

Marathwada Shikshan Prasarak Mandal's

**Deogiri Institute of Engineering and Management Studies,  
Aurangabad**

**Seminar Report**

**On**

**E-Commerce Technology**

Submitted By

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Department of Computer Science and Engineering  
**Deogiri Institute of Engineering and Management Studies,  
Aurangabad**  
(2019- 2020)

**Seminar Report**  
**On**  
**E-Commerce Technology**

Submitted By

**Ayush Gangaprasad Pendkar(36059)**

**In partial fulfillment of**  
**Bachelor of Technology**  
**(Computer Science & Engineering)**

Guided By

**Prof .Amruta Joshi**

Department of Computer Science & Engineering  
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**Aurangabad**  
**(2019- 2020)**

## **CERTIFICATE**

This is to certify that, the Seminar entitled “**E-Commerce Technology**” submitted by **Ayush Gangaprasad Pendkar** is a bonafide work completed under my supervision and guidance in partial fulfillment for award of Bachelor of Technology (Computer Science and Engineering) Degree of Dr. BabasahebAmbedkar Technological University, Lonere.

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## **Abstract**

Electronic commerce, commonly written as e-commerce, is the trading or facilitation of trading in products or services using computer networks, such as the Internet. Electronic commerce draws on technologies such as mobile commerce, electronic funds transfer, supply chain management, Internet marketing, online transaction processing, electronic data interchange (EDI), inventory management systems, and automated data collection systems. Modern electronic commerce typically uses the World Wide Web for at least one part of the transaction's life cycle, although it may also use other technologies such as e-mail.

# Contents

Chapter	Page Number
List of Abbreviations	I
List of Figures	II
List of Graphs	III
List of Tables	IV
<b>1. INTRODUCTION</b>	<b>1</b>
1.1 Introduction on Online Market	1
1.2 India's Growth Potential	2
1.3 E-commerce Technology in business	3
1.4 Technologies in E-commerce website	4
<b>2. LITERATURE SURVEY</b>	<b>5</b>
2.1 Customer's Perspective	9
2.2 Objective of E-commerce	11
2.3 Types of E-commerce	11
<b>3. BRIEF ON SYSTEM</b>	<b>15</b>
3.1 working of E-commerce	13
3.2 Machine Learning and AI in E-commerce	19
3.3 USP in E-commerce	21
3.4 Recommendations in E-commerce	22
3.5 Advantages	23
3.6 Disadvantages	24
<b>4. CONCLUSIONS</b>	<b>30</b>
4.1 Conclusion	25
4.2 Application	26
<b>REFERENCES</b>	
<b>ACKNOWLEDGEMENT</b>	

### **List of Abbreviation**

<b>Sr.No</b>	<b>Acronym</b>	<b>Abbreviation</b>
1	approx	approximately
2	dept.	department
3	E.T.A.	estimated time of arrival
4	min.	minute or minimum
5	CMO	Chief Marketing Officer
6	CFO	Chief Financial Officer
7	CEO	Chief Executive Officer
8	CPC	Cost Per Click
9	CPM	Cost per Mile
10	USP	Unique Selling Point

## List of Figures

Figure	Illustration	Page
2.1	percentage of users	16
2.2	E-commerce cycle	17
3.1	E-commerce process	19

## List of Graphs

Graph	Illustration	Page
2.1	Total retail sales	18
3.1	Machine Learning and AI investment	23
3.2	Conversion Funnel percentage	26



## **List of Tables**

<b>Table</b>	<b>Illustration</b>	<b>Page</b>
1.1	E-marketing and Traditional Marketing	15

# 1.INTRODUCTION

## 1.1 ONLINE MARKETS

Several online marketplaces enable individuals and companies to sell products using their platforms. You have popular sites such as eBay.in and Amazon.in, which became operational in India in the beginning of June. Amazon allows sellers to suites warehouse and shipping facilities. If you want to sell handmade products globally, Etsy.com allows you to reach a large number of prospective buyers across the world. You can find many Indian merchants selling products such as handbags, linen, garments, jewellery and artwork. You can also create your own store on the marketplace.Etsy.com charges a listing fee (currently \$0.20 for listing an item for four months) and a commission on each sale (3.5% of price). ItsHandMade.in is an Indian version of this popular US-based site.CraftsVilla.com is a Mumbai-based online marketplace for selling fashion and lifestyle products, including handicraft, vintage items and organic products. According to the website, it has more than 3,000 sellers across India. Another Indian online marketplace that you can tap is Shopclues.com.

Many small business owners are always looking to scale your business. Scaling your business via ecommerce is the easiest.

ecommerce in India has evolved to a certain extent that every business owner wants to go online.

Online Marketplaces in India are the easiest way you can start selling online, instead of building your own online stores.

Selling your products on online marketplaces will help you achieve 2 very essential things as an entrepreneur

1. Increase brand visibility and engagement.
2. It helps you to acquire a new stream of customers.

So we decided to list some of the best online marketplaces in India where you can sell your products.

List of Online Marketplaces in India

1. Flipkart – Flipkart is the India’s largest online marketplace by shipments. Market leader Flipkart has 37% share of the entire industry.

