

## Case Studies & Guesstimates for E-Commerce Industries



### Part-I (Product Dissection & Schema design)

#### Platform Selection: eBay

eBay is one of the world's largest and most well-known online marketplaces, facilitating consumer-to-consumer and business-to-consumer sales. eBay was founded in the year 1995 by Pierre Omidyar shortly after Amazon was founded by Jeff Bezos. The platform allows individuals and businesses to buy and sell a wide variety of goods and services. eBay operates on a unique auction-style and fixed-price format, distinguishing it from many traditional e-commerce platforms.

**Impact:** eBay has revolutionized the way individuals buy and sell goods online, introducing an innovative auction model that allows sellers to reach a wide audience and buyers to find rare or unique items. It has also influenced the e-commerce industry by popularizing user-generated content and peer-to-peer transactions. eBay's platform has inspired numerous other marketplaces and continues to set trends in online retailing.

## **Product Dissection and Real-World Problems solved by eBay:**

eBay was one of the first companies to create and market an Internet Web site to match buyers and sellers of goods and services. The company, which caters to individual sellers and small businesses, is a market leader in e-commerce worldwide. A key factor in eBay's growth was its implementation of procedures to promote safe, transparent trading, accessible nearly anywhere to anyone. eBay relies on its users to self-regulate the trading community through a feedback system that allows buyers to rate sellers on transactions.

In theory, unscrupulous vendors are exposed and lose the trust enjoyed by reputable sellers. In practice, some vendors received poor ratings through no fault of their own but because of, for example, problems with package deliveries, and other vendors garnered good ratings for a short period before setting up cybercrime scams to defraud customers. In response, the company made available educational resources for best-practice trading.

Since its founding, eBay has channeled a portion of its profits back into local community causes around the world through its charity fund, the eBay Foundation.

In conclusion, eBay has battled real-world problems by creating a platform that helped individuals and organizations to load, balance, distribute, buy and sell any legal products in an era where digital or online window-shopping was still a dream to many. Its well rooted features, captivating market community and safe and secure payment infra created a spark in the online shopping industry.

## **Case Study: Real-world Problems and eBay's innovative solutions**

Buying and selling was still a relatively new idea online. If the internet of 1995 inspired dreams of a lucrative future, the reality ran far behind. What makes eBay particularly interesting is how, in its earliest incarnation, it anticipated many of the key features that would later define the phenomenon commonly known as the "platform".

Anyone could put up something for sale, anyone could place a bid, and the item went to the highest bidder. It would be a perfect market, just like you might find in an economics textbook. Through the miracle of competition, supply and demand would meet to discover the true price of a commodity. One precondition of perfect markets is that everyone has access to the same information, and this is exactly what eBay promised. Everything was there for all to see.

eBay enlisted its users in its own creation. They were the ones posting items for sale and placing bids and writing feedback on one another in the forum. Without their contributions, the site would cease to exist.

## **Problem 1: Online Shopping model**

Though in the pre-dot-com boom era there was the presence of websites that sold goods either of their own produce or a particular kind, there was no such thing as the online market place. There was no way that a person with no idea of tinkering with the internet would sell his product anywhere online.

### **eBay's solution:**

eBay introduced a new and innovative way for individuals to buy and sell goods through an online auction system. This model allowed users to bid on items, creating a dynamic and competitive marketplace.

## **Problem 2: Global Reach**

There was a geographic limitation about the reach of buyers and sellers from all around the world. Apart from importing products and commodities and buying them from international airports, there was a very seldom possibility that anyone could buy products online.

### **eBay's solution:**

eBay provided a platform that allowed users from around the world to participate in buying and selling. This global reach opened up new opportunities for both buyers and sellers, facilitating international trade on a large scale. Since then, a person sitting somewhere in highlands of Alaska or Minnesota can order a bottle of water from Fiji.

## **Problem 3: Playing on Diverse Product Range**

As specified earlier, in the 90's and early 2000 an online store-front was just a classification of the products in the benefit of the respective business, which resulted in having multiple websites featuring multiple classes of products and there was no industry standard procedure on the infrastructure, warehousing, buying and selling policies, deliveries, returns etc.

### **eBay's solution:**

Unlike traditional e-commerce platforms that focused on specific product categories, eBay embraced a wide range of products, including both new and used items. This diversity attracted a broad user base and made eBay a one-stop-shop for various goods.

## **Problem 4: Lack of a platform**

Although back in the days there were e-commerce websites, but most of them were just a storefront to big businesses and an industry standard was missing. Any individual wanting to sell their product online could only dream of it.

