

A Comprehensive Study About the Need & Factors to Be Considered By Third Party Logistics Vendors For On-Demand Warehousing In Logistics Industry

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ABSTRACT

On-Demand Warehousing is a concept through which companies who are having excess warehouse capacity can fill their unused space and provides clients with storage temporary capacity or seasonal storage needs to find the space with short-term contracts. There have always been challenges by the third-party logistics vendors in meeting the anticipated growth levels of clients and estimating the required storage space. At many points of third-party logistics, there could be a surge in demand at the client end, especially following a new product launch or during holiday seasons, followed by a sudden drop, leaving warehouse spaces lying empty. Exploring the customer and vendor base to work out the key partners within the initial phase of the On-Demand Warehouse business is important. For finding a suitable warehouse, many aspects are important. Common warehouse issues like difficult processes, weak facility of layout, demand uncertainty, more labour costs and not so accurate inventory information require robust systems that will indulge managers informed about processed changes and gaps that attention of need. The optimal layout factors both the ground space and therefore the vertical space available to be used. Additionally, for maximizing the utilization of space, an honest layout needs to be strategized which will maximize the utilization of kit and labour, giving the clear accessibility to all or any items and therefore the security of all items. Using forklifts that reach the roof of the warehouse allows for a configuration that maximizes both the horizontal and vertical space.

This research gave the complete Understanding of business process of long-term warehouse leasing shown the Market research to understand the demand side for On-demand warehousing. With the launch of On-demand warehousing, the platform would have a more holistic portfolio being able to satisfy short term leasing requirements of the clients as well.

Keywords

Warehouse, distribution, on-demand, vendor, Inventory, supply chain

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1.Introduction

By on-demand warehousing, retailers, and difficult brands can fulfil their warehousing needs and have the fulfilment solutions quickly so that no long-term commitments or costly setup fees will occur. They providers of Transport facility play a crucial role in supply chain operations but often the management kind of neglects the mundane side of transportation and physical distribution. The shortage of collaboration between the suppliers and the carriers, and therefore the customer end can have an adverse effect on the graceful functioning of the availability chain.

Even in Covid-19 situation, consumer expectations combined with complicated supply chain disruptions and lightning-fast changes in the demand have delivered to light how challenging it's for supply to satisfy demand in the

least times and altogether places. Suddenly, people began hoarding basic daily goods like soap, sanitizers, toilet tissue, and diapers, and retailers have struggled to stay the shelves stocked. Even big E-commerce has been unable to stay up with demand for nearly any sort of cleaners like hand sanitizer, gloves, paper towels, and etc. Sidewalk chalk, washable paint, and other goods to stay kids busy are flying off the shelves (both physical and virtual) like never before. We're experiencing a shift in demand, and because of this the companies are working hard to satisfy the need of the customers.

When the pandemic will end completely, stores will reopen. Blocks and Shelves are going to be restocked. While this point of crisis has been an exercise in extreme demand shifts, trends will still happen.

Market research for understanding the demand and supply side for On-Demand Warehousing is important. It plays a vital role by helping third-party logistics vendors, organizations understand demand of a given product to target offering, Supply as it helps in designing products in consonance with supplier's capabilities and expected operating standards for the customers. It plays an important role in the product development process including identifying a market need and Conceptualizing and designing the product. Identification of gaps in the current long-term leasing to find areas to improve the cycle time in short term contracts is the first step to analyse the need of On-demand warehousing and the factors to be considered by 3PL for adapting the same.

Primary Research is to develop and comprehend about pain points of third-party logistics and expectations with respect to the offering. Most companies produce goods and companies in anticipation of demand. They need adequate storage for their surplus goods to satisfy customer demand, this can be done the On-Demand warehousing.

2 Literature review

The purpose of this literature review is to describe the relationship of each source to the others that we have selected for strategizing and implementing end to end project of On-demand Warehousing. On-demand warehousing platforms helps marketplaces and clients to fulfil their warehousing needs with underutilized warehouse and distribution capabilities with customers who need extra space for his or her products or distribution services. Such business-to-business (B2B) models are a part of the sharing economy and collaborative consumption movements. They are open, available on-demand, and priced on a per-use basis on-demand warehousing system consists of three primary actors. The supply owners (lenders) are the primary holders of the resources (e.g., warehouse space, fulfilment capabilities) and get to decide whether to allow customers to access their resources. They are different from traditional suppliers, because generally in on-demand models, outsourcing is not the supplier's core business model. The demand requests are indicated needs for resources made by customers who do not own the resources. The customers' need for the resource or service is

mostly short term and required to be fulfilled immediately (on-demand). A central mechanism, a platform, is a third-party organization manages the interactions between the supply owners and the demand requests. It owns not any resources; instead, operates a marketplace and give the access and visibility to both suppliers and customers.

