

What are the sources of competitive advantage in logistics?

Logistics aims to meet the increasing demands of customers at the lowest possible cost, managing the flow of materials and information in every activity that makes up the logistics system, from the supplier to the end consumer.

As a result of its purpose, the logistics can put the company ahead of its competitors in two ways:

1. Advantage of providing value by offering services such as delivering faster or scheduled, product assembly, etc ..., creating customer value.
2. Providing cost advantage, partnering with suppliers and business customers, making activities and processes more efficient, by compensating for the reduction of total logistics costs, etc ..., putting on the market with lower prices than the competition.

A company can have advantage of value, for example, the small retailer to offer a differentiated service as prompt delivery of a wide variety of goods that can be bought in small quantities and with funding provided by the company itself, which may also include assistance technique.

One possible strategy used by the company is as follows:

- All products placed in a single distribution center to keep them available and reduce shipping costs and delivery times.
- Own vehicles to monitor and ensure the quality of service.
- Use of transit-points, which are sheds used only to spend a large amount of cargo that arrives there for smaller vehicles that perform the delivery to the end customer, making transport cheaper and reducing delivery time.
- Passive telemarketing and online at the company website queries to shorten the order cycle.
- Assets to increase sales and thereby increase the volume in less time loads in vehicles coming to and from the transit-points, optimizing the use of the fleet telemarketing.
- Information technology to provide better performance in the placement of orders, operation and management of storage and transport, through routing and vehicle tracking.

Have a business may have cost advantage by providing their consumers a wide variety of products at lower prices than the competition.

This company can achieve its goal through a strategy such as:

- Place several stores in locations relatively close, each other, and intense movement of people to save through bulk purchasing, reducing your costs in advertising and refueling.
- Owning distribution center and own vehicles to receive products from suppliers and direct them to the store replenishment, which enables the daily replenishment of stocks with less spending.
- Keeping prices daily to save on promotions campaigns and make it easier to predict demand.
- Establish large quantities and long periods with the most important vendor contracts and share information to reduce the cost of logistics.
- Constantly uses information technology to connect stores and suppliers to determine the required amount in stock to meet sales.

Because the market is increasingly demanding and fraught with uncertainty, there is a need for adjustment by firms. The implementation of the concept of Supply Chain may benefit both the company and for its business partners, with regard to the achievement of competitive advantage.

The concept of Supply Chain consists in the integration of logistics processes and procedures of other departments (suppliers, the main company and its business customers), to be efficient (lower cost) or differentiation in the activities (creating value for client).

To achieve its goal, the supply chain must be managed so as to meet demand with less inventory and lower supply capacity. Product not stocked, and this is possible with the use of information technology.

Through the use of IT, when a request is made to a company, your dealer receives this information almost in real time and can forecast sales more accurately, make the supply, reduce costs and be more agile in the process chain as a whole. There are also cases of companies that have their vendor-managed inventory, which is also advantageous for all members of the chain.

In addition to the examples cited above, the use of IT, with good planning executed with strictness can become synchronized throughout the supply chain and provide fast service demand, identifying and solving problems.

As important as a logistics strategy is the identification of the costs and performance of operations and the general department.

Within this aspect we mention, albeit briefly, two important tools: Activity-Based Costing in Logistics (ABC) and the Balanced Scorecard (BSC).

The ABC Logistics measures in which the expense is to be held each activity or logistical process involved in producing a good or service, which allows to know which activities or processes which have higher cost to jail and what these costs. Moreover, it serves to evaluate the efficiency of activities and processes and show which customers, regions or distribution channels that give higher profit margin for chain and how the logistics contributes to this increased margem.Com such information, one can decrease expenses of operations or make services more efficient.

The BSC is a “meter that determines efficiency targets and indicators for each department of the company or each member of the supply chain must achieve to fulfill the strategy outlined business, favoring the resolution of the cause of the problems and the constant improvement of activities and logistics processes

Explain the role of supply chain management.

Supply chain management (SCM) is the process of managing the flow of goods and services to and from a business, including every step involved in turning raw materials and components into final products and getting them to the ultimate customer. Effective SCM can help streamline a company's activities to eliminate waste, maximize customer value, and gain a competitive advantage in the marketplace.

How Supply Chain Management Works

Supply chain management represents an ongoing effort by companies to make their [supply chains](#) as efficient and economical as possible.

Typically, SCM attempts to centrally control or link the production, shipment, and [distribution of a product](#). By managing the supply chain, companies can cut excess costs and needless steps and deliver products to the consumer faster. This is done by keeping tighter control of internal [inventories](#), internal production, [distribution](#), sales, and the inventories of company vendors.

SCM is based on the idea that nearly every product that comes to market does so as the result of efforts by multiple organizations that make up a supply chain. Although supply chains have existed for ages, most companies have only recently paid attention to them as a value-add to their operations.

5 Phases of Supply Chain Management

A supply chain manager's job is not only about traditional [logistics](#) and purchasing but finding ways to increase efficiency and keep costs down while also avoiding shortages and preparing for unexpected contingencies. Typically, the SCM process consists of these five phases:

Planning

To get the best results from SCM, the process usually begins with planning to match supply with customer and manufacturing demands. Companies must try to predict what their future needs will be and act accordingly. This will take into account the raw materials or components needed during each stage of manufacturing, equipment capacity and limitations, and staffing needs. Large businesses often rely on [enterprise resource planning \(ERP\)](#) software to help coordinate the process.

Sourcing

Effective SCM processes rely very heavily on strong relationships with suppliers. Sourcing entails working with [vendors](#) to supply the materials needed throughout the manufacturing process. Different industries will have different sourcing requirements, but in general, SCM sourcing involves ensuring that:

- The raw materials or components meet the manufacturing specifications needed for the production of the goods.
- The prices paid the vendor are in line with market expectations.
- The vendor has the flexibility to deliver emergency materials due to unforeseen events.
- The vendor has a proven record of delivering goods on time and of good quality.

Supply chain management is especially critical when manufacturers are working with perishable goods. When sourcing goods, companies should be mindful of lead times and how well equipped a supplier is to meet their needs.

Manufacturing

This is the heart of the supply chain management process, where the company uses its machinery and labor to transform the [raw materials](#) or components it has received from its suppliers into something new. This final product is the ultimate goal of the manufacturing process, though it is not the final stage of supply chain management.

The manufacturing process may be further divided into sub-tasks such as assembly, testing, inspection, and packaging. During the manufacturing process, companies must be mindful of waste or other factors that may cause deviations from their original plans. For example, if a company is using more raw materials than planned and sourced for due to inadequate employee training, it must rectify the issue or revisit the earlier stages in SCM.

Delivery

Once products are made and sales are finalized, a company must get those products into the hands of its customers. A company with effective SCM will have robust logistic capabilities and delivery channels to ensure timely, safe, and inexpensive delivery of its products.

This includes having a backup or diversified distribution methods should one method of transportation temporarily be unusable. For example, how might a company's delivery process be impacted by record snowfall in distribution center areas?

Returns

The supply chain management process concludes with support for the product and customer returns. It's bad enough when a customer needs to return a product, but even worse if that's due to an error on the company's part. This return process is often called reverse logistics, and the company must ensure it has the capabilities to receive returned products and correctly assign refunds for them. Whether a company is conducting a [product recall](#) or a customer is simply not satisfied with the product, the transaction with the customer must be remedied.

Returns can also be a valuable form of feedback, helping the company to identify defective or poorly designed products and to make whatever changes are necessary. But without addressing

the underlying cause of a customer return, the supply chain management process will have failed, and future returns will likely persist.

Define logistics management? Discuss the structure of Logistics.

The relevance of logistics operations in the modern world is out of the question. This sphere can be put in the same line as real estate and healthcare. Be it manufacturing, retail, catering, construction, or any other sphere of service – there's always something to move from point A to point B in a certain volume.

Obviously, the investment background is in a constant boom, as the outcome related to efficient logistics and supply chain management is too fruitful to be ignored. For instance, [the prospects of investment](#) and development in the logistic facilities real estate market in Europe increased between 2018 and 2022, according to industry experts. And [funding for logistics software development startups](#) almost doubled in 2021.

Logically, the technological and digital aspects are in major focus. The authoritative portal of [The Wall Street Journal](#) witnessed a flood of big money from governments and the private sector pumping up logistics software development endeavors.

Logistics & Logistics management system

Before all, it's a good idea to cover the basic terms of logistics and a logistics management system.

In outline, the logistics industry deals with the planning, storage, and transportation of goods of any kind.

- Planning includes building strategies, data collection and analysis, calculations, and coordination efforts.
- Storage is mostly about warehouse and inventory management.
- Transportation management in logistics focuses on shipments by air, water, land, and rails.

Surely, each point includes dozens of subcomponents, but the main goal for all of them is to provide customers' order fulfillment in the quickest and most cost-effective way there is.

So what's a logistics management system, or LMS?

Basically, it's a set of logistics software tools that helps to increase inbound and outbound logistics efficiency. Starting from processing orders and finishing with the delivery to the customer, a logistics management system acts as an analytical and executive brain for each stage of logistics operations.