2. Amazon – Amazon is the second largest in India. Amazon India's unit market share surged to an estimated 21-24% from 14% during march 2016.
3. Snapdeal – Snapdeal is known for electronics and it adds up to 14% of the total market share.
4. Myntra – Myntra is an Indian fashion e-commerce marketplace company headquartered in Bengaluru.
5. Jabong – Jabong.com is the best Online shopping Portal in India for men, women & kids for shoes, clothing, watches, and sunglasses. Jabong was once thought to own one-quarter of India's fashion e-commerce market, making it the chief threat to Myntra.
6. eBay– eBay India, one of the earliest online marketplaces in the country.
- 7 Fashionara – Fashionara is India's one of the largest fashion apparel store. We have recent news that Fashionara has been shut down recently.
8. PayTm – Paytm is an Indian e-commerce website headquartered in Noida, India.
9. Limeroad – Limeroad encourages local Indian artisans and craftsmen to sell their goods online.
10. Shopclues – The biggest range of Mobile Phones, Laptops, Home Appliances, Electronics, Fashion, Shoes and Home & Kitchen products at the lowest Prices.

## **1.2 India's Growth Potential:**

Since the ecommerce industry is fast rising, changes can be seen over a year. The sector in India has grown by 34% (CAGR) since 2009 to touch 16.4 billion USD in 2014<sup>2</sup>. The sector is expected to be in the range of 22 billion USD in 2015. Currently, travel comprises 70% of the total ecommerce market. ETailing, which comprises of online retail and online marketplaces, has become the fastest-growing segment in the larger market having grown at a CAGR of around 56% over 2009-2014. The size of the eTail market is pegged at 6 billion USD in 2015. Books, apparel and accessories and electronics are the

largest selling products through eTailing, constituting around 80% of product distribution. The increasing use of smart phones, tablets and internet broadband and 3G has led to developing a strong consumer base likely to increase further. This, combined with a larger number of homegrown eTail companies with their innovative business models has led to a robust eTail market in India rearing to expand at high speed.

### **1.3 E-Commerce Technology in Business:**

**E-Business** is the term used to describe the information systems and applications that support and drive business processes, most often using web technologies.

E-Business allows companies to link their internal and external processes more efficiently and effectively, and work more closely with suppliers and partners to better satisfy the needs and expectations of their customers, leading to improvements in overall business performance.

While a website is one of the most common implementations, E-Business is much more than just a web presence. There are a vast array of internet technologies all designed to help businesses work smarter not harder. Think about collaboration tools, mobile and wireless technology, Customer Relationship Management and social media to name a few.

The terms ‘e-commerce’ and ‘e-business’ are often used interchangeably but what do these words really mean?

E-commerce refers to online transactions - buying and selling of goods and/or services over the Internet.

E-business covers online transactions, but also extends to all Internet based interactions with business partners, suppliers and customers such as: selling direct to consumers, manufacturers and suppliers; monitoring and exchanging information; auctioning surplus inventory; and collaborative product design. These online interactions are aimed at improving or transforming business processes and efficiency.

There are several ways of looking at e-commerce which is given below:

**Communication:** It is the ability to deliver products, services, information, or payments via networks like the internet.

**Interface:** E-commerce means information and transaction exchange: (Business to business, Business to consumer, Consumer to consumer, and business to government.)

**Business process:** E-Commerce means activities that support commerce electronically by networked connections. For Example business processes like manufacturing and inventory etc.

**Online:** E commerce is an electronic environment that allows sellers to buy and sell products, services, and information on the internet. The Products may be physical like Cars, Computers, Books or services like news or consulting.

**Structure:** Ecommerce deals with various media: data, text, video, web pages, and internet telephony.

**Market:** E-commerce is a worldwide network. A local store can open a web storefront and find the world at doorstep- customers, suppliers, competitors, and payments services, Of course, an advertising presence is essential.

## **1.4 Technologies in E-Commerce Website:**

Technology is the backbone of e-commerce. Not only does it help connect sellers and customer on mobile and web platforms, but also enables the effective management of customer orders, deliveries, returns and payments of purchased goods. In fact, technology plays an important role throughout the value chain, in areas such as recruitment, marketing, and advertising, among many others.

Technology even enables search, customization, and personalization for customers, which is fast becoming an obligatory feature expected from any e-commerce venture looking to succeed. As technology becomes more advanced and sophisticated over time, its role reaches critical levels of importance in the e-commerce value chain.

Here are the five emerging technologies that will impact e-commerce the most.

## **1. Ubiquitous e-commerce and 24/7 Sales**

Mobile devices have changed the way we live in radical ways, contributing to every aspect of our daily existence, becoming an integral tool for day-to-day living. According to trade analysts, 90% of all people keep their mobile phone within reach at all times. And as mobile penetration increases, along with better quality services, this trend is assured to grow.

And with the rolling out of 4G connectivity in mobile networks, users the world over are beginning to experience a faster and more reliable mobile internet experience – which in turn is giving rise to mobile commerce.

In 2016, companies such as German online retailer Zalando had 90% of sales via its mobile app, while UK's Shop Direct achieved 62% of total sales on the mobile platform. This trend is leading to the launch of new e-commerce apps, as e-tailers are encouraging their customers to shop via mobile-based apps. Not only does the mobile strategy give e-tailers a direct sales channel between the e-tailer and the customer, but it also acts as a branding tool that is perennially close to the customer.