Third party logistics is characterized as an outside coordination specialist organization offering single or different coordination exercises to its clients, which for the most part is on contract premise. Value stream mapping follows the assembly path from starting to end which shows a visible representation of each process in identifying the parameters for the On-demand warehousing and altogether information flows. Comparative analysis with traditional warehousing helps in defining a cycle time for on-demand warehousing process. Comparative analysis detects the cycle time according to the different trends, where Cycle time included Process time from the client acquisition bringing it closure to the deal closure with the client. It also included sales lead and shortlisting of the options. SWOT stands for Strengths, Weaknesses, Opportunities, and Threats. SWOT Analysis will be used to form the foremost of what you've, to your organization's best advantage. Market research provides to the point data to assist solve the problems at market point that a business will presumably face-an integral a part of the business planning process. In fact, strategies like market segmentation (in which identification of specific groups within a market is done) and merchandise differentiation (developing an identity for a product or service that separates it with the competitors) are not possible to develop without marketing research. Market analysis allows business to work out the feasibility of a business before committing substantial resources to the venture, so here marketing research was important to spot the customer requirements and therefore the business partners, with the Survey which shows the margin of error and confidence rate for further implementation. Standard operating procedures is a step-by-step instruction compiled by a corporation to assist company people to perform complex routine operations.

When considering On-demand warehousing, first step is to find the need of it. According to the study conducted by Amitabh Sinha (2016), as

Airbnb app was used to find a nice place to stay for that long weekend. Similarly on-demand warehousing dynamically is emerging as a best way of purchasing warehousing services on demand in which payment would only be done which area is used in place of owning the whole areas and distribution centres or had signed the contracts with the third party logistics providers (3PLs). The approach was to make a whole warehousing strategy, and to have supplement for the vast existing logistics network which was built on long term contracts. In cases, the main motive is to allow company to adapt quickly to satisfy demand and also to improve cost conditions.

Research about various on-demand resource-sharing models is growing slowly and rapidly, researching about different business model designs, pricing models, and network channel strategy, among other topics (Benjaafar & Hu, 2019; Tian & Jiang, 2018). And also, the exploration about On-demand resource-sharing model by logistics (Carbone et al., 2017; Ermagun & Stathopoulos, 2018; Li et al., 2019; S. Melo et al., 2019; Mourad et al., 2019). OnDemand business models remain underexplored for warehouse, and research about networking modelling for on-demand and about analysing about different factors.

In (Thanh et al., 2008), the model which they made started with a state in which all locations and capacities of the facilities are well known, and the opening, closing, and expansions of capacity facilities are decided over time. In their model, they had a public warehouse which can be opened and closed multiple times, but they decided to have a two-period gap between the points of decisions. However, after the decision is made, private warehouses were kept open or closed for the entire planning horizon.

Warehouses by 3PL needed for on-demand purpose consist of three primary actors. The supply owners (lenders) are the primary holders of the resources (e.g., warehouse space, fulfilment capabilities) and get to decide whether to allow customers to access their resources. They are different from traditional suppliers, because generally in on-demand models, outsourcing is not the supplier's core business model. The demand requests are indicated needs for resources made by customers who do not own the resources. The customers' need for the resource or service is

mostly short term and required to be fulfilled immediately (on-demand).

Warehousing sizing problems had a specific research about the facility location literature. The focus primarily is focused on aggregate level planning. They do not comprise of multiple demand locations, and also, they also don't consider different location decisions. An example is (Cormier & Gunn, 1996), in which they showed the different increasing or decreasing capacity at new and existing locations (Chen, Hum, & Sun, 2001) analyse various 3PL warehouse lease contracts with different types of size commitments and contract schedules. (Gill, 2009) also captured the outsourcing decisions in which the storage requirements were done with private capacity of warehouses and they specified the requirements of storage. And also, the excessive demand was maintained with fulfilling it with a rental (public) warehouse space. They compared the same two storage alternatives in his dynamic warehouse sizing problem when the warehouses were not even from the bunch of capacities. To model a decision of firm of also having the choice to utilize three different distribution types, we'd like to include multiple sorts of facilities and their unique characteristics into a multi-period facility location-allocation optimization model. The model must capture (a) multiple decision periods, (b) the power for multiple facility types to be located during a given location, (c) the power to open facilities during any period, (d) the power to capture different costs structures related to the various facility types, and (e) varying commitment and capacity granularities of various facility types. Despite the vast amount of distribution system and provide chain network literature, none of them incorporate these unique properties of the on-demand distribution systems nor combine them with existing solutions. Additionally, the experimental studies using this model provide and quantify new understandings of who, when, and the way to utilize these on-demand strategies and to better of our knowledge, the trade-offs related to these three types haven't been studied before. Warehouses need commercial buildings for storage of orders/ products. However, there are literally many various sorts of warehouses, from distribution centres to fulfilment centres to cross-docking to cold-storage, etc.