(OR)

What are the implications of supply chain management on logistics?

Supply chain logistics coordinate the storage and shipping of goods and services across the supply chain. The practice begins with raw materials, continues on to manufacturing and/or distribution and ends when a business delivers finished goods to the customer or when products are returned to their final destination.

Supply chain management (SCM) is one of the main ways to optimize the budget of enterprises producing goods and/or services. At the same time, a great role in the supply chains is played by logistics – the management of physical, informational, and human flows in order to optimize them and avoid unnecessary waste of resources.

Below we will talk about the important role of [logistics in supply chain management](#) that includes many suppliers, transit points, as well as points of departure, and destination

What is the Difference Between Logistics and Supply Chains?

Logistics and supply chain should not be confused. Logistics is a rather narrowly focused concept (narrower than the SCM), which simply means globalization of resource management — from every local unit to the entire network of production points.

In turn, supply chain management is a more complex category. Supply chain management involves logistics and thus performs end-to-end optimization – that is, not only within the enterprise but also when working with counterparties.

The purpose of efficient logistics management is to achieve maximum competitiveness and profitability of the company, as well as the entire network structure of supply chains, including the end-user. In this regard, the integration and introduction of innovations into the processes of supply chains, as well as into the processes of logistics, should be aimed at increasing the overall productivity of all their participants.

The Functions of Logistics within Supply Chain Management

If we systematize all areas of logistics that need to be developed for the rational management of production resources, we can single out the following functions:

- Warehouse design and management. This role of logistics in supply chain management covers several tasks at once: from the design of storage facilities to the requirements for storage of products and ending with the introduction of various automation solutions (for example, for machinery intended for transporting goods within warehouses);
- The formation of packages. Packaging, tracking and accounting – all of these tasks allow for end-to-end control of goods on the way to the customer/distributor;
- Transportation of products. This includes work with cargo carriers and vehicles listed in the company's fleet: planning their routes, calculating fuel costs, etc.;
- Working with customs. When an enterprise plans international delivery of goods, it is very important that during their transportation the goods fully comply with customs requirements and contain all the necessary documentation;
- Working with intermediaries. Intermediaries in logistics are all third-party, non-company resources that are directly involved in the implementation of supply chains. In turn, finding intermediaries with the most acceptable ratio of quality to cost of services, as well as establishing long-term, reliable relations with them are also included in the list of tasks for efficient logistics management;
- Working with written off and returned goods. There is also such a thing as “reverse logistics”, which establishes the rules and routes for transporting the returned/discarded goods, as well as ways to dispose of them.

Describe the modes of Logistics.

Road Transportation

There are many advantages to road transportation, especially for companies who rely on fast delivery to retain their customers. If goods are meant to be transported immediately to the **Maritimes from Mississauga**, for example, your best bet would be ground shipping transportation. Water transport is notoriously slow, and it can be a hassle to book railway transportation.

[Maritime trucking to Mississauga](#) and other locations is more cost-effective than other options; with rail transport, if there isn't a railway that leads to your desired destination, you'll have to build it, which can be a costly investment. However, there are roads that lead to pretty much everywhere, and are built and paid for by the government; more often than not, you'll only have to pay a small fee to use them. [Roadway transportation to Atlantic Canada from Mississauga](#) can also be cost-effective since it provides **door-to-door or warehouse-to-warehouse service**. This allows cartage, as well as loading and unloading expenses, to be significantly lower compared to other methods.

Rail Transportation

Railway transportation is arguably the most dependable method of **transport to the Maritimes from Toronto** and pretty much anywhere else. Unlike road and marine transport, rail is hardly affected by weather conditions. Transport trains will run in rain, fog, snow, and other conditions that would otherwise delay shipments carried by other methods. With fixed schedules that run regularly, railway service is more certain compared to other methods of shipment.

Rail transport also offers huge carrying capacities, which can grow to fit your needs. Unlike trucks or boats, which have a fixed amount of space that can't be exceeded, additional wagons can always be added to trains if you need more room. In addition to all the benefits for you and your company, you'll also be giving great opportunities to surrounding communities. Rail transport can provide employment opportunities to both skilled and unskilled workers, making it a positive choice for the entire community. The biggest disadvantage, however, is that if there are delays in the transportation, it can actually take much longer to get your freight delivered than with other methods of transportation. With rail transportation, you need to schedule container drop off and pick up at the terminals which could end up taking a long time.

Marine Transportation

Marine transportation is notoriously slow, but that doesn't matter when a product has a long lead time. This is a great option for those looking to ship bulky items that aren't in much of a rush. Often cheaper than road transport, ships are usually the main cost that you'll incur—you won't have to worry about road tolls and other similar charges. While roadway transportation can easily be [delayed by rain or other types of inclement weather](#), the same conditions may not affect marine transport.

The main disadvantage of marine transport is that it can be **difficult to monitor the exact location** of the goods in transit, which can be a deal-breaker for some. As you've read in our past posts, being able to track freight is a common expectation of consumers who order things from online retailers and can affect their purchase decision. While there are many advantages to marine transport, the downside of the lack of ability to closely track the exact whereabouts of the specified freight can be crucial.

Air Transportation

Air transport is extremely useful for many reasons: it's convenient, fast, and doesn't have to compete with natural barriers. While road transport is the quickest way to deliver goods that only have a short distance to travel, **air transportation is the fastest option for freight** that have a further destination—it's even regarded as the best mode of transportation for perishable goods for this reason.

In addition, air transportation doesn't require the infrastructure investment that railways do; airplanes fly freely, which means you don't need to spend the initial cash building a pathway to your destination for it to get there! The lack of barriers also means that it's accessible to all areas, regardless the obstruction of land. However, one main disadvantage is that planes can easily be

affected by pretty much any type of inclement weather. Whether it's rain, snow, or high winds, your shipment is likely to get delayed if any weather condition becomes extreme.

Intermodal Transportation

As you've probably noticed through reading this post, each method of transport has its advantages and disadvantages. What if you could combine the pros of each method to create one innovative method? That's exactly what intermodal transportation is.

Intermodal transportation offers the best of both worlds: it combines various transportation methods to give you the fastest shipping time possible. Not only is this method time-efficient, it's cost-efficient as well. More shippers are taking advantage of the option to reap the benefits of the cost savings, environmental benefits, and highway safety results. With the lower rates, predictable pricing, standardized transit schedules, and flexibility, intermodal transportation is continuing to rise in popularity.

Discuss the stages in the evolution of logistics to supply chain management.

Supply Chain Management is the process in which a company manages the flow of its goods and services from the point of origin to the point of consumption. This process involves movement & storage of raw materials, work-in-process inventory, finished goods, end to end order fulfillment, movement of finished goods from manufacturer to warehouse, and then to the destination of final consumption. While this process sounds easy, it takes a ton of workforce to complete this process, especially for companies with a large number of products/services, multiple vendors, different warehouse locations, different retail stores, etc.

With the rise in the number of every business associate, the management of the supply chain becomes even more difficult. With more discrepancy in supply chain management, companies began looking for solutions. These solutions are now the basis of each stage of the evolution of supply chain management.

The Stages of evolution in Supply Chain Management

There are a total number of 5 stages in the evolution of the supply chain industry. These 5 stages include:

- Stage 1 – The early 1980s
- Stage 2 – Late 1980s
- Stage 3 – The early 1990s
- Stage 4 – Late 1990s
- Stage 5 – The twenty-first century

Check out how you can differentiate between these stages:

Stage 1 – Consolidation

Starting from the early 1980s, businesses focused on products. They focused more on quality and the key performance metrics were – inventory turns and production cost. For the purpose of achieving inventory turns, small companies began merging into larger organizations. This also led to organized planning of the production cost which further resulted in becoming a good solution for most businesses.

Stage 2 – Integration

In the late 1980s, businesses shifted their focus from products to the volume of output. Keeping a close eye on the cost, the key performance metrics for Stage 2 of the supply chain evolution turned out to be production capacity and throughput. Companies that started making profits in the earlier stage now analyzed that just production cost will not help them in making more

profits. And for this reason, the rate of production and the volume of production became important. By the end of this stage, companies found their solutions.

Stage 3 – Market Value

Then came the third stage of the supply chain evolution which began in the early 1990s. Organizations in this stage started to focus more on market-driven results. The key factor of this stage of evolution was product availability and the performance metrics were clearly – market share and order fill rate. Now the problem was not about making more products but about delivering them to the markets. So, by the end of this stage, businesses had the solution again and were onto their next stages of growth for even better results.

Stage 4 – Brand Value

During the late 1990s, firms analyzed that customers were the game changers for revenue generation. This is when they shifted their business strategies and made ‘lead time’ the key factor in their goals. With this, the key performance metrics changed from market share and order fill rate to customer satisfaction, value-added, and response time. Companies now had the time to analyze that products that were made with a prime focus on customers were what sold out more. That’s how companies started focusing on products that added value to their companies.

