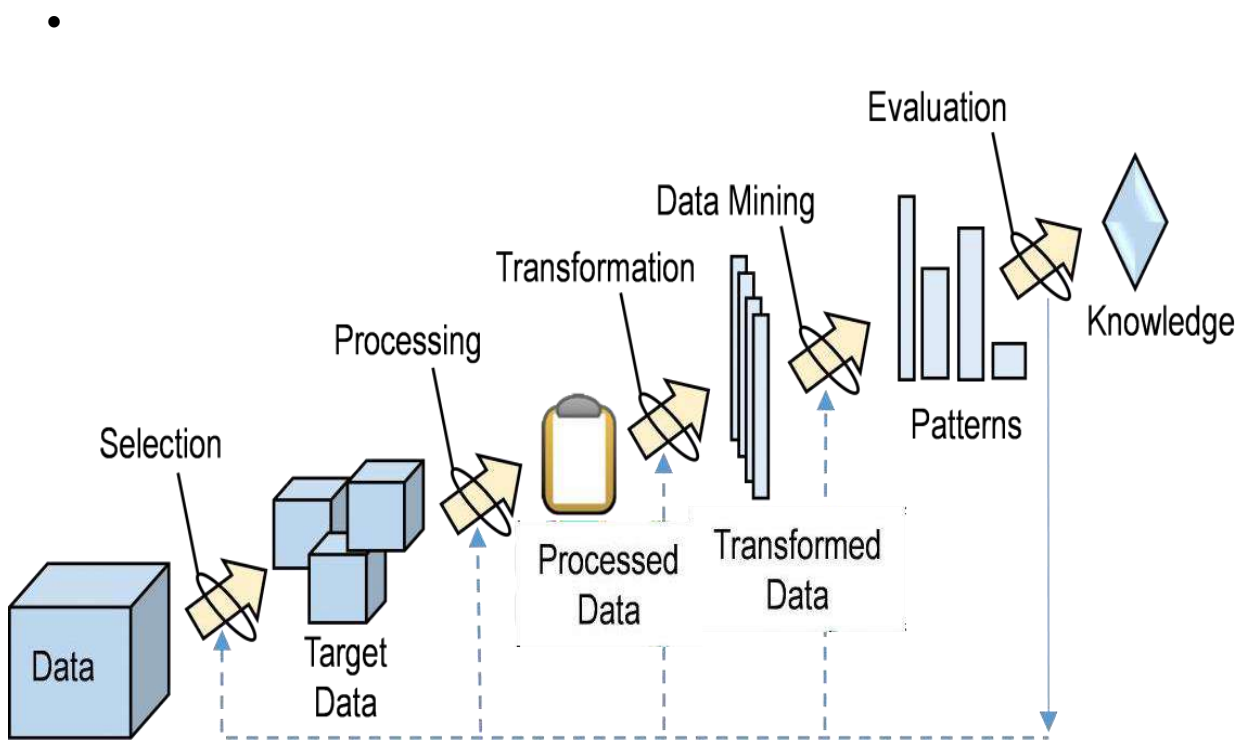
**Figure 9. Basic data warehouse architecture**  
(Source: Mahdi Chawki. Data Warehouse CRM  
[www.marketing.com](http://www.marketing.com))

Data mining is the method of finding curious information, such as designs, affiliations, changes, irregularities and critical structures, from huge sums of information put away in databases, information stockrooms, or other data storehouses (Fig.10). Due to the wide accessibility of tremendous sums of information in electronic shapes, and the up and coming require for turning such information into valuable data and information for wide applications counting advertise investigation, trade administration, and choice back, information mining has pulled in an incredible bargain of consideration in data industry in later a long time. [S.Chen, J.Hen, and P. S. Yu.]

Data mining has been prevalently treated as an equivalent word of information disclosure in databases, in spite of the fact that a few analysts see information mining as a basic step of information disclosure. In common, an information revelation handle comprises of an iterative

grouping of the taking after steps:

- **Data cleaning**, which handles boisterous, wrong, lost, or insignificant information
- **Data integration**, where numerous, heterogeneous information sources may be coordinates into one.
- **Data selection**, information is changed or solidified into shapes suitable for mining by performing outline or conglomeration operation.
- **Data mining**, which is a fundamental handle where shrewdly strategies are connected in arrange to extricate information designs.
- **Pattern evaluation**, which is to distinguish the genuinely curiously designs speaking to information based on a few interestingness measures.
- **Knowledge presentation**, where visualization and information to the user.[S.Chen, J.Hen, and P. S. Yu.]



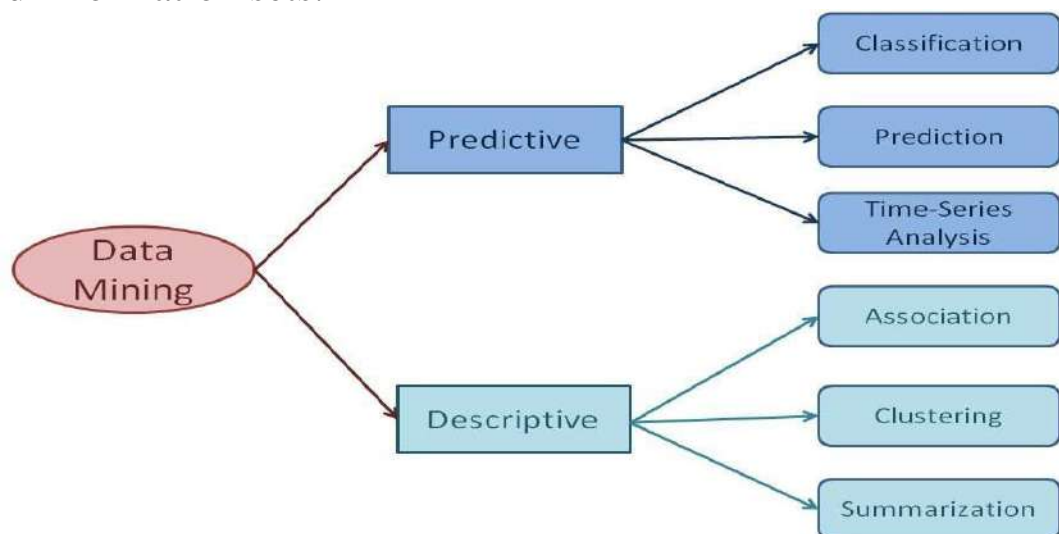
**Figure 10. Data mining knowledge process**  
(Source: Mahdi Chawki. Data Warehouse CRM  
www.marketing.com)

We have been collecting a bunch of information, from straightforward numerical estimations and content archives, to more complex data such as spatial information, mixed media channels, and hypertext records. Here may be a non-exclusive list of an assortment of data collected in computerized frame in databases and in level records.

**Business transactions.** Each exchange within the trade industry is

(regularly) “memorized” for unendingness. Such exchanges are more often than not time related and can be inter-business bargains such as buys, trades, managing an account, stock, etc., or intra-business operations such as administration of in-house products and resources. Huge division stores, for case, much obliged to the far reaching utilize of bar codes, store millions of exchanges day by day speaking to regularly terabytes of data. Capacity space isn't the major issue, as the cost of difficult disks is persistently dropping, but the compelling utilize of the information in a sensible time frame for competitive decision-making is unquestionably the foremost imperative issue to unravel for businesses that battle to outlive in a exceedingly competitive world.

In common, information-mining errands can be classified into two categories: expressive information mining and prescient information mining. The previous portrays the information set in a brief and outline way and presents curiously common properties of the information; while the last mentioned develops one or a set of models, performs induction on the accessible set of information endeavors to foresee the behavior of unused information sets.



**Figure 11. Data mining tasks**

(Source: Mahdi Chawki. Data Warehouse CRM Oriented)

A data mining framework may finish one or more of the taking after information mining errands. Lesson portrayal gives a brief and compact summarization of a collection of information and recognizes it from others. The summarization of a collection of information is called lesson characterization; though the comparison or segregation. Course portrayal ought to cover not as it were its rundown properties, such as tally entirety

and normal but too its properties on information scattering such as change quartiles, etc. For case, course portrayal can be utilized to compare European versus Asian deals of a company, distinguish the critical components which segregate the two classes, and show a summarized diagram.

Affiliation is the revelation of affiliation connections or relationships among a set of things. They are regularly communicated within the run the show frame appearing attribute-value conditions that happen regularly together in a given set of information. An affiliation run the show within the shape of  $X \Rightarrow Y$  is deciphered as ‘database triples that fulfill X are likely to fulfill Y “Affiliation investigation is broadly utilized in exchange information examination for coordinated promoting, catalog plan, and other trade choice checking prepare. Classification analyzes a set of preparing information (i.e., a set of objects whose lesson name is known) and builds a model for each course based on the highlights within the information. A choice tree or a set of classification rules is produced by such a classification process, which can be utilized for superior understanding of each lesson within the database and for classification of future information, for case, one may classify illnesses and offer assistance anticipate the kind of illnesses based on the indications of patients (Fig.11).

**Prediction.** This mining work predicts the conceivable values of a few lost information or the esteem dissemination of certain properties in a set of objects. it includes the finding of the set of qualities significant to chosen question. for case, an employee’s potential compensation can be anticipated based on the compensation dissemination of comparable workers within the company. As a rule, relapse investigation generalized straight demonstrate relationship investigation and choice trees are valuable apparatuses in quality expectation Hereditary calculations and neural arrange models are moreover prevalently utilized in expectation.

Clustering investigation is to recognize clusters implanted within the information, where a cluster could be a collection of information objects that are ‘similar’ to one another. Similitude can be communicated by separate capacities, indicated by clients or specialists. A great clustering strategy produces tall quality clusters to guarantee that the inter-cluster similitude is moo and the intra-cluster likeness is tall for case one may cluster the houses in a region concurring to their house category, floor region and topographical areas. Time arrangement investigation is to analyze expansive set of time series data to discover certain regularities

and curiously characteristics counting rummage around for comparable grouping or subsequences, advertisement mining consecutive designs, periodicities, patterns and deviation, for case in may anticipate the slant of the stock values for a company based on its stock history, trade circumstance competitor's execution and current showcase.

There are moreover other information mining assignments, such as exception examination, etc. Recognizable proof of modern information mining assignments to form way better utilize the collected information itself is a curiously inquire about subject.

### **Data mining phases**

Within the starting of 90's, the developing of advertise intrigued in information mining appears signs of detonating into broad take-up particularly with nonattendance of an impact strategy for extricating and finding information from the huge sum of information coming from distinctive sources or applications. this how the CRISP-DM (Cross Industry Standard Prepare for Information Mining) activity was born. CRISP-DM stands for cross-industry handle for information mining. The CRISP-DM technique gives an organized approach to arranging a data mining project. It may be a strong and well-proven technique. This show comprises of six stages expecting as a patterned process:

- **Business Understanding:** incorporates deciding commerce goals, evaluating the current circumstance, building up information mining objectives, and creating a extend arrange.

- **Data Understanding:** Once trade destinations and the venture arrange are set up, information understanding considers information prerequisites. This step can incorporate introductory information collection, information portrayal, information investigation, and the confirmation of information quality. Information investigation such as seeing rundown insights (which incorporates the visual show of categorical factors) can happen at the conclusion of this stage. Models such as cluster examination can too be connected amid this stage, with the expectation of recognizing designs within the information.

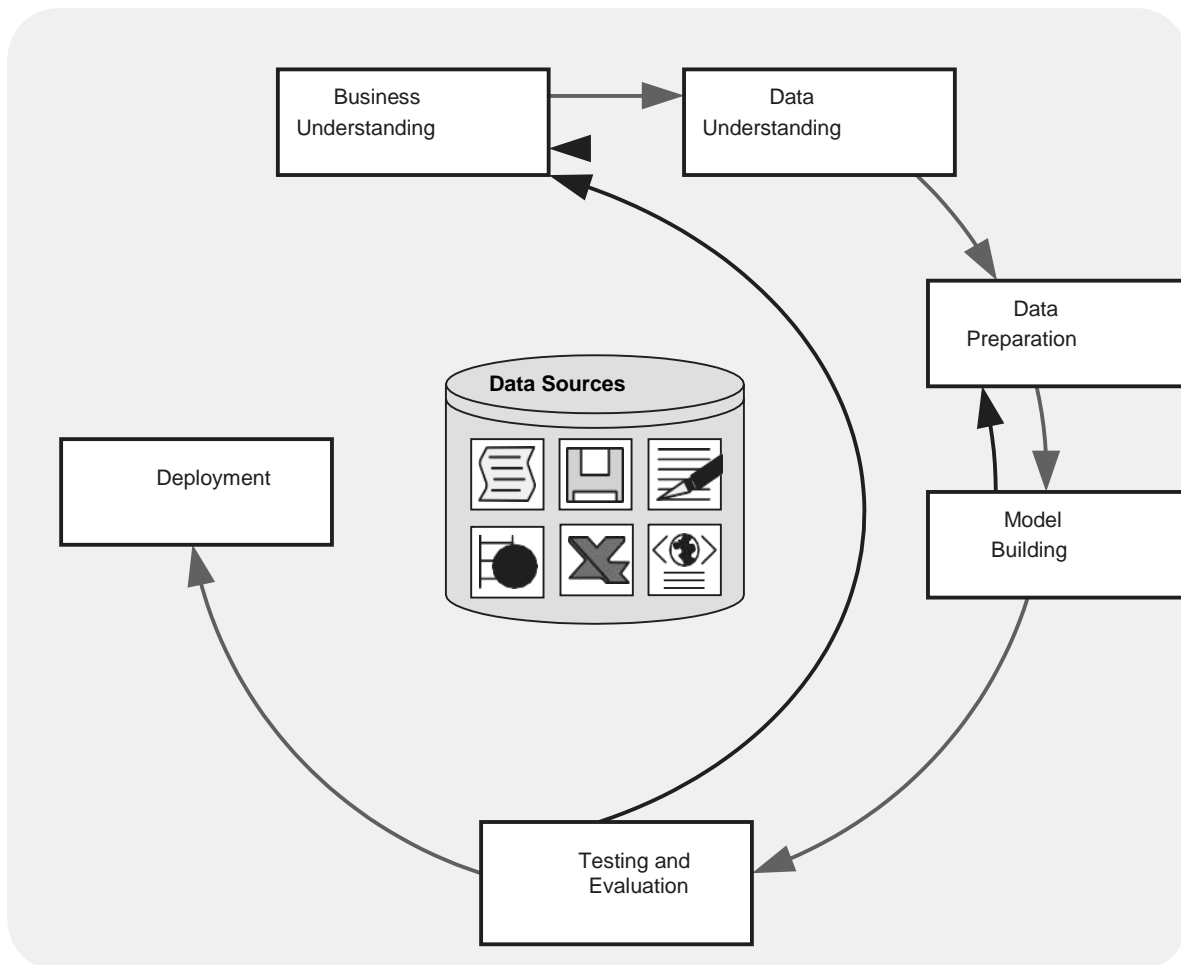
- **Data Preparation:** Once the information assets accessible are distinguished, they have to be be chosen, cleaned, built into the shape wanted, and organized. Information cleaning and information change in arrangement of information modeling has to happen in this stage. Information investigation at a more prominent profundity can be connected amid this stage, and extra models utilized, once more giving the opportunity to see designs based on commerce understanding.

- **Modeling:** Data mining program apparatuses such as visualization (plotting information and building up connections) and cluster examination (to recognize which factors go well together) are valuable for beginning examination. Devices such as generalized run the show acceptance can create starting affiliation rules. Once more noteworthy information understanding is picked up (frequently through design acknowledgment activated by seeing show yield), more point by point models suitable to the information sort can be connected. The division of information into preparing and test sets is additionally required for modeling (Fig.12).

A brief layout of organizational benefits with an information distribution center are:

- accurate and speedier get to data to encourage reactions to client questions.
- data quality and sifting to dispose of awful and duplicate
- data extricate, control and drill-down information rapidly for productivity investigation, client profiling, and maintenance modeling.
- advanced information union and information examination devices for higher level outline as well as nitty gritty reports,
- advanced information combination and information investigation instruments for higher level rundown as well as point by point reports;

And calculate add up to display esteem and gauge future esteem of each and each client.



**Figure 12. CRISP-DM process [What is the CRISP-DM methodology?**

(Source: <http://www.sv-europe.com/crisp-dm-methodology/>)

**Evaluation Model:** comes about ought to be assessed within the setting of the business destinations built up within the to begin with stage (commerce understanding). This will lead to the recognizable proof of other needs (frequently through design acknowledgment), regularly returning to prior stages of CRISP-DM. Picking up commerce understanding is an iterative method in information mining, where the comes about of different visualization, factual, and manufactured insights apparatuses appear the client modern connections that give a more profound understanding of organizational operations.

**Deployment:** Information mining can be utilized to both confirm already held speculations, or for information disclosure (recognizable proof of startling and valuable connections). Through the information

found within the prior stages of the CRISP-DM prepare, sound models can be gotten which will at that point be connected to commerce operations for numerous purposes, including prediction or distinguishing proof of key circumstances. These models have to be checked for changes in working conditions, since what can be genuine nowadays may not be genuine a year from presently. In the event that noteworthy changes do occur, the model ought to be revamped. It's moreover shrewd to record the comes about of information mining ventures so recorded prove is accessible for future studies. Data mining could be an exceptionally critical handle where possibly valuable and already obscure data is extricated from expansive volumes of information. There are a number of components included within the information mining prepare. These components constitute the engineering of an information mining system. The major components of any information mining framework are information source, information distribution center server, information mining motor, design assessment module, graphical client interface and information base.

