COSMOS

Application of Escrows

Market analysis and industry insights of emerging opportunites with escrow modules

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Table of Contents

1 Introduction

Escrows are legal processes designed to protect the interests of parties during a change in ownership of a commodity. This research focuses on the application of escrow services in the context of last-mile delivery facilitated by 3PL providers [1] across different industries, their challenges,market dynamics, and possible ways to generate revenue.

With a CAGR [2] of 8.8 %, last mile logistics companies are often integrated with 4PL Providers [3], B2B Delivery, Food Ordering, Grocery Ordering, Medicine sellers and more, hereafter reffered to as Vendors. While 3PL provide a seamless way for Vendors to integrate livetracking, order fulfillment and route optimization, various other features necessary for customer satisfaction such as OTP exchange, delivery cost, contact detail exchange are handled by the vendors or require close communication between the vendors and 3PL..

There exists a need for methods to efficeintly integrate logistics services with vendors and purchasers while providing customer satisfaction. Escrows have been used prior by various companies like, Alibaba with Alipay to protect customers from fraud vendors, and Upwork with escrows to protect clients from freelancers. Such methods can also be integrated in the logistics pipeline, protecting the customer from fraud.

[1] A 3PL (third-party logistics) provider offers outsourced logistics services, which encompass anything that involves management of one or more facets of procurement and fulfillment activities.

[2] The compound annual growth rate (CAGR) is the annualized average rate of revenue growth between two given years, assuming growth takes place at an exponentially compounded rate.

[3] Fourth-party logistics, also known as 4PL, is an operational model in which a business outsources its entire supply chain management and logistics to one external service provider.

1.1 Directed Markets

While the phenomenon of delivery is often associated to real-world events, it is also an emerging in the gaming industry, primarily MMORPGs. With centuries spent collectively gaming, per month, the MMORPG community is growing at a rapid pace as industry estimates a CAGR 10.68 % for 2023-2028. Games like Eve Online that have complex economies relient upon active user participation utilize methods like courier for the transportation of resources. We emphasise on other such methods within various games, the issues faced and possible solutions.

When it comes to real-world events, while the logistics industry as a whole is a complex network, a particular phenomenon of last-mile delivery, for example food delivery (CAGR 34.6%), is considered. Often Food Delivery Companies are oligopolic in nature as seen in India with Swiggy and Zomato, China

with Meituan and Douyin, America with Uber Eats and DoorDash. It is also noteworthy to mention the rise in-house ordering and Network aggregators like ONDC. We discuss the inconviniences caused by such institutions to the customer via artificial inflation and ways to mitigate it. Various possible approaches to the market is also discussed along with the current competitive landscape and their unit economics. e-Auctions is another such arena where logistic services combined with escrows are . With a CAGR of 12.36%, billions of dollars pass through online eAuction networks. We discuss various such companies and ways to integrate logistic services within them.

Table 1: Industries Considered.

Industry	CAGR	Revenue
MMORPGs	10.68%	$30B
Food Delivery	34.65%	$559B
e-Auction	12.36%	$3B

2 Gaming

The MMORPG community often dedicates significant time for the advancement of various ingame rewards. Players interact with each other and exchange resources creating complex economies. Few games rotate millions of dollars in ingame currency with a few even creating their own exchanges . It is evident that game mechanics represent the core of these economies where users can play minigames to contribute in a coopetitive way. One such game mechanic is trading. While trading in the real-world has its complexities, in the digital world events can be mapped efficiently while meta data for enabling such a service [4]can be relied on effectively. Notable games that have the context for courier services ingame include Eve Online, Albion Online and Mortal Engine 2. Supporting such fundamental infrastructures enables game designers to focus on other aspects of their game. It also provides a robust gaming experience enabling efficient ways to process transactions.