Stage 5 – Automation

The twenty-first century is more driven by knowledge and that is why having more information is preferred to be ideal for a company’s supply chain management. The key performance metrics for the 5th stage of supply chain management is real-time communication and business intelligence. Over the years, with a growth in each segment of the supply chain, employment has also increased. With more people in the circle, communicating every little detail to each person has become a task. The process of storing information also began to get hectic and for all these reasons, automation started out to be the focus for companies to grow.

Today, all the companies using automation throughout their supply chain are the companies that have a bigger scope to grow. With each stage of the evolution, companies found their solutions, and likely, this stage will also be smooth in transition for those who live up to the changing strategies for their business growth – focus on automation. Keeping automation as a solution for real-time communication and business intelligence, your organization will get the chance to rise above and move on to the next big solution of the next stage of the evolution.

Describe the various forms of logistics information.

Logistics management is a multifaceted process that’s vital to the supply chain. It involves planning, implementing, and controlling the flow of goods, services, and relevant information from their point of origin right through to the final destination. Also critical in this complex network are production management and customer service management.

All these elements interact constantly under an effective logistics management strategy with one key goal: delivering the right product to the right place at an optimum cost while exceeding customer expectations at every turn. Today more than ever before, businesses leverage strategic logistics operations in their quest for operational efficiency enhancement.

Logistics management is vital for efficient and effective supply chain operations. By optimizing transportation, warehousing, inventory control, and other logistics processes, it enables businesses to minimize costs, maximize customer satisfaction, and gain a competitive edge in the market. There are four key effective logistics management types that help accomplish that.

Inbound Logistics

In the realm of logistics management, [inbound logistics](#) plays a pivotal role. This process centers on the efficient flow of goods and materials from suppliers to production facilities or warehouses.

Activities such as transportation management, inventory control, and supplier relationship management fall under this category. With successful implementation, inbound logistics can enhance operational efficiency and customer satisfaction while driving cost savings.

In essence, it's an integral part of optimizing overall supply chain performance.

Outbound Logistics

Outbound logistics is a pivotal aspect of logistics management, focusing on transporting finished goods from a company's production facilities to the consumers. This process entails order picking, consolidation, dispatching items, and delivering products to end customers.

Effective control over outbound logistics can lead to enhanced customer service and notable cost savings. Activities within this realm may encompass packaging and labeling, inventory management, transportation planning, and fostering robust customer relationships.

Reverse Logistics

Reverse logistics is a vital aspect of supply chain management that focuses on the efficient movement of goods from customers back to sellers or manufacturers. It involves processes such as managing returns, refurbishing or remanufacturing products, and dealing with unsold or end-of-life items.

By implementing effective [reverse logistics](#) strategies, businesses can reduce waste, recover value from returned products, and improve overall supply chain efficiency. This not only benefits the company but also contributes to customer satisfaction by ensuring seamless returns processes and proper handling of returned goods.

Third-Party Logistics (Fourth-Party and Green Logistics)

Third-party logistics (3PL) is a vital component of effective logistics management. These service providers focus on managing the day-to-day operations of supply chain logistics. They handle crucial functions like transportation, warehousing, and distribution on behalf of their clients.

Fourth-party logistics (4PL) is an advanced level of logistics management where a company outsources the entire supply chain management function to a strategic partner. The 4PL provider acts as an integrator, overseeing multiple 3PLs and other service providers to achieve streamlined operations, improved efficiency, and cost savings for their clients.

In addition to 3PL and 4PL, there is also a growing emphasis on green logistics services that prioritize sustainability and environmental responsibility in every aspect of the logistics process. Green logistics involve incorporating environmentally friendly practices and technologies to minimize the carbon footprint, reduce waste, and conserve natural resources.

What are the important principles of designing?

Principles of design are the tools in which are used during the design process. The 2 really go hand-in-hand. There are 5 important principles to take into consideration which are: balance, rhythm and repetition, emphasis, proportion and scale, and last but not least, harmony.

Balance. I'm guessing you know what balance is, but in terms of interior design, it's achieved when careful consideration is given to the placement of objects within a space. The reason for this is to give the sense of stability and a sense of equilibrium.

This involves all the elements of design which influences the ultimate goal of achieving balance and harmony.

Size, colour, texture, and shape of an element can change the visual weight. For example, larger, darker, brighter, highly textured, complexly shaped objects typically feel heavier and require balance through the placement of equally “heavy” items or multiple less heavy items.

Formal or Symmetrical balance which creates a mirror effect gives a feeling of formality and precision. Symmetry is common in interior design and can portray a feeling of stability, calmness, and dignity.

Informal or Asymmetrical creates a feeling of equal weight on both sides even though the sides do not look the same. This gives a more casual, relaxed feeling to a space.

Asymmetrical balance relates strongly to the visual weight of objects. Rather than repeating the same item within a space to achieve balance, in this case we are using different elements with a similar perceived weight to achieve balance on the opposing axis. These spaces tend to feel more dynamic and less rigid because in these spaces a variety of objects are working together to create balance. This form of balance can be more difficult to achieve it often requires an “eye for design”.

Rhythm and Repetition. Rhythm is created through repetition of line, form, colour or texture to create a visual link which the eye follows. It allows the eye to move from one part of a design to another part.

Rhythm implies movement and invites your eye to move across the space in a pleasing, choreographed way. The number of focal points and their placement, color, shape, and texture form a rhythm that flows through the basic pattern of the space.

Repetition creates a visual link within a space and is an important component of any design. It can be provided by repetition of pattern, color, shape, or accessories.

Emphasis. This refers to a focal point and supportive furnishings that create the centre of attention. It should be the accent to which your eye is attracted, and is often a view, fireplace or artwork. Without emphasis or variety, rooms are monotonous.

A focal point or even two emphasized areas can really help to create drama and interest in a space all while creating an everlasting first impression.

The way you place your intended focal point within a space is one very important consideration. For example, in a linear room such as a hallway, the wall space at the very end of the hall, or a feature area in the centre, would have the most impact.

Proportion and Scale. They’re both dependent on size and relationship between objects.

Proportion does not depend on a known size. It’s the relationship of one object to another, or one part of an object to its other parts or the whole. Scale is largely based on perception and compares an item or space to something of a known size. Human scale is the most common reference.

To make things look balanced and interesting, sometimes it isn’t the proportion of one object, but rather how the objects relate to others in the entire space which results in a balanced and interesting setting.

8 gilded chairs placed in a row under a large painting on the wall is a very elegant look; while 8 of the same chairs around a large dining table may look less interesting, as the table rather than the chairs would be dominant.

A group of small paintings hung closely together to form a dense area on a large wall will have greater impact than medium sized paintings on each of the four walls of the same room.

How pieces relate to each other has to do with the pieces themselves and the space around them.

This is called negative space. Negative space is an important concept in the placement of artwork

and is also a major consideration in all forms of design. The space around an object is affected by the shape and size of the object.

Explain about methods of information architecture.

Information Architecture is simply “what goes where,” both in the navigation and on the pages. Information Architecture is not focused on aesthetic design, or in the creation of all final content that will be included on a page; rather, it’s the architecture of pages, content, and links.

Determining structure is essential. It allows you to identify and alleviate pain points. It allows you to create and display content that speaks to your users at an emotional level.

But creating a truly memorable user experience isn’t as simple as making information organized and efficient to find.

To get at the deeper layers of what Information Architecture makes possible, it’s essential to understand it as a storytelling tool as well.

As a whole, Information Architecture isn’t focused on high-fidelity design because at the beginning stages of the design process, we’re not focusing on how beautiful the product looks.

We’re prioritizing what goes where in the interest of creating a sturdy foundation.

IA and Content are both laid out on wireframes. [Wireframes serve as the bridge between the two.](#)

When we think about wireframing, we’re focusing on the placement and structure of things, without spending time on aesthetics or finalized content. Architecture focuses on hierarchy, priority, and story, which results in the placement of assets.

However, if you’re just thinking about where things go in the interest of being organized, you might be missing the point. Tie IA back to the user and what they care about. It’s important to create a structure that fits the user’s mental model, filling it with content that speaks to their needs and emotions.

5 Methods of Information Architecture

The Methods of Information Architecture we utilize at Fresh lead to clarity, efficiency, simplicity, and understanding. In the interest of creating an organized, logical, and emotionally compelling IA, we recommend 5 key methods that result in stronger Information Architecture Deliverables.

Explain the logistics information architecture.

Logistics information systems provide information on goods and follow their delivery path, with their progress and status, and the influence of changes on the purchasing, production, warehousing, financial and accounting systems. Logistic systems depend on external information and international standards to comply with regulations, and to use standardized ways of exchanging logistic information with other systems and with authorities.

An important difference between these systems is whether the emphasis is on the content of the goods or on the transport equipment or transport means used. Manufacturers and traders want to monitor the actual products and articles to know whether they will arrive on time and in proper condition at the delivery places, and to be able to take prompt action when incidents happen. Transporters are focussed on the progress and status of the transport means and the transport equipment in them. If incidents or delays happen, transporters can report these to their clients but the impact on delivering or restocking can only be understood by the traders and manufacturers. For commercial reasons, the transporter may not actually know the details of the goods.