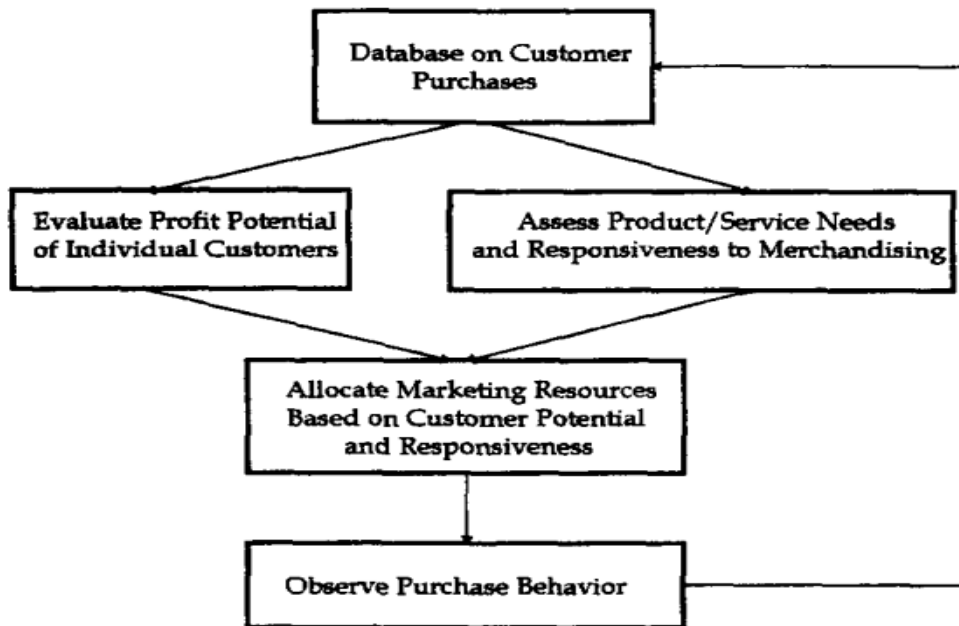
### **2.3. Objectives, types and methodology of CRM system selection.**

Trading and Retailing has the opportunity to be client arranged since retailers lock in in individual contact with clients. Be that as it may, sellers and retailers have been moderate in taking advantage of their closeness to the client as they have set the most elevated needs on buying choices, operational concerns and marketing tools, not client administration. In common, most sellers and retailers are exceptionally item arranged as they endeavor to oversee combination of stock in a productive way. This introduction is changing since of the accessibility of databases on the buys of person clients. Such databases permit sellers and retailers to conduct coordinates approach to promoting that methodically ties marketing hones to client buying behavior. In a world of coordinates retailing, retailers will be less concerned with the benefit of things in stock and more concerned with the benefit of the clients within the store.

As delineated in Fig. 17, coordinates approach to trading and retailing includes analyzing client databases to assess the display and potential esteem of person clients, deciding how clients react to retail promoting factors, and apportioning promoting assets to person clients in like manner



### An Integrated Approach to Retailing



**Figure 17. An integrated approach to retailing**  
(Source: Blattberg and Glazer, 1994)

Client administration is made conceivable by databases on person buys, and can possibly be actualized by marketers at all levels, not fair retailing (Blattberg and Glazer, 1994). In any case, sellers and retailers, like other large-scale benefit providers, stand to pick up the foremost from database driven client administration hones since retailers control colossal amounts of tall quality buy information, and the dominance of retail benefits stem from a little parcel of the client base.

The rise of marketing has forced today's marketing executives to base their strategic decisions more on the needs of the market, necessitating a formalized method of gathering precise and timely information about their target market, their products, the competitive landscape, and their overall environment. The practice of using the Internet to market and sell products or services is known as internet marketing. Internet marketing makes use of the potential of digital trade to market and sell goods. Electronic commerce refers to any market conducted online. Online trading, buying, and selling of products and services are made possible by electronic commerce. Internet marketing includes the subcategory of electronic commerce. Due to the rise in internet usage, online marketing has begun to gain significant traction.

It is stated that text-only websites that provided product information were the Ajoyib to offer Internet marketing services in the start of 1990. With the expansion of the internet, there is now more to it than only the sale of goods; there is now information about goods, advertising space, software, auctions, stock trading, and matchmaking. A few businesses, including Google, Yahoo, Amazon, Alibaba, and Youtube, have transformed how the internet may be utilized for marketing. The definition of internet marketing is as follows: "Achieving marketing objectives through the application of digital technologies." By satisfying their needs, using technology to help marketing initiatives improves customer knowledge. Digital marketing is the term for this. Businesses in developed countries have realized the value of digital marketing.

Businesses that want to succeed will need to combine traditional procedures with online ones in order to better serve their customers' requirements. The introduction of new technologies has given marketers new business opportunities to manage their websites and accomplish their corporate goals. For businesses to succeed, online advertising is a potent marketing tool for establishing brands and boosting visitors

In the business world of today, the adage "The customer is always right" might apply. Without clients, a business will not remain in business. Knowing what customers desire is crucial for this reason. CRM systems are a tool that will assist businesses in understanding their customers. In their definition of CRM systems, Kenneth C. Laudon and Jane P. Laudon said that these systems "capture and integrate customer data from across the organization, consolidate the data, analyses the data, and then distribute the results to various systems and customer touch points throughout the enterprise." 2012 [Laudon and Laudon]. In order to clearly grow their markets, businesses have recently purchased Customer Relationship Management (CRM) technologies. In order to accomplish business excellence and the main goal of obtaining devoted customers, the CRM technology brings with it the creation of marketing possibilities, the rise in customer value, and the improvement of customer happiness [Fardoie and Monfared, 2008].

What kind of information is required to establish a solid, trustworthy, and enduring relationship with the clients is the key question? The businesses needed to know who their clients were, what their interests were, and how to get in touch with them.

The makers of CRM software offer remedies for three primary areas:

- The use of automated technologies to assist salespeople and sales management in achieving their professional goals is known as sales force automation. Brettle (2009)

- Marketing automation is the use of computerised technology to assist marketers and marketing management in achieving their professional goals. Brettle (2009)

- Customer service: "Provide knowledge and resources to enable contact centres, help desks, and customer support workers operate more effectively. They are equipped to manage and assign customer service requests. 2012 [Laudon and Laudon]

There are various types of CRM systems available today. To choose one of them to work at a specific object, we start by looking at the general quality attributes of the IS (Fig. 18).



**Figure 18. ISO 9126 Standard model**

(Source: ISO 2001)

- Functionality is the capacity of a software product to fulfil explicit and implicit needs when employed under predetermined circumstances.

- Reliability is defined as "the capacity of the software product to sustain a defined level of performance when employed in a defined environment.

- Usability is the ability of a software product to be comprehended, learnt, used, and appealing to the user when used in a particular way.

- Efficiency is the ability of a software product to deliver appropriate performance in relation to the quantity of resources used, under specified circumstances.

- Maintainability: "The software product's ability to be modified."

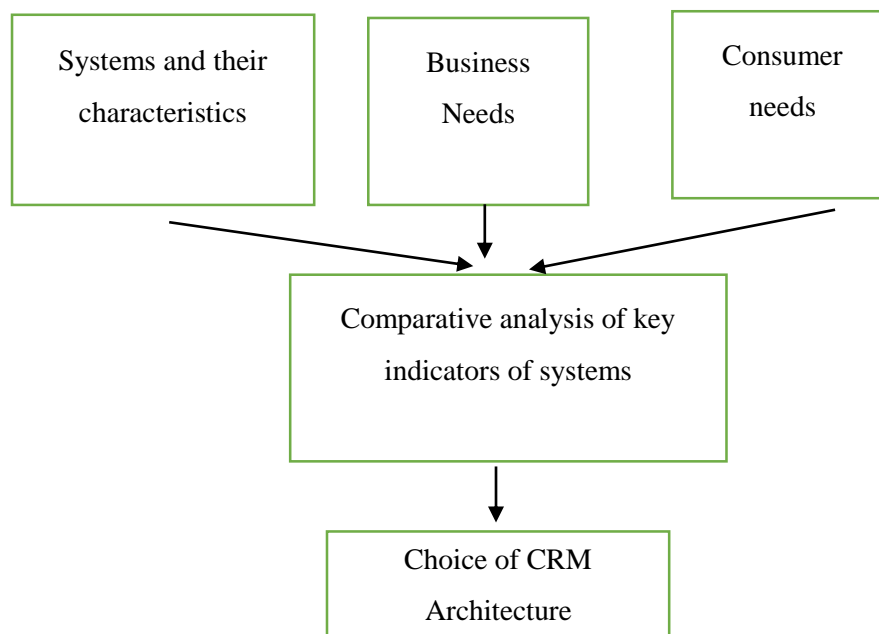
- Transferability: "The ability of the software product to operate in different environments." (ISO, 2001)

It will be defined the CRM system for a certain organization after determining the characteristics of the IS. The graphic below shows the selection of systems in order (Fig.19).

The three main technological components of the CRMs are:

- Collaborative technologies: These are the points of contact with customers. In other words, the various channels that customers use to communicate, such as email, phone calls, and faxes, are the collaborative technologies, website pages, and so on.

- Operational innovations: are all the forms and capacities related to the three major regions: deals (account administration, region administration and others), showcasing (campaign administration, mail showcasing and others) and client bolster (case administration, contact center and other).



**Figure 19. System selection procedure**  
(Source: The figure was created by author)

- Explanatory innovations: compares to the preparing of the data of the deals, promoting and client back and its change in data for reports and analytics. This could be utilized, for case, a conclusion of client relationship administration. [Fardoie and Monfared, 2008].

Among these three advances for us, the most noteworthy intrigued in terms of usefulness is Operational innovation. Subsequently, let us consider in more detail the engineering of this CRM framework innovation. Presently we offer an outline on what a CRM framework is, by displaying the concept proposed by Buttle [2009], that states:” CRM

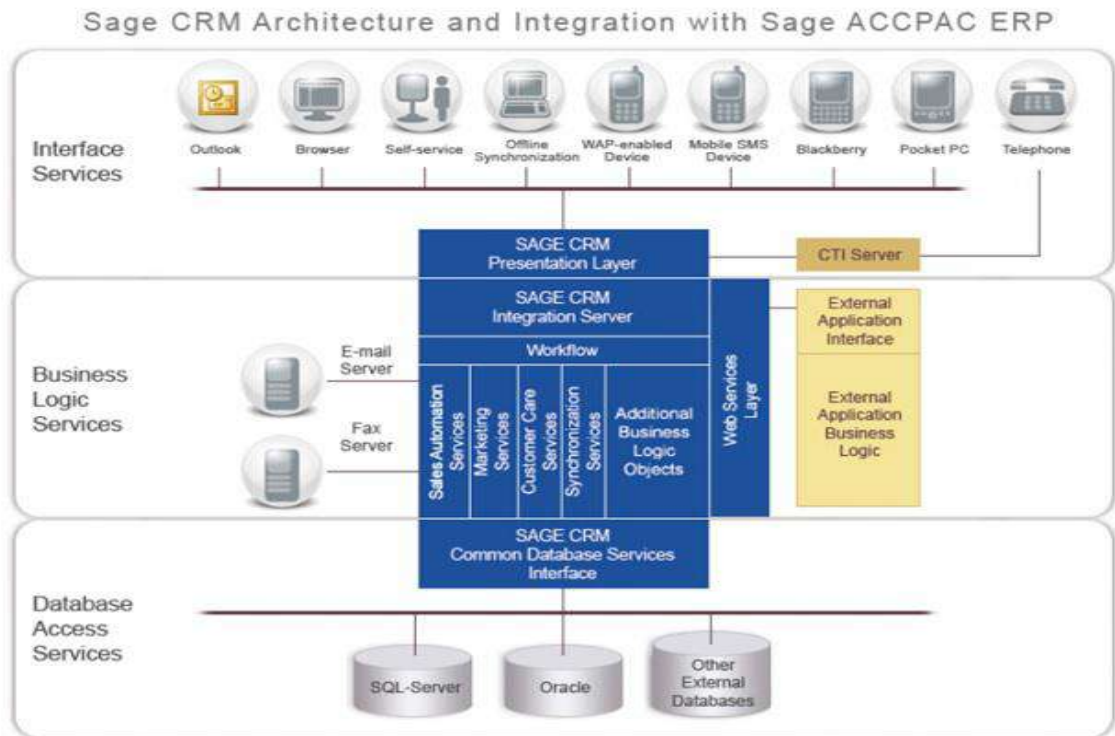
is the center commerce procedure that coordinating inner forms and functions, and outside systems, to make and provide esteem to focused on clients at a benefit. It is grounded on tall quality customer related information and empowered by data technology.” Within the taking after segment, we show a few CRM engineering models. In this area, we display a few models of CRM designs, which deliver us an understanding into what most of CRM models have. We consider the taking after CRM models: The Sugar CRM (Siebel) show [Fardoie and Monfared, 2008], Microsoft Elements demonstrate and Sage show (Fig.20,21,22).

## SugarCRM offering

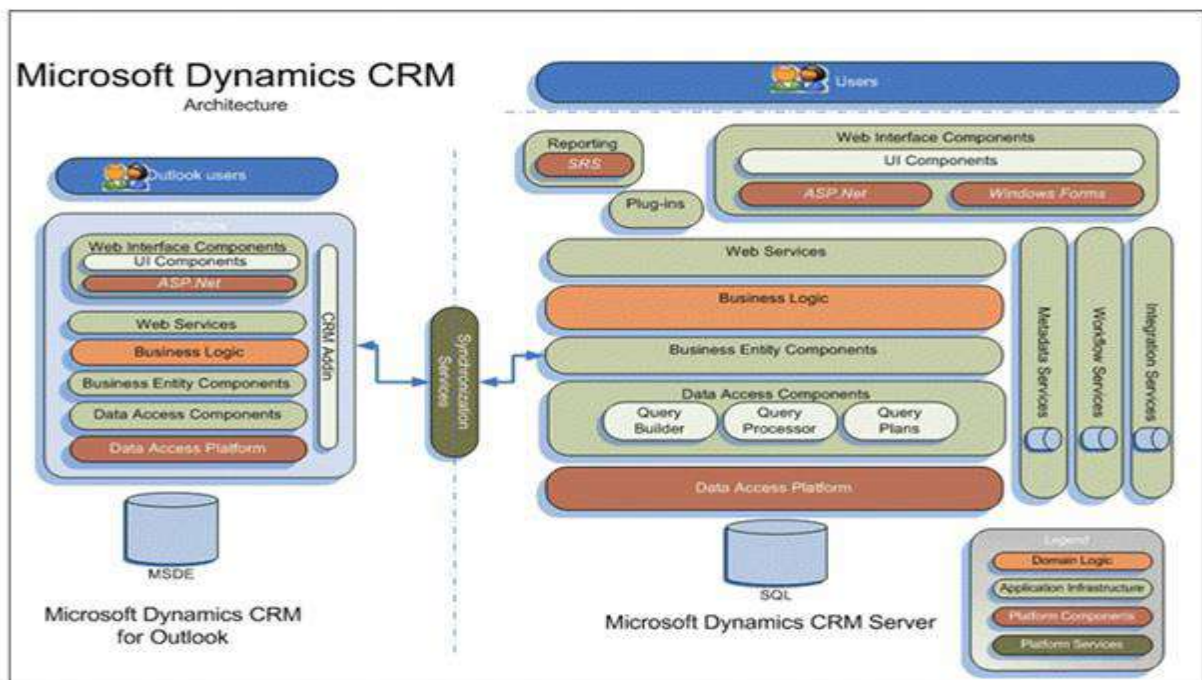


**Figure 20. Sugar CRM architecture model from [www.marketing.com](http://www.marketing.com)**

(Source: <http://www.slideshare.net/Loadedtech/an-overview-of-sugarcrm>)



**Figure 21. Sage CRM architecture model from**  
 (Source: [kastechco.com/documents/CRM/TheBenefitsofCRMInternetArchitecture.pdf](http://kastechco.com/documents/CRM/TheBenefitsofCRMInternetArchitecture.pdf))



**Figure 22. Microsoft Flow CRM engineering**  
 (Source: <http://msdn.microsoft.com/en-us/library/bb928229.aspx>)

In these models, we distinguish common components between them, that provide us a thought on what composes a CRM:

- Interface/Channel: show in Sugar CRM, Microsoft CRM and Sage CRM.
- Introduction layer: show in Microsoft CRM, Sage CRM.
- Web administrations: display in Sage CRM and Microsoft CRM
- Trade rationale: display in Microsoft CRM, and Sage CRM.
- Detailing and Investigation: show in Sugar CRM and Microsoft CRM.
- Information layer: show in Microsoft CRM and Sage CRM.
- Integration administrations: show in Microsoft CRM and Sage CRM.
- Workflow computerization: show in Microsoft CRM, Sage CRM and Sugar CRM.