## **2. Digital supply chain**

Ensuring on-time delivery is a key differentiating factor for companies in the e-commerce space. The successful management of extreme market and spiked-demand has, therefore, become the new focus area, optimizing the supply chain management process for these companies and playing a critical role in ensuring efficient and faster delivery models. Technological innovations are also enabling other critical areas of the supply chain, such as:

- Port management (autonomous freight shuttle debuts),
- Inventory management (hack-proof RFID chips),
- Brand protection (invisible digital markers to help fight counterfeit products),
- Warehouse management (robot technology for collaborative automated order picking),
- Infrastructure (deploying drones to inspect bridges), and
- Delivery (using drones to deliver shipments).

e-Commerce companies are also investing in emerging technology startups to gain a competitive advantage and maximize profits. Specifically, startups specializing in warehousing and logistics

solutions are gaining traction as they offer great automation opportunities to e-commerce companies. According to 2015 estimates, warehouse-focused companies increased investments by 8%, crossing \$1 billion in total investments.

### **3. AI-powered personalization**

In today's hyper-commoditized market, where differentiating a business from the likes of giants like Amazon, Alibaba, and Flipkart, is becoming increasingly difficult; e-commerce vendors are focusing on providing a superior customer experience. A means to accomplish this has been to use technology that drives a high degree of personalization, such that each customer is treated as an individual target segment, rather than a part of a generalized mass.

Many AI companies are transforming e-commerce by devising unique solutions for e-commerce companies. For e-commerce businesses, AI technology is becoming increasingly important since it holds the potential for dynamic and adaptable targeting, which helps companies get the right pitch, at the right time, to the right customer, on the right platform.

For example, the India-based AI company – Artificial, uses visual search and discovery tools to link individual images with a user's interests to recommend products that they are more likely to purchase. Similarly, Infinite Analytics delivers AI-powered personalization solutions by interacting with users through text and voice messages, while also being able to identify and find products based on pictures.

Given such radical innovations in technology, the boundaries between brick-and-mortar retailers and e-retailers are expected to blur even more. AI-driven personalization will not only lead to the conversion of one-time transactions but also drive personal and trust-based relationships between consumers and e-tailers, that effectively improve customer lifetime value.

### **4. Demand-driven forecasting**

Anticipatory shipping is the closest e-commerce can come towards clairvoyance. Amazon patented a "method and system for anticipatory shipping" in 2013. This means that, rather than just relying on inviting or reminding customers to repeat their purchases, Amazon is experimenting with a process that can predict a customer's shopping list and deliver the products to their nearest fulfillment center – even before the order is placed.

Anticipatory shipping definitely has the power to save the customer a lot of valuable time and effort as they are set free from mundane tasks such as shopping for household essentials and having to travel to markets.

Although this phenomenon is still in its experimental stage, we can easily see its disruptive potential should it be implemented on an industry-wide scale. Such technologies have the potential to take data analytics to the next level and allow companies such as Amazon to expand their customer base manifold while enhancing customer loyalty to a great degree.

## **5. New payment services**

Convenience is an essential value proposition associated with e-commerce. Faster, efficient and secure payment options have played a big role in driving the unprecedented growth of the e-commerce market in recent years.

Payment modes tend to vary across regions, for instance, the U.S. and Canadian markets are dominated by credit card payments, while the European market is more partial towards debit cards and digital funds transfers. Emerging economies, on the other hand, are still based in cash, however, they too are rapidly moving towards digitization.

According to Gartner, 50% of consumers in mature markets will use smart phones or wearable-tech for making mobile payments by 2018. According to Forrester's mobile payments forecast 2016-2021, mobile payments in the EU-7 are expected to rise at a CAGR of 19% to reach \$148 billion by 2021. Forrester also predicts that in-person mobile payments will become a fast-growing segment, while remote mobile payments will constitute over 65% of mobile payments by 2021.

Of late, with the emergence of contactless payment options, such as Apple Pay and Google wallet, security levels have also reached an all-time high. This higher degree of digital security has bestowed customers with a new confidence, especially to those consumers who have been laggards in the online shopping segment due to security concerns. This is further expected to give a boost to cashless payment modes and, in turn, lead to inflating e-commerce sales.



*Table 1:* Distinguish between e-marketing & traditional marketing

<b>E- Marketing</b>	<b>Traditional Marketing</b>
Interactive advertisement. Example: website, social networking site, Google ads, banner ads, video marketing.	Contact from one side. Example: Print media (Newspaper), Broadcast Media (TV & radio ads), telemarketing.
E-marketing methods less expensive	Traditional marketing methods more expensive
Reach out maximum people	Limited audiences
Instant Comparable	Less opportunity
Save a lot of time	Need a lot of time
Less interaction	Interaction with people can make good relationship.

Table . 1.1 E-marketing Vs Traditional Marketing

## 2.LITERATURE SURVEY

### 2.1 Customer Perspective :

Williams, Bertsch, Wiele, Iwaarden & Dale et.al clearly discussed that although consumers keep on to purchase from a physical store like traditional shopping but consumers feel very convenient to shop online since they find themselves free from personally visiting the stores. So we can say that online shopping saves time as well as the energy of the consumer while buying their commodities. In the case of online shopping, buying decisions can be easily made from home by sitting at home. In online shopping comparing product with lots of verity & supplies, price advantage can prevail easily. Online shopping is much useful in meeting the consumers' needs and wants. Brown et.al confirmed in his paper that consumer can now make more intelligent decisions in the way which is not possible through traditional shopping. Moreover, Monsuwé et.al also made a review that the consumer can also buy anonymously which is more convenient and when it comes to personal products that consumers may feel uncomfortable buying in stores. Brown et.al found out that daily tasks like shopping for groceries have become simple for consumer's who do not like crowds. Richard Dobbs et.al observed that online retail stores often market themselves through low price.[1]