### **eBay's Solution:**

eBay empowered individuals to become entrepreneurs by giving them a platform to sell their products, whether they were handmade crafts, vintage items, or used goods. This democratization of commerce allowed small businesses and individuals to reach a global audience.

## **Problem 5: No Feedback and trust system**

Back in early 2000 feedback, reviews on products and trust on sellers was a merely an imagination. Customers and users could never know the pros and cons of a product before buying it.

### **eBay's solution:**

eBay implemented a feedback and trust system, where users could leave reviews and ratings for buyers and sellers. This helped build trust within the community, contributing to the platform's credibility and reliability.

## **Problem 6: Unreliable payment infrastructure**

The corporations clambering on to the internet saw people as nothing more than “wallets and eyeballs”. Their efforts at commercialization weren't just crude and uncool, they also promoted a zombie-like passivity – look here, click here, enter your credit card number here – that threatened the participatory nature of the internet.

### **eBay's solution:**

While not initially a part of eBay, the integration of PayPal as the primary payment system enhanced the overall user experience. It provided a secure and convenient way for transactions to take place, boosting trust among users.

## **Problem 7: Seldom innovation in the e-commerce industry**

Almost a year before eBay was launched, Amazon was founded and was to be known as the largest online bookstore in the world and it stayed like that for a long time after the dot-com burst. Anyhow, there were not many innovations taking place in that certain field of industry.

### **eBay's Solution:**

eBay continued to evolve and innovate, introducing new features and services. This adaptability to changing technology trends and user needs contributed to its long-term success.

Overall, eBay's revolutionary impact lies in its creation of an online marketplace that transformed the way people buy and sell goods, fostering a sense of community and trust among users on a global scale.

## **Top Features of eBay:**

1. **Online Marketplace:** eBay operates as an online marketplace, connecting buyers and sellers from around the world.
2. **Auction-style Listings:** eBay initially gained popularity with its auction-style listings, allowing sellers to set a starting bid and buyers to place bids on items. However, fixed-price listings are also common.
3. **Buy It Now:** In addition to auctions, eBay offers fixed-price listings with the "Buy It Now" option, allowing buyers to purchase items immediately at a set price.

4. **Seller Ratings:** Buyers and sellers can leave feedback and ratings based on their experiences, contributing to a trust-building system within the community.
5. **Product Categories:** eBay spans a wide range of product categories, including electronics, fashion, collectibles, home goods, and more.
6. **Global Reach:** eBay connects buyers and sellers globally, providing an extensive marketplace for various products.
7. **Seller Tools:** eBay provides tools and resources for sellers, including analytics, shipping solutions, and marketing options.
8. **eBay Stores:** Sellers can set up their own eBay stores, providing a branded space for their listings.
9. **Promotions and Discounts:** Sellers can offer promotions, discounts, and coupons through eBay's platform, attracting more buyers and boosting sales.

## Schema Description:

The schema for eBay involves considering various entities, relationships, features and data requirements. These entities include users, products, orders, transaction, addresses, reviews, payments info etc. It's crucial to consider normalization, relationships, and the overall efficiency of the entire database.

- User Authentication:
  - 'Users' table:

Attribute	Type	Description
<b>user_id</b>	Primary Key (Int)	Unique identifier for the user
<b>username</b>	String	Login Credentials
<b>password</b>	String	Login Credentials
<b>email</b>	String	Email-id for authentication
<b>phone</b>	Int	User's primary phone number
<b>first_name</b>	String	First name of user
<b>last_name</b>	String	Last name of user

- Product Management:
  - 'Products' table:

Attribute	Type	Description
<b>product_id</b>	Primary Key (Int)	Unique identifier for products
<b>product_name</b>	String	Name of the product
<b>description</b>	String	Description of the product listed
<b>price</b>	Float	Price of the product
<b>stock_quantity</b>	Int	Quantity of product available in stock

- 'Categories' table:

Attribute	Type	Description
<b>category_id</b>	Primary Key (Int)	Unique identifier for product category
<b>category_name</b>	String	Name of the Category

- 'Product\_categories' table:

Attribute	Type	Description
<b>product_id</b>	Products.Foreign_key	Unique identifier for product
<b>category_id</b>	Categories.Foreign_key	Unique identifier for category

- Orders and transactions:

- 'Orders' table:

Attribute	Type	Description
<b>order_id</b>	Primary Key (Int)	Unique identifier for Orders created
<b>user_id</b>	Users.Foreign_key	Unique identifier for the user
<b>order_date</b>	Date-time	Date of order Created
<b>total_amount</b>	Float	Billing amount of the order during check-out

- 'OrderItems' table:

Attribute	Type	Description
<b>order_id</b>	Orders.Foreign_key Primary_key	Unique identifier for the Order created
<b>product_id</b>	Products.Foreign_key	Unique identifier for the Product Selected
<b>quantity</b>	Int	Billing amount of the order during check-out
<b>price</b>	Float	Price of the product selected in that order

- User Addresses:

- 'Addresses' table:

Attribute	Type	Description
<b>address_id</b>	Primary Key (Int)	Unique identifier for the user's addresses
<b>user_id</b>	Users.foreign_key	Unique identifier for the user
<b>add_name</b>	String	Delivery POC's name
<b>add_phone</b>	Int	Delivery POC's phone
<b>street_address</b>	String	Delivery Street Address
<b>city</b>	String	City
<b>state</b>	String	State
<b>zip_code</b>	Int	Zip code

- Shopping cart:
  - 'Shopping\_cart' table:

Attribute	Type	Description
<b>cart_id</b>	Int Primary_key	Unique identifier for the Cart created
<b>user_id</b>	Users.Foreign_key	Unique identifier for the User
<b>product_id</b>	Products.Foreign_key	Products selected for the specific cart
<b>quantity</b>	Int	Quantity of those products selected

- Reviews and ratings:
  - 'Product\_review' table:

Attribute	Type	Description
<b>review_id</b>	Primary Key (Int)	Unique identifier for the user's review
<b>user_id</b>	Users.foreign_key	Unique identifier for the user
<b>product_id</b>	Products.foreign_key	Product specific ID
<b>rating</b>	Int	No. of stars given as rating
<b>review_text</b>	String	Text based review given for specific product

- Payment information:
  - 'Payment\_info' table:

Attribute	Type	Description
<b>payment_method_id</b>	Primary Key (Int)	Unique identifier for the user's payment method
<b>user_id</b>	Users.foreign_key	Unique identifier for the user
<b>card_number</b>	Int(Large)/String	Card number Provided
<b>expiry_date</b>	Date-time	Expiry date of the card
<b>token_id</b>	Int	Card token number (if tokenized)

- Auction items:
  - 'Auctions\_scheduled' table:

Attribute	Type	Description
<b>auction_id</b>	Primary Key (Int)	Unique identifier for the user created auction
<b>user_id</b>	Users.foreign_key	Unique identifier for the user
<b>order_id</b>	Orders.Foreign_key	Unique identifier for the Order
<b>schedule</b>	Date-time	Expiry date of the card

- 'Auction\_items' table:

Attribute	Type	Description
<b>auction_id</b>	Auctions_scheduled.Foreign_key	Unique identifier for the user created auction
<b>user_id</b>	Users.foreign_key	Unique identifier for the user
<b>product_id</b>	Products.Foreign_key	Unique product identifier
<b>quantity</b>	OrderItems.Foreign_key	Auction item quantity(negative for seller)

- 'Bids' table:

Attribute	Type	Description
bid_id	Primary Key (Int)	Unique identifier for the bids
auction_id	Auctions_scheduled.Foreign_key	Unique identifier for the auctions
user_id	Users.foreign_key	Unique identifier for the users
bid_price	Float	Bid value
payment_method_id	Payment_info.Foreign Key	Unique identifier for payment method