Let us display the investigation and distinguishing proof of the functionalities of a few chosen CRM showcase arrangements, to urge the leading hones of the industry.

*Table 2*

**Marketing Features Promoting Highlights Table from**

Marketing Features	Sugar CRM	Microsoft CRM	Sage CRM
Campaign Management	x	x	x
Campaign Execution	x	x	x
Email Marketing	x	x	x
Newsletter Management	x		x
Marketing Campaigns	x	x	x
List Management	x	x	
Lead Management		x	
Web To Lead Capture	x	x	

--	--	--	--

(Source: Cruz and Vasconcelos [2015])

Portrayal of the Promoting features [Microsoft, 2008c; Prophet, 2007b; Sage, 2012; Salesforce, 2012; Sugar CRM, 2014], outlined in Table 2 Campaign Administration: characterize assignments, exercises, and promoting materials for the complete campaign life cycle. Make budgets and characterize follow-up exercises. Track reactions to each campaign action, screen campaign comes about.

Campaign Execution: incorporates utilize of predefined framework formats for future re-use in campaigns, or make modern campaigns from scratch, plan campaign exercises to be performed quickly or at particular times within the future, and launch campaigns anyplace within the world with solid multi-lingual and multi-currency capabilities.

Mail Showcasing: Send mail campaigns, blend client information into personalized emails, embed conditional informing based on beneficiary traits, track conveyance and reaction for each beneficiary consequently.

Bulletin Administration: track reactions to each campaign action and change over mail reactions to leads or openings, qualify leads, and do much more.

Promoting Campaigns: promoting campaigns like Telemarketing, Web promoting, Event-based showcasing and Coordinate mail showcasing, all but Mail Promoting.

List Administration: consequently, make inactive or energetic records based on accounts, contacts, or leads.

Lead Administration: track promoting campaign comes about over a assortment of channels, from on-line advertisements to social media, to when leads come in, mechanized scoring and lead steering guarantee that leads never drop through the splits and continuously get to the proper deals agent quick.

Web to Lead Capture: a way to permit guests to your site or other on-line area to gotten to be leads. [Buttle, 2009; Microsoft, 2008c; Prophet, 2007b; Salesforce, 2000; Sugar CRM, 2004]

By analyzing Table 2, we conclude that the foremost critical showcasing highlights are: campaign administration, campaign execution, list administration, and mail promoting, since they are common to four or



five CRM arrangements and the result from that's, that able to induce that these are most utilized showcasing highlights by the companies, given the reality that, all the producers give these features. Note: The Lead Administration is rehashed in Deals highlights and Promoting highlights the reason for this, can be due the truth that the Lead Administration is the work that's mindful for a conceivable client drawn closer in showcasing passing to the deals stage. So is show in both ranges.

*Table 3*

**Customer Service Features Table**

Customer Service Features	Sugar CRM	Microsoft CRM	Sage CRM
Case Escalation and Notification	x		x
Case Routing and Queuing	x	x	
Contact Center	x	x	x
Case Management	x	x	x
Customer Self Service Portal	x	x	x
Email Management	x	x	
Knowledge Base	x	x	x
Customer Information	x	x	x

Source: Cruz and Vasconcelos [2015]

Portrayal of the Benefit features [Microsoft, 2008b; Prophet, 2007d; Sage, 2012; Salesforce, 2012; Sugar CRM, 2014], outlined in Table 3: Case Acceleration and Notice: guarantees that issues get raised agreeing to inside decided rules. Higher levels of specialist regularly have more prominent watchfulness to resolve issues.

Case Steering and Lining: Lining and steering applications permit issues to be steered to specialists with specific ability and situated in that operator's line concurring to a few model.

Contact Center: empowers clients to get it each client as an person, get all significant client data in a single see, and get to that data when it things from an unimaginably quick, multi-channel operator desktop application. Groups can get it their accounts interior and out with personalized 360-degree commerce, on-line, and social client insights.

Case Administration: make, allot, and oversee client benefit demands over different channels, counting phone, mail, Web, in-person and developing channels. Oversee cases from starting contact through determination and consequently relate approaching back request with the fitting case.

Client Self Benefit Entrance: permits companies to supply self-service capabilities to clients and prospects for key promoting, deals and bolster exercises. Also allows non-technical clients to make and convey web-to-lead shapes, empowers clients to log and oversee bolster cases on-line, permits clients to upgrade account, contact, charging and shipping address and gives clients the capacity to oversee memberships to company communications in a robotized mold.

Mail Administration: keep up exact account, contact and benefit history with computerized following and reaction for client mail messages.

Information Base: resolve common bolster issues rapidly employing a searchable information base. Guarantee that distributed data is total, rectify, and legitimately labeled utilizing built-in survey forms. Construct and maintain a arrangement database that produces it simple for individuals to discover fitting arrangements rapidly.

Client Data: oversee accounts, contacts, calls, items, domain, movement and contracts.

By analyzing Table 3, we conclude that the foremost vital benefit highlights are: case steering and lining, contact center, case administration, information base, client self-service entry and e-mail administration, since they are common to four or five CRM arrangements and the result from that's, that able to induce that these are most utilized benefit highlights by the companies, given the reality that, all the producers give these highlights.

Table 4

**Detailing and Analytics Highlights Table**

Reporting Features	Sugar CRM	Microsoft CRM	Sage CRM
Custom reports	x	x	x
Dashboards	x	x	x
Sales Analytics	x	x	
Marketing Analytics		x	
Service Analytics		x	

(Source: Cruz and Vasconcelos 2015)

Depiction of the Detailing features [Microsoft, 2008d; Prophet, 2007a; Sage, 2012; Salesforce, 2012; Sugar CRM, 2014], outlined in Table 4:

Custom Reports: effectively construct customized reports with wizard-based instruments that don't require specialized assets from IT.

Dashboards: quick and centered dashboards for administrators and best constituents that adeptly highlight key promoting measurements, key deals measurements and for benefit analytics.

Sales Analytics: create and utilize reports, make information pertinent and track pipelines to convert data into Deals Insights.

Promoting Analytics: is the application of numerical and factual forms to promoting issues.

Promoting analytics can be utilized to investigate, depict and clarify. Exploratory applications of promoting analytics give bits of knowledge into, and understanding approximately, issues and issues.

Benefit Analytics: gives in-depth information into benefit ask action, determination patterns, benefit income, costs, and client fulfillment. [Microsoft, 2008a; Prophet, 2007a; Salesforce, 2000; Sugar CRM, 2004]

By analyzing Table 4, we conclude that all the detailing highlights are vital, since all of them are common to at slightest three CRM arrangements and its not bizarre that this happened, since the base of CRM

is to investigations data of the clients, which compares to announcing and analytics, so all the producers give these highlights.

*Table 5*

**Integration Highlights Table**

Integration Features	Sugar CRM	Microsoft CRM	Sage CRM
Email Integration	x	x	x
Social Networks	x		x
Integrated third-party apps	x	x	
Web service API - SOAP	x	x	x
Web service API - REST	x		
Computer Telephone Integration	x	x	x
Automatic Call Distributor	x	x	x
Microsoft Office Integration	x	x	
Cloud Connectors	x	x	

(Source: Cruz and Vasconcelos 2015)

Depiction of the Integration highlights [Microsoft, 2008d; Prophet, 2007c; Sage, 2012; Salesforce, 2012; Sugar CRM, 2014], outlined in Table 5. Integration Highlights: all most common components that are coordinates with CRM.

By analyzing Table 5, we conclude that the foremost imperative integration highlights are: mail integration, web administrations API - Cleanser integration, computer phone integration and programmed call merchant, since they are common to four or five CRM arrangements and the result from that's, that we are able induce that these are most utilized

integration highlights by the companies, given the truth that, all the producers give these highlights.

According to the comparative characteristics of systems, our business goals and customer needs, the most acceptable for the company OOO AJIYIB Distribution is to be on time with a deliver our products and increase a sale in the market. It is getting extremely difficult and competitive in the Uzbekistan market to get market share with all its own products. The system of OOO AJIYIB Distribution has been structurally explained above and it gets much stronger by adapting in the changing market. This choice has been made its automating distribution business processes, including automating the activities of sales agents outside the office using a Microsoft CRM, can radically increase business efficiency. However, when automating large distributed distribution networks, unlike small companies, it is never possible to get by with the standard functionality of the base product. It always requires significant improvements, which are possible only with the use of special management technologies. But the most creative part of a marketing manager's job is to eliminate contradictions between the key users of the system.

## **CHAPTER III. THE ROLE OF IMAGE DETECTION IN DIGITAL MARKETING.**

### **3.1. About used image detection applications in society.**

Image detection is the name for a set of mathematical methods which aim at identifying points in a digital image at which the image brightness changes sharply or, more formally, has discontinuities. The points at which image brightness changes sharply are typically organized into a set of curved line segments termed edges. The same problem of finding discontinuities in images known as step detection and the problem of finding detection over time is known as change detection. Edge detection is a fundamental tool in image processing, machine vision and computer vision, particularly in the areas of feature detection and feature extraction.

Image recognition is the process of identifying and classifying objects, patterns, and textures in images. Image recognition use cases are found in different fields like healthcare, marketing, transportation, and e-commerce. It can be used to identify objects in images to categorize them for future use. For example, it can be used to classify the type of flower that is in the picture or identify an apple from a banana. It also has many applications outside of image classification such as detecting faces in pictures or recognizing text on a page.

Image recognition is one of the most important technologies that are being developed today because it will help us solve many problems we face, such as improving healthcare by diagnosing diseases like cancer with greater accuracy or detecting fraud by analyzing images of banknotes.

Now usually, image content recognition is confused with machine vision. You must know that image recognition simply identifies content on an image, whereas a machine vision system refers to event detection, image reconstruction, and object tracking.

Image detection refers to the process of identifying and locating sharp discontinuities in an image. The discontinuities are abrupt changes in pixel intensity which characterize boundaries of objects in a scene.

Classical methods of image recognition involve convolving the image with an operator (a 2-D filter), which is constructed to be

sensitive to large gradients in the image while returning values of zero in uniform regions. There are an extremely large number of image recognition operators available, each designed to be sensitive to certain types of edges. Variables involved in the selection of an edge detection operator include Edge orientation, Noise environment and Edge structure. The geometry of the operator determines a characteristic direction in which it is most sensitive to edges. Operators can be optimized to look for horizontal, vertical, or diagonal edges. Detection is difficult in noisy images, since both the noise and the edges contain high frequency content. Attempts to reduce the noise result in blurred and distorted edges. Operators used on noisy images are typically larger in scope, so they can average enough data to discount localized noisy pixels. This results in less accurate localization of the detected edges. Not all edges involve a step change in intensity. Effects such as refraction or poor focus can result in objects with boundaries defined by a gradual change in intensity. The operator needs to be chosen to be responsive to such a gradual change in those cases. So, there are problems of false image detection, missing true edges, edge localization, high computational time and problems due to noise etc. Therefore, the objective is to do the comparison of various edge detection techniques and analyze the performance of the various techniques in different conditions. There are many ways to perform edge detection. However, the majority of different methods may be grouped into two categories.

Laplacian based Edge Detection. The Laplacian method searches for zero crossings in the second derivative of the image to find edges. An edge has the one-dimensional shape of a ramp and calculating the derivative of the image can highlight its location. Clearly, the derivative shows a maximum located at the center of the edge in the original signal. This method of locating an edge is characteristic of the “gradient filter” family of edge detection filters and includes the Sobel method. A pixel location is declared an edge location if the value of the gradient exceeds some threshold. As mentioned before, edges will have higher pixel intensity values than those surrounding it. So once a threshold is set, you can compare the gradient value to the threshold value and detect an edge whenever the threshold is exceeded. Furthermore, when the first derivative is at a maximum, the second derivative is zero. As a result, another alternative to finding the location of an edge is to locate the zeros in the second derivative.

Edge detection is the name for a set of mathematical methods which aim at identifying points in a digital image at which the image brightness changes sharply or, more formally, has discontinuities. The points at which image brightness changes sharply are typically organized into a set of curved line segments termed *edges*.

Why has image recognition become so important?

Here we have discussed some of the reasons why image recognition is considered to be important and common use cases of image recognition that we see in our daily lives:

- Image recognition helps you catch catfish accounts

One of the most important use cases of image recognition is that it helps you unravel fake accounts on social media. You must know that the trend of fake accounts has increased over the past decade. Today people make fake accounts for online scams, the damaging reputation of famous people, or spreading fake news. Here you should know that image recognition techniques can help you avoid being prey to digital scams. You can simply search by image and find out if someone is stealing your images and using them on another account. So the first most important reason behind the popularity of image recognition techniques is that it helps you catch catfish accounts.

- Image recognition is being used in facial recognition and other security systems.

Image recognition is also considered important because it is one of the most important components in the security industry. Today it is being used in all kinds of security systems. The most common example of image recognition can be seen in the facial recognition system of your mobile. Facial recognition in mobiles is not only used to identify your face for unlocking your device; today, it is also being used for marketing. Image recognition algorithms can help marketers get information about a person's identity, gender, and mood. There are many more use cases of image recognition in the marketing world, so don't underestimate it.

- Image recognition is used in Reverse Image Search for different purposes

You might have heard of the online reverse image search. Reverse picture search is a method that can make a search by image for free. With modern reverse image search utilities, you can search by an image and find out relevant details about it. Image finder uses artificial intelligence software and image recognition techniques to identify images' contents and compare them with billions of images indexed on the web. The image



recognition algorithms help find out similar images, the origin of the image in question, information about the owner of the image, websites using the same image, image plagiarism, and all other relevant information. In the past reverse image search was only used to find similar images on the web. But today, you can use it for dozens of different purposes.

- Government agencies are using image recognition

You would be surprised to know that image recognition is also being used by government agencies. These agencies search images to collect information about people. Today police and other secret agencies are generally using image recognition technology to recognize people in videos or images.

- Image recognition also plays an important role in the healthcare industry

Today, image recognition is also important because it helps you in the healthcare industry. Here you should know that image recognition is widely being used across the globe for detecting brain tumors, cancer, and even broken images. Image recognition techniques and algorithms are helping out doctors and scientists in the medical treatment of their patients. Nowadays, image recognition is also being used to help visually impaired people. Also, new inventions are being made every now and then with the use of image recognition. High-tech walking sticks for blind people are one of the most important examples in this regard.

- Image recognition is also empowering the e-commerce industry

Today image recognition is also being used in the e-commerce industry. The visual search market has drastically increased in the past. This is major because today customers are more inclined to make a search by product images instead of using text.

### **3.2. The role of information communication technologies in commerce**

In the emerging global economy, e-commerce and e-business have increasingly become a necessary component of business strategy and a strong catalyst for economic development. The integration of information and communications technology.

ICT in business has revolutionized relationships within organizations and those between and among organizations and

individuals. Specifically, the use of ICT in business has enhanced productivity, encouraged greater customer participation, and enabled mass customization, besides reducing costs.

The imaginary of an 'Internet revolution' has been readily adopted in discussions of economic development. Development practice has always employed existing links and created links between developers and those who are being developed.<sup>1</sup> Those links (e.g. roads or Internet connections) are not only integral to the actual implementation of development, but are also often justified as desirable in and of themselves. However, unlike past links between developers and developing, the Internet appears almost free of spatial constraints: any two computers can connect to one another irrespective of geographic location. Development discourse and conceptualizations of communication and transportation (and more specifically for this article: the Internet imaginary and understandings of ICTs) are inherently intertwined. Much development discourse has been shaped by the Internet imaginary, and uses and implementations of the Internet have been similarly influenced by development practice and discourse. This article begins by examining some of the ways in which geographers have theorized the often complex relationships between ICTs (and in particular, the Internet) and space. The discussion then moves to review some of the ways in which the 'Internet revolution' is thought to reorganize commodity chains and economic relations.

All theories concerning the relationships between development and ICTs inevitably rest on specific geographic epistemologies. This section reviews some of the most frequently employed understandings, and then presents alternate ways of thinking about the complex relationships between ICTs and geography. Immersive WWW environments coupled with powerful abilities to communicate have led many observers to talk about the Internet being or creating a 'cyberspace'. This spatial metaphor has in part been adopted because of the coming together of virtual topologies (through hyperlinks) and immersive graphical environments. However, while generally considered to be a 'space', cyberspace lacks distinct geographic coordinates; that is, a cyberlocation can be entered into from any point on the planet. The floating nature of cyberspace: always accessible, yet with a separate existence from physical space has caused many to refer to it as a fundamentally distinct entity, contrasting to geographic space. This distinction between space and cyberspace has provided grounding for a number of binary theoretical constructs. Space

and cyberspace are argued to form the respective bases for industrial and postindustrial economies. With the aid of the Internet, firms can accelerate the practice of flexible accumulation, while traditional geographic space continues to fix capital. The notion of fixity is an important element to another space cyberspace binary. Geographic space is said be the sphere of fixity and stasis, while cyberspace enables the construction of fluid and fragmented identities without any spatial roots. The fixed/fluid binary closely correlates with another common distinction frequently made between the two spaces: reality and virtuality. Cyberspace is assumed to be the binary inverse of geographical space, it is thus thought of as being spaceless, or without geography.