Authorities, especially Customs and authorities responsible for security in transport, have an interest in the content of goods, as well as the transport means and equipment used to transport them.

Information Logistics (IL) deals with the flow of information between human and / or machine actors within or between any number of organizations that in turn form a value creating network (see, e.g.). IL is closely related to information management, information operations and information technology.

The goal of Information Logistics is to deliver the right product, consisting of the right information element, in the right format, at the right place at the right time for the right people at the right price and all of this is customer demand driven. If this goal is to be achieved, knowledge workers are best equipped with information for the task at hand for improved interaction with its customers and machines are enabled to respond automatically to meaningful information.

Methods for achieving the goal are:

the analysis of information demand
intelligent information storage
the optimization of the flow of information
securing technical and organizational flexibility
integrated information and billing solutions

The expression was formed by the Indian mathematician and librarian S. R. Ranganathan (Reference is missing!!!).

The supply of a product is part of the discipline Logistics. The purpose of this discipline is described as follows:

Logistics is the teachings of the plans and the effective and efficient run of supply. The contemporary logistics focuses on the organization, planning, control and implementation of the flow of goods, money, information and flow of people.

Information Logistics focusses on information. Information (from Latin informare: “shape, shapes, instruct”) means in a general sense everything that adds knowledge and thus reduce ignorance or lack of precision. In stricter sense information becomes information only to those who can interpret it. Interpreting information will provide knowledge.

What are the levels included in logistics information functionality?

Logistics Information System (LIS) is a system of records and reports whether paper-based or electronic, used to aggregate, analyse, validate and display data from all levels of logistics system that can be used to make logistics decisions and manage the supply chain.

The role of LIS can be understood from the following:

- a) LIS ensures the transformation of logistics functional operations into a process with the goal of pursuing customer satisfaction at the lowest cost. It facilitates planning and control of logistics activities related to order fulfilment.
- b) LIS provides information on goods and tracks the delivery, by giving their status.
- c) Logistics systems depend on outside information and international standards to comply with regulations and use laid down ways of sharing logistic information with others.
- d) The manufacturers and traders monitor the actual products to know whether they will arrive on time and in proper condition at the delivery places, and to be able to take prompt action in case of any lapse.
- e) Transporters focus on the progress and status of the means of transport. In

case of any delays or exigencies, transporters can report these to their customers who can consider the impact.

f) Customs authorities and those responsible for ensuring the safety and security of goods during transportation are given details about the content of goods and their means of transport.

LIS is part of logistics management to manage, control and measure the logistical activities within the organisation and across the supply chain, achieving logistics efficiency and effectiveness. Within an organisation, LIS achieves the following:

- a) Customer satisfaction at the lowest total cost.
- b) Enables planning and control of the logistical activities related to order fulfilment.
- c) Fosters better tactical and strategic decisions for the benefit of the firm and its customers.
- d) Gives information to customers regarding product availability, order status, and delivery schedules.
- e) Enables resource planning thereby reducing the requirements of inventory and human resources

What are the applications of information technology?

Information Technology is the use of computer systems, storage devices, and any other type of physical device to manage exercise, store, and retrieve all types of data transmitted over electronic lines or electronic data. We can clearly see the growth of information technology in today's world, and the main reason for this growth is the increased use of technology. Today, information technology is a part of almost every organisation, and the reason for this is obvious: the rapid increase in technology use.

Evolution of IT :

1. Pre-Mechanical Age: The earliest forms of information technology date back to the pre-mechanical age, where people used symbols and signs to communicate and record information. Examples of this include cave paintings, hieroglyphics, and the abacus.
2. Mechanical Age: The mechanical age of IT began in the 1800s with the invention of the mechanical calculator, which could perform basic arithmetic operations. This was followed by the development of the punched card, which was used to store and process information in the first digital computers.
3. Electromechanical Age: The electromechanical age of IT began in the mid-20th century with the development of the first electronic computers. These computers used vacuum tubes and relays to process information and were large and expensive.
4. Transistor Age: The transistor age of IT began in the late 1940s with the development of the transistor, which replaced vacuum tubes in electronic devices. Transistors were smaller, faster, and more reliable than vacuum tubes and enabled the development of smaller, more powerful computers.
5. Integrated Circuit Age: The integrated circuit age of IT began in the late 1950s with the development of the first integrated circuits, which allowed multiple transistors to be integrated onto a single chip. This enabled the development of smaller, faster, and more efficient computers, as well as other electronic devices such as smartphones, tablets, and digital cameras.
6. Personal Computer Age: The personal computer age of IT began in the 1970s with the development of the first personal computers, such as the Apple II and the IBM PC. These

computers were smaller, more affordable, and easier to use than previous generations of computers, and enabled widespread adoption of computing in homes and businesses.

7. Internet Age: The internet age of IT began in the 1990s with the widespread adoption of the World Wide Web and the development of the first web browsers. The internet enabled people to communicate, share information, and conduct business on a global scale, and has had a significant impact on virtually every aspect of modern life.
8. Mobile Age: The mobile age of IT began in the 2000s with the widespread adoption of smartphones and other mobile devices. These devices enabled people to access information and communicate on the go, and have transformed the way we live, work, and socialize.
9. Cloud Age: The cloud age of IT began in the late 2000s with the widespread adoption of cloud computing. Cloud computing enables users to access computing resources and services over the internet, without the need for local infrastructure or hardware.

Discuss the characteristics and types of inventory.

Managing inventory in stock is vital for business accountancy. Accounting goods, products, and raw materials are known as inventory. All products and items in the manufacturing and processing stages are referred to as inventory. Businesses use inventory management to ensure they have enough goods on hand and spot when there is a shortfall.

Inventory is the process of classifying or numbering items. It relates to the various manufacturing levels and is a valuable collection of assets in accounts. Every business's balance sheet includes an essential source for inventory. Both manufacturers and wholesalers/businesses can contribute to the production or sale of goods with the availability of stocks.

A company's inventory is a valuable resource. During a business' regular working cycle, raw materials and resources needed to make completed goods are kept in inventory. There are several methods of inventory control and management: bulk shipments, ABC [inventory management](#), back ordering, Just in Time (JIT), consignment, dropshipping and cross-docking, cycle counting & inventory kitting.

Inventory is a vital asset on a company's balance sheet. Between production and completed items, it serves as a bridge. The COGS, or cost of goods sold, is notified after an inventory sale by sending its carrying cost or income statement.

Benefits of Inventory Management

Resource efficiency is one of inventory management's primary advantages. Inventory management aims to avoid the buildup of dead inventories that are not being utilised. By doing this, the business may avoid squandering money and space. Inventory management is also called inventory control, but these terms do have slightly different focuses.

Additionally, inventory control has been shown to:

- Correctly place orders and time supply shipments.
- Stop product theft and loss.
- Manage seasonal products throughout the year.
- Take care of unforeseen changes in demand or the market.
- Ensure the most effective use of resources.
- Using facts from the current world improves sales methods.

Types of Inventory

There are three types of inventory

1. **Raw Materials:** The key ingredients required to make the finished good are known as raw materials.

2. **Work In Progress:** Products still being produced on the manufacturing floor are considered work-in-process inventory.
3. **Finished Goods:** Finished goods are items that have reached their full potential and are prepared for sale. The concept of inventory control is essential to corporate management. A business must ensure the right products are available at the right time.

Characteristics of Inventory

- Inventories work as dampers. This protects against shocks caused by demand/supply changes. It isolates various industrial operations from one another and makes them autonomous so that each process may be carried out economically.
- It has a motivational effect on decision-making and upkeeps a clean and profitable production flow.
- Businesses could be encouraged to buy more if inventories are exhibited in large quantities. This creates a motivating influence on decision and policy-making.
- Inventory enables economies of production. It maintains a streamlined and efficient production flow, keeping the process active at all times.

What are the inventory classification methods?

Inventory control: That is, knowing exactly what products you have on the sales floor and in your stockroom (and how many you have) is the foundation of operating a retail store.

Knowing how much inventory on hand you have is critical for every aspect of [inventory management](#): meeting customer demand, reordering and replenishment, inventory counting and ultimately, your net profits.

When inventory is disorganized, the risk of discrepancies between stock levels in your POS system and what you can actually account for in-store or in your stockroom increases.

Although it's easy to overlook, systematic **inventory classification** is vital to retail operations.

Today, we're going to look at how you can develop and implement a system for organizing inventory on your sales floor and storing inventory in your stockroom. With it, you'll have more accurate and efficient stock counts, fewer preventable discrepancies and more accurate stock replenishment.

Many retailers categorize their inventory using the ABC classification method, which is based on the [Pareto principle](#), which states that 80% of your results come from 20% of actions. When applied to the context of inventory, it means that 80% of revenues are generated by 20% of your products.

With ABC classification, inventory is classified according to the value of the product unit. For most retailers, the classification structure looks like this:

Group A inventory: The 20% of SKUs that contribute to 80% of revenue.

Group B inventory: The 30% of SKUs that contribute to 15% of revenue.

Group C inventory: The 50% of SKUs that contribute to 5% of revenue.