[4]Meta data such as player location, item location, item carrier and more can be tracked with ease.These metrics can be used to define a successful trade or handle disputes if needed

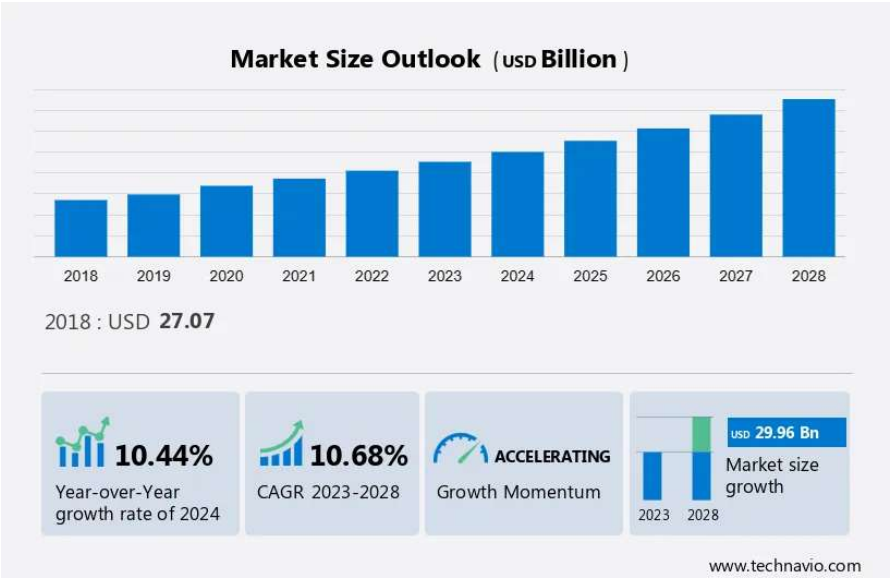

Figure 1: Market Projections for MMORPGs.

2.1 Competitive landscape

While most ingame economies of famous MMORPGs are privately held by the game publishers, Secondary markets to enable transactions among people have started to emerge. Few such companies are PlayerAuctions.go , epicnpc.com and g2g.com. Playerauction.go for example enables users to exchange runscape gold ingame for real-world currency . They employ various methods for dispute resolution including but not limited to escrowing. Currently PlayerAuctions.go makes around 19M$ in revenue while epicnpc makes less than a million. Hence two primary markets are considered, one being the game publishers and the other being attempts to fill the gap left by these publishers via Secondary Markets.

2.2 Complications

One of the main difficulties in integrating such services is the closed source nature of most if not all, MMORPGs. In order to deal with dispute resolution, various verification processes need to be established based on the context of the trade. This would mean MMORPG Game Publishers need provide data for such resolutions. This is difficult to expect as games like minecraft have outright banned integrations with web3 based solutions.Runscape has also officialy announced the illegality of buying or selling ingame items for real world money in

any secondary markets. Hence access to game engines of the popular games is impertiive in designing efficeint ingame mechanics related to trade via escrowing .

There is another problem related to integrating keplr with game engines like Unity. While such proposals such as `https://dorahacks.io/buidl/8971` and imlementations of connecting kepler via a walletconnect proxy exist, solutions using the current set of methods is impertive to reduce the time of production and complexity.Such constraints direct our attention to web based game engines. Due to the constraint of using WebBased Engines and the fact that most popular MMORPGs are built using custom closed source software, creating a large impact would require a B2B approach as companies would not adopt new tech when they are doing well with their current architecture.

2.3 Workarounds

There is one such engine that is completely open source and enables multiplyer. This is the Manifold Engine by `https://github.com/matrix-org/thirdroom` . Using this engine one can create prototypes of various game mechanics enabled by escrow services on the cosmos network. These game mechainics can then be used to potentially integate with large MMORPGs.

2.4 Value Generation

The inital value generation is limited to prototypes for ingame mechaincs in MMORPGs, the larger value is in provding such an architecture to game publishers , via perhaps a unity plugin. One could also take the secondary markets as a marker for possible revenue generation.

3 Food Delivery

There are 4 main participants involved when you order food. The restaurant , the delivery dude , you and The Company.The Company earns a fee of around 15-20 % of order from the restaurant, a fluctuationing fee from the end user, for the management,organization and functioning of the food delivery service.The delivery dude is given a small monthly wage which is often covered with a small profit from the delivery charges

paid by the end user. The Company chooses that price that maximizes the difference between total revenue and total cost. They have a primary price controller of the restaurant service and a secondary price controller of the delivery services. This is the common model used by the food delivery industry in India.

