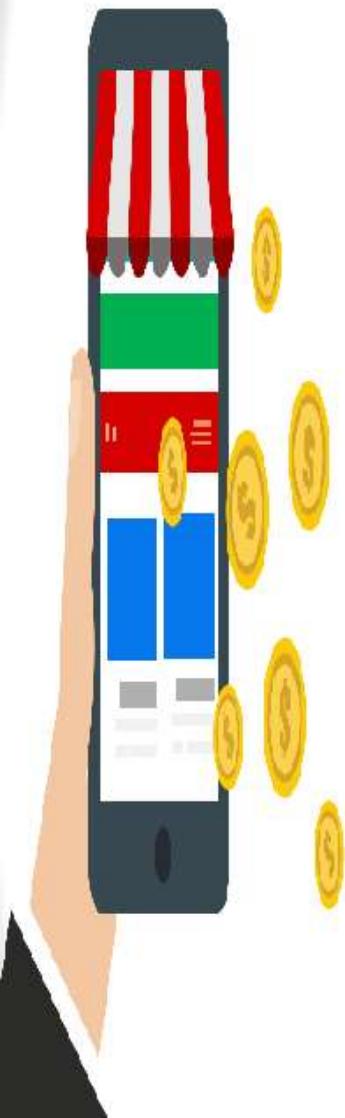
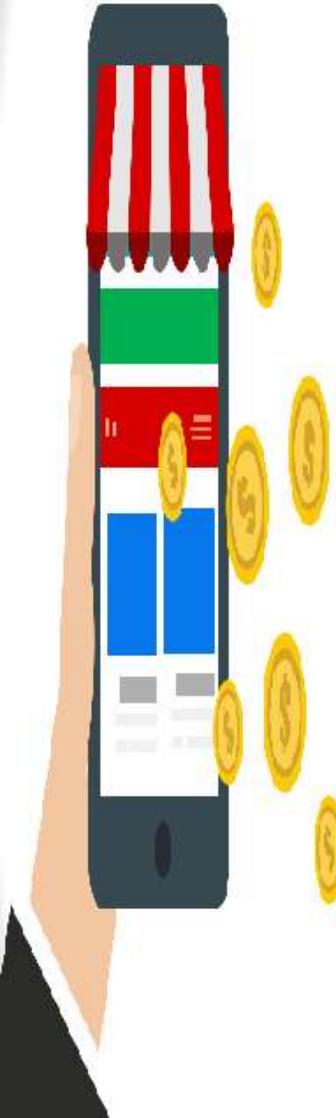


# E-Commerce

Dr. Rastgoo



# The Biggest Ecommerce Challenges & Solutions to solve them



## 10 E-COMMERCE CHALLENGES & SOLUTIONS



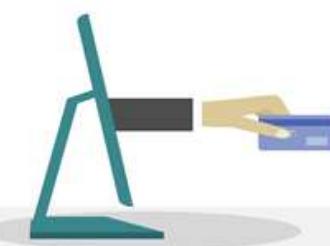
1. CYBER & DATA SECURITY

2. CONVERTING SHOPPERS INTO PAYING CUSTOMERS



3. ATTRACTING THE PERFECT CUSTOMER

4. CUSTOMER EXPERIENCE



6. ONLINE IDENTITY VERIFICATION



7. COMPETITION & COMPETITOR ANALYSIS

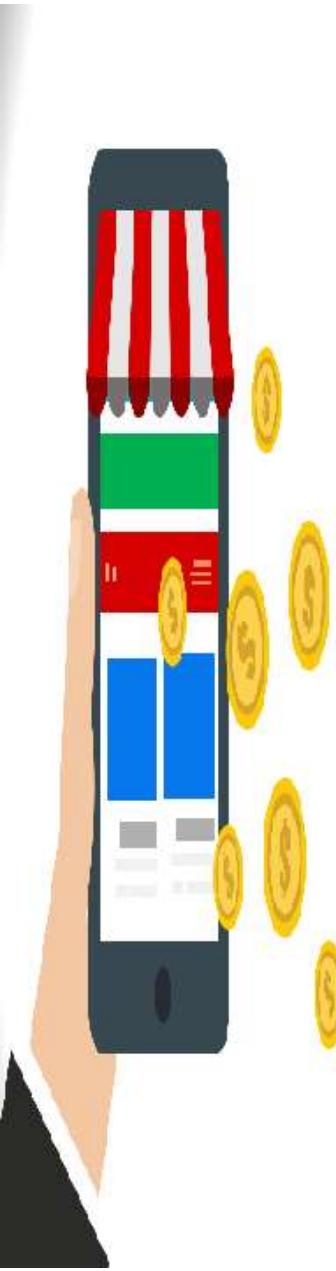
8. PRICE & SHIPPING



9. PRODUCT RETURN & REFUND POLICIES

10. FINDING THE RIGHT TECH PARTNERS

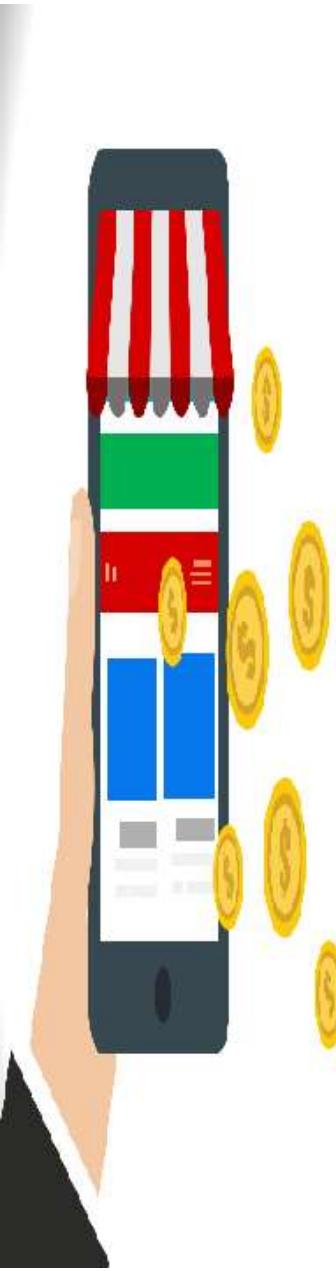




## The Biggest Ecommerce Challenges & Solutions to solve them: 1. Cyber & Data Security

- When it comes to eCommerce, one of the **biggest** challenges faced is **security** breaches.
- There is a lot of information/data that is involved while dealing with eCommerce and a technical issue with data can cause severe damage to the retailer's daily operations as well as brand image.

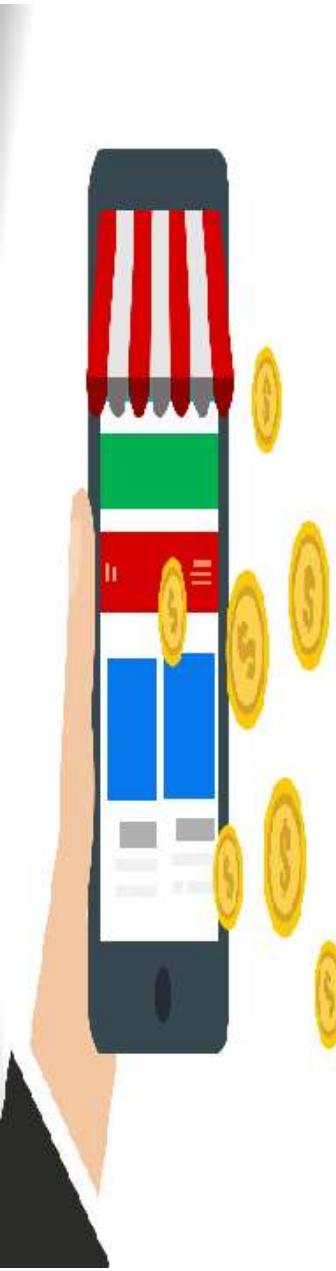




## The Biggest Ecommerce Challenges & Solutions to solve them: 1. Cyber & Data Security: What is e-commerce security?

- E-commerce security is the **protection** of e-commerce assets from unauthorized access, use, alteration, or destruction.
- Six dimensions of e-commerce security:
- 1. Integrity: prevention against unauthorized data modification
- 2. Nonrepudiation: prevention against any one party from reneging on an agreement after the fact

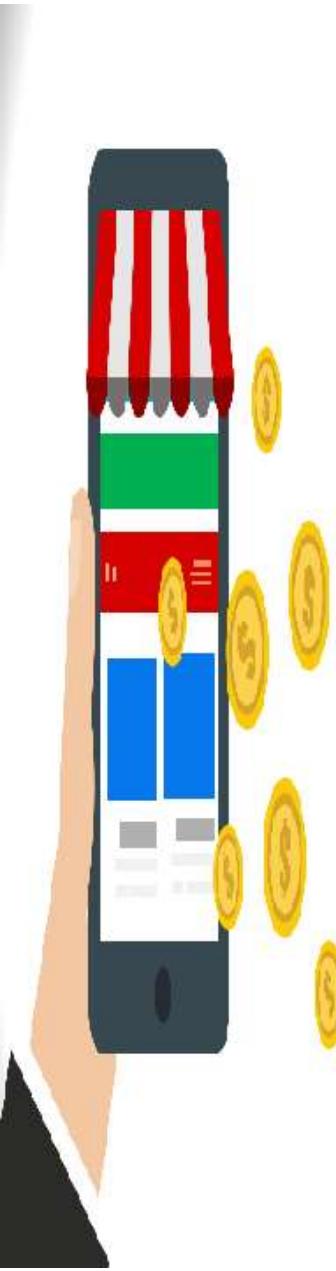




## The Biggest Ecommerce Challenges in 2021 & Solutions to solve them: 1. Cyber & Data Security: What is e-commerce security?