Electronic commerce or e-commerce refers to a wide range of online business activities for products and services. It also pertains to “any form of business transaction in which the parties interact electronically rather than by physical exchanges or direct physical contact.” E-commerce is usually associated with buying and selling over the Internet, or conducting any transaction involving the transfer of ownership or rights to use goods or services through a computer-mediated network. Though popular, this definition is not comprehensive enough to capture recent developments in this new and revolutionary business phenomenon. A more complete definition is: E-commerce is the use of electronic communications and digital information processing technology in business transactions to create, transform, and redefine relationships for value creation between or among organizations, and between organizations and individuals. Ecommerce allows consumers to electronically exchange goods and services with no barriers of time or distance. Electronic commerce has expanded rapidly over the past five years and is predicted to continue at this rate, or even accelerate. In the near future the boundaries between "conventional" and "electronic" commerce will become increasingly blurred as more and more businesses move sections of their operations onto the Internet.

Business to Business or B2B refers to electronic commerce between businesses rather than between a business and a consumer. B2B businesses often deal with hundreds or even thousands of other businesses, either as customers or suppliers. Carrying out these transactions electronically provides vast competitive advantages over traditional methods. When implemented properly, ecommerce is often faster, cheaper and more convenient than the traditional methods of bartering goods and services. Electronic transactions have been around

for quite some time in the form of Electronic Data Interchange or EDI. EDI requires each supplier and customer to set up a dedicated data link (between them), where ecommerce provides a cost-effective method for companies to set up multiple, ad-hoc links. Electronic commerce has also led to the development of electronic marketplaces where suppliers and potential customers are brought together to conduct mutually beneficial trade.

The road to creating a successful online store can be a difficult if unaware of ecommerce principles and what ecommerce is supposed to do for your online business. Researching and understanding the guidelines required to properly implement an e-business plan is a crucial part to becoming successful with online store building. E-commerce and as e-business while some use e-commerce and e-business interchangeably, they are distinct concepts. In e-commerce, information and communications technology (ICT) is used in inter-business or inter-organizational transactions (transactions between and among firms/organizations) and in business-to-consumer transactions (transactions between firms/organizations and individuals). In e-business, on the other hand, ICT is used to enhance one's business. It includes any process that a business organization (either a for-profit, governmental or non-profit entity) conducts over a computer-mediated network. A more comprehensive definition of e-business is: "The transformation of an organization's processes to deliver additional customer value through the application of technologies, philosophies and computing paradigm of the new economy."

### **Three primary processes are enhanced in e-business**

1. **Production processes**, which include procurement, ordering and replenishment of stocks; processing of payments; electronic links with suppliers; and production control processes, among others;

2. **Customer-focused processes**, which include promotional and marketing efforts, selling over the Internet, processing of customers' purchase orders and payments, and customer support, among others;

3. **Internal management processes**, which include employee services, training, internal information-sharing, video-conferencing, and recruiting. Electronic applications enhance information flow between production and sales forces to improve sales force productivity. Workgroup communications and electronic publishing of internal business information are likewise made more efficient.<sup>6</sup>

Is the Internet economy synonymous with e-commerce and e-business?

The Internet economy is a broader concept than e-commerce and e-business. It includes e-commerce and e-business. The Internet economy pertains to all economic activities using electronic networks as a medium for commerce or those activities involved in both building the networks linked to the Internet and the purchase of application services such as the provision of enabling hardware and software and network equipment for Web-based online retail and shopping malls (or “e-malls”). It is made up of three major segments: physical (ICT) infrastructure, business infrastructure, and commerce [13]. The CREC (Center for Research and Electronic Commerce) at the University of Texas has developed a conceptual framework for how the Internet economy works. The framework shows four layers of the Internet economy-the three mentioned above and a fourth called intermediaries.

B2B e-commerce is simply defined as e-commerce between companies. This is the type of e-commerce that deals with relationships between and among businesses. About 80% of e-commerce is of this type, and most experts predict that B2B e-commerce will continue to grow faster than the B2C segment. The B2B market has two primary components: e-infrastructure and e-markets. E-infrastructure is the architecture of B2B, primarily consisting of the following: logistics - transportation, warehousing and distribution (e.g., Procter and Gamble); application service providers - deployment, hosting and management of packaged software from a central facility (e.g., Oracle and Link share); outsourcing of functions in the process of e-commerce, such as Web-hosting, security and customer care solutions (e.g., outsourcing providers such as eShare, Net Sales, iXL Enterprises and Universal Access); auction solutions software for the operation and maintenance of real-time auctions in the Internet (e.g., Moai Technologies and Open Site Technologies); content management software for the facilitation of Web site content management and delivery (e.g., Interwoven and Procure Net); and Web-based commerce enablers (e.g., Commerce One, a browser-based, XML enabled purchasing automation software). E-markets are simply defined as Web sites where buyers and sellers interact with each other and conduct transactions. The more common B2B examples and best practice models are IBM, Hewlett Packard (HP), Cisco and Dell. Cisco, for instance, receives over 90% of its product orders over the Internet. Most B2B applications are in the areas of supplier management (especially purchase

order processing), inventory management (i.e., managing order-ship-billycles), distribution management (especially in the transmission of shipping documents), channel management (i.e., information dissemination on changes in operational conditions), and payment management (e.g., electronic payment systems or EPS).

B2C e-commerce is business-to-consumer e-commerce, or commerce between companies and consumers, involves customers gathering information; purchasing physical goods (i.e., tangibles such as books or consumer products) or information goods (or goods of electronic material or digitized content, such as software, or e-books); and, for information goods, receiving products over an electronic network. It is the second largest and the earliest form of e-commerce. Its origins can be traced to online retailing (or e-tailing). Thus, the more common B2C business models are the online retailing companies such as Amazon.com, Drugstore.com, Beyond.com, Barnes and Noble and Toys Rus. Other B2C examples involving information goods are E-Trade and Travelocity.

The more common applications of this type of e-commerce are in the areas of purchasing products and information, and personal finance management, which pertains to the management of personal investments and finances with the use of online banking tools eMarketer estimates that worldwide B2C e-commerce revenues will increase from US\$59.7 billion in 2000 to US\$428.1 billion by 2004. Online retailing transactions make up a significant share of this market. eMarketer also estimates that in the Asia-Pacific region, B2C revenues, while registering a modest figure compared to B2B, nonetheless went up to \$8.2 billion by the end of 2001, with that figure doubling at the end of 2002-at total worldwide B2C sales below 10%. B2C e-commerce reduces transactions costs (particularly search costs) by increasing consumer access to information and allowing consumers to find the most competitive price for a product or service. B2C e-commerce also reduces market entry barriers since the cost of putting up and maintaining a Web site is much cheaper than installing a “brick-and-mortar” structure for a firm. In the case of information goods, B2C e-commerce is even more attractive because it saves firms from factoring in the additional cost of a physical distribution network. Moreover, for countries with a growing and robust Internet population, delivering information goods becomes increasingly feasible [14].

B2G e-commerce is generally defined as commerce between companies and the public sector. It refers to the use of the Internet for public procurement, licensing procedures, and other government-related

operations. This kind of e-commerce has two features: first, the public sector assumes a pilot/leading role in establishing e-commerce; and second, it is assumed that the public sector has the greatest need for making its procurement system more effective. Web-based purchasing policies increase the transparency of the procurement process (and reduces the risk of irregularities). To date, however, the size of the B2G ecommerce market as a component of total e-commerce is insignificant, as government e-procurement systems remain undeveloped.

C2C e-commerce or C2C is simply commerce between private individuals or consumers. This type of e-commerce is characterized by the growth of electronic marketplaces and online auctions, particularly in vertical industries where firms/businesses can bid for what they want from among multiple suppliers.<sup>16</sup> It perhaps has the greatest potential for developing new markets. This type of e-commerce comes in at least three forms:

- auctions facilitated at a portal, such as eBay, which allows online real-time bidding on items being sold in the Web;

- peer-to-peer systems, such as the Napster model (a protocol for sharing files between users used by chat forums similar to IRC) and other file exchange and later money exchange models; and classified ads at portal sites such as Excite Classifieds and eWanted (an interactive, online marketplace where buyers and sellers can negotiate and which features “Buyer Leads & Want Ads”). Consumer-to-business (C2B) transactions involve reverse auctions, which empower the consumer to drive transactions. A concrete example of this when competing airlines gives a traveler best travel and ticket offers in response to the traveler’s post that she wants to fly from New York to San Francisco. There is little information on the relative size of global C2C e-commerce.

### **3.3. Types of image detection application in business and its advantages**

In the last few years a few big players have been focusing on image detection and augmented reality features, helping retailers capitalize on the mobile phone’s potential to enable consumers to make impulse purchases. The idea is simple – the consumer snaps a shot of an image with a mobile phone and the power to instantly own it is right at his fingertips. Shoppers can take photos of products to learn more, get rewards or purchase on the spot. Current brand-consumer communication

shortcomings Printed ads in brochures, magazines and billboards present static information, this model relies heavily on the buyer retaining the information and there is no direct push-to-action. QR codes are a move in the right direction, but have their limitations – they require expensive real estate on the page, disrupt the graphic idea and redirect to a single source of content. The image detection changes the game. While reading a product review the consumer can receive additional information by scanning the product image as opposed to a bar-code or a QR code, and without having to search anywhere else. The product can be purchased immediately, which saves the customer precious time. The manufacturer is interested in publishing magazine reviews which in turn helps the publisher. The magazine or printed ad becomes a virtual store, enabling the purchase and bringing in sales profits. Image recognition can also allow users to snap photos of items in the real world and match the photo with similar products currently for sale online. Take a picture of a drink with your phone and get drink recipes you can mix with that particular bottle. Interactive advertising for example can take many shapes. A concert poster can distribute tickets or sell the artist's CDs, redirect to a webpage or display event location in Google Maps. Simply scan a product to find the nearest retailer offering it. Snap a product in a furniture catalog and have it delivered to your door the next day. The technology uses are countless and exciting. image detection and your business The idea is not new – apps such as Google Goggles have users 'search' visually using smartphone camera pictures, and Amazon Remembers is an app offering a similar service for iPhone. We are witnessing a significant shift from term searching to image searching. User demand and behavior are macroeconomic drivers that point to a progressively visual and mobile web. The major business benefit of image recognition technology embedded in a mobile app is the enablement of the impulse buy at the time of buyer interaction with a product. Empowering the consumer to purchase at that particular point in time prevents future forgetting about the product [14]. The opportunity offers online retailers the chance to bring content to life and tap into mobile revenue channels, influence conversion rates, improve consumer engagement, push up click through rates and significantly increase average basket size. Nowadays there exist platforms allowing the recognition of a wide image range, from products to buildings. Until not so long ago image recognition, required for most augmented reality apps, has been limited by device capabilities. Today cloud architecture allows recognition of millions of images, as well as



multiple images from one screen, while the mobile is only responsible for feature point extraction and content rendering. Problems along the way of image detection. Some existing solutions based on image detection tend to work well with some simple products but have trouble with more complex or creatively presented images. The approach may also prove too fiddly for some shoppers. It is a fact that barcode scanning apps already offer deal comparisons and other bargain hunting tricks but none has really taken off yet. Image detection technology and apps create a connection between the physical and the digital world and successfully link the product to the client. Many brands have recognized this and are looking into ways to gain mind-share at a previously overlooked key purchase point.

Augmented reality technology is used for e-commerce application. The recent boom in e-commerce can be attributed to the advantages it provides to buyers as well as sellers. With the help of augmented reality, a buyer can compare the products by superimposing virtual images in the real world. This not only helps buyer's decision-making process, but also is convenient for the seller. The enhanced buying experience is beneficial for the entire retail industry segment. The way goods and services are promoted and marketed is constantly evolving since many decades. The technological advancements have completely changed the traditional approach of marketing and promotion. Advent of internet and smartphones combined with content-based technology such as augmented reality has given a dimension to the marketing activity. The augmented reality tags printed in newspapers, magazines, posters, and flyers act as a unique token. The AR tag can be scanned using AR enabled smartphones which, not only displays the advertisement, but also creates an interactive environment for the users. By clicking the image or icon, the user can examine and purchase the products through their smartphones or tablets. The advantage provided by AR technology is the major reason for its heavy penetration in the marketing and promotion segment.

Augmented reality is a thriving technology where digital data merge with real world. This technology imposes the real world with computer generated data which completely changes the user experience. It changes what we hear, feel and see. The augmented reality technology uses virtual reality to amend with the real world. Augmented reality and virtual reality have and can offer a wide range of emerging application.

The Augmented reality technology has shown ubiquitous growth in mobile phone technology featured with a camera and a GPS (Global

Positioning System) which allow the users to experience the technology beyond their anticipation. By 2015, the augmented reality technology will be widely used in the education field for advanced learning and for teaching technologies. The augmented reality and virtual reality technology will be used to contribute to the projects with smart innovations in future due to its great fascination and potential.

The overall Augmented Reality and Virtual Reality Market is segmented into four major segments namely: AR & VR components and sensors, AR & VR technology, AR & VR application, and geography. All the major segments are further segmented into sub segments. All the segments and sub segments are separately described in the report.

The major driving forces of augmented reality technology and virtual reality are the advancement and in computer technology and internet connectivity. The increased demand in virtual reality and augmented reality application in healthcare industry is a direct cause for a tremendous growth in AR & VR market. The other driving force for virtual reality and augmented reality technology is the consumer demand in m-commerce industry. The technology used in augmented reality applications, i.e. marker-less is at the apex and is expected to grow rapidly. Major driving factor in this marker-less is use of GPS and compass which are used commonly in smartphones. The technology used in virtual reality application, are in the emerging trends like goggles, contact lens, and further opportunities are described in detail in the report. In these times augmented reality technology is used in a wide range of application like e-commerce, marketing, automotive, medical, education and so on. The tremendous growth in the sales of Smartphones has made many companies to come up with the idea of marketing personalized for the mobile space. Augmented Reality Market is used as a marketing tool and for branding in e-commerce industry. E-commerce is one of the developing industries because of the increase in the use of internet progressively. The biggest challenges face by e-commerce is that the user cannot use or get to know much about the product before buying it. Now augmented reality technology is used to provide a solution for this kind of conditions faced by e-commerce industry. It provides web solutions like virtual trial room where users can try various products before buying it through an internet connection and a webcam. Augmented reality can be reaching out to more customers and can increase the sales by providing the customers with online shopping experiences. Augmented reality technology is also used in magazines and newspapers by enhancing the

advertisements with interactive functions thereby giving the companies an opportunity to promote their products. The augmented reality technology utilizes many technologies like image detection, face recognition and gesture recognition technologies in many applications. This technology makes use of gesture recognition so as to help the user to point someone's body movements virtually through mobile phones or tablets with the help of webcam and internet connectivity. Most of the established firms focus on inserting image recognition technology which makes possible to superimpose digital images like photos or images on the real world. The future of augmented reality enables the entire new classes of application and experiences like wearable technology which includes eyewear, contact lenses and a bionic eye having 3 dimensional displays.

Detecting regions of change in images of the same scene taken at different times is of widespread interest due to a large number of applications in diverse disciplines. Important applications of change detection include video surveillance, remote sensing, medical diagnosis and treatment, civil infrastructure, underwater sensing, and driver assistance systems. Despite the diversity of applications, change detection researchers employ many common processing steps and core algorithms. The goal of this paper is to present a systematic survey of these steps and algorithms. Previous surveys of change detection were written by Singh in 1989 and Coppin and Bauer in 1996. These articles discussed only remote-sensing methodologies. Here, we focus on more recent work from the broader (English-speaking) image analysis community that reflects the richer set of tools that have since been brought to bear on the topic. The core problem discussed in this paper is as follows. We are given a set of images of the same scene taken at several different times. The goal is to identify the set of pixels that are "significantly different" between the last image of the sequence and the previous images; these pixels comprise the change mask. The change mask may result from a combination of underlying factors, including appearance or disappearance of objects, motion of objects relative to the background, or shape changes of objects. In addition, stationary objects can undergo changes in brightness or color. A key issue is that the change mask should not contain "unimportant" or "nuisance" forms of change, such as those induced by camera motion, sensor noise, illumination variation, non-uniform attenuation, or atmospheric absorption. The notions of "significantly different" and "unimportant" vary by application, which sometimes makes it difficult to

directly compare algorithms. Estimating the change mask is often a first step toward the more ambitious goal of change understanding: segmenting and classifying changes by semantic type, which usually requires tools tailored to a particular application. The present survey emphasizes the detection problem, which is largely application independent. We do not discuss algorithms that are specialized to application-specific object classes, such as parts of human bodies in surveillance imagery or buildings in overhead imagery. Furthermore, our interest here is only in methods that detect changes between raw images, as opposed to those that detect changes between hand-labeled region classes. In remote sensing, the latter approach is called “post-classification comparison” or “delta classification”. Internet technologies and increasing demands on online multimedia businesses, digitalcopyright has become a major concern for businesses that engage in online content distribution through variousbusiness models, such as pay-per-view, subscription, trading, and so on. This is because a perfect copy of thedistributed content can be reproduced at close-to-zero cost. Losses due to copyright infringement have increaseddramatically. Intellectual property protection is a pressing concern for content owners who are exhibiting digitalrepresentations of photographs, rare books and manuscripts, and original artworks on the World Wide Web (WWW). Electronic commerce web sites or applicationsinclude electronic publishing and advertisement, real-time information delivery, product ordering, transactionprocessing, photograph galleries, digital libraries, web newspapers and magazines, network video and audio, personal communication and so on. In electronic commerce web sites or applications, digital contents can be categorized into four basic types of media data, and they are image, audio, video and text. Multimedia data will notbe included in this dissertation work, as this is considered to be a combination of these basic data types. Watermarking is viewed as an enabling technology to protect these mediadata from re-use without giving adequate credit to the source or in an unauthorized way. In general, a watermarkingenables ownership assertion, fingerprinting, authentication and integrity verification, content labeling, usage control and content protection. Hawkins addressed that many watermarkingtechniques have been proposed for intellectual property and copyright protection in the literature, but differentmedia data apply different digital watermarking techniques. Moreover, technical requirements of differentwatermarking techniques also vary because of

different functions and applications. Since intellectual property protection using digital watermarking is still at its infancy, this paper attempts to promote digital watermarking and introduces a mechanism for electronic business designers and developers to use watermarking in protecting their online media contents. In response to this need, this paper first introduces four watermark design patterns (WDPs) to describe the requirements of digital watermarks for various media contents. The proposal of these WDP is based on the characteristics of watermarking techniques addressed in the literature, and the properties of a distributor's web sites. The WDPs are then extended to relate the watermarking techniques to various electronic commerce applications. The graphical representation of the relation diagram could guide the developers to select appropriate watermarking for the protection of their distributed contents. Problems of copyright protection using watermarking and management issues are also presented. Many military and civilian applications involve the detection of an object or activity such as a military vehicle or vehicle tracks. Hyperspectral imaging sensors, such as those illustrated in Figure 1, provide image data containing both spatial and spectral information, and this information can be used to address such detection tasks. The basic idea for hyperspectral imaging stems from the fact that, for any given material, the amount of radiation that is reflected, absorbed, or emitted—i.e., the radiance—varies with wavelength.