According to Fang Yuan, in broad strokes, they believe a future where there'll be:

Mass customization: Product can be reached by customers in their needs (custom sizing, even pricing, design, functionality) as soon because the order is once placed and delivered/transferred wherever the choice is made.

Rapid delivery: In place of large and many distribution centres located at different locations remotely that stock many thousands of Stock Keeping Units, there'll be a distributed network of small fulfilment centres once produced and then transferring the goods in daily time that will further allow on-timed deliveries within as little as 20 minutes of as soon as the order is placed.

Improved speed & accuracy: By automation, the replacement of human labour can be supplemented, when the top state of reaching lights-out levels where fill orders machines with none human intervention via technologies like autonomous mobile robots, storage done automatically, automation by tracking technologies, conveyors done at high-speed in their daily operations.

For the information in the past five years, the construction of warehouses spends around 29% annually, within the previous 19 years, when 1% rise is annually seen. Since 2007, the average warehouse size has increased from 140% to 185,000 square feet. Across all warehouses within the world, complexity has become in the processes, which will help in moving even more smaller items at a way faster pace than before.

When deciding the factors to be considered for On-demand warehousing the first step is to do Market research for understanding the demand and supply side for On-demand warehousing. Collection of the factors was done by brainstorming and having a discussion with industry experts and hence created a google form for 3PL and client both. The data analysis will be performed for clients and 3pl for having the meaningful visualization for insights.

Creating the factors gave me insights in many aspects, from the different services 3PL provide starting from the type of warehouses the 3PL provide and the minimum leasing time period contract which show the existing business offered by 3PL.

Knowing the interest of 3PL for collaboration gave me the eagerness to research more about finding the number of minimum preferred days for leasing for knowing the pain points from the

supply side in traditional warehousing and to collaborate for On-demand warehousing.

Thus, the need of On-demand warehousing can be decided based on the factors and their variables mentioned above. The pieces of literature that have been analysed provide the relationship of the variables of a single factor with one another. This study will aim to bridge this gap by analysing the relationship of all factors and their variables with each other for strategizing On-demand warehousing.

3. Methodology

Need and significance of ODW-Variou factors have led to the sudden increase in awareness and market need for On Demand Warehousing:

1. The Amazon Effect - The "Amazon Effect" has changed shopper desires and implies that everything without exception is accessible online with one-day or even perhaps same- day transportation to clients. Including extra warehouse stockpiling and request satisfaction in vital areas according to request has gotten indispensably significant for e-commerce business players
2. Long Term Leasing cost - New businesses and little organizations are thinking that its favorable to lease warehouse space as they develop as opposed to building their own dispersion habitats and distribution centers. By using warehouse space dependent upon the situation, a private venture can spend significant time in developing deals and piece of the pie as opposed to including the overhead expense of long-haul renting.
3. Leasing Period – Because of unavailability of warehouses for shorter duration of period companies are forced to lease warehouses for period greater than their requirement and incur more cost.
4. Inventory overflow - Regardless of whether the organization has its own conveyance arrange it here and there winds up needing brief distribution center space. Broad new item dispatches, importation of a years of merchandise of crude materials to support against expanded expenses can now and then make the requirement for additional extra room.

5. Dependence on peak season - On the off chance that an organization accepts on a solitary season for some, income, utilizing an on-request stockroom for its pinnacle season is reasonable than to pay for all year distribution center space.
6. Unused space utilization - On demand warehousing benefits the vendors to realize more profits for the unused space and to create strong relations within the market. Other than bearing the expenses of the unused space, they will turn it into a revenue- generating asset.
7. Scale of operations - With the help of On-demand warehousing the vendors can maintain a consistent scale of operations throughout the year and can achieve better utilization of resources as demand fluctuations decreases.

that will help ascertain the relationship of the variables to their factors. The questionnaire also helped in ascertaining the relationship that exists between all the factors considered. For this study, google forms were sent to 105 third-part logistics and their response was collected. Even Telephonic conversations were conducted with managers and executives with the vendors for this study.