- 3. Authenticity: authentication of data source
- 4. Confidentiality: protection against unauthorized data disclosure
- 5. Privacy: provision of data control and disclosure
- 6. Availability: prevention against data delays or removal

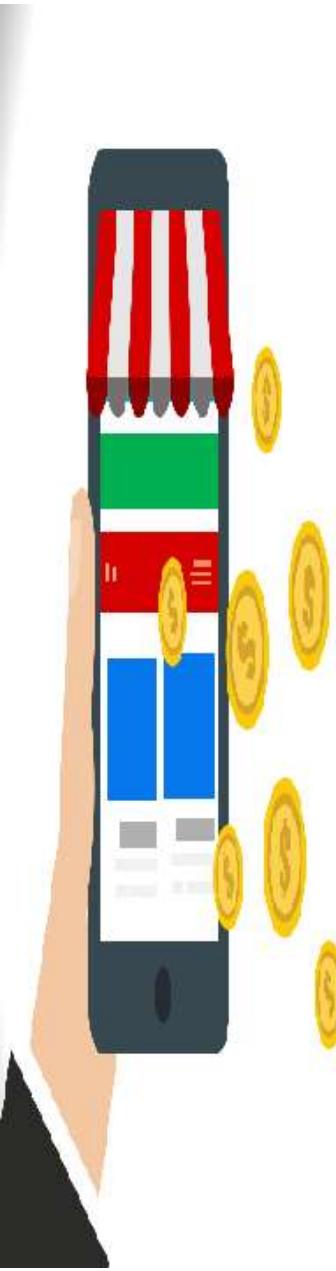




## The Biggest Ecommerce Challenges in 2021 & Solutions to solve them: 1. Cyber & Data Security: E-Commerce threats!

- **Threats:** anyone with the capability, technology, opportunity, and intent to do harm.
- Potential threats can be foreign or domestic, internal or external, state-sponsored or a single rogue element.
- Terrorists, insiders, disgruntled employees, and hackers are included in this profile.

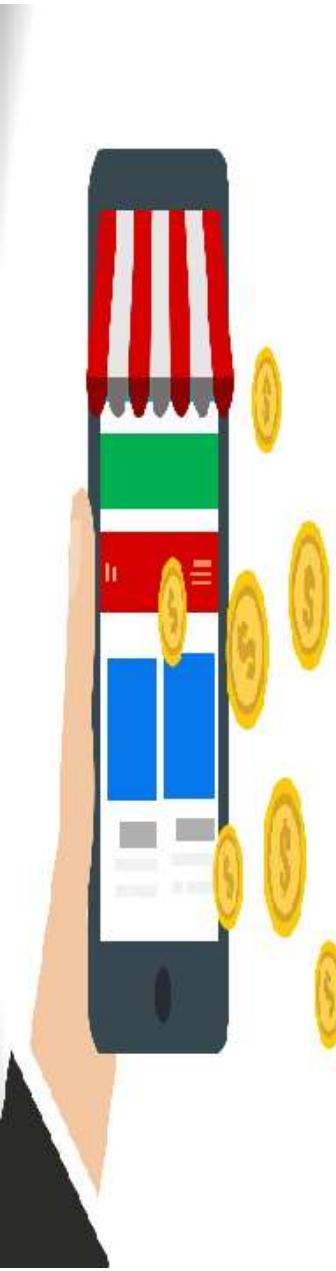




## The Biggest Ecommerce Challenges in 2021 & Solutions to solve them: 1. Cyber & Data Security: E-Commerce threats!

Concern	2001	2000
Loss of Privacy/confidentiality, data misuse/abuse	28%	25%
Cracking, eavesdropping, spoofing, rootkits	25%	20%
Viruses, Trojans, worms, hostile ActiveX and Java	21%	26%
System unavailability, denial of service, natural disasters, power interruptions	18%	20%

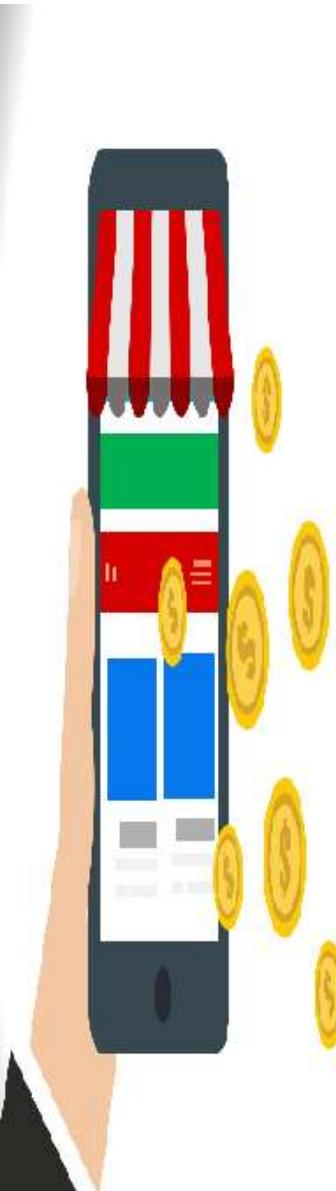




## The Biggest Ecommerce Challenges in 2021 & Solutions to solve them: 1. Cyber & Data Security: E-Commerce threats!

- 1. Intellectual property threats -- use existing materials found on the Internet without the owner's permission, e.g., music downloading, domain name (cybersquatting), software pirating
- 2. Client computer threats
  - – Trojan horse
  - – Active contents
  - – Viruses

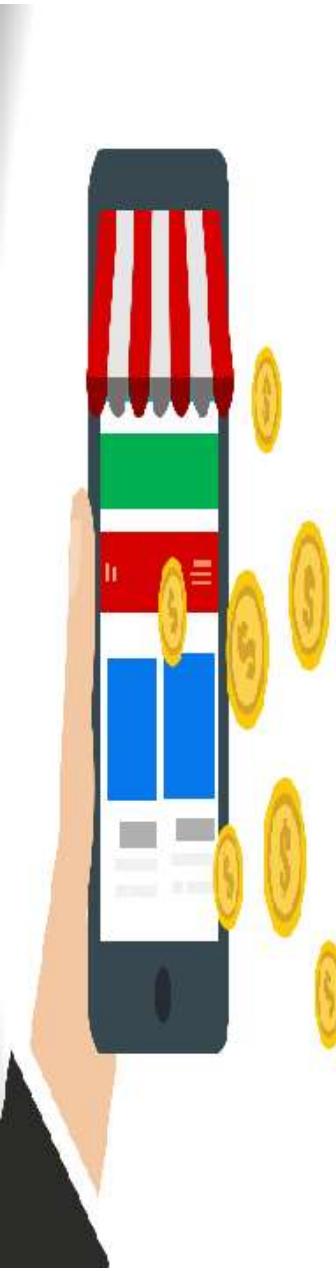




## The Biggest Ecommerce Challenges in 2021 & Solutions to solve them: 1. Cyber & Data Security: E-Commerce threats!

- 3. Communication channel threats
  - – Sniffer program
  - – Backdoor
  - – Spoofing
  - – Denial-of-service

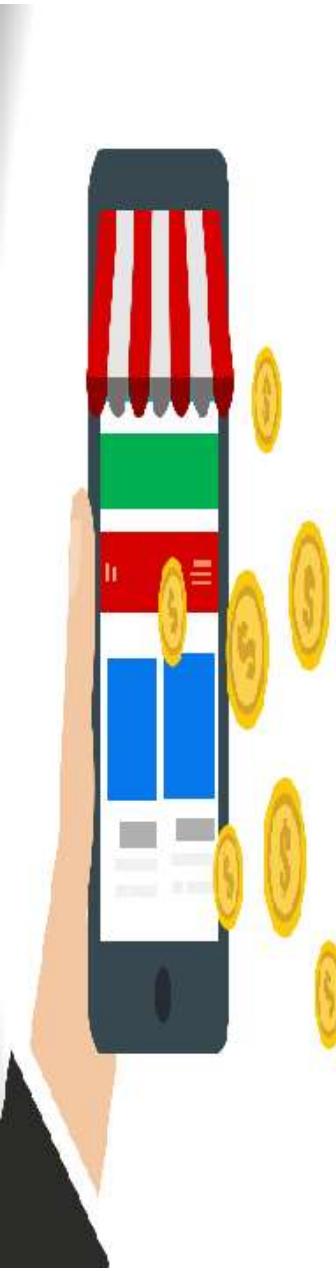




## The Biggest Ecommerce Challenges in 2021 & Solutions to solve them: 1. Cyber & Data Security: E-Commerce threats!

- 4. Server threats
- – Privilege setting
- – Server Side Include (SSI), Common Gateway Interface (CGI)
- – File transfer
- – Spamming

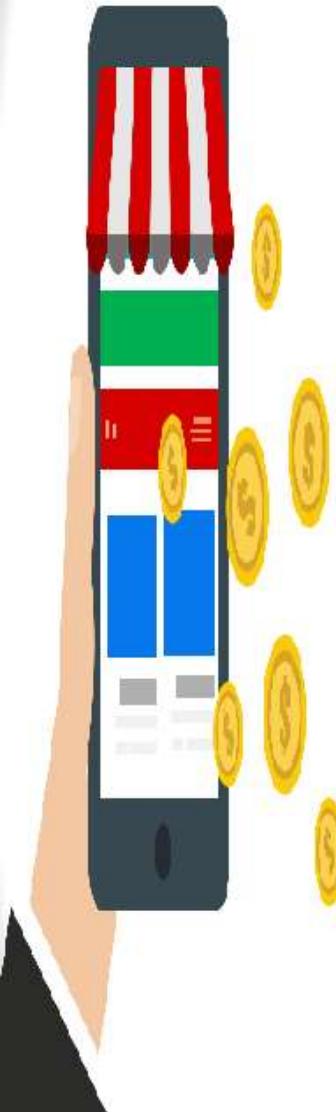




## The Biggest Ecommerce Challenges in 2021 & Solutions to solve them: 1. Cyber & Data Security: Countermeasure!

- A procedure that recognizes, reduces, or eliminates a threat
- 1. Intellectual property protection
  - – Legislature
  - – Authentication