What is the functionality of an inventory?

5 features that you need to look for in an inventory management system:

1. **Advanced inventory control (SKU, LOT, SERIAL)**
2. **Barcoding and Scanning**
3. **Different units of measurement**
4. **Configurability -Different item types- (BOM, Variations, Kit/Set..)**
5. **Optimization (Low stock notifications, expiration dates, forecasting, reporting)**

Inventories are goods that are found in the warehouses of the company. These are the materials used in the production process or they meet customer demand, and consist of raw materials, materials pulled into the production in process, and finished products. These products usually belong to the company itself and it represents its most important asset.

The role and functions of the stock

Inventory management is a determining point in the strategic management of any organization. The main function of inventory management is to determine the sufficient amount and type of input products, products in process and finished products, facilitating production and sales operations and minimizing costs by keeping them at an optimal level.

Efficient inventory management is essential to ensure that the business has enough products stored to meet consumer demand. If it is not handled correctly it can result in the business losing money on potential sales that cannot be satisfied or that you waste money taking care of too much inventory. An inventory management system can prevent these types of errors from occurring.

Discuss the costs associated with inventory in detail.

There are three main types of costs associated with inventory: ordering, holding, and shortages. The various types of inventory costs can be divided into these three broad categories, and we now will examine some examples of each type of cost within each category.

- **Ordering costs**

You pay your supplier a set fee every time you place an order, known as an order cost or setup cost. Some examples include:

- Preparation of purchase orders involves clerical costs. Costs associated with clerical tasks, such as invoicing, bookkeeping, and communication, are numerous
- Locating and expediting suppliers costs money. There will likely be variations in costs, but they will be important expenditures for your business
- Costs of transportation. Charges are associated with moving goods from one warehouse to another. The cost varies widely depending on which items and industries are involved.
- Costs of receiving. The costs include unloading the goods at the warehouse and checking them for defects.
- Costs associated with electronic data interchange (EDI). Businesses, especially retailers, can significantly reduce ordering costs with these systems.

It doesn't matter how small your order is, and there will be an ordering fee. Generally, a larger order means a higher fee. If you purchase goods in bulk, this cost can be spread out over a number of months. In contrast, if your business orders raw materials only as necessary and do not accumulate stock, you may be able to tolerate higher-order costs because they are offset by a lower holding cost as a whole.

- **Costs of holding**

They are associated with the cost of storing inventory before it is sold and are also called carrying costs.

The cost of financing inventory includes interest on working capital, as well as everything related to the purchase of inventory. There are different ways for businesses to finance inventory purchases.

- Money invested in inventory has an opportunity cost. When alternative investments, such as term deposits and mutual funds, are factored in, the apparently lost value of tying up money in inventory is discovered.
- Costs associated with storage space. These are storage costs that will vary depending on the location where the inventory is kept. Storage facilities cost money, and if they are not owned, there will be lease payments. Lighting, heating, and ventilation are also included in the cost of facility maintenance. The cost also includes depreciation and property taxes.
- Costs associated with inventory services. This includes the costs for the physical delivery, insurance, and security as well as the cost for IT hardware, and if any, applications. Additionally, inventory control and cycle counting costs should be considered.
- Costs associated with inventory risk. A significant cost can be identified as shrinkage, which is the loss of items between the time the supplier purchases the product and the time the final sale is made. The reasons for shrinkage include theft, fraud, shipping errors, and damage during transit. The other major reason for shrinkage is dead stock.

- **Shortage costs**

Whenever businesses run out of stock for whatever reason, they incur these costs, also known as stock-out costs.

1. Production was disrupted. In a business that involves producing and selling goods, there may be a problem that disrupts the process. Even if no product is being produced, businesses must pay for idle workers and factory overheads.
2. Sending urgent shipments. Retailers may have to pay extra to get a shipment on time or may have to change suppliers because of stock-outs.
3. Reputation and loyalty to customers. Customer dissatisfaction and anger result in lost business from customers who go elsewhere to buy and affect the company's reputation and customer loyalty.

- **Spoilage costs**

Perishable inventory stock can rot or spoil if not sold in time, so controlling inventory to prevent spoilage is essential.

Products expire and must be used before they go bad for many industries, including food and beverage, pharmaceutical, healthcare and cosmetics. In addition to costing money, spoliation means that you will not realize a return on your investment.

There is no such thing as a single case of poor inventory control causing spoilage and waste in inventory. Today, spoilage and waste are major environmental concerns. Consider that food grown, processed, transported and disposed of in the United States alone cost about \$200 billion. Preventing spoilage and waste begins with a strong inventory control system. With the right inventory system, you can improve forecasting, boost efficiency, access real-time inventory data and up-to-date information on the lifecycle of your stock, enabling staff to rotate and manage stock to ensure older products get sold first. This approach is used in the grocery and FMCG sectors, where products with shorter expiry dates are rotated to the front of the shelf. Items that are due to expire are often heavily discounted to clear the inventory stock.

What are the constraints to effective inventory planning?

1. Financial Factors That Affect Inventory Management

Factors such as the cost of borrowing money to stock enough inventory can greatly influence inventory management.

In this case, your finances may fluctuate according to the economy, and it is wise to keep an eye on changing interest rates to help plan your spending.

The tax costs associated with stocking inventory is another factor that can influence inventory management. This is especially salient when preparing for the end of year tax returns.

Other financial factors include the expenses associated with warehouse operations and transportation costs changes in these factors may require you to alter your inventory management processes accordingly.

Fluctuations in the cost of fuel, for example, may require you to rethink your transportation methods to reduce costs. You may choose to purchase your own trucks or use outside contractors for transportation, which again will change the way you manage inventory.

2. Suppliers

Suppliers can have a huge influence on inventory control. Successful businesses require reliable suppliers in order to plan spending and arrange production. An unreliable or unpredictable supplier can have huge knock-on effects for inventory control.

It's a good idea to ensure you have a reliable back up supplier to prevent product shortages or delays in the manufacturing process.

3. Lead Time

Lead time is the time it takes from the moment an item is ordered to the moment it arrives.

Lead time will vary widely depending on the product type and the various manufacturing processes involved, and therefore changes in these factors can require changes to inventory management.

Outsourcing [manufacturing](#) processes to other countries due to lower production costs may result in longer waiting times. Producing the same goods locally may cost more but take less time, and therefore you may need to adjust your stock levels accordingly.

4. Product Type

Inventory management must take into consideration the different types of products in stock. For example, some products may be perishable and therefore have a shorter shelf life than others. In this case inventory must be managed to ensure that these items are rotated in line with expiration dates.

5. Management

Ultimately, responsibility for managing your business' inventory sits with you and any co-owners. While you may have multiple employees acting as managers to oversee inventory processes, they typically will not have the same stake in the business as you do.

6. External Factors Affecting Inventory Management

There are multiple external factors that may affect inventory control. For example, economic downturns may occur and this is something that you will generally have very little control over.

Explain the inventory control procedures?

inventory control, often known as **inventory management**, is the process of monitoring a company's warehouse stock to make sure that it is at the most sufficient level. It includes the process of managing items from the time they are ordered, through storage, movement within a warehouse or across different warehouses as well as to their final destination or disposal.

Inventory management is a critical part of every retail business. Wondering how important the inventory movement report is? [Read here](#).

An inventory control system is a technological approach that helps businesses maintain and track commodities through the supply chain. This technology will integrate and manage purchasing, shipping, receiving, warehousing, and returns into a single system. Practicing good inventory control procedures can help businesses reduce many manual operations which are costly and time-consuming. It will show you exactly how much inventory you have, where it is, and when you need to reorder to maintain ideal stock levels. For SMEs that want to learn how to manage inventories efficiently, this ultimate [infographic guide](#) is highly recommended.

1. Prioritize location and accessibility

Make sure that your warehouse and stock are well organized and accessible since it will reduce much time for staff to look for the location and find the products. As a result, all other following steps can run smoothly.

2. Establish the floor and layout arrangement

This will help the owners and staff have all the product locations on their minds so it will be much easier and faster to find any items when needed. Besides, creating a floor plan will assist you in determining the best location for your merchandise.

3. Optimize and [forecast your inventory](#)

Try to optimize and forecast your inventory by ensuring an adequate amount of goods, not too few or too many. It's also a good idea to make a list of hot items that sell faster than others. Regardless of the season, these things should always be in the warehouse. It will also be much easier to prepare for impending supply and demand concerns if sales rates are monitored and market trends are followed.

4. Get rid of unneeded stock

Try to get rid of items that have been in stock for an extended period of time by running promotions or offering discounts. It will create more space for you to put other needed items. Besides, such offers can also increase customer satisfaction, make inventory replenishment easier, and keep business going forward.

5. Set a cycle count schedule

Establish a cycle count timetable to adequately monitor product flow rather than waiting for a chance to count your inventory.

6. Check stock quickly after delivery

After each inventory order arrives, spend a few minutes checking to see if your delivered merchandise is correct or there are any problems with the product's quality and refuse any items that are not ordered or spoil. This step will help you avoid the case that the real stock is not enough or excess the inventory data from the system.