### Relationships among various entities are:

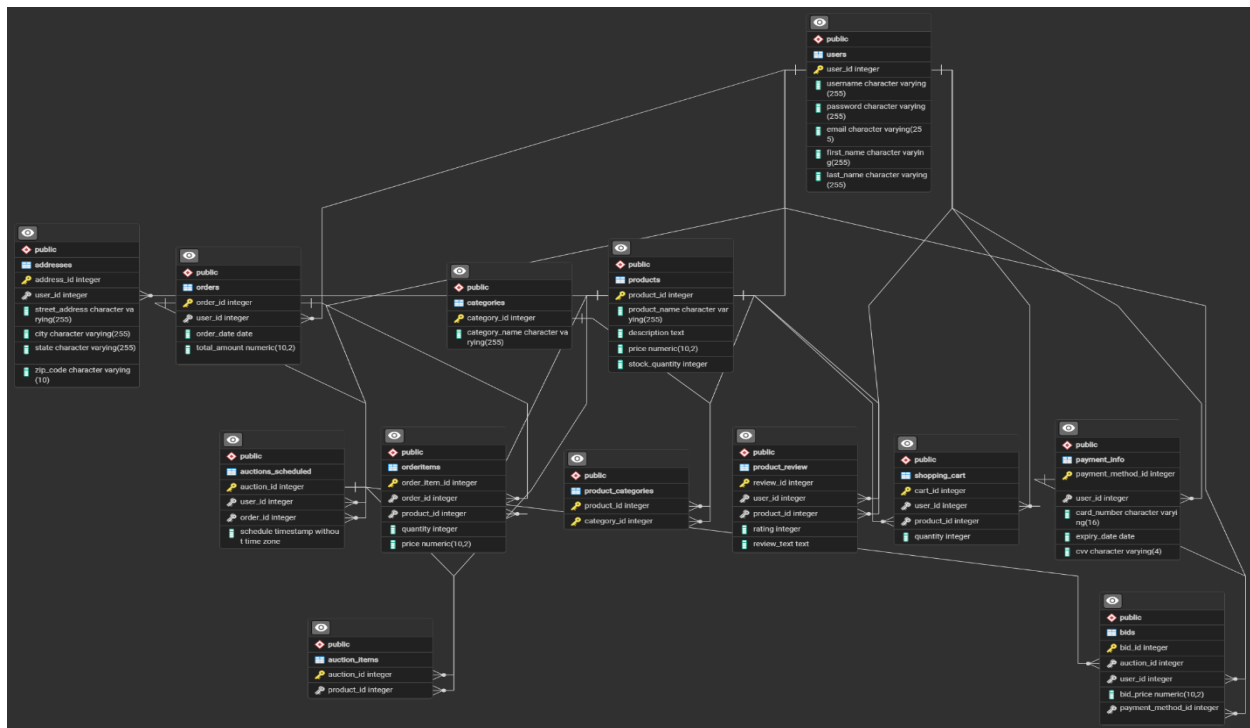
- **Users buy/sell:** Users with user\_id will be buying and selling products, which will result in creation of Purchase Order number or Sales Order number in order\_id of order table
- **Classification of products:** Orders will be classified into one or more categories and there will be a relationship of product and categories. It will be a many to many relationship
- **Addresses with buying and selling:** Addresses will be linked to orders for picking and dropping off items.
- **Payment info per user:** All the payment method ids will be linked to the users for smooth checkouts.
- **Auctions with orders:** All the auctions and actions related to auctions will be associated to users, orders and payment info.

### Relationships & ER Diagram:

From Table	From Attribute	To Table	To Attribute	Relationship
Product	product_id	Product_categories	product_id	One-Many
Categories	category_id	Product_categories	category_id	One-One
Users	user_id	Orders	user_id	One-Many
Products	product_id	OrderItems	product_id	One-One
Users	user_id	Addresses	user_id	One-Many
Users	user_id	Shopping_cart	user_id	One-Many
Products	product_id	Shopping_cart	product_id	One-One
Users	user_id	Product_review	user_id	One-Many
Products	product_id	Product_review	product_id	One-One
Users	user_id	Payment_info	user_id	One-Many
Users	user_id	Auctions_scheduled	user_id	One-Many
Orders	order_id	Auctions_scheduled	order_id	Many-Many
Auctions	auction_id	Auction_items	auction_id	One-Many
Users	user_id	Auction_items	user_id	One-Many
Products	product_id	Auction_items	product_id	One-Many
OrderItems	quantity	Auction_items	quantity	One-One
Auctions_scheduled	auction_id	Bids	auction_id	One-Many
Users	user_id	Bids	user_id	One-Many



Let's construct an ER diagram that vividly portrays the relationships and attributes of the entities within the eBay schema. This ER diagram will serve as a visual representation, shedding light on the pivotal components of eBay's data model.



This schema design captures the essential data interactions and relationships within eBay, supporting its features and functionalities efficiently. It ensures scalability, performance, and a personalized user experience, contributing to the platform's overall success.

## Case Study: Revenue and Profit Growth Strategies (25%)

For the part to increase the Revenue and Profit by 25%, the strategy is further worked on 3 steps:

### I. Analyzing eBay's Current Status:

To find the status of eBay and develop a strategy to increase its profit by 25%, we need to conduct a thorough analysis of the company's current scenario. This includes examining its current profit, understanding the sources of revenues and expenses, and analyzing customer acquisition and retention.