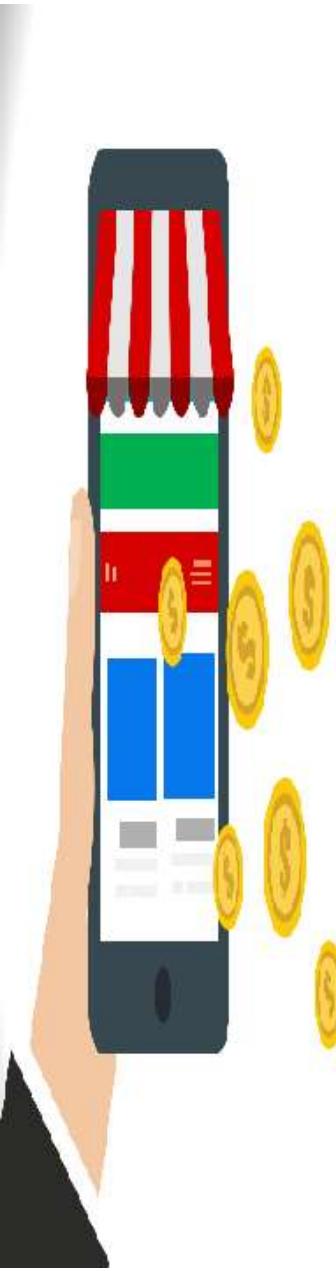




## The Biggest Ecommerce Challenges in 2021 & Solutions to solve them: 1. Cyber & Data Security: Countermeasure!

- 2. Client computer protection
  - – Privacy -- Cookie blockers; Anonymizer
  - – Digital certificate
  - – Browser protection
  - – Antivirus software
  - – Computer forensics expert

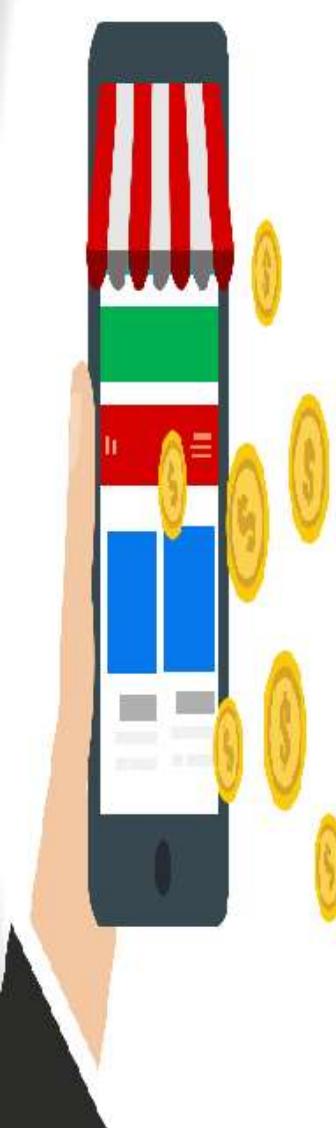




## The Biggest Ecommerce Challenges in 2021 & Solutions to solve them: 1. Cyber & Data Security: Countermeasure!

- 3. Communication channel protection
- Encryption
  - Public-key encryption (asymmetric) vs Private-key encryption (symmetric)
  - Encryption standard: Data Encryption Standard (DES), Advanced Encryption Standard (AES)

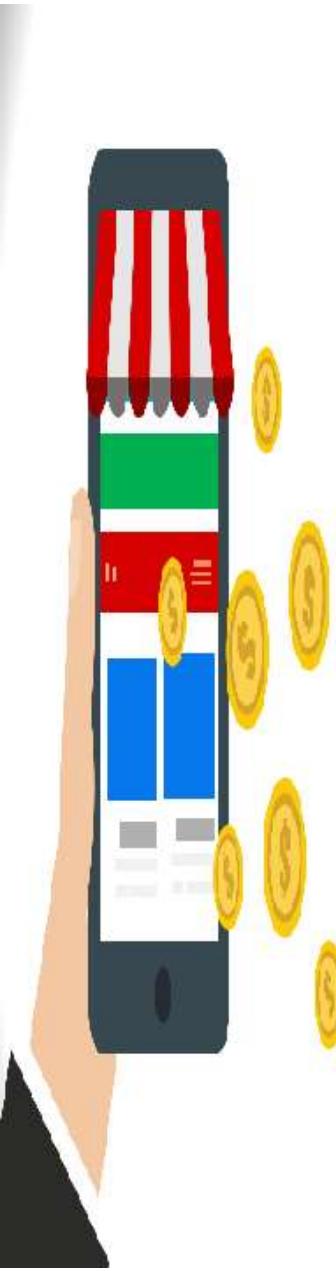




## The Biggest Ecommerce Challenges in 2021 & Solutions to solve them: 1. Cyber & Data Security: Countermeasure!

- Protocol
- Secure Sockets Layer (SSL)
- Secure HyperText Transfer Protocol (S-HTTP)
- Digital signature

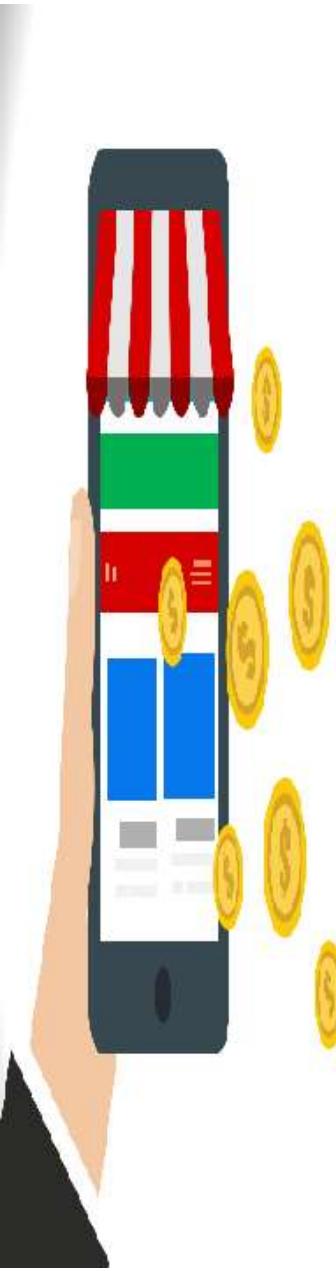




## The Biggest Ecommerce Challenges in 2021 & Solutions to solve them: 1. Cyber & Data Security: Countermeasure!

- Bind the message originator with the exact contents of the message
- –A **hash function** is used to transform messages into a 128-bit digest (message digest).
- –The sender's private key is used to encrypt the message digest (digital signature)
- –The message + signature are sent to the receiver
- –The recipient uses the hash function to recalculate the message digest
- –The sender's public key is used to decrypt the message digest
- –Check to see if the recalculated message digest = decrypted message digest

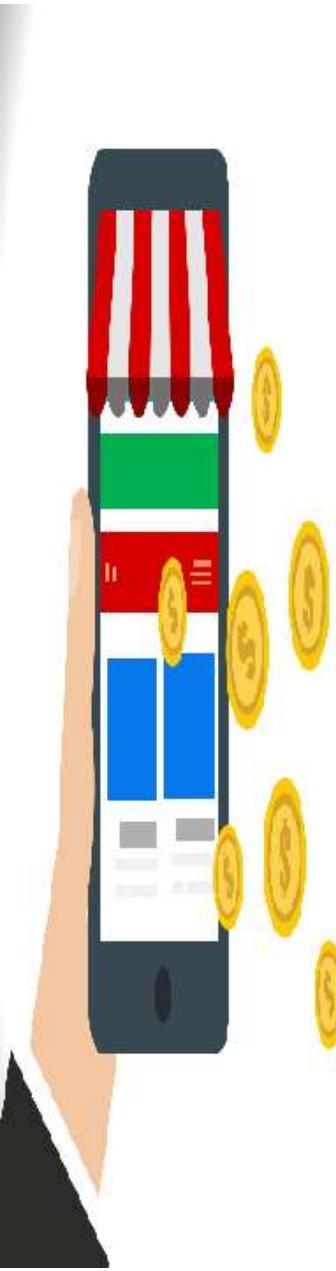




## The Biggest Ecommerce Challenges in 2021 & Solutions to solve them: 1. Cyber & Data Security: Countermeasure!

- 4. Server protection
- Access control and authentication
- Digital signature from user
- Username and password
- Access control list
- Firewalls

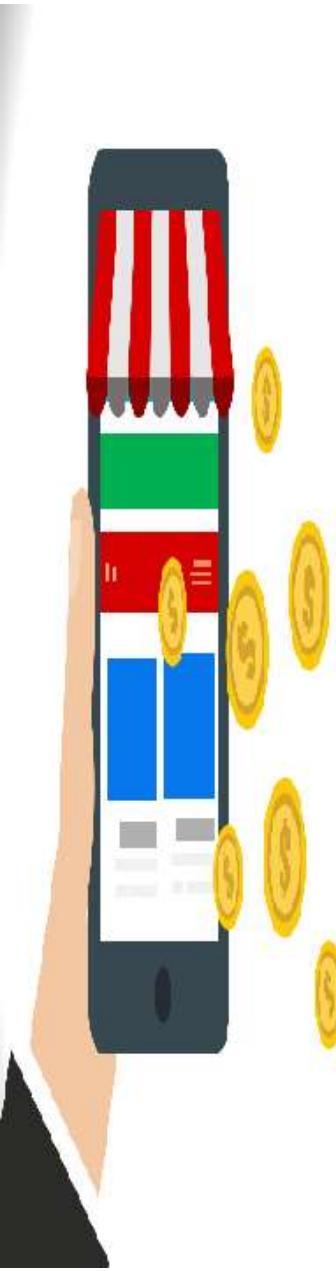




## The Biggest Ecommerce Challenges in 2021 & Solutions to solve them: 1. Cyber & Data Security: Countermeasure!

- International Computer Security Association's classification:
- **Packet filter firewall**: checks IP address of incoming packet and rejects anything that does not match the list of trusted addresses (prone to IP spoofing)
- **Application level proxy server**: examines the application used for each individual IP packet (e.g., HTTP, FTP) to verify its authenticity.
- **Stateful packet inspection**: examines all parts of the IP packet to determine whether or not to accept or reject the requested communication.

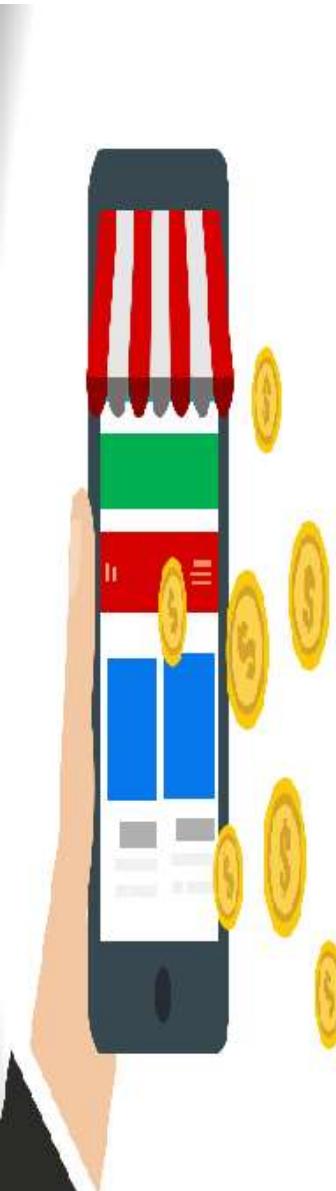




## The Biggest Ecommerce Challenges in 2021 & Solutions to solve them: 1. Cyber & Data Security: How to minimize security threats!