3.1 SWOT analysis-

This analysis showed the need and depth of On-demand warehousing. This analysis will identify the major internal strengths and the weak points, as well as its external opportunities and threats. It gave the technique to strategize planning. By SWOT analysis, it was so clear that the man-hours in saved in On-demand warehousing than traditional warehousing.

This is shown below-

So, after the factors are identified, the next step was to create a questionnaire for 3PL Vendors,

Figure 1: SWOT analysis

Strengths	Weakness
<ol style="list-style-type: none"> 1. Substantial database with rigorous information of different cities and facilities will help the 3pls and clients. 2. Ability to fulfill clients order in less time than traditional warehousing. 3. Digital integration reduces the manual intervention in warehouse procurement process. 4. Strong industrial Mentorship 	<ol style="list-style-type: none"> 1. Bargaining with 3pl vendors for short duration of services could be tedious effort. 2. Negotiations on consulting/ management charges with the space/ service provider could be a furious task.
Opportunities	Threats
<ol style="list-style-type: none"> 1. Growing market in warehouse sector in India 2. Demand for share space on a shorter notice on frequent basis. 3. First mover advantage in new market. 	<ol style="list-style-type: none"> 1. Delay in agreement between the 3pl/vendor & client might cause client calling off the deal. 2. Market intervention due to new entrants. 3. 3pl/vendor provide space and services directly to client 4. Not finding a competent space for client could cause opportunity loss.

Following questions were included in the questionnaire for third party vendors and further the justification is given with different graphs for the same.

1. What is the type of your warehouse ownership?
2. What has been the duration of your shortest contract till date (In Months)
3. Do you have to deal with excess warehouse capacity yearly?
4. Would you like to lease out the excess warehouse capacity for On-demand warehousing?
5. What minimum days would you give the client to store their products? (Write NA if Not Applicable)
6. Are you willing to provide following 3PL services as well to the clients who are opting for On-demand warehousing?
7. What is the storage type you prefer in your warehouses?

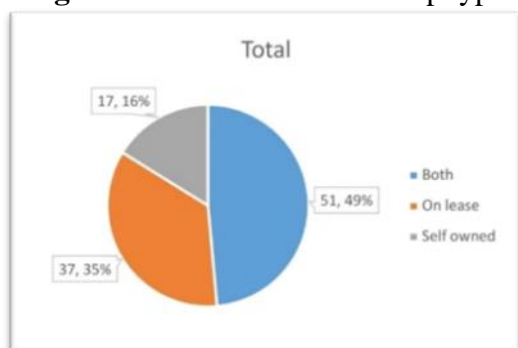
3.2 Findings & observation

A total of 105 responses were received. All these responses were collected from the different sectors like FMCG, manufacturing, E-commerce, retails etc. Thus, these responses gave the conclusion as-

3.3 Understanding 3PL partners

Type of warehouse available and the shortest leasing contract signed by 3PL indicate existing business preferences of 3PL. Below are the two graphs indicating the same.

Figure 2: Warehouse ownership type



This above graph shows that the vendors has less self-owned warehouses and majority works on lease. Mostly the vendors work on both, i.e. Self-owned and on leasing too.

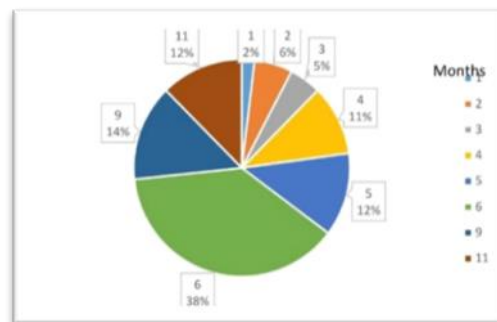
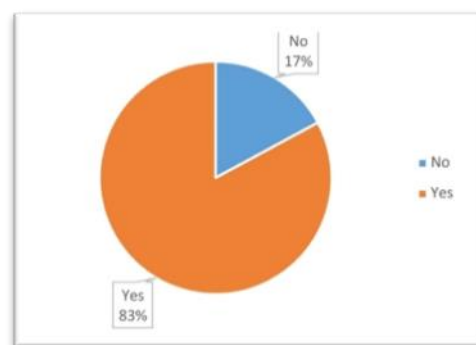


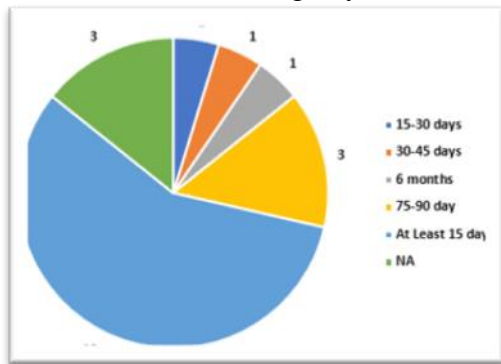
Figure 3: Shortest leasing duration

This graph shows that the vendors have six months as the shortest leasing duration. This graph had the clearance that the vendors don't lend their space for less months. They prefer to give the service, either warehouse or operations, for more months. Majority of vendors lend their spaces for minimum 6 months.