For example, Amazon.com uses this tactic to allure consumers away from traditional bookstores. These low price online retail store are causing a great consumer surplus. Goldsmith et.al study reveals that some consumers use online shopping just to avoid from faceto-face interaction with salesman because they feel uneasy & uncomfortable while bargaining with the salesman and do not want to be manipulated and fooled around in the marketplace. This is a big true for those customers who may have faced a negative experience with the salesman. Here Mohammad Harisur Rahman Howladar et.al described in his paper that due to the up to date developing infrastructure of ICT in Bangladesh, online shopping intention among people are developed day by day and consumer & marketers make a huge contribution to the national economy through e-commerce. Let's come to the current consumer statistics & age brackets of e-commerce in Bangladesh where the youth with male consumers is in the majority (75%) position. The most victorious age group is 26-30 years achieving 50% of the consumer group. The majority of the consumers are either professional achieving 44% or the university student achieving 33% where the contribution of female consumers is complainingly low 25% than others shown in Fig



Fig.21 Percentage of users

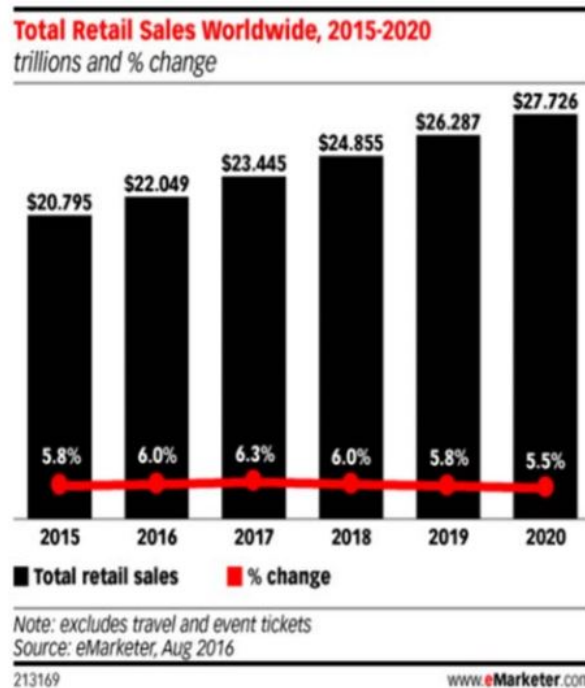
As we know there are many restriction in traditional marketing for selling goods and products but in online marketing there is no boundary or limit or restriction. Johnson et.al [1] revealed there are huge differences between the E-marketing and traditional marketing. Traditional marketing can only concentrate one to one communication that means the marketer need to market the product to one customer round the clock on the other hand E-marketing is done through one to much communication system. In case of online marketing, marketer should be trained as we know that traditional marketing and online marketing is not the same thing. If an organization adopts online shopping for the first time, it must be very cautious and its communication technique should be different from the traditional one. That's why the organization need to maintain some basic strategy for making business effective shown in Fig



Fig.2.2 : E-commerce Cycle

In the 21st century trade and commerce has been so diversified that if a marketer wants to do business, he should be diversified through internet. As we all know internet is the source of innovation so online shopping will shows the way to make innovative ideas of online shopping. In online shopping marketer do their trade through a user friendly website so it is very important to design an attractive website for the prominent consumer. Internet create

a marketplace where different company and the customer come in one place. As it is one kind of virtual market. Through internet every company advertise their goods and products. In 2016, total retail sales across the world will reach \$22.049 trillion, up 6.0% from the previous year. EMarketer calculates sales will top \$27 trillion in 2020, even if annual growth rates of the world will slow over the next few years, as explored in Fig [1]



Graph 2.1: Total retail sales

## 2.2 Objective of E-commerce:

The main objectives of the study are as follows:

- To analyze the present infrastructure of e-commerce
- To know the major types of ecommerce.
- To identify the advantages & disadvantages of ecommerce.
- To know the challenges and limitation in ecommerce in Bangladesh
- To identify the motivation factors and recommendation for future development for online shopping.

## 2.3 Types of E-commerce:

There are basically several types of ecommerce in Bangladesh as well as other countries too [14]. • Business to Business (B2B): B2B deals between the businesses or among business. In Bangladesh

BGMEA, readymade garment receives order from outside client of Bangladesh. Example: Sindbad. com, address bazar, Bangladesh Business Guide, trade etc. • Business to Consumer (B2C): This business is basically done with the general people like catalog utilizing shopping software. Example: ajkerdeal, bag doom, daraz, othoba and so on. • Consumer to Consumer (C2C): This business strategy which is basically done between customers. Example: Bikroy.com, Ekhanei.com and ClickBd.com. • Others: G2G (Government to Government), G2E (Government to Employee), G2B (Government to Business), B2G (Business to Government), MCommerce (Mobile Commerce), F-Commerce (Facebook Commerce).[3]