- 1. Perform a **risk assessment** as a list of information assets and their value to the firm
- 2. Develop a security policy à a written statement on:
  - \* what assets to protect from whom?
  - \* why these assets are being protected?
  - \* who is responsible for what protection?
  - \* which behaviors are acceptable and unacceptable?

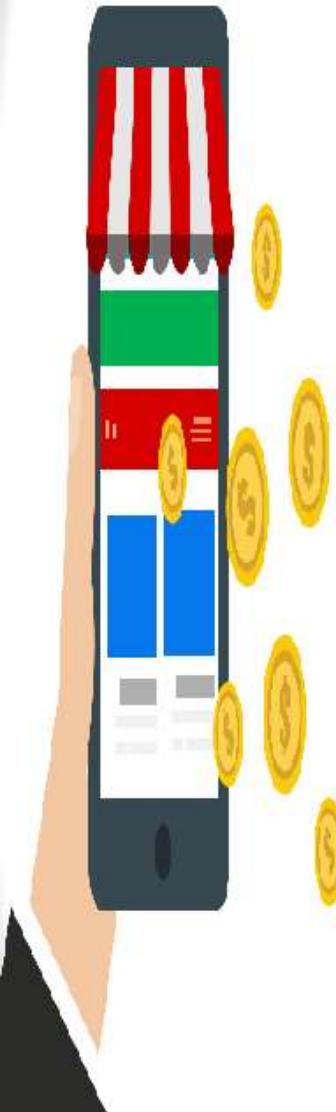




## The Biggest Ecommerce Challenges in 2021 & Solutions to solve them: 1. Cyber & Data Security: How to minimize security threats!

- 3. Develop an implementation plan as **a set of action steps** to achieve security goals
- 4. Create a security **organization** as a unit to administer the security policy
- 5. Perform a security audit as a routine **review** of access logs and evaluation of security procedures

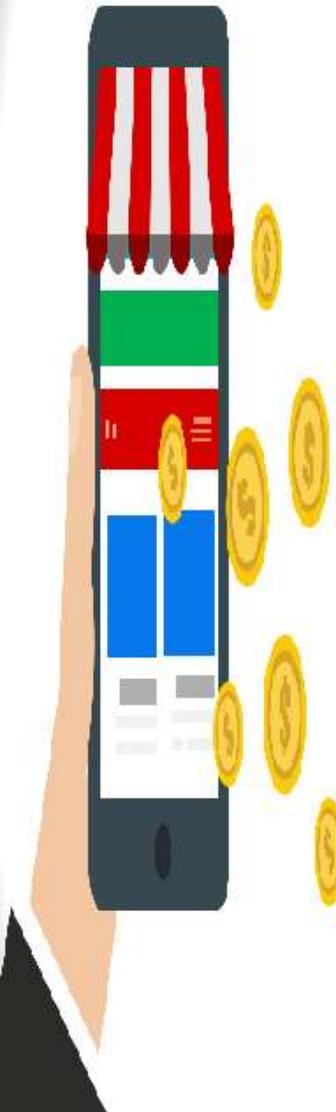




## The Biggest Ecommerce Challenges in 2021 & Solutions to solve them: 1. Cyber & Data Security: Electronic payment systems!

- A medium of payment between remote buyers and sellers in cyberspace: electronic **cash**, **software wallets**, **smart cards**, credit/debit cards.





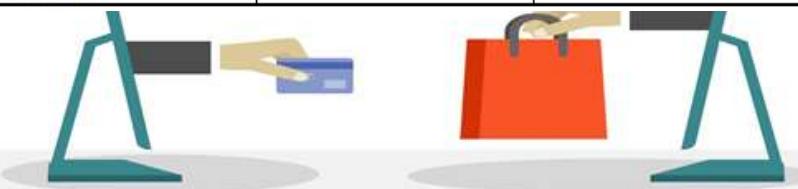
## The Biggest Ecommerce Challenges in 2021 & Solutions to solve them: 1. Cyber & Data Security: Offline payment methods!

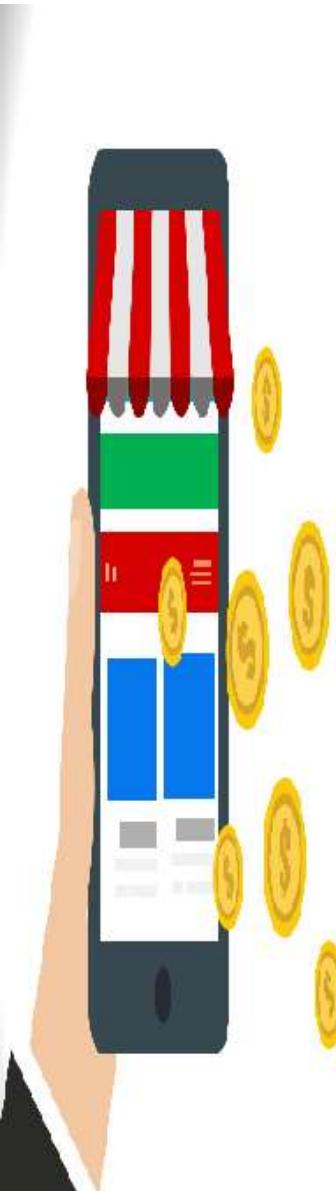
- Number of transactions: cash (42%), check (32%), credit card (18%)
- Dollar amount: check(52%), credit card (21%), cash (17%)



# The Biggest Ecommerce Challenges in 2021 & Solutions to solve them: 1. Cyber & Data Security: Offline payment methods!

Payment systems	Properties	Costs	Advantages	Disadvantages
Electronic cash e.g., <a href="#">PayPal</a>	<ul style="list-style-type: none"> <li>– 31% of US population do not have credit cards</li> <li>– micropayments (&lt; \$10)</li> <li>– Independent</li> <li>– Portable</li> <li>– Divisible</li> </ul>	<ul style="list-style-type: none"> <li>– Internet cash transfer: no fixed cost of hardware</li> <li>– No distance costs</li> <li>– Small processing fee to banks</li> </ul>	<ul style="list-style-type: none"> <li>– Efficient</li> <li>– Less costly</li> </ul>	<ul style="list-style-type: none"> <li>– Money laundering</li> <li>– Forgery</li> <li>– Low acceptance</li> <li>– Multiple standards</li> </ul>
Electronic wallets e.g., <a href="#">Passport</a>	<ul style="list-style-type: none"> <li>– Stores shipping &amp; billing information</li> <li>– Encrypted digital certificate</li> </ul>	<ul style="list-style-type: none"> <li>– Lengthy download for client-side wallets</li> </ul>	<ul style="list-style-type: none"> <li>– Enter information into checkout forms automatically</li> </ul>	<ul style="list-style-type: none"> <li>– Client-side wallets are not portable</li> <li>– Privacy issue for server-side wallets</li> </ul>
Smart cards e.g., <a href="#">Blue</a>	<ul style="list-style-type: none"> <li>– Embedded microchip storing encrypted personal information</li> </ul>	<ul style="list-style-type: none"> <li>– Time value of money</li> </ul>	<ul style="list-style-type: none"> <li>– Convenience</li> </ul>	<ul style="list-style-type: none"> <li>– Need a card reader</li> <li>– Card theft</li> <li>– Low acceptance</li> </ul>
Credit cards e.g., <a href="#">VeriSign</a>	<ul style="list-style-type: none"> <li>– Line of credit</li> <li>– Purchase dispute protection</li> <li>– Secure Electronic Transaction (SET) Protocol</li> </ul>	<ul style="list-style-type: none"> <li>– Unpaid balance charge</li> <li>– \$50 limit on frauds</li> <li>– Processing fee</li> </ul>	<ul style="list-style-type: none"> <li>– Most popular</li> <li>– Worldwide acceptance</li> </ul>	<ul style="list-style-type: none"> <li>– Costly</li> </ul>

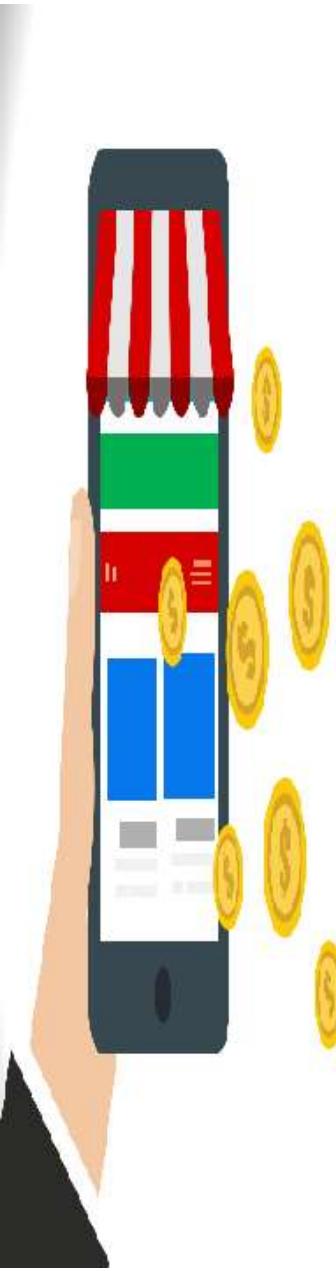




## The Biggest Ecommerce Challenges in 2021 & Solutions to solve them: 1. Cyber & Data Security: Security requirements!

- 1. Authentication of merchant and consumer
- 2. Confidentiality of data
- 3. Integrity of data
- 4. Non-repudiation



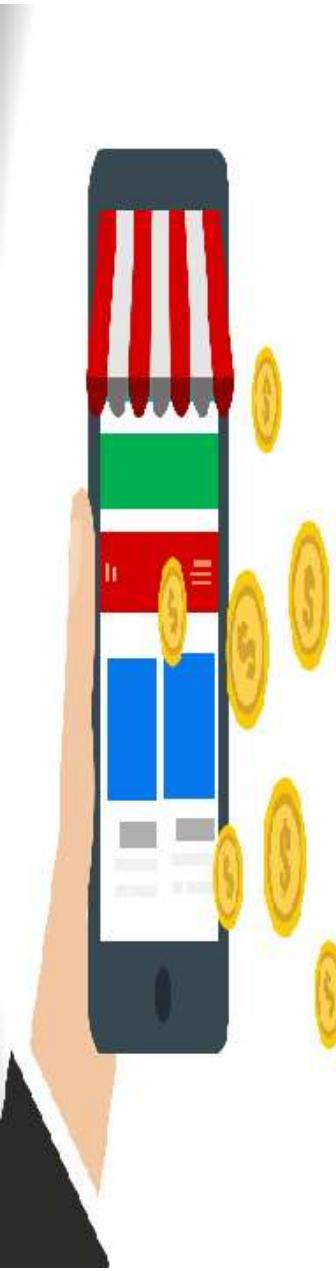


## The Biggest Ecommerce Challenges in 2021 & Solutions to solve them: 1. Cyber & Data Security: Security measures!

- 1. Secure Electronic Transaction (SET) protocol: developed jointly by **MasterCard** and **Visa** with the goal of providing a secure payment environment for the transmission of credit card data.