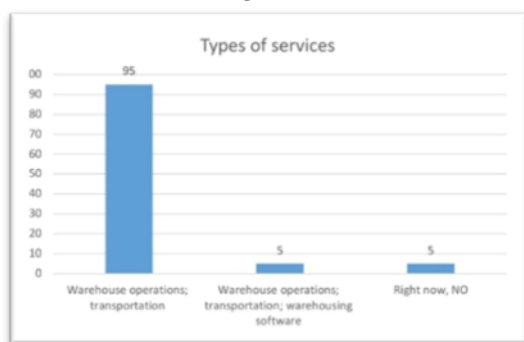
Figure 4: Outlook towards ODW collaboration:



The graph shows the willingness to lend extra capacity for ODW. This indicates eagerness on part of 3pl to lend their ware housing space. This shows they want to lend their free or unused space of the warehouses.

Figure 5: Minimum leasing days for warehouse

The above graph indicates preferable minimum leasing number of days. As can be seen from the figure many 3PL are willing to lease their space for duration as short as 15 day.

Figure 6: Understanding Services provided by 3PL

The above two graphs indicate the type of service and storage provided by 3PL. This shows whether the 3PLs are giving logistics facility or the full operations services. This will help the clients to work even more smoothly. The products and services will be done even in a better way and customers can get their order in less time and satisfaction level will be high.

4.Result

It is clear from the responses that majority of 3PL vendor warehouses are on-lease. From this, we can infer that 3PL vendors will be willing to maximize the Sqft utilization of their warehouses. Majority of 3PL vendors have offered warehouse space on-lease for a minimum of 6 months till date. Majority of the 3PL vendors were willing to lend their excess warehouse space for On-demand warehousing. 3PL vendors were ready to offer their excess warehouse space on-lease for a minimum duration of 15-30 days. This matched the data collected from client survey regarding the

minimum duration for ODW according to clients. They also showed willingness to offer warehouse operations and transportation services as well in addition to the storage service.

Based on the survey conducted for 3PL, it is clear that On-demand warehousing benefits the vendors to realize more profits for the unused space and to create strong relations within the market. Other than bearing the expenses of the unused space, they will turn it into a revenue-generating asset.

5.Conclusion

On Demand warehousing can end up being a proficient practice to counter the circumstance of less flexibility and significant expense. Not at all like, customary renting rehearses where an organization needs to pay a forthright high lease, in On Demand warehousing it just pays for the existence used. This gives organizations a chance to develop their stock levels and web-based business satisfaction benefits in accordance with client request, helping them to eliminate their capacity cost essentially. Because of unavailability of warehouses for shorter duration of period, companies are forced to lease warehouses for a period greater than their requirement and incur more cost. To avoid this, On-demand warehousing can affect in a great manner.

There isn't a bit of uncertainty that On Demand Warehousing best suits Start-ups and Small to medium enterprise as they for the most part do not have the assets and the aptitude in stock administration and partner with a 3PL, offering On Demand administrations, causes them become more proficient in their administrations at lower cost. In any case, these administrations can be of equivalent use, if not more, to the MNC as it can address their transient prerequisites during circumstances of occasional vacillations, new item dispatches and a minute ago changes.

6. Scope for further research

As in today's era, every company wants to get closely linked with their customer and make the supply chain more flexible. Short term leasing will help them to do so. Instead of large warehouses, clients can connect with the Vendors where many small warehouses are established, so that distribution network can be optimized to satisfy the customer demand. On Demand warehousing can end up being a proficient practice to counter the circumstance of less

flexibly and significant expense. Not at all like, customary renting rehearses where an organization needs to pay a forthright high lease, in On Demand warehousing it just pays for the existence used. This gives organizations chance to develop their stock levels and web-based business satisfaction benefits in-accordance with client request, helping them to eliminate their capacity cost essentially.

There isn't a bit of uncertainty that On Demand Warehousing best suits Start-ups and SMSE's as they for the most part do not have the assets and the aptitude in stock administration and partner with a 3PL, offering On Demand administrations, causes them become more proficient in their administrations at lower cost. In any case, these administrations can be of equivalent use, if not more, to the MNC as it can address their transient prerequisites during circumstances of occasional vacillations, new item dispatches and a minute ago changes.

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