7. Label all products

Labels should have enough data such as product name, number, quantity, and description. Labeling all products makes it much easier and faster to recognize them

What are the basic functional principles of transportation management?

The Economy of Scale refers to the cost per unit of weight decreasing as a shipment size grows. For example, a full truckload (TL) shipment costs significantly less than a less-than-truckload (LTL) shipment. Thus, it is always in your best interest to ship larger quantities of cargo freight at a time to get the best possible distribution rates.

Large-capacity vehicles such as shipping containers & trains are also much less expensive per weight unit when compared to small-capacity vehicles such as trucks, vans, or planes. One of the

main reasons for this is the administrative costs involved with taking and processing a transportation order. In this digital age, a shipment of 200 products will take no less time to process than a single item—the same amount of ‘manpower’ is required in terms of administration, and these costs are typically fixed across the board.

The Economy of Distance refers to lower transportation costs as the total distance increases. If you have two shipments traveling 500 miles and one traveling 1000, the latter shipment will be less expensive than the former two. Rates and charges taper with distance, as longer distances allow the fixed expense of loading & unloading to be spread over more mileage, ultimately resulting in a lower average.

Write the importance of transportation in logistics management.

- Transport means the movement of goods, services and passengers from one place to another.
- It provides the utility of place and time.
- It links production, distribution, exchange and all other related activities.

Importance of transportation:

- Transportation is a basic infrastructure, and its development is an indicator of the country's development.
- Transportation ensures extending of trade and network.
- The improvement and reforms in the transport sector enhance the dynamicity of freight and passengers in a region.
- With efficient roads and means of transport in place, industries and markets also develop.
- Economic growth gets a boost.
- It increases job opportunities and decreases regional imbalances.
- Good transportation facilities in rural areas enhance the quality of life of people as they can easily access health and medical facilities.
- Lastly, it offers a lot of tourism and business opportunities to the government.

What are the different modes of transportation in logistics?

There are not only a ton of transportation companies in Toronto to choose from, there are various transport methods as well. There are a number of **different modes of transportation in the logistics industry**, each having its own merits and disadvantages. From road, railway, marine, and air transportation, the method that you select depends on a few factors. For example, industries that need to transport heavy products opt for railway transportation along with road and Maritime transportation. These methods have the ability to accommodate heavier products, making them the ideal choice over air transportation. In this post, we'll discuss five common types of transportation in the logistics industry: roadway, rail, marine, air, and intermodal transportation. Hopefully, the pros and cons of each method can aid in your decision when looking to [transport goods from Atlantic Canada to Toronto](#) and vice versa.

Top 5 Modes of Transportation in Logistics

Road Transportation

There are many advantages to road transportation, especially for companies who rely on fast delivery to retain their customers. If goods are meant to be transported immediately to the **Maritimes from Mississauga**, for example, your best bet would be ground shipping transportation. Water transport is notoriously slow, and it can be a hassle to book railway transportation.

[Maritime trucking to Mississauga](#) and other locations is more cost-effective than other options; with rail transport, if there isn't a railway that leads to your desired destination, you'll have to build it, which can be a costly investment. However, there are roads that lead to pretty much everywhere, and are built and paid for by the government; more often than not, you'll only have to pay a small fee to use them. [Roadway transportation to Atlantic Canada from Mississauga](#) can also be cost-effective since it provides **door-to-door or warehouse-to-warehouse service**. This allows cartage, as well as loading and unloading expenses, to be significantly lower compared to other methods.

Rail Transportation

Railway transportation is arguably the most dependable method of **transport to the Maritimes from Toronto** and pretty much anywhere else. Unlike road and marine transport, rail is hardly affected by weather conditions. Transport trains will run in rain, fog, snow, and other conditions that would otherwise delay shipments carried by other methods. With fixed schedules that run regularly, railway service is more certain compared to other methods of shipment.

Rail transport also offers huge carrying capacities, which can grow to fit your needs. Unlike trucks or boats, which have a fixed amount of space that can't be exceeded, additional wagons can always be added to trains if you need more room. In addition to all the benefits for you and your company, you'll also be giving great opportunities to surrounding communities. Rail transport can provide employment opportunities to both skilled and unskilled workers, making it a positive choice for the entire community. The biggest disadvantage, however, is that if there are delays in the transportation, it can actually take much longer to get your freight delivered than with other methods of transportation. With rail transportation, you need to schedule container drop off and pick up at the terminals which could end up taking a long time.

Marine Transportation

Marine transportation is notoriously slow, but that doesn't matter when a product has a long lead time. This is a great option for those looking to ship bulky items that aren't in much of a rush. Often cheaper than road transport, ships are usually the main cost that you'll incur—you won't have to worry about road tolls and other similar charges. While roadway transportation can easily be [delayed by rain or other types of inclement weather](#), the same conditions may not affect marine transport.

The main disadvantage of marine transport is that it can be **difficult to monitor the exact location** of the goods in transit, which can be a deal-breaker for some. As you've read in our past posts, being able to track freight is a common expectation of consumers who order things from online retailers and can affect their purchase decision. While there are many advantages to marine transport, the downside of the lack of ability to closely track the exact whereabouts of the specified freight can be crucial.

Air Transportation

Air transport is extremely useful for many reasons: it's convenient, fast, and doesn't have to compete with natural barriers. While road transport is the quickest way to deliver goods that only have a short distance to travel, **air transportation is the fastest option for freight** that have a further destination—it's even regarded as the best mode of transportation for perishable goods for this reason.

In addition, air transportation doesn't require the infrastructure investment that railways do; airplanes fly freely, which means you don't need to spend the initial cash building a pathway to your destination for it to get there! The lack of barriers also means that it's accessible to all areas, regardless the obstruction of land. However, one main disadvantage is that planes can easily be

affected by pretty much any type of inclement weather. Whether it's rain, snow, or high winds, your shipment is likely to get delayed if any weather condition becomes extreme.

Intermodal Transportation

As you've probably noticed through reading this post, each method of transport has its advantages and disadvantages. What if you could combine the pros of each method to create one innovative method? That's exactly what intermodal transportation is.

Intermodal transportation offers the best of both worlds: it combines various transportation methods to give you the fastest shipping time possible. Not only is this method time-efficient, it's cost-efficient as well. More shippers are taking advantage of the option to reap the benefits of the cost savings, environmental benefits, and highway safety results. With the lower rates, predictable pricing, standardized transit schedules, and flexibility, intermodal transportation is continuing to rise in popularity.

What are the participants in transportation decision making system?

Transportation is one of the major items of cost in a supply chain. As a firm's ability to serve the customers depends on how efficiently and quickly the orders are delivered, transportation management becomes one of the important operations in a supply chain. In this chapter, we first discussed the functions of transportation.

There are two important functions performed by transportation: product movement and product storage. While product movement is the primary function of transportation, temporary product storage becomes its secondary function. Later, we examined the participants present in the transportation environment.

There are five key participants in transportation environment: the shipper, the carrier, the receiver or consignee, the government, and the public. Then, we examined the costs to be considered while making transportation decisions. From the shipper's perspective, transportation costs, facility costs, inventory costs, processing costs, and customer service level costs are to be evaluated before taking any transportation decisions.

From the carrier's perspective, fixed costs like that for the terminal, information systems, equipment, vehicles, and variable costs like fuel costs, personnel costs, and toll fees need to be evaluated. Later we presented the design options for transportation networks. These are: direct shipment to the retail outlets, direct shipping with Milk Runs, shipments managed from a centralized distribution center, shipping via distribution center using Milk.

Runs and tailored transportation. Then we discussed the trade offs to be made in transportation decisions. There are two important trade-offs that a firm has to make: transportation and inventory cost trade-off, and transportation costs and customer service level trade-off. Finally,

we discussed various transportation analysis techniques used by the firms. They are: the heuristic approach, the exact approach, the interactive approach, and the combination approach.

Explain the factors that influence transportation economies?