Features	SSL	SET
Encryption of data during transmission	Yes	Yes
Confirmation of message integrity	Yes	Yes
Authentication of merchant	Yes	Yes
Authentication of consumer	No	Yes
Transmission of specific data only on a "need know" basis	No	Yes
Inclusion of bank or trusted third party in transaction	No	Yes
No need for merchant to secure credit card data internally	No	Yes

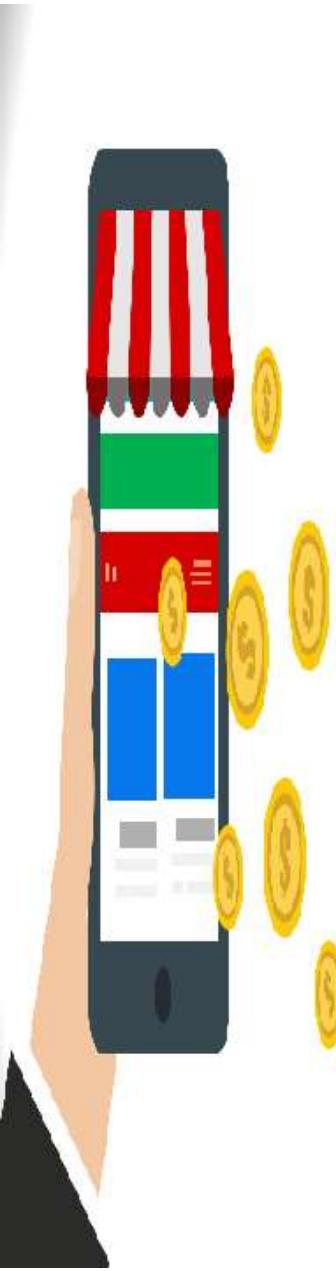




## The Biggest Ecommerce Challenges in 2021 & Solutions to solve them: 1. Cyber & Data Security: Security measures!

- SET payment transaction:
- A shopper makes a purchase and transmits encrypted billing information with his/her digital certificate to the merchant.
- The merchant transfers the SET-coded transaction to a payment card-processing center.
- The processing center decrypts the transaction.

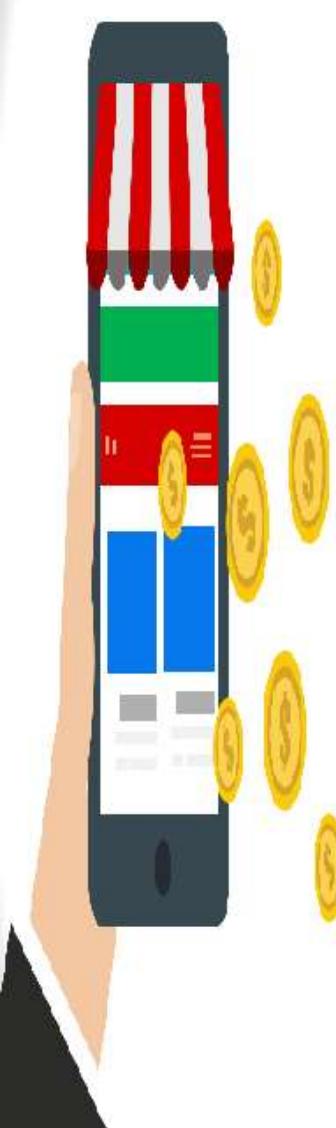




## The Biggest Ecommerce Challenges in 2021 & Solutions to solve them: 1. Cyber & Data Security: Security measures!

- A certification authority certifies the digital certificate as belonging to the shopper.
- The processing center routes the transaction to the shopper's bank for approval.
- The merchant receives notification from the shopper's bank that the transaction is approved.
- The shopper's payment card account is charged for the transaction amount.
- The merchant ships the merchandize and transmits the transaction amount to the merchant's bank for deposit.

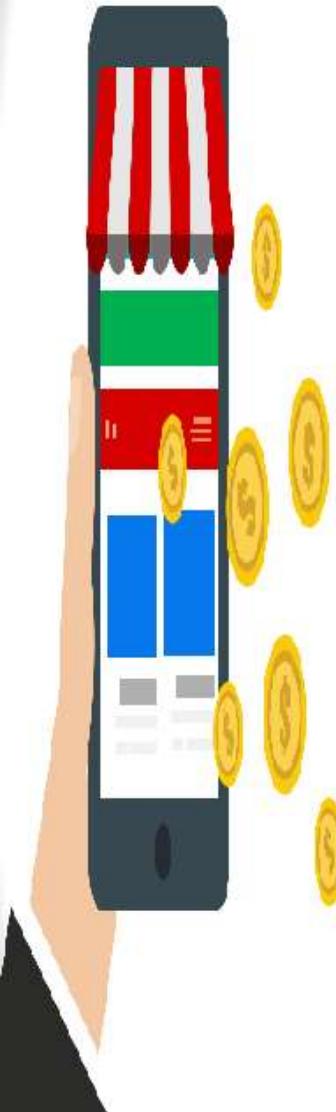




## The Biggest Ecommerce Challenges in 2021 & Solutions to solve them: 1. Cyber & Data Security: Security measures!

- 2. Disposable credit numbers: **one-time-use credit card numbers** (private payment number) are transmitted to the merchant
  - – Register with American Express or Discover
  - – Download software (a Private Payment icon tray will be displayed on the screen)
  - – Shop online

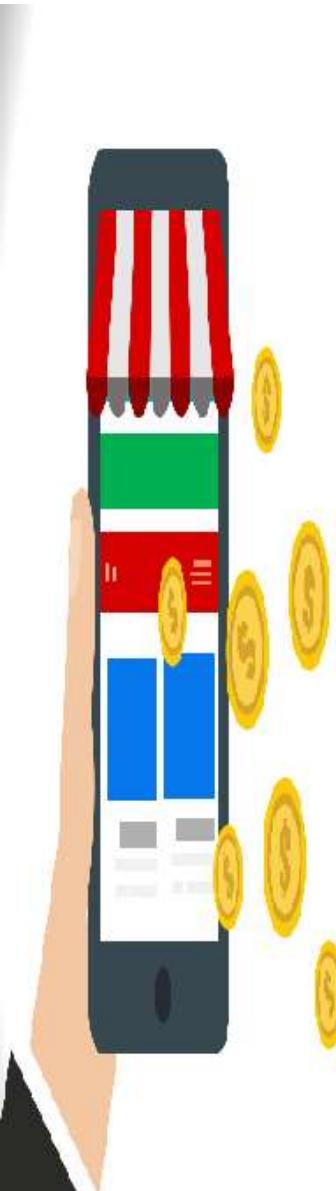




## The Biggest Ecommerce Challenges in 2021 & Solutions to solve them: 1. Cyber & Data Security: Security measures!

- – Click on the Private Payment icon
- – Log-in
- – Select the credit card to be used
- – View unique, one-time-use credit card number and expiration date
- – Enter the one-time-used credit card number and expiration date into merchant's standard form

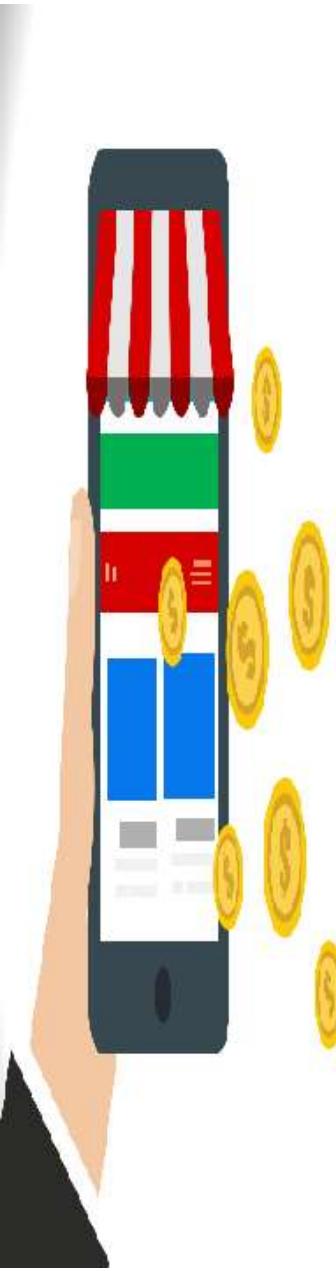




## The Biggest Ecommerce Challenges in 2021 & Solutions to solve them: 1. Cyber & Data Security

- **Solution:** Be vigilant and always [back up](#) your data.
- Post that, you can [install security plugins](#) onto your website to prevent it from getting hacked. There are several plugins out there, pick one that works best for your eCommerce website.