Hyperspectral imaging sensors measure the radiance of the materials within each pixel area at a very large number of contiguous spectral wavelength bands. A hyperspectral remote sensing system has four basic parts: the radiation (or illuminating) source, the atmospheric path, the imaged surface, and the sensor. In a passive remote sensing system the primary source of illumination is the sun. The distribution of the sun's emitted energy, as a function of wavelength throughout the electromagnetic spectrum, is known as the solar spectrum. The solar energy propagates through the atmosphere, and its intensity and spectral distributions are modified by the atmosphere. The energy then interacts with the imaged surface materials and is reflected, transmitted, and or absorbed by these materials. The reflected emitted energy then passes back through the atmosphere, where it is subjected to additional intensity modifications and spectral changes. Finally, the energy reaches the sensor, where it is measured and converted into digital form for further processing and exploitation. The signal of

interest, that is, the information-bearing signal, is the reflectance spectrum defined by:

$$\text{reflectance spectrum}(\lambda) = \frac{\text{reflected radiation at band}(\lambda)}{\text{incident radiation at band}(\lambda)}$$

The reflectance spectrum, or spectral signature, shows the fraction of incident energy, typically sunlight, that is reflected by a material as a function of the wavelength  $\lambda$  of the energy. To understand hyperspectral imaging data exploitation, it is important to realize how the presence of the atmosphere and the nature of the solar spectrum affect the relationship between the observed radiance spectra and the associated reflectance spectra. Basically, the observed spectrum would have the same shape as the reflectance spectrum if the solar spectrum were flat and the atmosphere had the same transmittance at all wave lengths. In reality, the measured radiance spectrum is the solar spectrum modified by the transmittance function of the atmosphere and the reflectance spectrum of the imaged ground resolution cell. The atmosphere restricts where we can look spectrally because it selectively absorbs radiation at different wave lengths, due to the presence of oxygen and water vapor. The signal-to noise ratio at these absorption bands is very low; as a result, any useful information about the reflectance spectrum is lost. For all practical purposes these spectral bands are ignored during subsequent hyperspectral data analysis.

## **CHAPTER IV. THE EFFECT OF DIGITAL MARKETING STRATEGIES ON BUSINESS**

### **4.1. The effect of digital marketing on a company's overall commercial growth in Uzbekistan**

The main goal of the study was to determine how prevalent digital marketing is among Uzbek businesses and how much of an effect it has on those businesses' ability to grow. Another goal was to find out what success meant to Uzbekistani businesses and whether or not they were willing to invest in digital marketing platforms.

Four research questions were developed to serve the needs of this study. The study's focus on digital marketing is covered through three research questions. The final inquiry should address the subject of the business mentality and culture.

This set of questions included four survey questions. Then, respondents were prompted to list the most crucial goals of their own companies. They were then asked to assess their general job happiness and the working habits of their coworkers and employees. They were then asked to rank the business priorities of their respective organizations in order of importance. They were then asked to rank how crucial it is for them to stay one step ahead of the competition.

How much of an effect does digital marketing have on a company's growth in Uzbekistan? This group of questions tries to prove that digital marketing has positively affected the business development of Uzbekistan companies. The participants were questioned if they agreed that digital marketing played a role in the performance of their businesses and whether the outcomes achieved via the use of digital marketing met their expectations.

This set of inquiries aims to demonstrate how the growth of Uzbekistani businesses has been positively impacted by digital marketing. The participants were questioned if they agreed that digital marketing played a role in the performance of their businesses and whether the outcomes achieved via the use of digital marketing met their expectations. In addition, they were asked if they preferred traditional marketing techniques to digital ones and, if yes, to briefly explain their choices. The most popular digital marketing channels employed by Uzbekistani businesses were then examined.

Respondents were questioned about the digital marketing channels their businesses use and which ones they believe to be most successful in

order to learn which ones are most popular among Uzbek enterprises. They also had to say which of the digital marketing objectives meant the most to them. Next, they were asked to rank the importance of the elements on their website.

The final set of questions focused on the financial elements of digital marketing in the participants' organizations. Companies were prompted to disclose the proportions of their digital marketing budgets (% of marketing budget) and marketing budgets as a percentage of revenue. They were also questioned if their spending for digital marketing had grown over the previous three years. Finally, they were questioned about whether the COVID-19 outbreak will affect their digital marketing budget.

The next section of the study focused on how digital marketing affects business performance. In this portion, respondents were required to analyze advanced showcasing methodologies in their companies. Firstly, they were inquired in case they concur that executing advanced promoting had a positive impact on their companies' victory. As can be taken note from the figure 23, that 80% of the respondents accept that advanced promoting contributed to their companies' victory. 17% of them are impartial, which suggests they are not persuaded on the off chance that that's the case, whereas as it were one member considers that advanced promoting was not a vital calculate contributing to their company's victory.

Besides, members were inquired to appraise in case computerized showcasing techniques met their criteria, or on the off chance that it did not provide anticipated comes about. It can be watched from the figure 24 that 36.7% of the respondents accept that computerized promoting techniques conveyed comes about that were anticipated, whereas 56.7% of members see room for advancement as the comes about conveyed did not meet criteria totally.



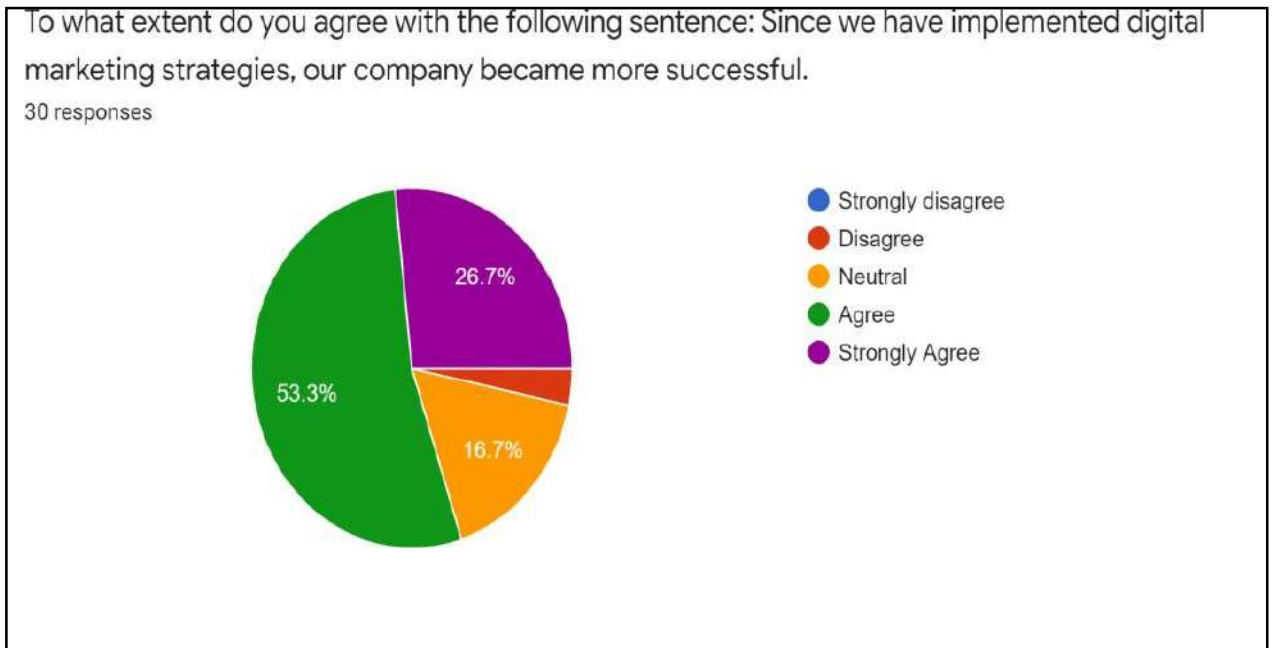


Figure 23. Impact of digital marketing on business success

As it were two respondents consider comes about conveyed by executing advanced promoting methodologies to be not great sufficient, not as anticipated.

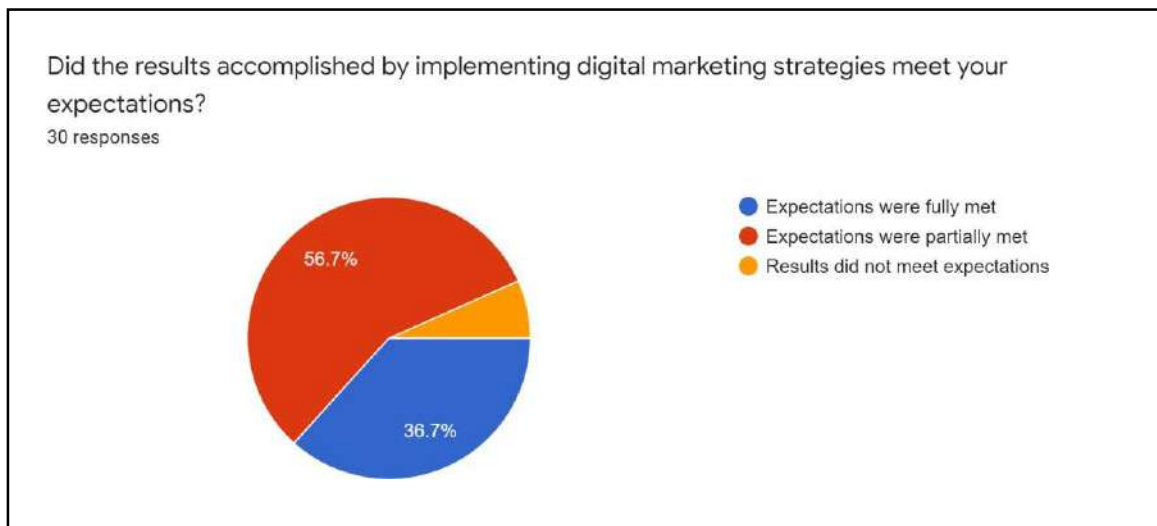
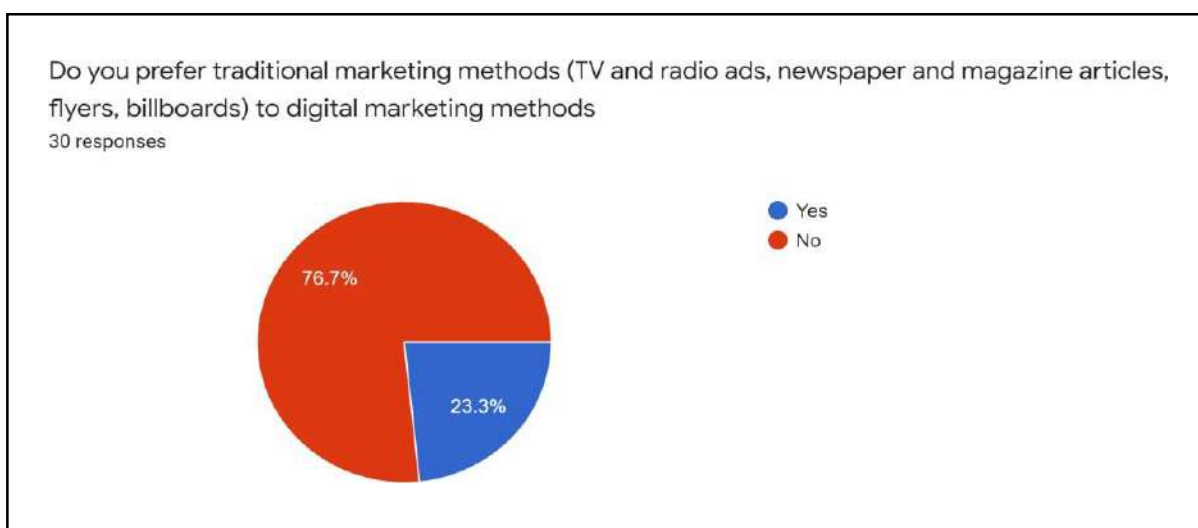


Figure 24. Analyzing the outcomes produced by utilizing digital marketing tactics

At long last, respondents were required to choose on the off chance that they favor conventional showcasing strategies to computerized

promoting strategies, and in that case, they were inquired to clarify their choice. As can be famous from the figure 25, 26 members incline toward advanced showcasing strategies to conventional promoting strategies, and 7 of them favor conventional promoting strategies. Here are a few of the clarification to why certain members lean toward conventional showcasing methods:

- “Because my target demographic isn't very web-savvy at the moment, I rely more on the personal contacts I've developed throughout my time in the industry.”
  - “Advanced marketing is more confusing,”
  - “Because those kind of displaying make me more recognizable.”
- methods

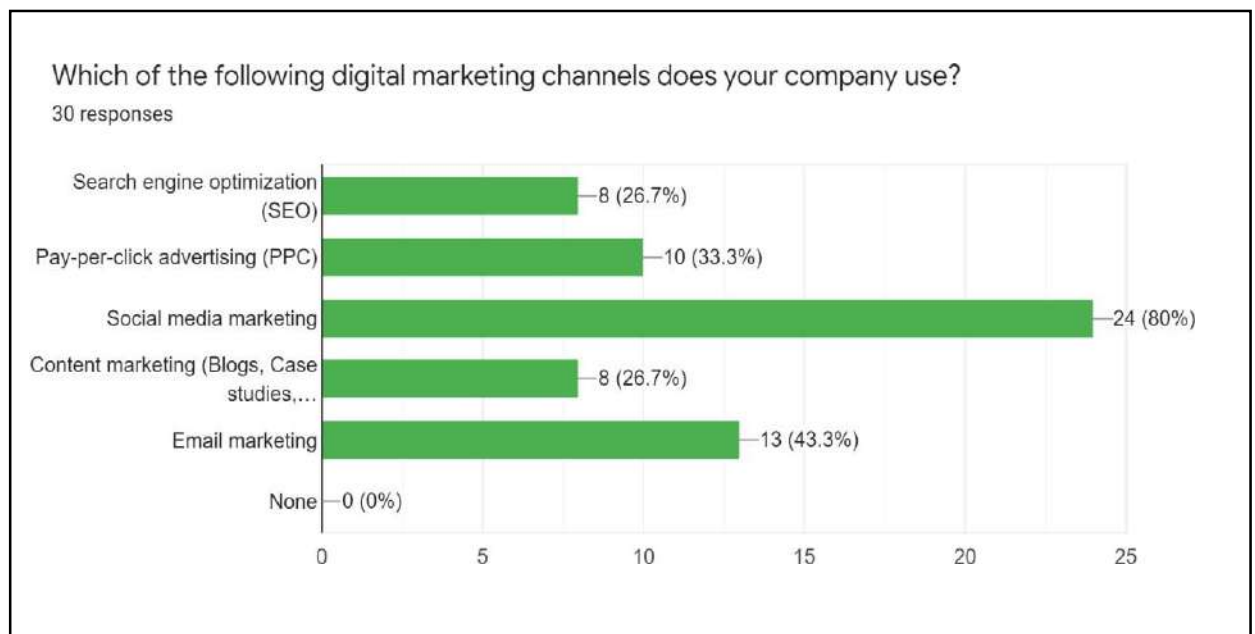


**Figure 25. Respondent distribution based on their marketing preferences**

To conclude, most of the members think that executing computerized showcasing procedures in their companies' is a vital figure for commerce victory. Also, most of them lean toward advanced showcasing strategies to conventional showcasing strategies, which is in understanding with the desires since we live in an advanced time. At long last, members accept there's more room for advance as the lion's share feels that computerized promoting did not in full meet their expectations. It was exceptionally curiously to know what was the foremost successful advanced promoting channels. In this portion of the study, respondents were inquired to analyze which of the advanced promoting channels are