Category	Details
<b>Current Financial Data</b>	<b>Revenue:</b> \$10,112 Mn USD
	<b>Expenses:</b> \$2,833 Mn USD
	<b>Profit Calculation:</b> \$7,279 Mn USD
	<b>Profit Trends:</b> The Quarterly profit stayed stagnant throughout the entire financial year of 2023, with slight increase during the fall.
<b>Sources of Revenue</b>	<b>Gross Revenue:</b> \$10,112 Mn USD
	Gross merchandising volume: \$73.2 billion
	eBay's primary sources of revenue stream is transaction fees and marketing services.
	Out of the GMV, eBay gets a cut as transaction fees.
	Most of the GMV is a result of the marketing and advertising done by eBay for the products listed.
<b>Sources of Expenses</b>	<b>Major Expenses:</b>
	R&D Expenses: \$1,544 Mn USD
	SG&A Expenses: \$3,413 Mn USD
	Operating Income or Expenses: -\$360 Mn USD
	Operating Expenses: \$5,338 Mn USD
<b>Customer Acquisition &amp; Retention</b>	<b>Customer Acquisition Channels:</b>
	eBay has four key channels to reach its customers – mobile app, eBay website, social networks, and its digital stores
	Customer acquisition cost: between \$150 - \$200 per customer.
	<b>Customer Behavior and Retention:</b>
	While the active userbase peaked till 184m users in the year of 2016-18. The userbase has declined from 134m users to 132m users in the year 2023.
	The decline is a result of 2 factors: <ul style="list-style-type: none"><li>• People going back to their original buying habits post pandemic.</li></ul>

- Fall in demand of genuine/American made goods to 3<sup>rd</sup> world Asian/Chinese knockoffs from other platforms.

eBay is currently investing on numerous marketing strategies and various ad programs to retain valuable customers from the userbase.

After analyzing the current status of eBay, including its financial data, revenue sources, expenses, and customer acquisition channels, a comprehensive strategy can be developed to increase the company's profit by 25%. Focusing on optimizing expenses, enhancing revenue streams, and improving customer satisfaction and retention will ensure sustainable growth and profitability for eBay.

## II. Focus Areas for Increasing eBay's Profit by 25%

When a multi-billion-dollar business needs to grow, they need to add billion-dollar businesses each year e.g. for a \$10B company to grow 10% per year, they need to add \$1B each year. Shedding promising businesses and opportunities seems to be headed in the wrong direction. After the introduction of 3<sup>rd</sup> party vendors in Amazon, sellers continue to shift to Amazon, eBay continues to lose its share of wallet, and consumers are still frustrated with what they perceive as eBay's apathy toward their experience on eBay.

Post 2005, there has been a lack of innovation in eBay. When eBay was first created, it was a "whitespace" business. To truly innovate, eBay needs to look into the future and create more whitespace businesses. This is what Google is doing with autonomous cars and Amazon is doing with its different enterprises. eBay has tried to foster innovation in the past, but clearly, it's not working.

eBay is sort of like the world's largest thrift store, but with niches in its catalogue. Lots and lots of products are mis-labeled, mis-categorized, or poorly photographed, and that makes it difficult for a user to find something they're looking for or sometimes drives the traffic away.

To increase eBay's profit by 25%, the company must strategically focus on several key areas. These focus areas include, **Enhanced User Experience, Mobile Optimization, better Post sales Support, Enhanced Feedback System, Promotions and Deals** and **improved 3<sup>rd</sup> party seller support**. By addressing these areas with targeted initiatives, eBay can enhance its operational efficiency, customer satisfaction, and market reach.

But the scope/target of this case study is to only increase the profits for eBay (the selling e-commerce platform) to 25%

Category	Focus Area	Measures
Internal Management ~ 8%	Operational Efficiency  ~ 6%	<ul style="list-style-type: none"> <li>• <b>Waste Management:</b> Use advanced data analytics to optimize inventory management, reduce waste, and improve procurement. <ul style="list-style-type: none"> <li>◦ <b>Demand Forecasting:</b> Predicting future demand based on historical data, seasonality, and external factors.</li> <li>◦ <b>Safety Stock Calculation:</b> Determining the buffer stock needed to prevent stockouts.</li> <li>◦ <b>Reorder Point Optimization:</b> Identifying the ideal inventory level at which to reorder products.</li> <li>◦ <b>ABC Analysis:</b> Categorizing items based on their value and managing them accordingly.</li> </ul> </li> </ul>
		<ul style="list-style-type: none"> <li>• <b>Automate Processes:</b> Organizations can allocate resources to acquire and implement AI and ML solutions. These tools leverage algorithms, data, and computational power to perform tasks that would otherwise require manual effort.</li> <li>• The investment can include purchasing pre-built software, developing custom solutions, or subscribing to cloud-based services.</li> </ul>
		<p><b>Implementing sustainability initiatives:</b> such as promoting eco-friendly products, reducing packaging waste, and offsetting carbon emissions, can help eBay appeal to environmentally conscious consumers, contribute to a more sustainable future and project better profit margins.</p>
	Employee Productivity  ~ 2 %	<p><b>Training Programs:</b> Create ongoing training programs that target specific areas: efficiency, customer service, and logistics. These programs aim to enhance the skills and performance of employees within an organization. By providing continuous training, companies can ensure that their workforce stays up-to-date with the latest practices, tools, and techniques relevant to their roles. This will impact the operational cost positively</p> <ul style="list-style-type: none"> <li>• A robust performance tracking system is essential for consistently monitoring employee performance. It involves collecting data on various aspects of an</li> </ul>