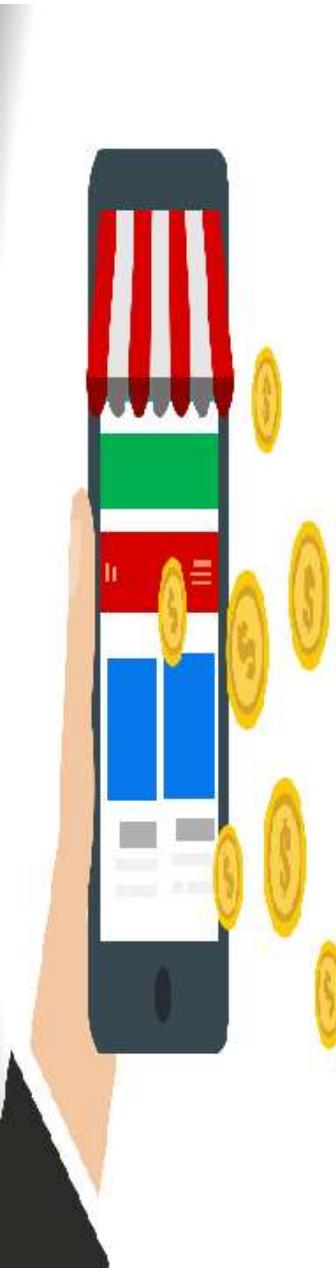




## The Biggest Ecommerce Challenges in 2021 & Solutions to solve them: 2. Online Identity Verification!

- When a shopper visits an eCommerce site, how would the retailer know if the person is **who** they say they are? Is the shopper entering **accurate information**? Is the shopper genuinely interested in the eCommerce products?
- If you do not have the accurate details or information, how do you proceed? Well, it does become tricky. The solution would be to invest in **online identity verification**.

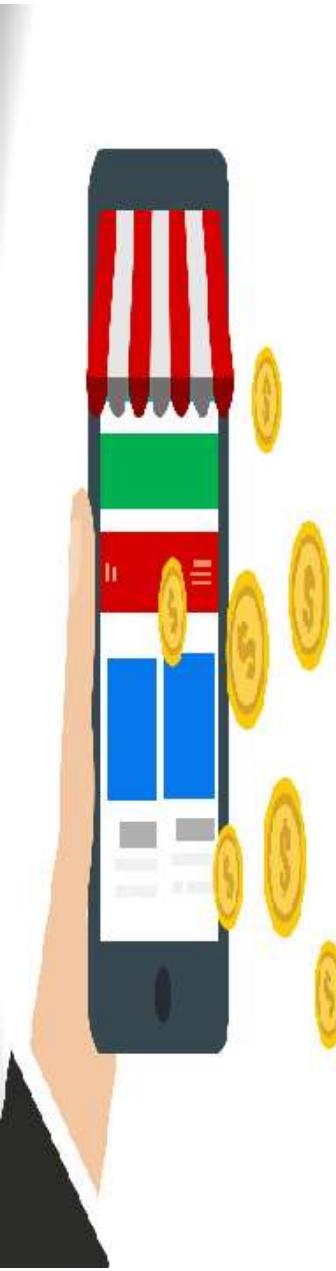




## The Biggest Ecommerce Challenges in 2021 & Solutions to solve them: 2. Online Identity Verification!

- **Solution:** There are different ways to incorporate online identity verification. Some examples include **biometrics**, **AI**, **one time password**, **two-factor authentication** and so on.

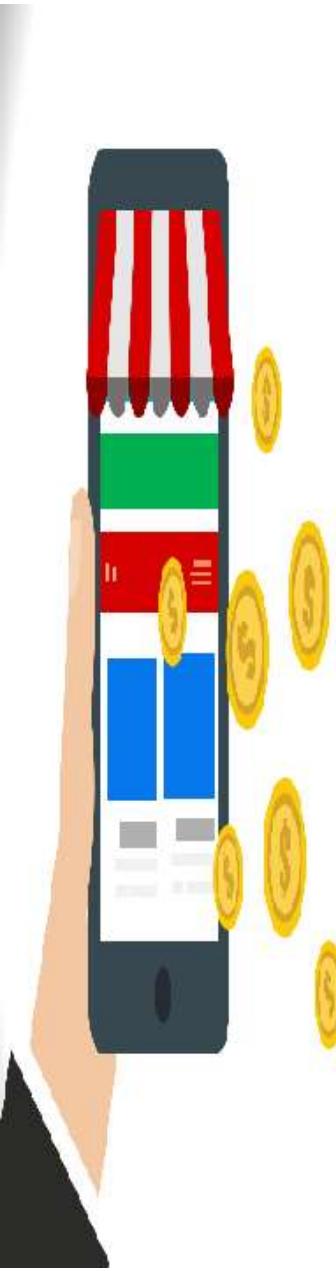




## The Biggest Ecommerce Challenges in 2021 & Solutions to solve them: 3. Attracting the Perfect Customer!

- Shoppers have a **myriad** of options to choose from these days.
- If they are looking to buy a handbag, they do some thorough **research** before finalizing on one.
- If shoppers have several options, how do you make sure they pick you? How do you go about finding that **perfect customer** that **wants** your product, at your rate and to the places you can ship?

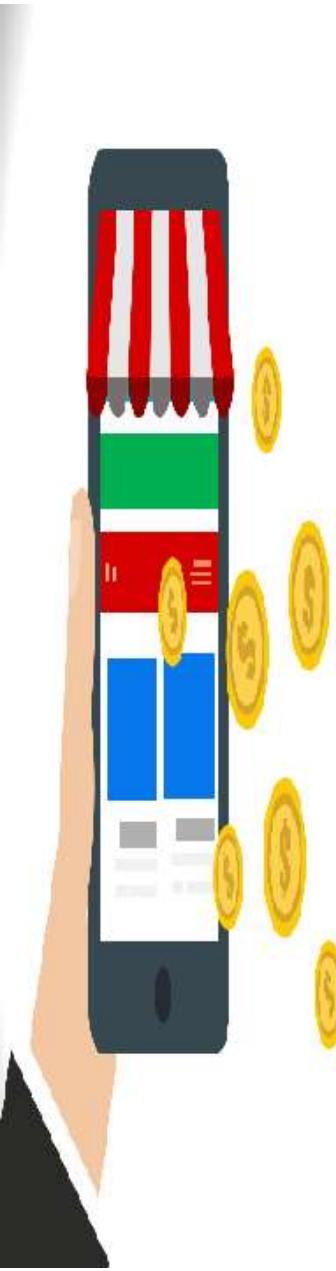




## The Biggest Ecommerce Challenges in 2021 & Solutions to solve them: 3. Attracting the Perfect Customer!

- **Solution:** Partner with companies that help you target your **customers**.
- **Digital marketing** is **preferred** over traditional marketing because they can target your ideal customer.
- While this might not happen overnight, with finetuning and **analysis** – your products could be showing up to potential customers on different social media platforms.

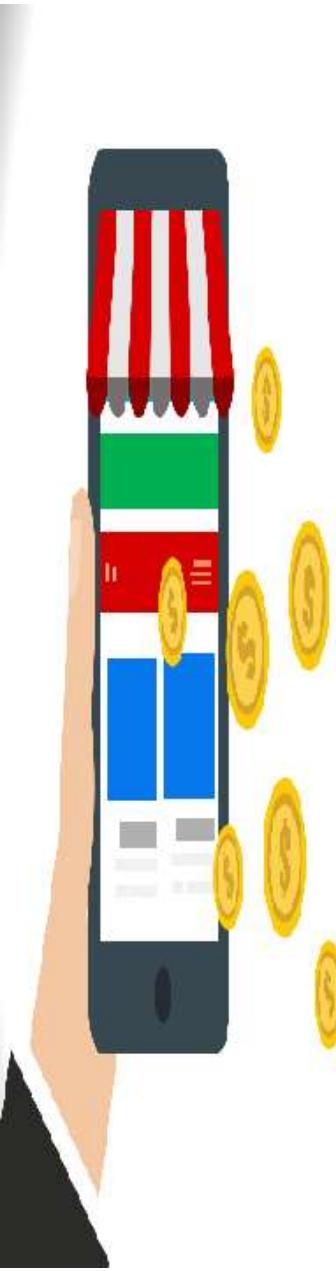




## The Biggest Ecommerce Challenges in 2021 & Solutions to solve them: 4. Customer Experience!

- Customer **experience** or user experience is key to a successful eCommerce website.
- Shoppers expect a **similar** if not same experience as one they would get in a brick and mortar store.
- The **flow** of the website, the **segmentation** of the website and the retail **personalization** of products based on the shopper's preferences are imperative.

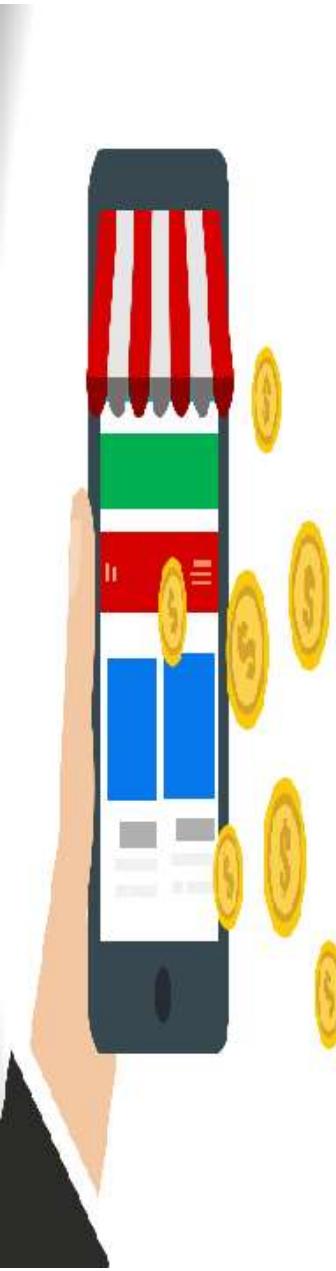




## The Biggest Ecommerce Challenges in 2021 & Solutions to solve them: 4. Customer Experience!

- **Solution:** There are several ways to improve the user experience.
- The most important would be to have a **clean** and **simple website** so that shoppers can navigate through easily.
- The next point would be to have clear CTAs (call to action) so that the shopper knows exactly what to do.