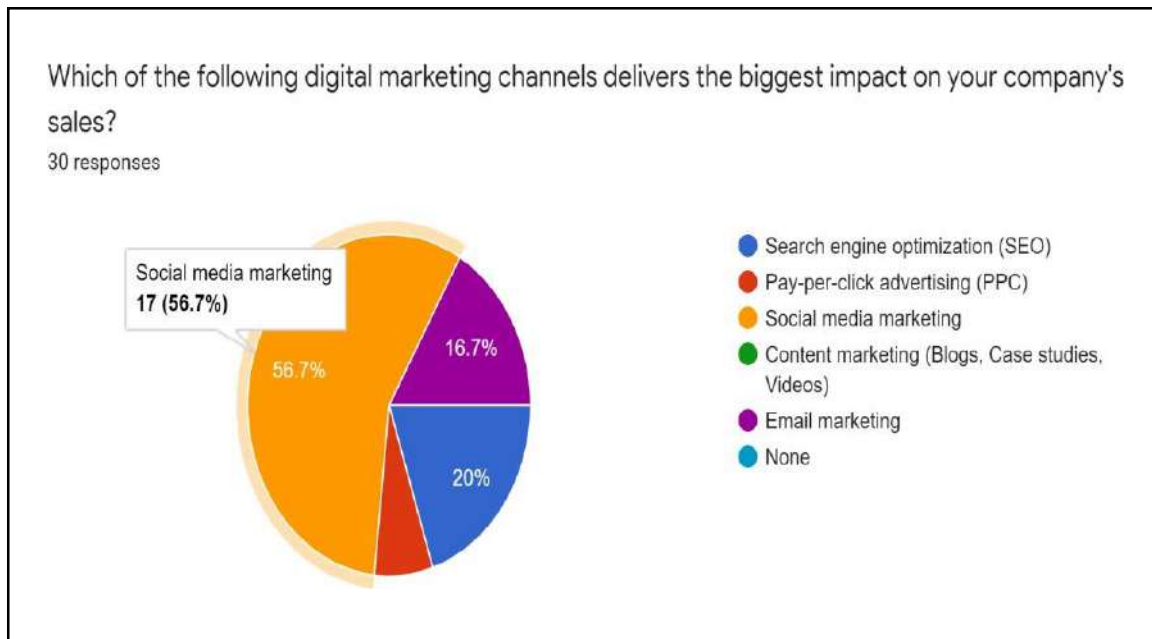
most compelling for their companies. To begin with of all, they were required to choose which of the taking after computerized showcasing channels their companies utilize (figure 26).

Social media showcasing is utilized in 80% of the companies taking an interest in this investigate. Following most noteworthy spoken to advanced showcasing channel is mail showcasing, with 43.3% utilizing it in their promoting procedure. Paid-per-click publicizing is utilized by 33.3% of the companies, whereas SEO and substance showcasing are spoken to in as it were 26.7% of the companies.



**Figure 26. Digital marketing channels' prevalence in respondents' employers**

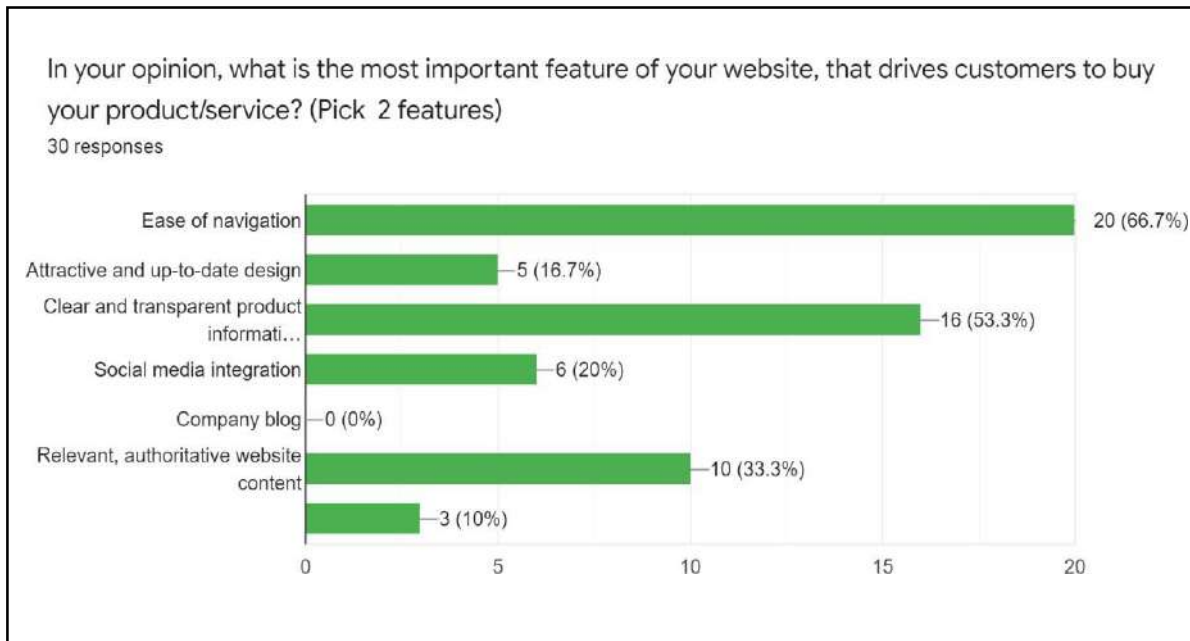
Besides, members were required to uncover which computerized promoting channel had the greatest effect on their companies' deal. From the figure 27, it can be watched that 56.7% of the companies, state that social media promoting has the greatest effect on their deals. 20% that SEO is driving their deals the foremost. 16.7% of them state that mail marketing improves their deals the foremost, whereas as it were two companies recognize PPC as having the greatest effect on their deals.



**Figure 27. The most effective digital marketing channel for increasing revenue for businesses**

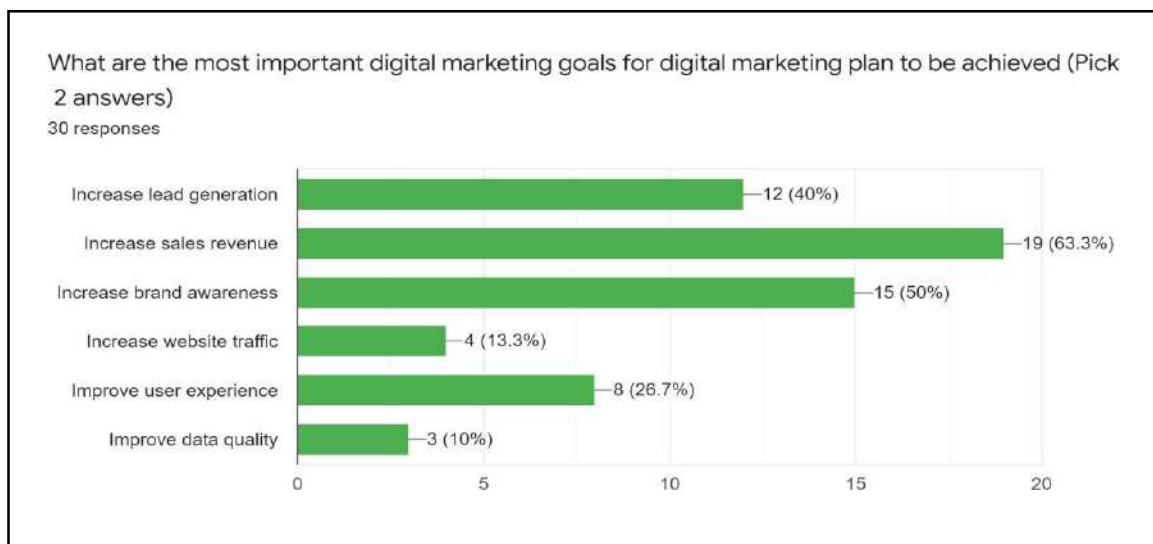
Another, as the site may be an exceptionally critical component of computerized promoting, members were inquired to choose two highlights of their websites that they consider to be the foremost critical figure in propelling the clients to purchase the products/service that the company is advertising (Figure 28). Majority of them (66.7%) accept that ease of route of web site is the foremost imperative highlight and 53.3% of them think that it is key to have clear and straightforward item data included on their websites. 33.3% are persuaded that relative and definitive substance on their websites is pivotal, whereas 20% of them accept that it is most important to have social media coordinates on their websites. 16.7% think that site plan is of significant significance, and three companies don't have websites.

At last, respondents were inquired to choose two primary advanced promoting objectives of their companies (figure 29). 63.3% of them state increment in deals income as the most advanced showcasing objective of their company, whereas half of them accept that brand mindfulness is the most objective of their advanced promoting technique. 40% of the respondents recognize increment in lead era as the key objective while 26% state that progressing client involvement is the foremost critical objective.



**Figure 28. Features of websites that encourage consumers to buy**

As it were 13.3% chosen increment in site activity as advanced showcasing objective and 10% picked enhancement in information



quality.

**Figure 29. The most crucial objectives for digital marketing**

After analyzing this bunch of answers, it can be concluded that social media promoting is the foremost spoken to advanced showcasing channel in Uzbekistan companies, and what is more, social media promoting has the greatest effect on deals, taken after by SEO and mail

promoting. Finally, most of the respondents accept that for the site to be effective, it is imperative that the site is simple to utilize and get it, to be straightforward and offer clear product/service data.

## **4.2. The examples of digital marketing strategies of foreign companies**

An international digital marketing strategy is the art of merging creativity and technology into a "dance" of digital strategies with the aim of winning over your target audience. In this game, international digital marketing becomes the key to unlocking the doors to business success. Through strategies such as SEO positioning, copywriting, email marketing and content on social media, you can reach the heart of consumers, creating lasting connections and generating impact on each click, like or share. In this digital world, where limits are blurred and opportunities are infinite, a well-executed international digital marketing strategy is the key to globalizing businesses with all the guarantees of success.

*Why is it necessary to develop international digital marketing strategies?*

Developing international digital marketing strategies is essential in the current era, where online presence and digital interaction are crucial aspects for the success of any business. Digital marketing offers endless opportunities and benefits that are more difficult to find in traditional marketing methods.

Firstly, digital marketing allows you to reach a global audience instantly and effectively. Through tools such as social media, email marketing and search engines, companies can promote their products and services in a targeted and personalized way, reaching potential consumers anywhere in the world and at any time.

Digital marketing also offers greater measurement and analysis capacity. Web analysis tools and digital metrics allow companies to obtain detailed information on user behavior, conversions, return on investment and other key performance indicators. This provides a solid basis for strategic decision-making and the optimization of marketing campaigns.

Another important aspect is the possibility of interacting and establishing two-way communication with customers. Through social media, blog comments and online reviews, companies can listen and

respond to their customers' needs and opinions, building strong relationships and promoting brand loyalty.

Digital marketing is highly scalable and adaptable. Companies can adjust and optimize their strategies in real time, according to the results obtained and market trends. It also offers precise segmentation and customization options, which allows specific audiences to be addressed with relevant and persuasive messages.

In short, digital marketing strategies are necessary because they offer an effective way to reach the audience, they provide data and accurate information for decision-making, foster interaction and customer relations and enable constant adaptation to stay at the forefront of an increasingly digitized business environment.

One of the most interesting things about working in the marketing sector is that year after year we have to turn what we are doing on its head in order to implement new trends and adapt to consumer habits. We are constantly learning and experimenting! What are the essential strategies you need to know about this sector?

### ***1. Create a multilingual website***

One of the main challenges for expanding your business to another level is the language barrier. To overcome this obstacle, a key strategy is to transform your website into a multilingual site.

A website translated into several languages allows your potential customers, located in different parts of the world, to access your website and understand your products or services in their native language. This can also improve the user experience and increase your brand's confidence.

*To create a multilingual website, you need to follow these steps:*

- Identify the languages you need to include on your website. This will depend on the countries or regions you want to reach.
- Use a professional translation company to translate the content of your website into the corresponding language. Make sure that the company has translators with experience in the sector and are native to the target language.
- Use a plugin or content management tool to create multiple language versions of your website.
- Make sure that your website's SEO elements, such as meta tags and titles, are also translated correctly.
- Check that your multilingual website works well, and that browsing is simple and intuitive for your users.



- Creating a multilingual website can be a laborious process, but it is a fully profitable investment if your goal is to expand globally.

## ***2. International SEO strategy: optimize your website for search engines***

To expand your business internationally, it is essential that you implement an international digital marketing strategy that includes the optimization of your website for search engines in different languages and countries, also known as an international SEO strategy.

To achieve this, there are certain steps that you must take into account:

- Conduct a thorough research of keywords in each country or target region.
  - Adapt the content of your website to each language and country.
  - Create an internationally friendly URL structure.
  - Use hreflang tags to indicate which version of your website is relevant for each country or language.
  - Build international backlinks.
  - Use specialized tools to monitor international SEO performance.
  - Comply with local standards and regulations, monitor and analyses data to adjust your international SEO strategy on a regular basis.

It looks like a lot of work, and it is! For this reason, it is advisable to work with experts in international SEO to make sure you are implementing it correctly and obtain the best possible results. An international business will not achieve the desired success without an effective international SEO strategy. We tell you how it is, clearly and directly.

## ***3. Search Engine Marketing (SEM): how to reach new international customers***

SEM (Search Engine Marketing) is an effective strategy for reaching new international customers. Here are some tips on putting SEM into practice and making sure the result is the expected one.

- identify your business with the most relevant keywords: Before launching an SEM campaign, it is essential that you conduct an in-depth research of keywords. This will allow you to identify the phrases that users are using to search for products or services similar to yours.
  - Create specific ads for each country: if you are trying to reach customers in different countries, it is important that you adapt your ads to



each market. This means translating them into the local language, adjusting images and content according to cultural preferences and considering differences in competition and prices.

- Use international advertising platforms: There are several online advertising platforms that allow you to reach international audiences. Google AdWords is one of the most popular, but you can also consider options such as Bing Ads, Facebook Ads and LinkedIn Ads, depending on the target audience you want to impact with your ads.

- Conduct A/B tests to optimise your ads: Once you have created your ads, it is important that you conduct A/B tests to measure their effectiveness. This involves creating two versions of the same ad and assessing the best performance in terms of clicks, conversions and other key indicators.

- Use geographic segmentation: Most advertising platforms allow you to segment your ads by geographical location. This means that you can show your ads only to users in specific countries or even in cities or specific regions.

- Consider remarketing: if you already have an international customer base, remarketing can be a very effective strategy to reach them again. This means displaying ads to people who have already visited your website or interacted with your brand in the past.

- Analyze the data to improve your ROI: Finally, it is important that you regularly analyses the data of your SEM campaigns to identify areas for improvement and optimize your return on investment (ROI). Pay attention to indicators such as the cost per click and the conversion rate to make decisions on how to invest your resources.

#### ***4. Content marketing for different cultural audiences***

To connect with cultural audiences around the world, it is essential to apply a content marketing strategy that takes into account cultural differences and adapts them accordingly. To achieve this, several strategies can be implemented:

- Research the local culture: It is important to know the customs, traditions, languages and values of each country or region before creating content.

- Adapt content to language: the translation should be precise and done by professional native translators.

- Choose appropriate images and colours: it is important to select those that are acceptable to local culture.

- **Include cultural references:** Incorporate cultural elements to demonstrate understanding of the local context.
- **Customise the content:** Create specific and valuable content for each audience.
- **Consider format differences:** Format preferences may vary depending on the culture.
- **Maintain a coherent voice:** Although the content is adapted to each culture, it is important to keep a uniform voice at all times.
- **Use local influencers:** collaborating with influential people at local level can increase the impact of content on specific audiences.
- **Test and measure:** Carry out tests to determine what type of content works best in each culture and use the data analysis results to adapt the strategy.
- **Learn and evolve:** Content marketing for different cultural audiences requires a constant process of learning and adaptation to remain at the forefront.

**International copywriting.** International copywriting is a persuasive writing technique that is used to communicate to global audiences in different languages and cultures. It consists of creating effective and persuasive content that captures the reader's attention and motivates them to take action, whether buying a product, subscribing to a service or carrying out any other desired action. International copywriting is crucial in the field of global marketing, as it allows messages to be adapted effectively to different international markets, considering the cultural, linguistic and emotional characteristics of each audience. By using international copywriting techniques, companies can maximize the impact of their marketing campaigns in different countries and generate more significant connections with their potential customers globally.

### **5. Affiliate marketing**

Affiliate marketing is an online business model whereby the affiliates promote products or services from other companies in exchange for a fee for each sale or action carried out through their marketing efforts. Affiliates may be bloggers, website owners, influencers or anyone interested in generating additional income by promoting third-party products or services.

Affiliates use various promotional strategies, such as blogs, social media, email and websites, to attract potential customers and direct them

to advertisers' products or services. When a user makes a purchase or action through the affiliate link, the affiliate receives an arranged fee.