		<p>employee's work, such as Quantitative Metrics, Qualitative Metrics &amp; KPIs.</p> <ul style="list-style-type: none"> <li>The tracking system should be automated, accurate, and transparent. Regular updates ensure timely feedback and allow for course corrections.</li> </ul>
<b>Supply Chain Management</b> ~ 4 %	<b>Better Product Catalogue Management</b> ~ 2%	<b>Re-mapping the product catalogue:</b> However vast that is, having better product images, crisp description and a good number of genuine reviews will help in improving the GMV.
	<b>Logistics Optimization</b> ~ 2 %	<b>Shipping and Delivery Options:</b> Offering more flexible shipping and delivery options, including faster delivery times and lower shipping costs, can make eBay more competitive with other online marketplaces.
<b>Product Strategy &amp; Market Expansion</b> ~ 4 %	<b>Product Discovery</b> ~ 3 %	<b>Product Discovery:</b> Having a deep and vast product chain, it is quite difficult among sellers to keep their listings visible. Product paid sponsorships, AI curated reviews and social media promotions will make products discoverable.
	<b>Market Penetration</b> ~ 1 %	<b>Deep Dive Strategy:</b> Develop a comprehensive strategy to increase market share in current locations by focusing on faster delivery, diversifying the product range, and enhancing the overall customer experience.
<b>Post-Sales Management</b> ~ 6%	<b>Customer Support Satisfaction</b> ~ 4 %	<b>Customer Feedback:</b> Implement a robust system for collecting and analyzing customer feedback to continuously improve product quality and service delivery.
		<b>Improving customer support services</b> can help resolve issues more quickly and effectively, leading to higher customer satisfaction. Providing multiple channels for customer support, such as live chat, phone support, and email, can also enhance the overall customer experience.
		<b>Personalization and Recommendations:</b> Implementing personalized recommendations based on user behavior and preferences can help users discover products they are interested in more easily. This can enhance the overall shopping experience and increase user engagement.

	<b>Customer Retention</b> ~ 2 %	<b>Loyalty Programs:</b> Develop and implement loyalty programs that reward frequent purchases and referrals, fostering long-term customer loyalty.
		<b>Enhanced Trust and Safety Measures:</b> Building trust among buyers and sellers is essential for the success of any online marketplace. eBay can improve trust by implementing stricter measures to prevent fraud, counterfeits, and other illicit activities on the platform.
		<b>Enhanced User Experience:</b> Improving the overall user experience on the platform can help attract and retain more users. This includes making the website more intuitive, responsive, and visually appealing.
		<b>Improved Seller Tools:</b> Providing sellers with better tools and resources can help them create more attractive listings, manage their inventory more efficiently, and communicate with buyers more effectively. This can lead to higher-quality listings and better customer experiences.
		<b>Personalized Follow-Ups:</b> Use data analytics to send personalized follow-up emails and promotions, encouraging repeat purchases and customer retention.
<b>Branding and Marketing</b> ~ 3 %	<b>Brand Awareness</b> ~ 3 %	<b>Digital Marketing:</b> Increase investment in digital marketing campaigns, including social media advertising, influencer partnerships, and content marketing to boost visibility.
		<b>Mobile Optimization:</b> With the increasing use of mobile devices for online shopping, ensuring that eBay's platform is optimized for mobile users is crucial. This includes having a responsive mobile website and a user-friendly mobile app.
		<b>SEO and SEM:</b> Optimize the website for search engines (SEO) and invest in search engine marketing (SEM) to drive more organic and paid traffic to the platform.
		<b>Local Events and Sponsorships:</b> Participate in and sponsor local events and community activities to build a strong brand presence and connect with the community.
		<b>- Promotions and Deals:</b> Offering promotions, discounts, and deals can attract more users to the platform and encourage repeat purchases. Implementing a robust

		<p>promotions system can help drive sales and increase customer loyalty.</p> <p><b>- Partnerships and Affiliates:</b> Form strategic partnerships and affiliate programs to expand reach and acquire new customers.</p>
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eBay can strategically boost profitability by 25% through targeted efforts in internal management, product strategy, market expansion, post-sales management, and branding. Data-driven insights should guide initiatives to align with customer needs and market demands, reinforcing eBay's competitive position in the e-commerce market.

### III. Defining Strategies

#### 1. Optimizing Expenses:

- **Cost Reduction:** eBay should implement measures to reduce operational costs. This includes negotiating better terms with suppliers, streamlining logistics processes, and adopting cost-effective technologies.
- **Efficiency Improvements:** Leveraging data analytics can optimize inventory management, minimize waste, and enhance overall operational efficiency.