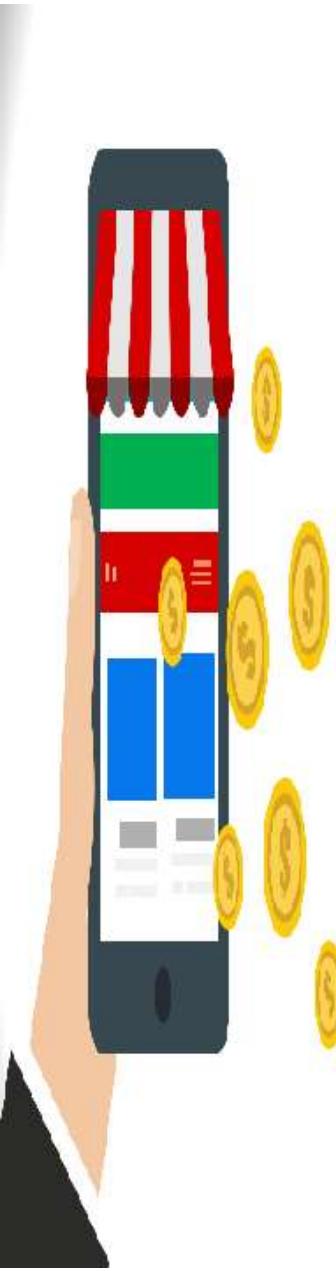




## The Biggest Ecommerce Challenges in 2021 & Solutions to solve them: 5. Customer Loyalty!

- Here are **two** facts that show the importance of customer loyalty:
  - (a) It can cost up to **5 times more** to acquire a new customer than retaining an existing one
  - (b) the success rate of selling to a current customer is 60-70% compared to only 5-20% success rate of selling to a new customer.
- The above two facts are testament to how important customer retention or loyalty is. Once a customer makes a purchase or utilizes a service from a retailer, they have to make sure that they keep this customer for life. But how is this possible?

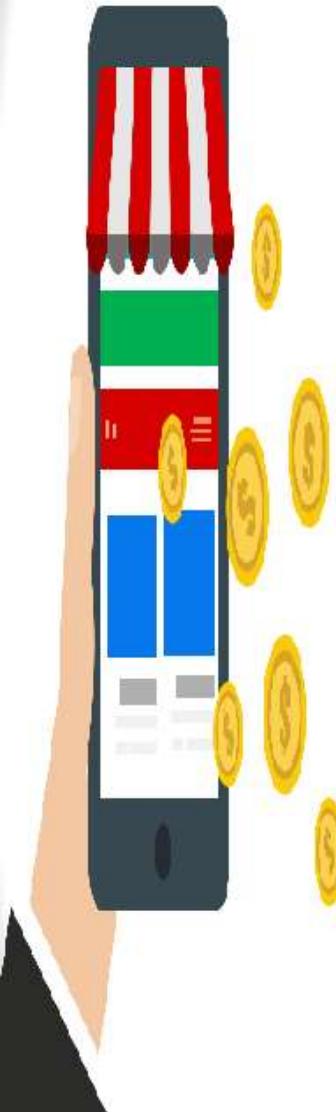




## The Biggest Ecommerce Challenges in 2021 & Solutions to solve them: 5. Customer Loyalty!

- **Solution:** These are a few different methods that can be used to retain customers.
- The first would be to have **excellent customer service** – a customer is happy to have purchased a great product, but they are ecstatic when the customer service is on point.
- The next step is to **keep in touch** with the customer via a method that they like – be it an **email, SMS or blog posts** – be sure to find out what works best for your customer.
- The last point would be to let them know about **new products**, sales **promotions** and special **coupon** codes for being such loyal customers.

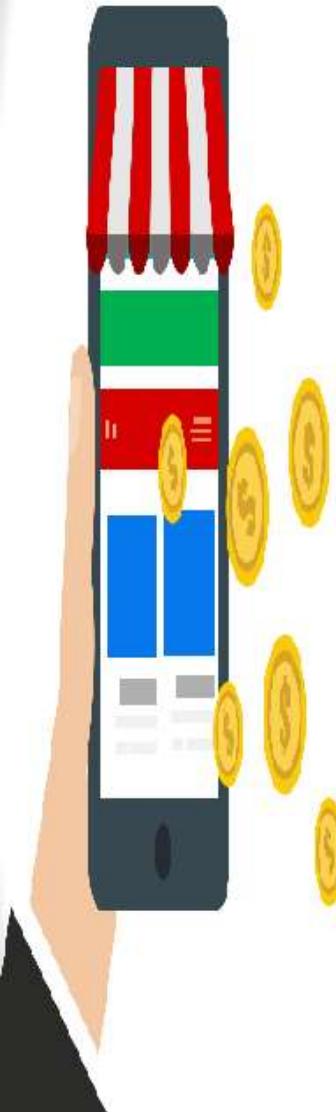




## The Biggest Ecommerce Challenges in 2021 & Solutions to solve them: 6. Converting Shoppers into Paying Customers!

- One of the biggest ecommerce challenges is to convert visitors into **paying customers**.
- An eCommerce website might have a lot of traffic, a lot of clicks and impressions but they aren't making the sales they anticipated. What can they do to get more sales?

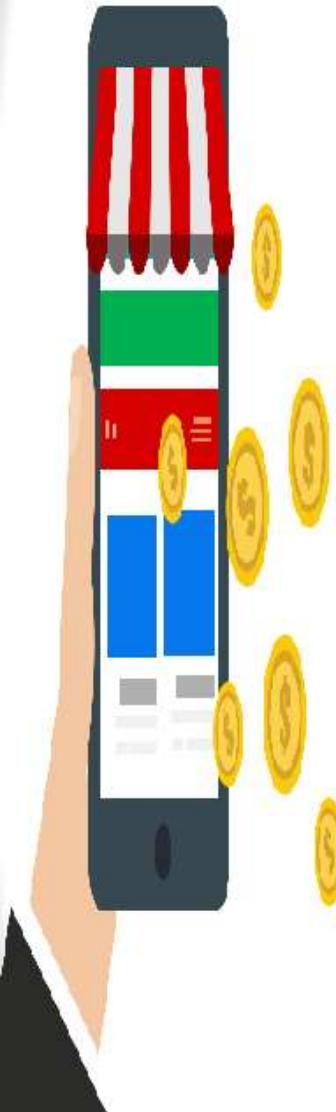




## The Biggest Ecommerce Challenges in 2021 & Solutions to solve them: 6. Converting Shoppers into Paying Customers!

- **Solution:** The first and foremost would be to understand **why** your shoppers aren't converting – are you targeting the right audience? Is your **mobile website** working seamlessly? Do your **online platforms** face technical challenges all the time? Does your customer base trust you? Do you personalize your website for your customers? Always think from a **shopper's perspective** and see if you are doing everything possible to make them paying customers.

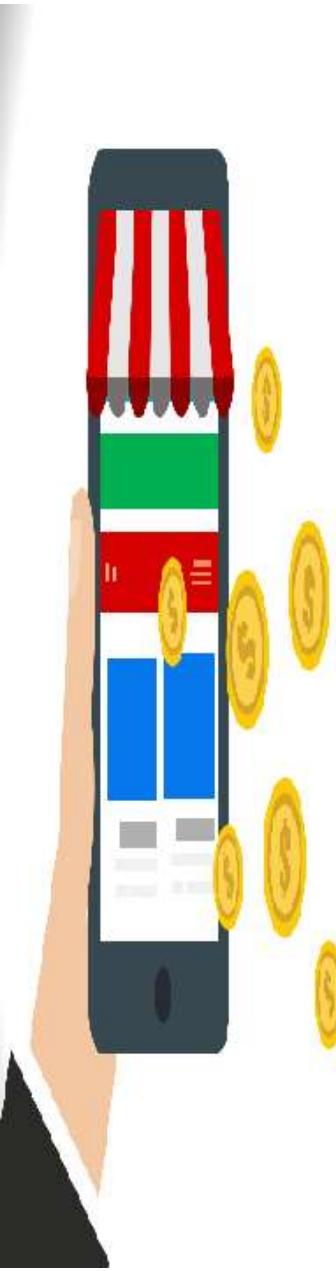




## The Biggest Ecommerce Challenges in 2021 & Solutions to solve them: 7. Competition & Competitor Analysis!

- A lot of people these days are fatigued by all the options that are out there.
- A simple search for something like headphones will give you **thousands** of options – how does one make a choice?
- From a retailer's standpoint, how do they stand out from the crowd? How do they bring shoppers to their website, instead of buying a similar product from their competitors?

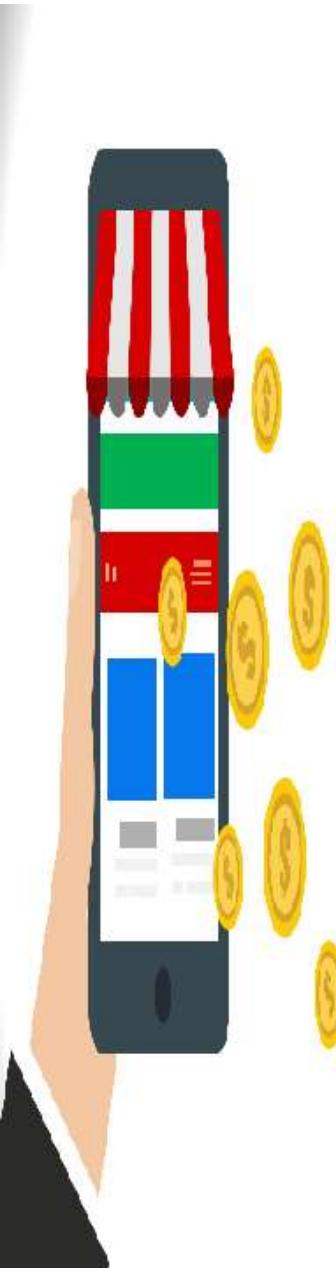




## The Biggest Ecommerce Challenges in 2021 & Solutions to solve them: 7. Competition & Competitor Analysis!

- **Solution:** Always do a thorough **analysis** of your competitors. Find out **what products** they are selling, how they are generating leads and how they keep in touch with their customers.
- The next step would be to make sure you stand out – be it the colors you use, the topnotch functionality of your website or amazing **user experience**.
- And finally, **offer services or products** that are **unique** and relevant to your customer base.