### 3.BRIEF ON SYSTEM

#### 3.1 Working of E-Commerce :

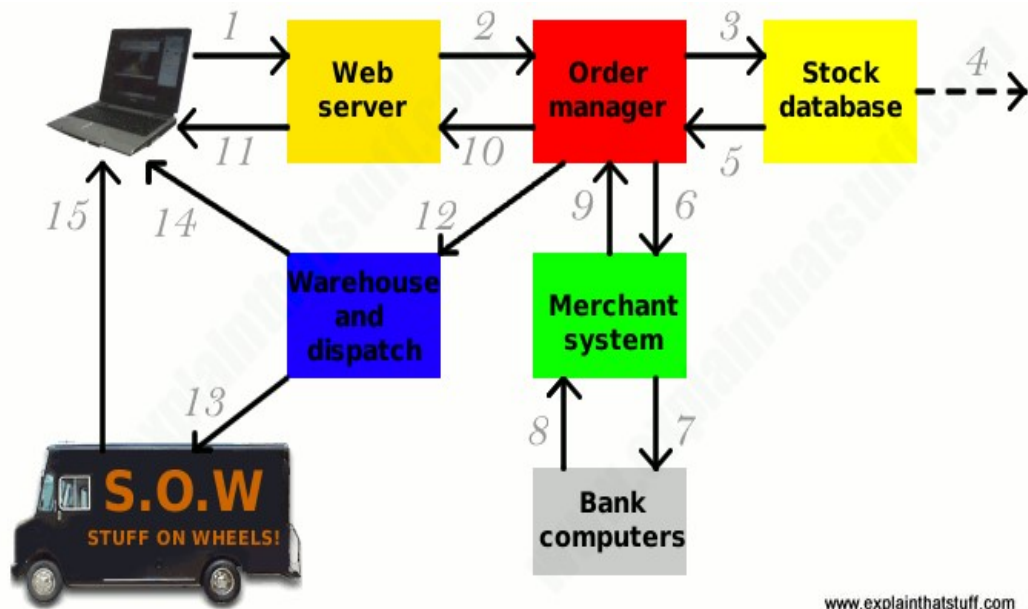


Fig.3.1: Process of E-commerce

1. Sitting at her **computer**, a customer tries to order a book online. Her Web browser communicates back-and-forth over the Internet with a Web server that manages the store's website.
2. The **Web server** sends her order to the order manager. This is a central computer that sees orders through every stage of processing from submission to dispatch.
3. The **order manager** queries a database to find out whether what the customer wants is actually in stock.
4. If the item is not in stock, the **stock database** system can order new supplies from the wholesalers or manufacturers. This might involve communicating with order systems at the manufacturer's HQ to find out estimated supply times while the customer is still sitting at her computer (in other words, in "real time").
5. The stock database confirms whether the item is in stock or suggests an estimated delivery date when supplies will be received from the manufacturer.

6. Assuming the item is in stock, the order manager continues to process it. Next it communicates with a **merchant system** (run by a credit-card processing firm or linked to a bank) to take payment using the customer's credit or debit card number.
7. The merchant system might make extra checks with the customer's own bank computer.
8. The **bank computer** confirms whether the customer has enough funds.
9. The merchant system authorizes the transaction to go ahead, though funds will not be completely transferred until several days later.
10. The order manager confirms that the transaction has been successfully processed and notifies the Web server.
11. The Web server shows the customer a Web page confirming that her order has been processed and the transaction is complete.
12. The order manager sends a request to the warehouse to dispatch the goods to the customer.
13. A truck from a dispatch firm collects the goods from the warehouse and delivers them.
14. Once the goods have been dispatched, the warehouse computer e-mails the customer to confirm that her goods are on their way.
15. The goods are delivered to the customer

All of these things are invisible—"virtual"—to the customer except the computer she sits at and the dispatch truck that arrives at her door.

## **Website Security**

You want your e-commerce website to be safe from hackers. The best websites offer 256-bit Transport Sockets Layer (TLS) encryption, allowing for an end-to-end secure connection across all of the data and transactions on your website. Websites should meet the TLS 1.2 standard and will need to upgrade a browser or operating system (OS) if they currently support TLS 1.0 or TLS 1.1. TLS has replaced Secure Sockets Layer (SSL) as the standard for communications security over a network. From the moment a person accesses your website to the moment that person leaves the website, all of the data is encrypted.

An easy way to implement this is to use **Hypertext Transport Protocol Secure** (HTTPS) instead of plain old HTTP to power your website. Using HTTPS combines Hypertext Markup Language (HTML)

support with TLS. For any sort of online web transaction that needs privacy, HTTPS is an obvious candidate—so much so that, since January 2017, Google Chrome has **flagged** any non-HTTPS site asking for log-in or credit card information as "non-secure."

Additionally, e-commerce software should provide you with a **payment processing tool** that can bring extra security during the cart and payment aspects of a transaction. Products such as **Stripe** tie in with e-commerce tools to provide **Payment Card Industry Data Security Standards** (PCI DSS) compliance, without requiring you to do any additional work on your end.

## **2. Website Performance**

If a customer finds your website to be too slow or your competitor's website to be joyously fast, then you're likely to lose that customer. Your WebPages should load in less than 100 milliseconds (ms). If the website doesn't load in that time, then your e-commerce vendor should already be on the back end working to find a solution before you even notice.

Your e-commerce vendor will likely have technicians on staff who are constantly tracking page load times by using **website monitoring** tools to ensure your website is operating at peak levels. If the WebPages struggle for any reason, then the staff is usually automatically alerted by email or phone that a problem has occurred. Keep in mind: These load times are true across mobile and web, so make sure to keep track of how your website is loading across multiple devices.

## **3. Scale According to Your Needs**

E-commerce services have varying needs for resources depending on the size and load of a store. You'll want to quickly and easily scale your website depending on what happens to your load times as traffic to your page increases.