#### 2. Customer Satisfaction and Retention:

- **Personalized Experiences:** eBay should offer tailored recommendations, promotions, and personalized interactions to enhance customer satisfaction. Understanding individual preferences leads to repeat business.
- **Loyalty Programs:** Implementing loyalty programs that reward frequent purchasers and referrals encourages customer retention.
- **Feedback Loop:** Continuously gathering and acting on customer feedback helps improve products and services.

#### 3. Boosting Revenue Streams:

- **Upselling and Cross-Selling:** Develop strategies to increase the average order value by recommending complementary products during the purchase process.
- **New Revenue Streams:** Introduce fresh products, services, or subscription models that align with customer needs and generate additional income.
- **Dynamic Pricing:** Adjust prices based on demand, competition, and customer behavior to optimize revenue.

eBay should follow Inside-Out methodology which involves starting from within the organization and gradually expanding outward. It ensures a systematic and holistic view of the business. By adopting this methodology, eBay can address critical areas in a structured manner.

Moreover, at each step, eBay should rely on data-driven insights. Analyzing relevant data helps make informed decisions and regularly review performance metrics, customer behavior, and market trends to guide effective decision-making.

The comprehensive approach outlined above aims for sustainable growth. Short-term gains are valuable, but long-term success requires consistent efforts. By strategically addressing these areas, eBay can achieve the desired 25% profit increase while strengthening its competitive position in the e-commerce market.

## Part II: Guesstimates

**Q1. What percentage of total retail sales in 2025 will be conducted through e-commerce platforms?**

Step	Details	Calculation
Population Estimation	Assuming the population of the US	300 million
Internet Penetration	Estimate 80% of the population has internet access 0.8 x 300 Mn	240 million
e-commerce userbase count	Assuming 80% of the internet users using e-commerce platforms -> 0.8 x 240 Mn	190 million
Retail sales estimation	Assuming 80 % of e-commerce users buying retail commodities -> 0.8 x 190 Mn	150 million
Average Retail Spending in e-commerce	Assuming each individual spends \$ 3,000 USD annually on e-commerce platforms 3000 x 150 Mn	<b>450 billion</b>
Total overall retail spends	Assuming each individual spends \$ 20,000 USD annually on any retail commodity. Total annual retail spends-> \$ 20000 x 300 Mn	<b>6 trillion</b>

Percentage of Total Retail Sales = (e-commerce sales value / Total Retail Sales value) × 100

Percentage of Total Retail Sales = (450 billion / 6 trillion) × 100

Percentage of Total Retail Sales = (450000000000 / 6000000000000) × 100

Percentage of Total Retail Sales = **7.5%**



This example demonstrates the bottom-up approach, starting with individual user behavior and building up to the total sales figure. Adjusting the assumptions (e.g., internet penetration rate, e-commerce adoption, and total retail market) can refine the estimate further.

**Q2. How much will the average online shopper spend annually in 2025?**

Step	Details	Calculation
Expenditure estimation	Assuming how much an average American spends in the year 2024	\$ 2500 USD
Factors affecting average expenditure	<b>Inflation rate:</b> Assuming an average inflation rate of ~3% in US economy	Overall, 12% annual growth
	<b>Consumer Behavior:</b> Assuming ~5% increase in online spendings due to habits like subscriptions, services, etc.	
	<b>Income Growth:</b> Assuming an average income growth of ~4% which will result in increased online spends	
2025 Annual expenditure	Projecting a 12 % increase on \$ 2500 in the year 2025 -> $1.12 \times \$2500$ USD	~ 2800 USD

The above estimation has been produced by approaching from the demand side of the consumer market and can vary when compared to the actual numbers. Numerous other factors can be count in while estimating the above like market condition, consumer sentiment and buying habits, technological factors etc. After considering all those factors, an accurate estimation can be brought up.

**Q3. What will be the market share of mobile e-commerce (m-commerce) in total e-commerce sales in the next five years?**