Transportation systems develop to interact at different scales and through the influence of a variety of factors:

- **Environmental.** At the local scale, existing hydrographical and geomorphological characteristics are strong factors in transport development, particularly in terms of the technical challenges (bridge, gradients) they present to construct and maintain infrastructure. Climate, which is more a regional attribute, also conditions transportation construction and operations. At the national level, distance underlines the geographical scale to be serviced, influencing transport infrastructure development since servicing the nation becomes imperative. At the global level, the contour of oceanic masses such as choke points becomes the defining factor shaping the structure and development orientation of transport systems.
- **Historical.** Settlement patterns, which are influenced by cultural attributes, strongly influence local transport development, such as street grids. At the regional level, the structure of an urban system, the result of historical processes of accumulation, coordinates the development of transport systems by connecting them. It is also a historical process such as colonialism and forms of imperialism that have shaped aspects of national transport developments, particularly in areas of the world that were colonized. However, it is the process of globalization that had one of the most enduring influences in recent decades in shaping global transport systems.
- **Technological.** Each transportation technology has a matching scale of development. Roads, despite their ubiquity, are strongly associated with local (short distance) mobility. At the regional level, this mobility becomes more the realm of railways (or canals when present), although air transportation also has a strong regional component. Corridors, which are mainly long-distance rail and highway networks, are transport constructs built to connect at the national or continental level. The technologies that have supported the most transport development at the global level are mainly air transportation and telecommunications. Paradoxically, these technologies are mostly used at the regional (air) and local (telecommunications) levels.
- **Political.** Transportation development is a process that is managed and regulated. At the local level, zoning is the regulatory framework that influences the most transport development since it dictates what is allowed to be built, including the function of what is being built. Forms of taxation and regulations such as safety and operating conditions are political aspects that play at the regional (most transport regulations are at the state / provincial level) and the national levels. Trade agreements have an important transnational implication, linking neighboring economic entities, which has influenced transportation development with an attempt to coordinate physical and trade networks. Multilateral agreements, particularly over trade have shaped the development of transportation systems by favoring specific transnational connectivity.
- **Economic.** Economic processes shape transportation development since its core purpose is to support economic activities and their interactions. The more advanced an economy

is, the more intensive and efficient transportation systems are. At the local level, employment and distribution are key drivers focusing on transit systems as well as the freight distribution of final goods. Transportation modes compete to service markets, a process that mainly takes place at the regional level. The outcome of this competition is a distribution of modal preferences and usage levels of specific transport systems. Markets are increasingly perceived as transnational, requiring coordinated supply strategies. Competition between major economic actors at the global level, often the outcome of comparative advantages, influences major freight flows and the transport systems supporting them.

Explain about transport functionality and principles in Logistics.

Product movement, whether it be in the form of electrical components, materials, or finished goods, [transportation logistics services is vital in moving these to the next stage](#) of either the manufacturing process or the end consumer.

The primary function is [moving freight up and down the value chain](#). Using financial, environmental, and temporal resources, this is made possible. Of course, damage to [freight/goods being](#) transported or loss of products must be kept at an absolute minimum. However, simultaneously, the movement must meet the customer's demands, including speed of [freight delivery, performance, and the shipment information](#) available.

Product storage is a secondary function of **transportation logistics service**, as very rarely will you find **freight** being stored in a vehicle overnight. Or, at least, not unless it is locked down in a secure compound. The fact is, vehicles are expensive storage facilities, but compared to the cost of loading and unloading products into a warehouse, it may be the preferable option. For a quick pricing reference, refer to the table below for Transportify vehicle rates for 2021.

The Economy of Scale refers to the cost per unit of weight decreasing as a shipment size grows. For example, a full truckload (TL) shipment costs significantly less than a [less-than-truckload \(LTL\) shipment](#). Thus, it is always in your best interest to ship [larger quantities of cargo freight](#) at a time to get the best possible distribution rates.

Large-capacity vehicles such as shipping containers & trains are also much less expensive per weight unit when compared to small-capacity vehicles such as trucks, vans, or planes. One of the main reasons for this is the administrative costs involved with taking and processing a transportation order. In this digital age, a shipment of 200 products will take no less time to process than a single item—the same amount of 'manpower' is required in terms of administration, and these costs are typically fixed across the board.

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Explain different types of warehouses.

In its simplest definition, a warehouse is a large building where goods and materials are temporarily stored before being sold or exported. A large variety of companies and businesses might need access to warehouses, especially larger companies that have grown enough to need more accommodating space for their products. When a company identifies a need for a warehouse or even multiple warehouses, they are forced to explore the different types of warehouses to choose the best one for their specific goods or products.

Let's explore 10 of the most common types of warehouses, from cold storage facilities to private warehouses. Each warehouse type will be utilized for a different type of business, so choosing the best warehouse for your business needs is an important step in ensuring product and inventory fulfillment goes according to plan.

1. Public Warehouse

A public warehouse is a warehouse owned by governmental entities that are available to private sector companies. These types of warehouses can be rented out for business or personal use. Public warehouses are an especially attractive option for business owners that might need to only store inventory for a short amount of time as other warehouse options might be more expensive. Public warehouses are commonly used by new or growing businesses, such as e-commerce companies and startups, due to their affordability versus a private warehouse. Note, public warehouses tend to be fairly bare-bones in terms of their setting, they won't have the technological capabilities of other warehouse types.

- Accessible to the public
- An affordable option for new businesses
- Great for seasonal businesses
- Ideal for short-term storage

2. Private Warehouse

Another popular warehouse option is a private warehouse, oftentimes referred to as proprietary warehousing. While a public warehouse is owned by a government body or a third-party, private warehouses are owned by a company division. If a business is interested in a private warehouse they will need to make a large upfront investment to secure the building, facilities management, and general maintenance and upkeep. Private warehouses are a popular option for wholesalers, distributors, and manufacturers. While a private warehouse is a more expensive option than a public warehouse, they offer business owners more overall control of their inventory management.

- Increased control over building facilities
- Great for companies that need a significant long-term presence in a specific region
- Provide a more exclusive location for business operations

3. Smart Warehouse

An increasingly popular warehouse option is a smart warehouse, which is a warehouse where the storage and fulfillment processes are automated with AI, such as robots and drones. The AI is responsible for packing, weighing, transporting, and storing raw materials, with many incoming orders being automated to be fulfilled immediately. Smart warehouses have been a go-to option for large e-commerce companies such as Amazon that seek to make their order fulfillment and inventory management a more accurate and expedited process.

- Inventory management is more accurate
- Automated functions decrease human error and save on labor
- Increase safety and security within the facility
- Provide insight into overall business efficiency

4. Cooperative Warehouse

A cooperative warehouse is a warehouse owned by multiple organizations or businesses. These companies tend to work closely together and access to the cooperative warehouse can save money for both companies. Cooperative warehouses are especially common among farmers or wineries, as these businesses can easily store their products in a mutual space. Both businesses that utilize a cooperative warehouse can reduce their spending for inventory storage, increasing all of the co-op member's profits in the long run.

- Great for groups of businesses with similar inventory types.
- Fairly accessible due to combined investments
- Can save businesses money on reduced rates for multiple tenancies

5. Consolidated Warehouse

Consolidated warehouses are warehouses that collect small shipments from numerous different suppliers into one geographical location to combine them into a bigger, thus more economical, shipping load to one area. The grouping together of these smaller shipments is an attractive feature for companies that might not have a very large amount of inventory, such as new companies or startups. The only caveat of this warehouse type is that these shipments will need to be intended for only one area, which might be restrictive for companies trying to expand.

- Economically-friendly and time-saving
- Lower shipping costs for warehouse tenants
- Doesn't require high inventory levels
- No capital investments are necessary for low-risk use

6. Bonded Warehouse

A bonded warehouse is a type of warehouse that stores imported goods before customs duties are completed and paid for the products. Customs clearance can be an extensive process, and bonded warehouses provide a safe space for these goods in the meantime. Government bodies provide

businesses a bond to rent the space to ensure the business doesn't suffer from any loss of profits once products are ordered. These features of bonded warehouses can be attractive for importers that might need short-term or long-term storage for items that would usually be restricted.

- Companies do not need to pay duties until items are released from storage for delivery
- Facilities tend to be versatile to accommodate a large variety of products
- Ideal for companies or businesses that deal with cross-border trading

Discuss about functions of warehousing in detail.

Warehouses are buildings that organisations use to store goods, including food, furniture and clothing. A warehouse is part of a complex logistics network that enables companies to store, protect and move their products from place to place. Many people think the primary use for a warehouse is storage, but warehouses are the sites of many other functions for companies to streamline operations and ensure that stock is available and secure at all times. In this article, we explore what the function of a warehouse is and consider 10 major warehouse functions that contemporary warehouses fulfil in the supply chain.

The function of a warehouse is to store goods, usually temporarily. Warehouses may store goods for a certain time, from days to months and years. Warehouses have large doors so lorries can drive inside to deliver new inventory and take away older inventory. Warehouses are often near ports, airports, railway lines and motorways to increase accessibility and make it easier to carry out deliveries and transfers in good time. Warehouses are usually very large buildings, sometimes with multiple floors and ventilation systems to keep products at a suitable temperature.

Explain the role of warehousing in logistical system.

Warehousing and inventory storage are key components within both the logistics and supply chains. Used by customs, transporters, manufacturers, wholesalers and import / export companies they enable the storage and distribution of raw materials and finished goods, as well as everything in-between. Choosing the right provider for your warehouse operation and storage facilities can give your business the competitive advantage.

Inventory and stock control

If your business has a high level of inventory, then using a warehouse to store your goods will give you one centralised location where everything is located. This will give you greater physical organisation of your stock and tighter inventory control.

Most modern warehouses are now equipped with the latest technology (Warehouse Management Systems 'WMS') that provide real-time updates as to exactly how much stock you have and what needs replenishing.

Effective and efficient distribution

Not only does having all your goods in one centralised place make for better [inventory management](#), it also allows for much more efficient distribution to your customers. This means your customers can receive their orders correctly and quickly, improving customer satisfaction.

As most warehouses have close connections with distribution companies, this is another part of the supply chain that you don't need to worry about, freeing up your time to focus on the things that really matter to your business.