When your inventory grows quickly or you need to support heavy load activities, such as Flash sales and seasonal deals, you'll need to scale your platform accordingly to handle these needs or risk customers becoming frustrated with your site's performance and clicking over to another store. Monitor traffic and peak user load times to avoid crashes and scale server resources accordingly.



Fortunately, scaling server needs is easy as long as you or your e-commerce site provider is using a cloud provider that's standardized on a reliable **Infrastructure-as-a-Service (IaaS)** platform. Using such a platform, you'll be able to scale your server power to your heart's content with just a few mouse clicks. Even better, you'll only pay for this added muscle for as long as you're using it, unlike working with physical servers where unused power simply goes dark while costing you the same.

#### **4. Think Mobile First**

These days, most e-commerce services help you build out your website on the mobile web before they ever think about a desktop. That's because most content that works on mobile will also render just fine on desktop but not vice versa.

"With consumers shopping on mobile more than ever before, optimizing e-commerce websites for mobile is critical," Anastasiadis said. "From a technical perspective, features that are built with a mobile-first interface can provide merchants with more flexibility and scale."

If you talk to a prospective vendor and it tells you that it's developing "web-first" and converting to mobile later, then you probably want to walk away. Regardless of other factors that make the company attractive, such an outdated philosophy will put your website at a disadvantage from the start.

#### **5. Cloud Hosting**

Your service provider will likely be storing your data in the cloud using big-name providers, such as Amazon, Google, or Microsoft. Find out which service you prefer by researching factors such as backup, **disaster recovery (DR)**, security, and uptime.

If you manage a service yourself, then Amazon, Google, and Microsoft are all very good options, but you may have a preference between the three or even with a different vendor. Picking one of these is critically important as it will be the one responsible for how often your website goes down, whether or not your stored data is safe, and even if you'll be able to access it again if a disaster occurs.

## 6. Website Updates

Your website isn't a "set-it-and-forget-it" proposition. You'll want a vendor that can consistently deliver new code to your website for performance improvements or new features. Unfortunately, some vendors only ship new code once a day or even once every couple of days. You want a vendor that can provide code at any point in the day. This way, you'll never have to wait for problems to be fixed or for shiny new features to go live on your homepage.

However, you'll also want accurate reporting of when these code updates go live, especially if they don't directly concern the front end of your website but are more related to the back-end operations relevant to the provider. Those kinds of features usually roll out just fine, but there's always a chance they could break something on your page, too. You want to know exactly when those updates are happening, preferably with a testing window beforehand. However, if that isn't an option, then you certainly want an accurate deployment schedule so you can do site testing yourself as soon as new code goes live.

## 7. Data Engineering

Ask your prospective e-commerce vendor if it has a dedicated data engineering team on staff who can help you build custom reports about your website's performance. This analysis will help you determine if products are properly placed, if people are abandoning cart too frequently, or if you need a total rethink regarding website navigation.

Sure, most vendors offer out-of-the-box reporting, but if your vendor doesn't have a team available to build custom reports for you, then you'll need to work with a third party to perform this function when it becomes necessary. That's going to cost extra money and add undue hassle for you. The good news is that most companies offer this service in one form or another, and they're constantly updating the tools that surface the analytics.

This capability is also helpful when you start analyzing your site's stats using **business intelligence (BI)** tools such as **Tableau Desktop**. Using a BI tool is a necessity once you require deeper insights into how your customers are behaving on your website, what products or services they're choosing or rejecting, and similar knowledge points. Make sure your provider can help you gather the transactional data necessary to perform this kind of analysis. In addition, customize a data warehousing option in your

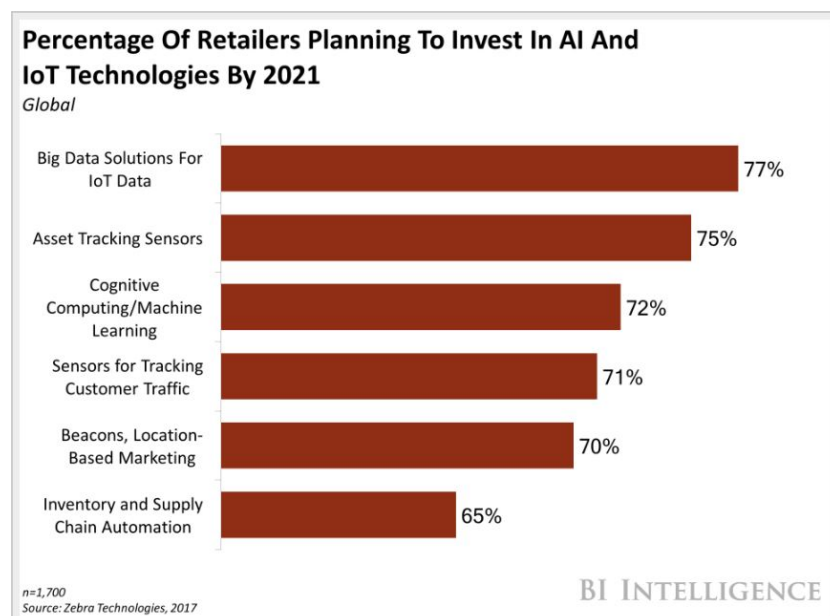
platform to gain more insights. Services such as Shopify offer a fully managed data warehouse for larger merchants in addition to standardized reporting products.