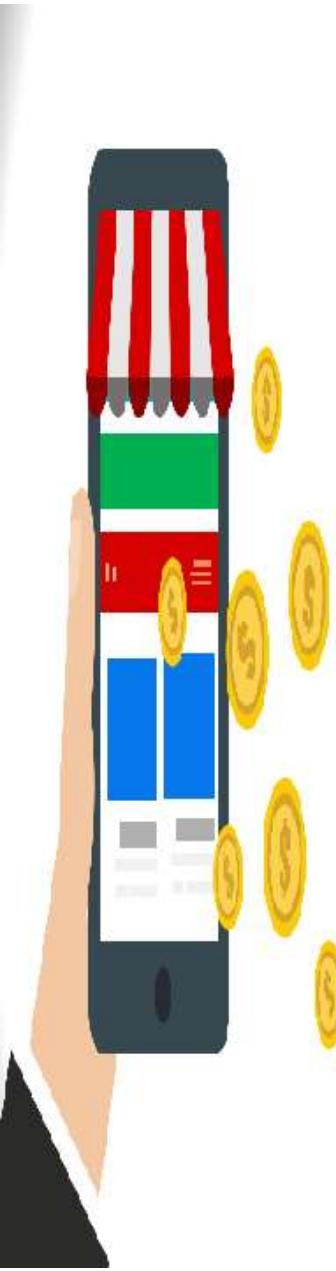




## The Biggest Ecommerce Challenges in 2021 & Solutions to solve them: 8. Price & Shipping!

- We have all heard of customers that prefer to purchase products from places that have **free** shipping.
- eCommerce giants like **Amazon** provide such attractive shipping deals that customers seldom want to look at other places.
- How does one bring down costs for shipping?

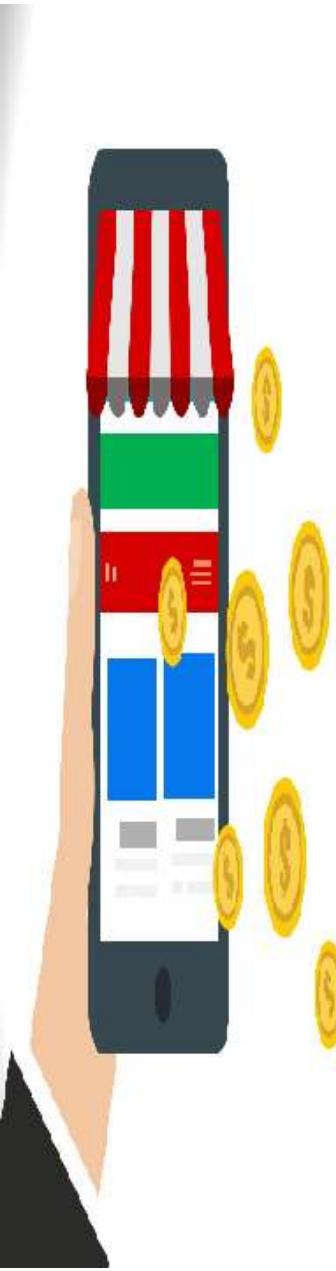




## The Biggest Ecommerce Challenges in 2021 & Solutions to solve them: 8. Price & Shipping!

- **Solution:** While all eCommerce sites cannot completely get rid of shipping costs, always look to find options that work for your customer base. Would a [subscription](#) reduce the cost of shipping? Would a certain [time of the month](#) give them lower shipping costs? Or is there a [carrier](#) that is reliable but offers a cheaper rate? Be sure to do your research and find the best possible solution for your shoppers.

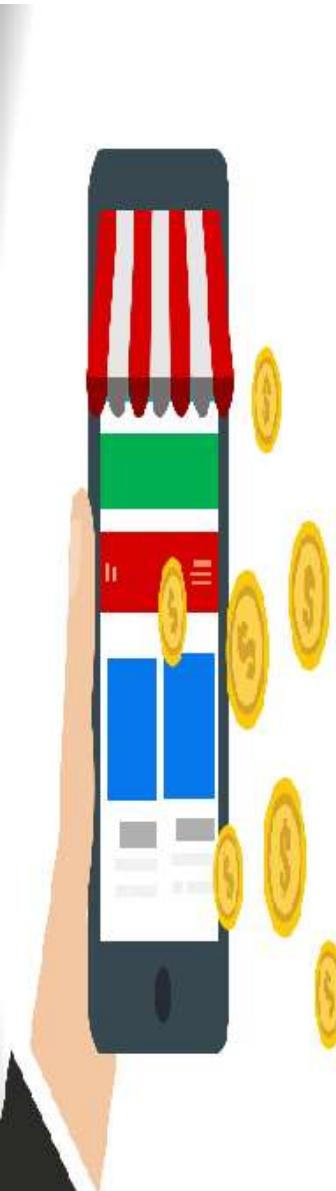




## The Biggest Ecommerce Challenges in 2021 & Solutions to solve them: 9. Product Return & Refund Policies!

- More than 60% of online shoppers say that they look at a **retailer's return policy** before making a purchase.
- When an eCommerce site says “**no returns or refunds**” it makes a shopper nervous and less likely to trust the retailer.
- When shopping online, customers want the **flexibility** of making a mistake that doesn’t cost them.

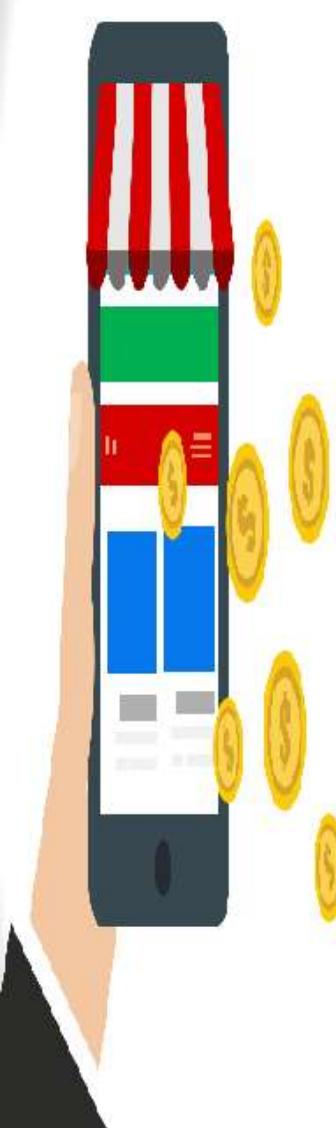




## The Biggest Ecommerce Challenges in 2021 & Solutions to solve them: 9. Product Return & Refund Policies!

- **Solution:** Customer satisfaction is the most important factor for any retailer. Therefore having a **flexible** return and refund policy not only helps with customer satisfaction with it also helps with customers making purchases without being nervous.

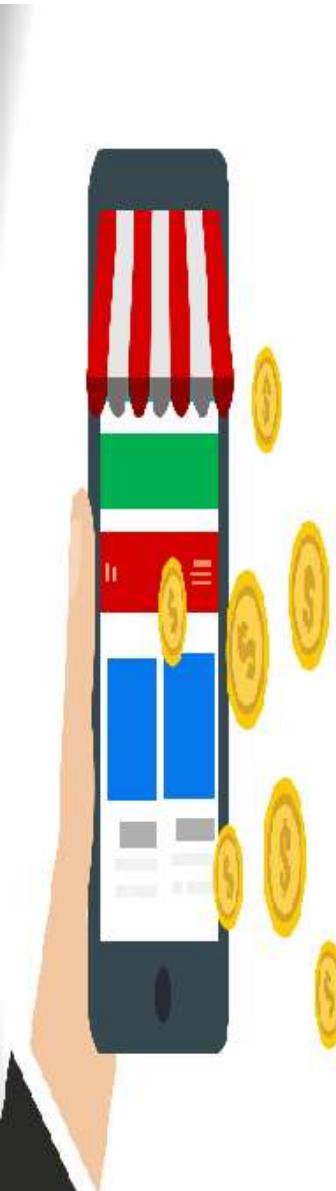




## The Biggest Ecommerce Challenges in 2021 & Solutions to solve them: 10. Choosing the Right Technology/Partners To Fix Your eCommerce Challenges!

- Choosing the right technology or partner will make or break your business.
- A retailer's growth might be stunted because their technology is limiting them or because they have hired the wrong agency to help them manage their projects.
- There are a lot of aspects that need to be in place for a successful retail business, but a good technology foundation is crucial.

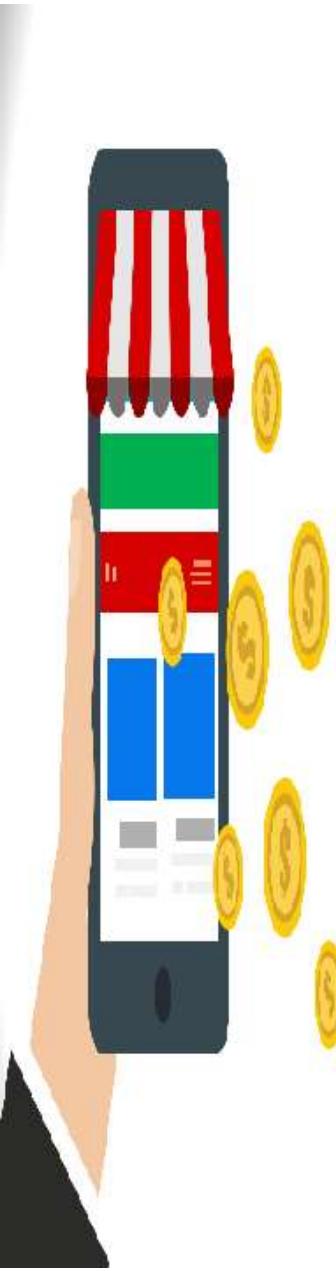




## The Biggest Ecommerce Challenges in 2021 & Solutions to solve them: 10. Choosing the Right Technology/Partners To Fix Your eCommerce Challenges!

- **Solution:** Partner with a unified platform that is redesigning the future of retail commerce to fix all your eCommerce challenges. Using image recognition and data science, it helps retailers generate product, and customer intelligence, and combine these with market insights, to power growth.





## The Biggest Ecommerce Challenges in 2021 & Solutions to solve them: 10. Choosing the Right Technology/Partners To Fix Your eCommerce Challenges!

- While there have been a lot of exciting and positive changes, there are still online businesses that struggle with the challenges that eCommerce brings.
- The above mentioned solutions are fixes that can help any eCommerce business move closer to their ideal customers and targeted sales.