This type of marketing offers a profitable opportunity for advertisers, who obtain greater visibility and sales, as well as for affiliates, who can generate additional income by promoting products or services that are aligned with their niche and audience. This technique is useful for expanding an international business through collaborations with local partners. To implement this strategy, the following steps should be followed:

- Identify your objectives: first of all, clearly define your objectives and what you want to achieve with affiliate marketing. Do you want to increase your sales in international markets? Do you want to improve your brand recognition in certain regions? Do you want to improve your relationships with local partners?
- Search affiliates who have a great scope in the regions you wish to expand to. As we have said, they can be bloggers, influencers, companies or websites specialising in your market niche.
- Establish a fee structure: Define a clear and attractive fee structure for your affiliates. This may include a percentage of sales or a fixed rate for each conversion generated.
- Provide tools and resources to your affiliates to help them promote your product or service, such as personalised links, advertising banners or exclusive content.
- Carry out monitoring and optimise and adjust your strategy if necessary. Use monitoring and analysis tools to measure the impact of your affiliates on your business.

In short, by working with local partners who have a great reach in the regions you wish to enter, you can increase your presence and sales in new markets effectively.

### ***6. Influencer marketing: How can it help your international expansion?***

Impacting an unknown market is quite complicated, as it is necessary to research and familiarize yourself with the consumption habits of online users. Reaching the potential customer organically takes a while. This is why, especially when arriving in a new region, it is advisable to opt for traffic through advertising both in search engines and in the target social media.

A formula that can obtain very positive results is to take advantage of the country's influencers or micro influencers that are somehow linked to the business and to carry out campaigns through social networks with them. To effectively use this strategy, it is important to identify the appropriate influencers, establish clear objectives, create custom content and develop a long-term relationship.

### ***7. Email marketing and automation for your international audience***

To reach this desired international audience, it is essential to use tools such as email marketing and automation.

#### ***Benefits***

- **Planning:** It allows you to schedule shipments at different times, depending on the country you work with.
- **Statistics:** A good tool shows the statistics to analyses them and extract a lot of information on the tastes and interests of your contacts, which allows you to improve future campaigns.
- **Customization:** It allows you to create a totally customized campaign, promoting the most suitable products/services, news or promotions depending on the region you are targeting.
- **A/B tests** can also be conducted, to show which campaign is having the best acceptance or performance.
- **Low costs:** Email marketing is one of the most profitable marketing strategies, as it does not require a large budget to reach thousands of people anywhere in the world.

### ***8. Manage social networks***

Having a presence on social media is currently one of the most powerful tools. An effective international digital marketing strategy must include constant and meticulous management of these platforms. To do this, we recommend the following:

- Identify the most widely used social media in the countries where you want to expand and in the sector you specialise in and create very complete profiles.
- Publish relevant and quality content for your international audience. TAKE NOTE! Always with the content written or translated into the language of the market you are targeting.
- Interact with your followers and answer their comments and questions. Get interested in the audience you see.
- Use paid ads on social media to reach more audiences.

- Carry out competitions and prize draws to involve your audience and increase your brand's visibility.
- Create attractive visual content to capture the attention of your audience.
- Use relevant hashtags to reach a specific audience and increase the scope of your publications.
- Regularly monitor your social media statistics to assess the success of your campaigns and adjust them as necessary.
- As we mentioned above, collaborate with local influencers to reach a specific audience in a specific country.
- Use editing programming tools on social media to maintain a constant presence without this involving a lot of effort on your part.

### ***9. Online reputation management Take care of your image in different countries and cultures***

Every country and culture can perceive the company differently, so it's important to know the peculiarities of each and every market.

To take care of your company's online image in different countries and cultures, it is advisable to research and understand cultural differences; by using online reputation monitoring tools (Google Alerts, Mention or Brand watch to mention a few), create relevant content for each market, use local social networks, maintain constant communication with your customers, be transparent and honest, pay attention to the quality of your products and services, learn from your mistakes and have patience.

These tips will help you adapt your international digital marketing and communication strategy to avoid possible misunderstandings or offences, detect problems and quickly respond to negative comments, reach new customers in different countries and build a positive online reputation.

### ***10. Monitoring and measurement of your international results How do I know if I am having success?***

Once the international digital marketing strategies we have described to your business have been applied, it is important that you monitor and manage your results to assess to what extent they have been successful or you must adjust them. To do so, this is our advice:

- **Analyze your metrics:** Use tools like Google Analytics to analyze metrics such as traffic, bounce rate, permanence time and conversion rate on your website.
- **Conduct surveys:** Send surveys to your international customers to get feedback on your products or services and their experience shopping on your website.
- **Check your competition:** Check what your international competitors are doing, this will give you an idea of how you are positioning yourself on the market.
- **Use social media:** Monitor the interaction with your brand on social media.
- **Analyze your sales:** Track your international sales and compare them with local sales
- **Conduct A/B tests:** to see which strategies work best.
- **Use conversion tracking:** Use conversion tracking tools to identify which pages generate more conversions.
- **Analyze your advertising campaigns:** Assess whether your advertising campaigns generate a positive return on investment.
- **Monitor your keywords:** to see if you are reaching your target audience.
- **Make adjustments as necessary:** use the information gathered to make changes to the established international digital marketing strategies.

### ***The examples of digital marketing strategies of foreign companies***

Digital Marketing Strategy - a step-by-step plan formulated to achieve specific goals (promotion of a brand or goods and services) using digital technologies (mainly through Internet channels). It is an integral part of digital marketing and one of the types.

The most objective of a advanced technique is to oversee client connections and, as a result, accomplish most extreme trade success.

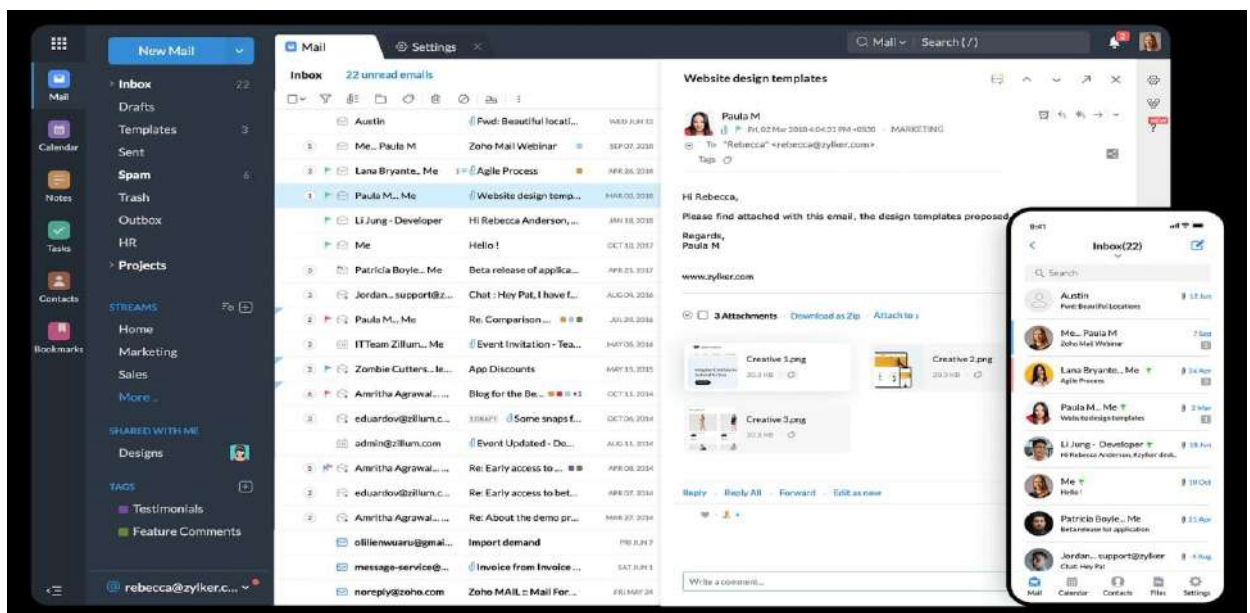
Unlike the IT strategy, which is completely focused on the development of information technology in the company (in particular, technical equipment and staffing), the digital strategy is fully related to marketing tools and focuses on specific goals:

- make the brand recognizable;
- increase loyalty;

- achieve high KPIs in a short time;
- achieve sales growth;
- expand your target audience, taking into account the budget and available resources.

Consider how it is currently being used by the Ajoyib Distribution and other international companies.

Ajoyib group distribution in Uzbekistan works on Zoho platform. This is the most effective when it combines data from firm sources that are internal to the organization, such as financial and operations data, with data derived from the market in which a company works (internal data). When internal and external data are merged, they can paint a full picture that, in turn, produces a "intelligence" that cannot be obtained from any one piece of data alone. Business intelligence technologies enable firms to, among other things, obtain insight into new markets, evaluate the demand for and acceptability of goods and services for various market segments, and measure the effectiveness of marketing initiatives. Data from a data warehouse (DW) or a data mart is used by BI applications.



**Figure 30. Ajoyib group Distribution platform**

Ajoyib group distribution in Uzbekistan uses a Microsoft CRM, system which helps to make work efficient and effective. This is an international network of over 250,000 businesses in 180 countries rely on the award-winning a Microsoft CRM, to convert more leads, engage with customers, and increase revenue. Ajoyib group distribution in Uzbekistan sales, marketing, and customer support activities can all be found in one

place with the help of a Microsoft CRM, which also streamlines Adoyib group distribution in Uzbekistan procedures, policies, and workforce onto a single platform. a Microsoft CRM, is easily adaptable to the unique requirements of any size and type of business. Start-ups, major corporations, and verticals like real estate, healthcare, insurance, legal, media, restaurants, travel, banking, tax, freelancers, and non-profits use contemporary CRM systems like a Microsoft CRM, to improve their sales, marketing, and customer support activities(Fig.30).

### ***International digital marketing strategies: examples***

We want to give you several examples of companies that have successfully applied international digital marketing strategies:

**Dunkin Donuts.** Dunkin Donuts now has thousands of stores in more than 30 countries. How has a donut chain become so successful on a global scale? They adapt their donuts to appeal to local tastes. In China, they serve up pork and seaweed donuts, in India, it's saffron and pistachio donuts. If your budget allows for it, customize your offerings to match unique regional tastes.

**Spotify.** Spotify has grown into one of the most successful brands in the world. That's because they don't simply offer genres of music for their listeners, they offer music suggestions based on activities like exercise and relaxation. This crosses borders and allows new artists to reach audiences they might not otherwise have connected with.

**Airbnb.** Airbnb harnessed the power of hashtags on social media to generate engagement and spread brand awareness. The hashtag #onelessstranger encouraged people in the Airbnb community to perform acts of hospitality and take photos or videos with the guests. The social campaign was a great success with around 3 million people participating around the world.

**McDonald's.** McDonald's is another brand that has adapted its products to local markets (and food regulations). They do this by creating different menus in different countries or regions based on the flavors and dishes that are popular in each place.

For instance, their breakfast offering in Turkey, which is pictured below, isn't something you'll find on the McDonald's menu in the U.S. A lot of McDonald's international success is due to their understanding of their different markets and of what kinds of products will sell in each.

**Red Bull.** Red Bull is extremely good at making people think it's a local brand. They do this by hosting events all around the world like their



air race in the UK, Grand Prix in Indianapolis, and rally events in different locales. Red Bull also has their site and content in many languages with customized local content.

**BuzzFeed.** they are the kings of email marketing. They understand it's pretty difficult to position themselves, but they have opted for the customization of email marketing and guess they've got it right! They send their segmented newsletters, which is why they have focused very well on each action and strategy. What have they been able to achieve with this? Send very good quality content to users who wish to receive it. (Source: Buzzfeed Newsletters)

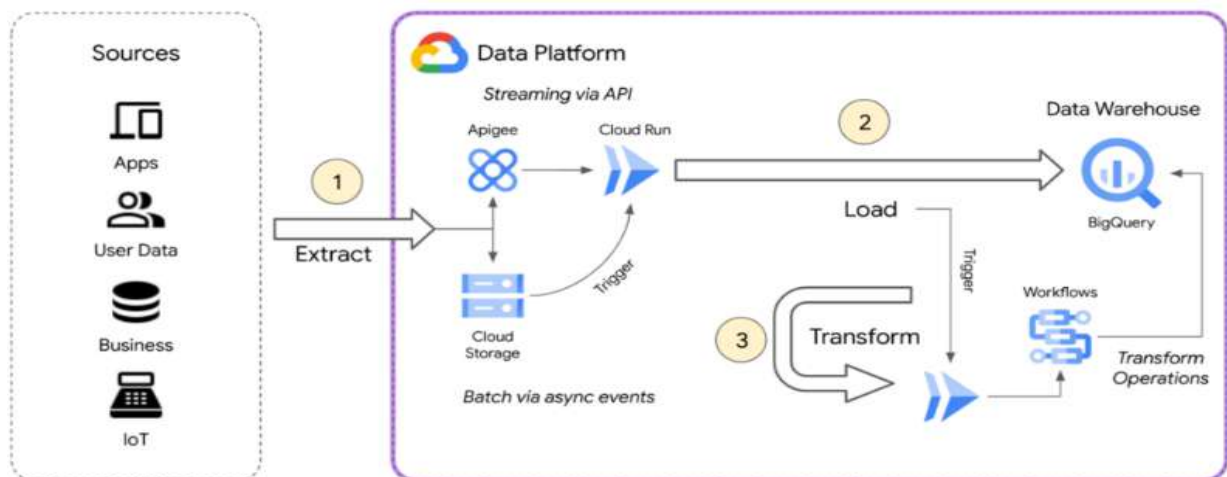
**Glossier.** This young people's makeup brand has achieved something that others have taken many years to achieve: to position itself on social media even before it launched its first product, placing a lot of emphasis on this type of marketing. But how have they managed to do it? To know their target audience very well and create a lot of naturalness in their publications by showing real situations with real people. (Source: Glossier Instagram account)

**Buffer.** it is "THE TOOL" for social media programming. They started creating content on different websites in order to increase their visibility. This led to the attraction of its first 100,000 customers. They began to create high-quality content in their own blogs (yes, plural), and they were positioned as an authority in the field of marketing. They have two blogs where they create content on different topics. And if this wasn't enough, they also have a podcast where they talk about "The science of social media," sharing very interesting ideas on this subject.

**Unilever's digital marketing strategy.** Each brand use different digital marketing strategies such as Unilever aims to be faster, simpler more consumer and customer centric, and future ready for the connected world. As a part of this, the company is accelerating its digital transformation end-to-end – from manufacturing and innovation, to marketing and selling – to make Unilever more competitive in an increasing digitized world.

According to Jane Moran, chief information officer, "What is transformative is the way we are connecting people, making data accessible to a broader employee base, and giving them the skills to analyze the data to make better informed decisions. This will help to increase an efficiency of business, also it has an impact on topics that are central to our business, like sustainability."

The thrust toward advanced is somewhat to overcome advertise challenges confronted by all customer products companies, counting need of development within the nourishment trade, the impact of powerless monetary standards in rising markets and the weight to pull in millennials who preffer Facebook, Twitter and YouTube rather than print, radio and TV. In 2018, Unilever propelled a advanced change program over all angles of esteem chain. The company has 30 stages which control it s trade utilizing advanced innovations )Fig.31).



**Figure 31. Unilever’s digital marketing strategy**

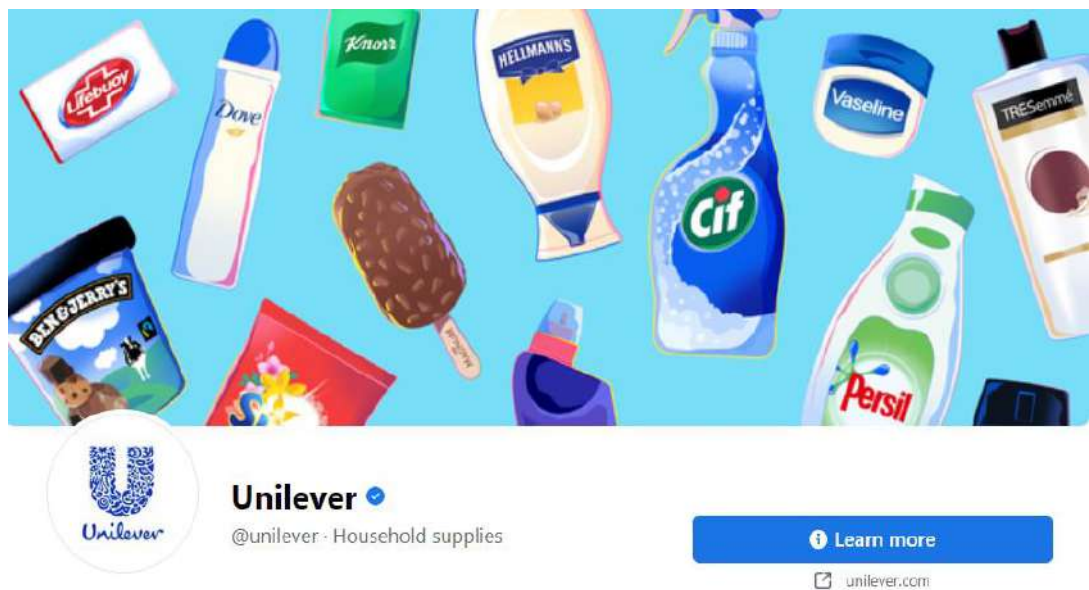
By April 2019, Unilever had mechanized over 700 forms in operations – sparing time and diminishing taken a toll. It preparing programs are centering on computerized up-skilling of its individuals.