How does the inflation of the economy of a country, which averages at about 8 % per year , affect "man-in-the-middle" services that connect the end user to a vendor? Well due to inflation each provider will adjust their pricing to thus have an exponential effect on the end user. Consider Food Delivery in India.Due to inflation restaurants raise their prices by atleast 8% to break even, but so will Food Delivery Companies. Now the restaurant having raised their food pirces by 8% have to raise it by another 6-8 % to accomodate the price hikes of the food delivery companies, thus increasing the overall costs to about 14%, all of which is collected from the end user.

Figure 2: Market Projections for Food Delivery.

This describes a scenerio of near exponential inflation as we add more service provider in between who charge primiums from all the parties involved.By reducing the profit margins all while maintaining customer satisfaction and enabling P2P methods, one could provide a significantly efficent service with incrased privacy and benefit to the end user thus increasing their market cap. Non Profits such as ONDC have attempted to do this by providing a platform for restaurants and customers to interact with each other. Such services also

sell consumer data to other companies, without paying the consumer for their contribution to the data dump.

My perspective is the price hikes of the service provider needs to be accomodated by vendors as they often derive premiums from each trasaction

3.1 Competitive Landscape

There are many companies that provide last-mile delivery services.Few of them that function with Network aggregators like ONDC represent the current edge as they integrated, in a B2B way, with food delivery, without explicitly associating with customers,vendors or payments. Companies such as Loadshare, ShadoxFax, Delhivery and more are often involved in these efforts. Another uniuque use case of this module are Drone Delivery Services such as Wing. With a whooping CAGR of 36% Drone delivery as a B2B and B2C solution will only rise as the years pass by.

Table 2: Competitior Data

Company	Growth Rate	Revenue
Loadshare	90% FY22	$324M
ShadowFax	35% FY24	$267M
Wing	43% FY23	$65M

3.2 Complications

Food delivery is a complex industry with significant barriers to entry. Many food delivery service providers go out of business and shut down. This can be attributed to the dissatisfied customer experiences and costs needed to maintian such businesses. While most deliveries are successful the rise of frauds related to last mile delivery is increasing. These frauds can be done by anyone in the chain while companies are responsible for identifying and punishing the culprit, adding significant complexity in developing P2P logistics services. Another cornerstone of Delivery Services is the human labour required. Hiring of delivery personnel in todays world demands various verification and regulatory procedures. Thus the need to estalish such systems in acccordance with industry standards requires an understanding of the diverse regulations and onground human support. There are issues related to verification and processing of various real-world data like GPSs, route optimization and more in a decentralized manner.

3.3 Workarounds

While establishing a compelte food delivery with traction is difficult, integraing with netwrok aggregators is a possible solution. As Aggregators like ONDC make availbale various markets that logistics services can enter, it is a matter of customizing the solution to fit their architecure. Unfortunately this does not provide users with complete freedom for establishoing escorow type mechanisms. Other solutions include creating a complete end to end delivery service for the rising inhouse delivery sector. This sector caters to Ghost Kitchens as well as Local dine-in chains that prefer to employ their own workers for delivery. The two approaches are outlined below.

- Create a network aggregator with a custom logistics backend. This will enable inhouse delivery and provide architectures for companies to effciently setup their private logistics solution.
- Focus on integration with current network aggregators, increasing constraints but letting the aggregators drive user acquisition.

3.4 Value Generation

By significantly reducing the cost of the commidites via not charging extra from the customer and vendor, a P2P Escrow based logistic delivery solution would provide value to the users in the network exchange. Such a service would also increase the profits of the transporter as they would be paid most of the delivery amount escrowed by the customer. Inital value generation will target inhouse delivery by exchanging food for crypto, natively. Any projected revenue in such a market could correlate to companies such as ONDC and last mile delivery such as Loadshare.