## 8. Third-Party Integrations

Although you might be a tech neophyte, you probably already use a wide variety of software to run your business. The ability to connect all of your tools is crucial for streamlining workflows and optimizing data intelligence. For example, if you run **email marketing** campaigns through **MailChimp**, then combining your marketing and e-commerce platforms ensures that "Thank You" and promotional emails are tied directly back to the website. This allows for greater oversight about who bought what, which promotions worked, and whether or not you can reclaim customers who have abandoned a shopping cart.

Finally, find an e-commerce provider that offers native integrations with as many third-party tools as possible. The more native integrations, the more options you'll have when it comes to expanding your toolset.

## 3.2 Machine Learning And AI in E-commerce ::



Graph 3.2 machine learning and AI in Investment

## **Machine Learning and the Customer Experience**

Machine learning allows ecommerce businesses to create a more personalized customer experience. Today, customers not only prefer to communicate with their favorite brands in a personal way, but they have come to expect personalization.

In fact, a study by Janrain revealed that 73% of customers are fed up with being presented with irrelevant content.

Artificial intelligence and machine learning offer retailers the ability to personalize each interaction with their customers, thus providing them with a better experience.

Through machine learning, retailers can reduce customer service issues before they even occur. As a result, cart abandonment rates should be lower and sales should be higher. And unlike humans, customer service bots are able to provide unbiased solutions around the clock.[4]

## **Machine Learning and Search Results**

Improving search results offers huge payoffs for retailers. Machine learning can improve ecommerce search results every time a customer shops on the website, taking into account personal preferences and purchase history.

Instead of using traditional search methods like keyword matching, machine learning can generate a search ranking based on relevance for that particular user.

This is especially important for giants such as eBay. With over 800 million items listed, the retailer is taking full advantage of artificial intelligence and data to predict and display the most relevant search results.

## **Artificial Intelligence and Retargeting**

Omnichannel is the new normal for retail, so you can expect artificial intelligence to use not only customers' digital data, but also analyze their in-store behavior.

Once upon a time, security cameras were only supposed to keep shoplifters away, but soon, with the help of face recognition algorithms, you may start seeing ads online for that new fridge you checked out in store.

## **Visual Discovery Will Replace Keyword Search**

Pinterest Lens is a service that works like a Shazam for real world objects: you just point your camera at the desired item and the algorithm will find it online. This idea is based on the fact that we don't always know what we are searching for or how to describe it.

Adobe, together with UC Berkeley researchers, has even developed an image-editing tool that can turn sketches into realistic images that you can then use for visual search.

### **Artificial Intelligence and Product Recommendations**

Machine learning can be used to recommend ecommerce products according to various patterns in shopping behavior, which will help you increase your conversion rates. By analyzing customer data from different channels, the algorithm can identify behavior and purchasing patterns which can be used to predict what your customers actually want.

Personal shoppers have always been associated with high-end consumers, but thanks to artificial intelligence, everyone can take advantage of virtual ones.

Outdoor product company The North Face has built its own virtual personal shopper using the IBM Watson platform. The service uses customers' vocal queries, shopping needs and travel plans as input and recommends items that not only meet customers' criteria, but are also suitable for the location the customer plans to use them—even taking into account the weather forecast.

### **Artificial Neural Networks Will Guide Marketing**

Neural networks can learn from experience, recognize patterns and predict trends, so they can be used to find out what people respond to, what should be changed and what should be eliminated from a marketing campaign.

Microsoft was able to increase direct mailing open rate from 4.9% to 8.2% by using BrainMaker, a neural network software to maximize returns on a marketing campaign.

### **Machine Learning Can Eliminate Fraud**

The more data you have, the easier it is to spot anomalies. Therefore, you can use machine learning to identify patterns in data, learn what is 'normal' and what is not and get notified when something is wrong.

The most common application for this would be fraud detection. Retailers are often faced with customers who buy large amounts using stolen cards or retract their payments after the items have already been delivered.

### **Machine Learning and Ecommerce Targeting**

Unlike in a brick-and-mortar store where you can talk to your customers to find out what they want or need, online shops are hit with huge amounts of customer data.

As a result, customer segmentation becomes extremely important for e-commerce, as it allows companies to adapt their communication strategies for every customer. Machine learning can be used to understand your customer's needs and create a personalized shopping experience.

### **Machine Learning and Price Optimization**

Machine learning algorithms can help you not only collect information regarding pricing trends, your competitors' prices and demand for various items, but it can combine this information with customer behavior to determine the best price for each of your products.

Optimizing your prices will help you satisfy your clients as well as increase your ROAS.

## **3.3 USP In E-Commerce**

### **What is a Unique Selling Proposition (USP)?**

The unique selling proposition, or unique selling point (USP), is a marketing concept that refers to any factor or aspect of an object or service that differentiates it from competition and highlights its unique benefits to consumers. A USP answers the question “how is your product better than that of your competitors?”.

The conversion funnel is a tool used by ecommerce professionals to help optimize the usability of their online assets. This is achieved by monitoring and analyzing the path to conversion through a set of core stages to see if there are any roadblocks to completing a transaction. When I say online assets, I am typically referring to any standard website, mobile site, responsive design site or anything else that has multiple unique steps involved in the path to transaction. [3]



Graph 3.3. conversion funnel percentage

The ecommerce conversion funnel monitors all stages on the path to a completed transaction. It doesn't have to be a transaction per se, it can be any goal which you wish your visitors to complete, like signing up to your blog, which if you are using inbound marketing as a strategy, could be of great importance.