In the Figures 32,33 it can be seen how Google Cloud has been essential in helping Unilever achieve its objective of building 1 billion one-to-one relationships with its customers. Unilever has been able to produce insights more quickly and comprehend customer demands on a deeper level by combining a wide range of consumer data with Google Cloud AI technologies like translation, visual analytics, and natural language processing (NPL). Unilever examined user-generated content related to the campaign hashtag and Valentine's Day using Google Cloud's Cloud Vision API During the campaign on Instagram, Facebook, and YouTube, six-second bumper advertisements were created using these findings. To keep track of online comments regarding the campaign and advertisements, the company employed Natural Language API. Unilever was able to fine-tune the message delivery of the advertisements that connected with their audience on various social media channels as a

result. Nearly 500 million people were affected by the campaign, which improved brand awareness and consideration.



**Figure 32. Unilever’s presence in Instagram**

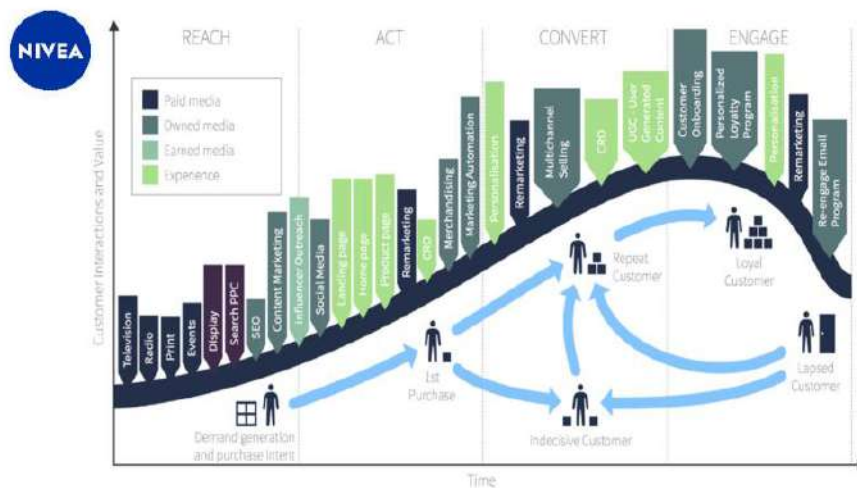


**Figure 33. Unilever’s presence in Facebook**

**Nivea’s digital marketing strategy.** Nivea has been working on digitalization of promotion over the many decades and this brand was working on growing online presence in all digital platforms, building relationships with consumers, expanding social media communication, introducing cosmetic market to Nivea’s skincare products, maintain a large share of the cosmetic market, increasing sales by support of digital

platforms and increasing site traffic of visitors to increase loyalty of the brand from customers (Fig.34).

Nivea’s target market is young professional women and men, who seek innovative high quality skincare products. Nivea aims to expand its online presence and followership to increase brand awareness and loyalty in a high competitive market. Surely, here has big portion of role of digital marketing because 21<sup>st</sup> century generation became more and more digitalized and it is impossible to deny the fact this fact. Nivea has an excellent digital marketing plan and a well-built social media presence in addition to actively branding their products on television. Nivea has always created its products with the intention of mass marketing them, with various options for various customer types and making them accessible in smaller to big SKUs (stock keeping units).



**Figure 34. Nivea’s digital marketing strategy**

In the picture two, the researcher has showed stages of digital marketing in Nivea the four stages of a strategic digital marketing planning process are plan, reach, act, convert, and engage, and Nivea uses them all. For Nivea to employ digital marketing media, technology, and data to enhance leads and sales, omni-channel planning opportunities include personalizing analytics, setting up KPI dashboards, and creating SMART objectives. Increase Nivea's consumer base and brand recognition to strengthen its marketing funnel. Information on Nivea's digital marketing strategy, which uses the most recent and effective online marketing tactics to increase site traffic. In order to produce leads for the future, it promotes interactions on its website or social media. It reaches

its target, thus it's critical that you impact their subsequent actions as they go down the sales funnel toward a choice to make a purchase in a physical store or online. Of course, increasing consumer conversion is the ultimate goal of Nivea's structured digital marketing plan. Retargeting, nurturing, and conversion rate optimization are used to remind and convince their audience to buy online or offline, depending on how significant phone and in-person channels are to the target demographic. Nivea's efforts finally pay off as it raises sales from repeat consumers by keeping them interested after their initial purchase. the creation of hyper-personalized marketing strategies employing online, email, and social media marketing to enhance individualized communications

Nivea's presence in Instagram and website are in the following figures 35,36.

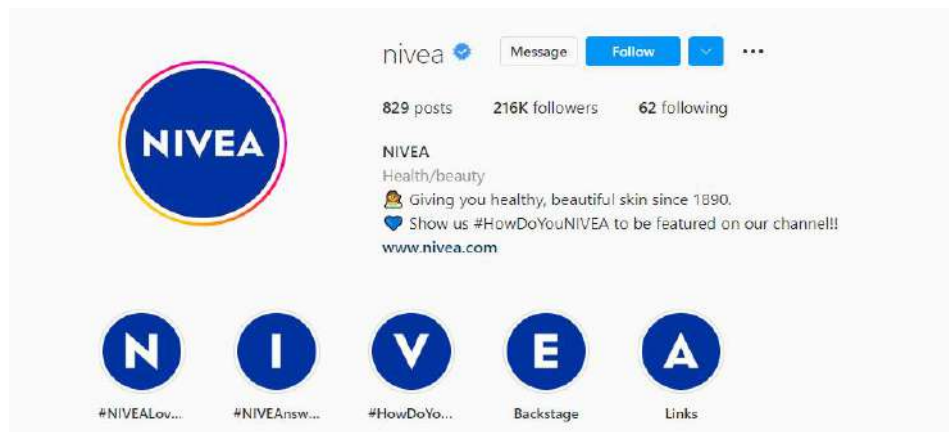


Figure 35.Nivea's website

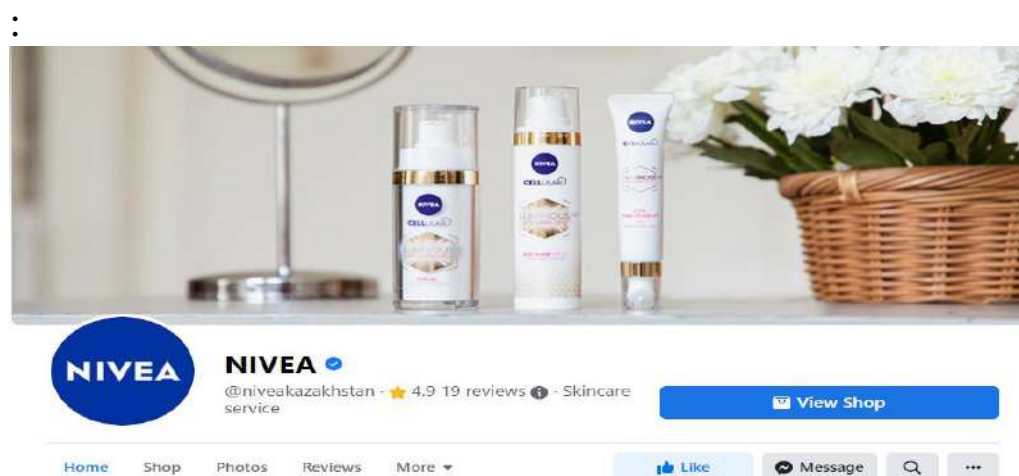


Figure 36. Nivea's presence in Facebook



### **Danone Nutricia's digital marketing strategy.**

Nutricia is a Danone brand that specializes in restorative nourishment and newborn child products, counting therapeutic sustenance for babies with particular needs. Ajoib Group Distribution in Uzbekistan imports following brands:

Nutrilon products: Nutrilon Pronutra Advance, Nutrilon PeptiGastro, Nutrilon Antirefluks, Nutrilon LactoseFree, Nutrilon Hypoallergy, and Neocate.

Malyutka: Malyutka Gold and Malish infant milk powder products for newborn babies.

This brand extremely active in digital marketing and applies marketing mix strategies in digital very effectively. Nutricia has divided its products into to category and does digital marketing strategy separately for instance Nutrilon products are in the market in premium product segment and Malyutka is much more economy product segment. It has two different tactics for its products. It created a website which teaches to young mothers during their pregnancy period and after pregnancy periods as well and called this website as a NutriciaClub and in this club active more than 12 thousand of moms and they daily share information with their internal networks. NutriciaClub started new startup project in Uzbekistan and it calls baby poop-checker with it mothers can check the health of their babies by digital health analyses and it works so efficient that many mothers use this platform and shares with their relatives about baby's health (Fig. 37-39).



**Figure 37. Danone Nutricia's digital marketing strategy**

There are two ways of checking the babies poops digitally first is a manual stool test and second is checking stool with artificial intelligence. In a manual stool test, parents can use the settings (sliders) to select the

color and consistency that is closest to baby's feces and get tips on caring for the baby's tummy. In checking stool with artificial intelligence parents can try a new AI stool checker.



**Figure 38. Danone Nutricia's presence in Instagram**



**Figure 39. Danone Nutricia's presence in Facebook**

Parents can upload a photo to have an AI algorithm check of baby's stool and give advice on care. According Nutricia's research that over 90% of mothers of infants and toddlers have found that automatic stool consistency assessment can be helpful. Thanks to innovative technologies, artificial intelligence allows to moms to assess the condition of children's stool.

## CONCLUSION

In this, monograph devoted to the theoretical view of development trends of digital marketing and image detection and the e-commerce in digital economy study area. There you can find basic explanation of the concepts of the image detection and e-commerce and its impact in human life, its classification and fields of application. Therefore, there were given information about image detection in business and its classification as well. Further, main attention paid for the image detection technology, which is probably the most important aspect of e-commerce and image detection. Theoretical basis of image detection has been thoroughly overviewed and explained, as well as detection process, its sequence of steps as image detection prior to image recognition have been showed.

In addition, first chapter encompasses important issues as problems of image detection, recognition tasks and so on.



## THE LIST OF THE USED LITERATURE

1. Decree of the President of the Republic of Uzbekistan dated February 28, 2023 No. PF-27 "New Development Strategy of Uzbekistan for 2022-2026". Tashkent city, 2023.
2. Presidential Decree of the Republic of Uzbekistan of January 28, 2022 No. UP-60 «About the Strategy of development for new Uzbekistan for 2022 – 2026»// <https://lex.uz/ru/docs/5841077>
3. Ashe-Edmunds, S. (2017): ‘The disadvantages of traditional advertising’
4. <https://ahrefs.com/blog/how-long-does-it-take-to-rank/>
5. Weber, C. (2018): ‘What are the Disadvantages of Digital Marketing?’
6. (Content Marketing Institute 2016) (Quick Sprout 2016).
7. Alexander, L. (2020): ‘The who, what, why & how of digital marketing’
8. Alshaketheep, K. M. K. I., Salah, A. A., ALOMARI, K. M., KHALED, A., & Jay, A. A. A. (2020). Digital Marketing during COVID 19: Consumer’s Perspective. WSEAS Transactions on Business and Economics, 831-841.
9. Bala, M., & Verma, D. (2018). A critical review of digital marketing. M. Bala, D. Verma (2018). A Critical Review of Digital Marketing. International Journal of Management, IT & Engineering, 8(10), 321-339.
10. Bhandari, P, (2020): ‘An introduction to quantitative research’
11. BrightEdge Channel Report (2019): ‘Organic Search Improves Ability to Map to Consumer Intent’” (Iskandar & Komara, 2018).
12. Buttle, F. (2009). Customer relationship management: concepts and technologies. Butterworth-Heinemann Ltd. ISBN 9781856175227
13. Cyber Planet (2019): ‘Top disadvantages of digital marketing’
14. Dawes, J. (2018). The Ansoff Matrix: A Legendary Tool, But with Two Logical Problems. But with Two Logical Problems (February 27, 2018).

15. DeMers, J. 2013. The Top 7 Online Marketing Trends That Will Dominate 2014. Forbes. Published 17.09.2013.
16. Dimitrova, P., & Sin, I. (2018). Digital Marketing in Start-Ups: The role of digital marketing in acquiring and maintaining business relationships
17. Dimitrova, P., & Sin, I. (2018). Digital Marketing in Start-Ups: The role of digital marketing in acquiring and maintaining business relationships.
18. Duh, H., Wallis, E., Chipangamate, N., Thathiah, D., Seely, D., & Liebenberg, N. (2018, April). Marketing capability gaps in three phases of marketing: The extent of the gaps in an emerging market context. In The 2018 Annual Conference of the Emerging Markets Conference Board (p. 60). Wits Business School.
19. Durmaz, Y. & Efendioglu, I., H. (2016): 'Travel from Traditional Marketing to Digital
20. Fardoie, S. R. and Monfared, M. (2008). A new design architecture for e-crm systems (case study: tour package choice in tourism industry). Management of Innovation and Technology, 2008. ICMIT 2008. 4th IEEE International Conference, pages 463–468. ISBN 978-1-4244-2329-3.
21. hods%20are%20expensive,%2C%20home%2Dbased%20business%20owners.&text=Television
22. Hofacker, C., Golgeci, I., Pillai, K. G., & Gligor, D. M. (2020). Digital marketing and business- to-business relationships: a close look at the interface and a roadmap for the future. European Journal of Marketing.
23. <https://expandedramblings.com/index.php/youtube-statistics/>
24. Indriastuti, M., & Fuad, K. (2020, July). Impact of covid-19 on digital transformation and sustainability in small and medium enterprises (smes): A conceptual framework.
25. ISO (2001). Software engineering - product quality, ISO/IEC 9126-1. Technical report, International Organization for Standardization

26. Kenton, W. (2018): 'Social media marketing defined' Sentance (2018)
27. Laudon J. Laudon K. Management Information Systems. Managing the Digital Firm. 15th Edition, 2018
28. Lawrence, S., Deshmukh, S., & Navajivan, E. (2018). A Comparative Study of Digital Marketing vs. Traditional Marketing. IIBM'S Journal of Management Research, 112-121.
29. Lilyquist, M. (2019): 'Understanding the Pros and Cons of Traditional and Internet Marketing' [https://www.thebalancesmb.com/types-of-marketing-traditional-and-internet-](https://www.thebalancesmb.com/types-of-marketing-traditional-and-internet-marketing/)
30. Marketing' <https://journalofbusiness.org/index.php/GJMBR/article/view/2049/1951>
31. Miklosik, A., Kuchta, M., Evans, N., & Zak, S. (2019). Towards the adoption of machine learning-based analytical tools in digital marketing. IEEE Access, 7, 85705-85718.
32. Owen, M. (2020): 'Digital Marketing VS Traditional Marketing: Who's Winning the Battle?' <https://assetdigitalcom.com/digital-marketing-vs-traditional-marketing-whos-winning-the-battle/>
33. Romo, Z. F. G., Medina, I. G., & Romero, N. P. (2017). Storytelling and social networking as tools for digital and mobile marketing of luxury fashion brands. Int. J. Interact. Mob. Technol., 11(6), 136-149. Statista (2020)
34. Sloan, M. (2020): 'Digital Marketing vs. Traditional Marketing: Is One More Powerful Than the Other?' <https://www.drift.com/blog/digital-marketing-vs-traditional-marketing/> [Accessed 18/07/20]
35. Soulo, T. (2020): 'How long does it take to rank in Google? (A study by Ahrefs)'
36. Statista (2019)

37. Stokes, R. 2011. eMarketing: The essential guide to digital marketing. 4th-5th eds. United States of America: Quirk eMarketing (Pty). (Vujasin, 2020)
38. Storm, M. (2020): 'The Benefits of Digital Marketing: 6 Advantages of Online Advertising' <https://www.webfx.com/blog/marketing/benefits-of-digital-marketing/>
39. Tarik, Z., & Adnan, S. (2018). Online vs Traditional; Marketing challenge in the Telecom Market in Bosnia and Herzegovina. *Economic Review: Journal of Economics and Business*, 16(1), 45-57.
40. Todor, R., D. (2016): 'Blending traditional and digital marketing'
41. Vasconcelos, A., Sousa, P., and Tribolet, J. (2008). Enterprise architecture analysis: An information system evaluation approach. *International Journal of Enterprise Modelling and Information Systems Architectures*, 3(2):31–53.
42. Vengadesh, S. (2019): 'Advantages and disadvantages of digital marketing'
43. Vieira, V. A., de Almeida, M. I. S., Agnihotri, R., & Arunachalam, S. (2019). In pursuit of an effective B2B digital marketing strategy in an emerging market. *Journal of the Academy of Marketing Science*, 47(6), 1085-1108.
44. Vieira, V. A., de Almeida, M. I. S., Agnihotri, R., & Arunachalam, S. (2019). In pursuit of an effective B2B digital marketing strategy in an emerging market. *Journal of the Academy of Marketing Science*, 47(6), 1085-1108.
45. Widjaya, I. (2017): '5 advantages of traditional marketing over digital marketing'
46. YouTube Statistics. 2016. Digital Marketing Ramblings.