In addition, most warehouses can provide all the packaging and labelling supplies that are needed to ensure your goods get to their destination safely, saving you time and worry. Some logistics companies, such as Seaspaces, are even able to offer documentation services which takes the worry of legal [freight documentation](#) off your hands completely.

Cost effectiveness

The cost to have your very own dedicated warehouse space to store all of your stock can be high, especially if you need to employ staff to organise the logistics system and warehouse management. Outsourcing to a dedicated warehousing company with their own facility will reduce your costs and free up your time.

Warehouse management and fulfilment companies are able to provide dedicated technology and secure facilities and, some, even services such as temperature control for specific goods.

At Seaspaces International, our main Gatwick warehouse is a customs non-excise, bonded warehouse*, meaning we can hold imported goods without you having to pay duty and import taxes immediately, freeing up your cash flow until you need the goods to leave the warehouse.

What are the principles considered in warehouse design?

Designing a practical warehouse layout is a crucial process as it has a direct impact on the efficiency and productivity of your warehouse. The planned layout should arrange the processes in a logical sequence that can help streamline operations, boost productivity, and reduce expenses. A well-executed and [optimized warehouse layout](#) design can provide easy access to stored goods, minimize travel time, and improve order fulfillment rates.

Additionally, it is vital to consider all the requirements according to your business needs during the planning phase itself. This is because altering the planned layout once the construction of your facility starts is costly due to the additional material and labor costs involved.

Considering the principles below can help you design an efficient layout and streamline warehouse operations. Here are some of the most crucial factors to consider:

Budget Considerations

Before starting with the design of your warehouse layout, it is essential to assess all your business requirements, review associated budgets, and then plan the layout accordingly. During this process, you might come across some layout designs that are more comprehensive and expensive than others, but it is recommended that you consider the most suitable and cost-efficient solution for your warehouse.

Space Available

Effectively utilizing the warehouse space available can help improve inventory visibility, reduce travel time, and increase overall operational efficiency. When designing your warehouse layout, it is crucial to allocate maximum space to storage and inventory processing purposes while minimizing space for office areas, empty pallets, charging stations, etc. Additionally, how you decide to allocate space will impact shelving designs, installation capacity, and placement of goods inside your facility.

Flow

Ensuring the uninterrupted flow of goods, personnel, and equipment is vital to consider in the design layout for the smooth functioning of your warehouse. You can avoid inefficient routes and disruptions by strategically planning your warehouse layout design so as to facilitate each operation in a sequential manner.

Accessibility

While planning your warehouse layout, it is crucial to ensure easy accessibility to all the areas and products in your facility. The layout should be designed in a way that makes it easy for personnel to navigate throughout the facility while conveniently locating and picking items without having to move other products. As a result, your productivity can be enhanced and orders can be fulfilled at a faster rate.

Discuss the economic justification for establishing a warehouse?

There are many economic justifications for establishing a warehouse. A warehouse can provide a company with a number of [competitive advantages](#) including economies of scale, improved inventory management, and better customer service. Economies of scale are one of the most important reasons to establish a warehouse. A warehouse can allow a company to purchase goods in bulk at a lower cost per unit. They can also store goods more efficiently, which can save on labor and other costs. In addition, a warehouse can help a company to better manage its inventory, which can reduce costs and improve customer service. Improved inventory management is another key benefit of establishing a warehouse. A warehouse can help a company to keep track of its inventory levels and to better predict future demand. This can allow a company to more effectively manage its production and to avoid stock outs. In addition, better inventory management can lead to improved customer service, as customers are more likely to receive the products they need in a timely manner. Finally, better customer service is another important benefit of establishing a warehouse. A warehouse can help a company to ship products more quickly and to provide customers with a more convenient delivery experience. In addition, a warehouse can help a company to track its customer orders and to provide customer support in the event of a problem.

Warehousing plays an important role in the **supply chain** and can help businesses improve efficiency and lower costs. Aside from that, there are also some drawbacks to consider, such as the need for ongoing maintenance and the need for an initial investment.

Warehouses are primarily used for storing equipment, inventory, or other goods. It is capable of providing suitable facilities for storing goods when they are not required for sale by the enterprises. This aids in the prevention of [stock waste](#) as well as its protection and safety.

Define warehousing? Explain its importance.

Warehousing is the act of storing products or goods to distribute or sell it later. For warehousing, Big companies with large number of products use large sheds, buildings, etc. whereas small or home-based businesses use spare rooms, basements, garages, etc.

Warehousing comes under the branch of [logistics](#) management. It is a sophisticated industry that includes procurement, management of inventory, and distribution. This falls under the roof of the supply chain which also includes marketing, product development, sales, and any other product-related activities.

Warehouse features for efficient storage and management

Usually, warehouses are used strictly for storage purposes but some of them are also used for the distribution of goods. Depending on the type of goods there are certain elements that help you to monitor and store your goods safely in a warehouse. Some of these elements include:

- Rack and shelves system in the warehouse that helps to store maximum products while allowing easy access to them
- A system to control the climate inside the warehouse so that products won't diminish in quality. This is necessary for frozen items, medicines, laboratory products, etc. where too much heat or cold can damage them
- An inventory control software that helps the person in charge to know about the goods, stored, their number, and exact location
- Machines in the warehouse that can move bulk or single products from one point to another. For example, conveyor belts, forklifts, pallet jacks, etc.
- Workers who load and unload products and a warehouse manager who is In charge of the goods, the workers, and the movement of goods when needed
- A 24/7 security and surveillance system to protect the goods inside
- Easy access to transportation to bring in as well as move out products. This includes easy access to airports, rail lines, interstates, etc.

Warehousing is an important aspect of the supply chain that affects the business and allows to delivers the products on time to the customers.

Importance of warehousing in today's world

The world we now live in is changing every day. New technologies are being invented, new business ideas are being emerged and a lot of things are happening. The population is also increasing in every part of the world, which has also caused an increasing demand for a large variety of products.

Warehousing has been around for years and has helped businesses in a variety of ways. Let's have a look at why it is important during this time

SECTION-B

II. Answer any FIVE of the following.

5 x 5 = 25 marks

6. What are the functions of logistics?

Logistics refers to the process of managing and monitoring the complex supply chain operations about how the resources are acquired, stored, and transported to the desired destination. There are various functions of logistics management that are extremely essential for the seamless movement of goods or products. In the contemporary world, managing the logistics operations powered by modern technologies such as Artificial Intelligence(AI), Internet of Things(IoT), [Big Data](#), and so on can take your business to the next leap. Logistics processes play a vital role in delivering the right product or goods to the end customers at the right time.

• Major Functions of Logistics Management

- 1. Order Processing
- 2. Material Handling
- 3. Inventory Management
- 4. Warehouse Management
- 5. Transportation
- 6. Packaging and Labelling
- 7. Information and Control

Explain the factors influencing Logistic costs.

Logistical costs are those **related to demands for the movement of products and services in a business's supply chain**, that is, all the company's logistical expenses. We're talking about product inventory and raw material and resource acquisition, as well as the taxes imposed on them. Effective business logistics is vital if you want to **improve process quality**. As a result, any ability to cut these costs positively impacts organizational performance overall.

In a market that goes through constant **disruptions** and changes and becomes increasingly competitive, **every detail makes a difference**. Even when the product consumers receive is high quality, poor management can cause a company to go out of business. **Good cost management is one way to deal with market changes**. More effective logistics procedures are required from businesses due to customers who are becoming more demanding and the expansion of e-commerce sales. Naturally, the final costs also reflect the customer's decision to purchase brand A or B. Because of this, **reducing logistics costs through good management is essential!** Adopting good practices guarantees more savings and efficiency, and it's a strategy that will influence all areas of your business.

1. Acquisition costs Acquisition costs include the purchases of raw materials and other inputs required to produce the goods that will be delivered to the consumer. Since a lack of resources or poor procurement procedures can impact the entire production and distribution process, these costs must be considered in logistics management. 2. Inventory Inventory is another of the main logistical costs of an organization.

Expenses for storing products can represent a high cost, and without good inventory management, the brand can have problems. Costs associated with storage facilities, be it a small room or a big warehouse, storage insurance, and even maintenance to prevent product losses must be taken into account. 3.

Packaging When sending goods to distant areas or when items are fragile and need protection to arrive at

their destination undamaged, packaging is an important cost to consider. In addition to **ensuring product integrity**, other factors must be taken into account like excess plastic, which can damage your brand's image. Finding a balance between packaging expenses, sales value to the customer, and environmental effects is a must.

4. **Transport logistics costs** are related to the **distribution** of products. These expenses involve fuel, tolls, hiring drivers or a partner company, vehicle maintenance, and more. Keep in mind that price can vary depending on the distance, the quantity and type of cargo, the vehicle being used, and even the route chosen.

5. **Taxation** Another point that increases the total logistics cost is the **taxation of logistics processes**. Taxes can represent a significant cost.

6. **Investments in new technologies** It's also necessary to consider the technologies that are used in managing logistical processes.