Steps	Details	Calculation
Population Estimation	Assuming the population of the US	300 million
Mobile userbase estimation	Assuming Mobile users in the U.S. ~ 80%	240 million
M-commerce userbase estimation	Assuming m-commerce users in US ~ 75%	160 million
Estimating average spend per user	Assuming an average user spends \$3000 USD	480 billion
Growth factors	<b>Smartphone penetration:</b> Increasing ownership of smart phones in a large country with younger population, m-commerce growth will be high. ~ 5 %	~15 %
	<b>Technological advancements and convenience:</b> Faster internet speed, optimized browsing experience and secure payment methods. ~ 5 %	
	<b>Consumer behaviour:</b> The ease of shopping anytime anywhere will be a driving factor for the growth ~ 3%	
	<b>Competition:</b> Intense competition among m-commerce platforms ~ 2 %	
Year 1 Growth (2025)	Projecting a 15% growth over 480 billion m -commerce users -> 1.15 x 480 Bn	550 billion
Year 2 Growth (2026)	Projecting a 15% growth over 550 billion m -commerce users -> 1.15 x 550 Bn	800 billion
Year 3 Growth (2027)	Projecting a 15% growth over 800 billion m -commerce users -> 1.15 x 800 Bn	920 billion
Year 4 Growth (2028)	Projecting a 15% growth over 920 billion m -commerce users -> 1.15 x 920 Bn	1 trillion
Year 5 Growth (2028)	Projecting a 15% growth over 1 trillion m -commerce users -> 1.15 x 1 Tr	1.2 trillion

The percentage change in mobile shoppers is a rough approximation and actual figures might vary. The number of US mobile users is steadily increasing due to increased smartphone

penetration. Mobile shopping has been experiencing substantial growth, but the rate of growth might stabilize in the coming years.

**Q4. What is the estimated increase in the number of e-commerce websites in the next three years?**

Step	Details	Calculation
Population Estimation	Assuming the global population	7 billion
Estimating platforms	Assuming the total number of e-commerce websites worldwide	20 million
Growth Factors	<b>Technological Advancement:</b> Ease in developing e-commerce platforms ~8%	~ 20% of overall annual growth
	<b>Current Trends &amp; demands:</b> Sales, availability, trends and spending power ~6%	
	<b>Government policies:</b> Most governments promoting globalization and digital economy ~6%	
Year 1 Growth (2025)	Projecting a 20% growth over 20 million ecommerce platforms -> $1.2 \times 20 \text{ Mn}$	24 million
Year 2 Growth (2026)	Projecting a 20% growth over 24 million ecommerce platforms -> $1.2 \times 24 \text{ Mn}$	28.8 million
Year 3 Growth (2027)	Projecting a 20% growth over 28.8 million ecommerce platforms -> $1.2 \times 28.8 \text{ Mn}$	34.56 million

The above estimation has been produced by approaching from the demand side of the consumer market and can vary when compared to the actual numbers. By analyzing the market country by country, economy by economy and demand by supply, we can come up with way accurate estimation.

**Q5. How much will global e-commerce sales grow annually over the next five years?**

Step	Details	Calculation
Population Estimation	Estimating the global population	7 billion
Internet Penetration	Estimating 60% of population has internet access-> $0.6 \times 7 \text{ B}$	4 billion
E-commerce platform usage	Assuming 75% of internet users are logged in any E-commerce platform -> $0.75 \times 4 \text{ B}$	3 billion
User Retention	Assuming 70 % of e-commerce platforms making some purchases -> $0.7 \times 3 \text{ B}$	2 billion
Average spending	Assuming a person spending an average of \$3000 USD on e-commerce platforms $3000 \times 2 \text{ B}$	\$6 trillion USD
Growth Factors	Assuming a global inflation rate ~5%	Overall, 10% annual growth in ecommerce sales
	Assuming declining cost in technology i.e. cheaper to build/maintain platform ~2%	
	Assuming growth due to market expansion ~3%	
Year 1 Growth	Projecting a 10% growth over \$ 6 Tr economy sector -> $1.1 \times 4 \text{ Tr}$	\$ 6.6 trillion USD
Year 2 Growth	Projecting a 10% growth over \$ 6.6 Tr economy sector -> $1.1 \times 6.6 \text{ Tr}$	\$ 7.2 trillion USD
Year 3 Growth	Projecting a 10% growth over \$ 7.2 Tr economy sector -> $1.1 \times 7.2 \text{ Tr}$	\$ 8 trillion USD
Year 4 Growth	Projecting a 10% growth over \$ 8 Tr economy sector -> $1.1 \times 8 \text{ Tr}$	\$ 8.8 trillion USD
Year 5 Growth	Projecting a 10% growth over \$ 8.8 Tr economy sector -> $1.1 \times 8.8 \text{ Tr}$	\$ 9.6 trillion USD

The above estimation has been produced by approaching from the demand side of the consumer market and can vary when compared to the actual numbers. More-over there has been a decline in userbase across various e-commerce platforms as people are moving to their original buying habits post pandemic, whereas the amount being spent on those platforms is still increasing due to inflation and expansion. Considering all the factors along with real-world numbers will help us gain accurate results.

Submission Details:

2<sup>nd</sup> part Submission

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Group- GP05

Case Study – CS01 (e-Commerce Platform)