4 eAuction

eAuctions represent secondary markets where users sell lots to the highest bidder, encompassing governmental, public and private industries. While govermental and public auctions handle large sums of money, due to the regulations we shift our focus to the private sector. With a CAGR of 10.27% , the eauction industry is split into various specialized sectors ranging from automotive resales, luxury items, art, proper-

ties,industrial machinery and common household items. Many of them employ various verification processes for customer satisfaction, including but not limited to escrows, while offering various dispute resolution methods.

Figure 3: Market Projections for eAuctions.

These private companies can further be split based on their lot value. While ebay focuses on trades with commodities ranging from any price , certain companies such as Sothbeys focus on luxury commodities worth significantly more.This difference in commodity price would change the methods such companies approach the process of logistics and verification

. The quality assurance required for customer satisfaction in the case of these high value commodities would involve a close integration between trusted logistic providers and eAuction houses while for low value items eAuction houses could rely on network aggregators, 4PL or more. Hence the development of a P2P Logsitic Escrow service would benfit the neiche industry of eAuctions.

4.1 Competitive Landscape

The eAuctions market consists of players that specilize in a neiche. This would mean there is low competition based on the neiche you choose but difficulties in setting up regulation proceedures and specific technical implementations. Few high value commodity auction houses include Sothbeys,1stdibs,LiveAuctioneers and Worthy while some of the low value commodity auction houses include ebay,LiveAuctioneers, eBid and Craigslist. Each have built their infrastructure to accomodate methods like escrows, insurance, buyer protection programs and more.

Table 3: Low Value Commodity Auction Houses

Company	Growth Rate	Revenue
Ebay	3.4% FY24	$10B
eBid.com	6.1% FY23	$33M
Auction.com	0.8% Weekly	$122M

Table 4: High Value Commodity Auction Houses

Company	Growth Rate	Revenue
Sotheby’s	30% FY23	$6.9B
LiveAuctioneers	?%	$525M - Acquired
China Guardian Auctions	?% FY23	$24.6M

4.2 Complications

Many eAuction houses have established their presence and thus have market trust. These companies also collect a buyers premium, a significant amount sometimes, and thus gen-

erate revenue for transactions that may occur in lower frequencies. Inorder to enter the market, at their scale, one must collect a low buyers premium and provide customer satisfaction. Hence neiche markets must be chosen to reduce complications in maintaining customer satisfaction and would cause customers to easily trust the validity of the commodity, easily trust the vendor.

4.3 Workarounds

One neiche market that could be an ideal candidate to natively exchange real-world commodities via escrowing on the blockchain is Garage Sales. While companies such as Facebook Marketplaces and OLX exist, they represent another type of eAuction Houses that provide document verification, warrenties and more between the involved parties.

It is also noteworthy to mention companies like eBay differ from OLX in their goals and operations. OLX genereates revenue by promotional listings and GoogleAds while ebay genrates revenue by collecting a buyers premium among other methods. Thus OLX type companies are less reliant on consumer satisfaction as they help consumers meet buyers in the real-world while ebay performs the verification themselves for a price.

4.4 Value Generation

Many people have items they dont mind selling. They could utilize costly service providers like ebay for a digital experience to bid on goods or cheaper alternatives like OLX that connect users together digitally. Each have their advantages but are reliant upon various factors for revenue generation.Companies like LiveAuction.go `https://liveauctioneers.com/pages/2021-annual-report/` have projected to have traded 1.4M unique commodities using their network.Thus the initial value generation will primarliy be in user adoption of tokens and their trade for garage sale items in the real-world using either one of the above business models.

5 TL;DR

Escrows have been used by various companies to maintian customer satisfaction. By streamlining the logistics pipeline of various businesses with escrow, natively built on blockchain while catering to their specific business logic, one could pri-ovide value to all the participants involved in the transaction within minimal fee assuming the trade is done without any issue. This would benefit the real-world delivery riders who gets paid about 70% of the cost a vendor or customer is ready to pay for delivery, protect the customer's trade data from be-ing shared to centralized services and not reveal the personal details to anyone else on the network thus increasing privacy.