However, I digress! Traditionally, the most common use is focused on a completed transaction as the end goal or conversion. This is defined as when the consumer has been through the checkout, entered their billing details and paid for their basket of goods.

### 3.4 Recommendation System in E-commerce :

#### The 3 ways they recommend products to you

**Collaborative filtering** is based on two types of assumptions:

- One assumption is called **user-user filtering**: if *Susan* liked *half sleeved blouses, ankle length trousers and brogues* and *Margot* liked *ankle length trousers, brogues and chino pants*, then it is highly likely that *Susan* will also like *chino pants* and *Margot* will like *half sleeved blouses*.
- The other assumption is called **item-item filtering**: It finds items that have some common underlying features. It then recommends look alike products to you. For instance, you buying protein shakes would prompt the recommender system to offer a shaker.[4]

**Content based filtering** builds user profiles based on what user liked or bought and offers similar products in the future. For example, this can be used in recommending similar types of movies or songs.

**Hybrid filtering** uses elements of both content and collaborative based filtering and are more accurate in nature when it comes to performance. Netflix uses this approach by comparing the watching habits of users (collaborative) and offering movies that have similar traits (content).

## **Recommender engines you can use for your site**

You probably understand by now the various advantages of using a recommender system for your own e-commerce website. It can increase your revenue and provide a great customer experience. What are some of the available recommender systems?

**Software as a Service(SaaS) Recommender Systems:** Instead of having a large upfront investment, you can pay as you use in a SaaS model. The integration is usually straightforward and there are continuous cycles of improvement. Some SaaS recommender systems are:

- Suggest Grid is a generic recommender system that can be used to recommend products and content to users.
- Episerver is more e-commerce centric and automatically recommends product and content items based on a visitor's past behavior, and the behavior of visitors similar to them.
- SLI Systems delivers personalization with proven up sell and cross-sell results. Their cloud-based, artificial intelligence platform predicts what your shopper is most likely to buy right now.

## **End Notes**

Using a recommender system on your site is bound to drive up your sales, engage your customers in a better way and can help in building customer loyalty.

### **3.5 Advantages :**

- Faster buying/selling procedure, as well as easy to find products.
- Buying/selling 24/7.
- More reach to customers, there is no theoretical geographic limitations.
- Low operational costs and better quality of services.
- No need of physical company set-ups.
- Easy to start and manage a business.
- Customers can easily select products from different providers without moving around physically.



### 3.6 Disadvantages :

- Any one, good or bad, can easily start a business. And there are many bad sites which eat up customers' money.
- There is no guarantee of product quality.
- Mechanical failures can cause unpredictable effects on the total processes.
- As there is minimum chance of direct customer to company interactions, customer loyalty is always on a check.
- There are many hackers who look for opportunities, and thus an ecommerce site, service, payment gateways, all are always prone to attack.

## **4.CONCLUSIONS**

### **4.1 Applications**

#### **Retail & wholesale**

There are numerous applications for retail as well as wholesale in the case of e-commerce. Here comes e-retailing or may be called as online retailing. This refers to the selling of goods and other services through electronic stores from business to consumers. These are designed and equipped using a shopping cart model and electronic catalog.

#### **Marketing**

Using web and e-commerce, data collection about the following are possible

- 1.Preferences
- 2.Behavior
- 3.Needs
4. Buying patterns

The marketing activities like price fixing, product feature, and its enhancement, negotiation, and the relationship with the customer can be made using these.

#### **Finance**

ecommerce is being used by the financial companies to a large extent. By the name finance, we know that there will be customers and transactions. The customers can check the balance in their savings account, as well as their loan account. There are features like transferring of money from and to their own accounts, paying off bills online and also e-banking. Online stock trading is also another feature of e-commerce.

#### **Manufacturing**

ecommerce is included and used in the chain operations (supply) of a company. There are companies that form the electronic exchange. This is by providing buying and selling items together, trading market

information and the information of runback office like inventory control. This is a way that speeds up the flow of finished goods and the raw materials among the business community members.

### **Auctions**

ecommerce customer to customer is direct selling of goods among customers. It includes electronic auctions that involve bidding system. Bidding allows prospective buyers to bid an item. In Airline Company they give bidding opportunity for customers to quote the price for a seat on a specific route, date and time.

### **Entertainment**

ecommerce application is widely used in entertainment area also for video cataloging, multiplayer games, interactive ads and for online discussion.

### **Education**

In educational training also e-commerce has a major role in interactive education, video conferencing, online class and for connecting different educational training centers.

## **4.2 Conclusions ::**

In general, today's businesses must always strive to create the next best thing that consumers will want because consumers continue to desire their products, services etc. to continuously be better, faster, and cheaper. In this world of new technology, businesses need to accommodate to the new types of consumer needs and trends because it will prove to be vital to their business' success and survival. E-commerce is continuously progressing and is becoming more and more important to businesses as technology continues to advance and is something that should be taken advantage of and implemented.

From the inception of the Internet and e-commerce, the possibilities have become endless for both businesses and consumers. Creating more opportunities for profit and advancements for businesses, while creating more options for consumers. However, just like anything else, e-commerce has its disadvantages including consumer uncertainties, but nothing that cannot be resolved or avoided by good decision-making and business practices.

There are several factors and variables that need to be considered and decided upon when starting an e-commerce business. Some of these include: types of e-commerce, marketing strategies, and countless more. If the correct methods and practices are followed, a business will prosper in an e-commerce setting with much success and profitability.

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### **Signature of Student**

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