

Logistics

Who should read this fact sheet?

Those wishing to know more about this complex topic.

What is Logistics?

Logistics is the term used to describe the physical and management processes which aim to optimise the flow of goods, materials, equipment and people from their source to the point of use. It is the process by which the physical activity associated with these resources is managed, and is equally applicable across all sectors of industry and commerce. For many people with little knowledge of the subject, Logistics is seen as no more than the management of storage and transport. Whilst these activities are included within Logistics processes this narrow view is far from the whole picture.

There are many organisational interfaces in the Logistics process, as shown in the Figure below. These interfaces create opportunities for errors to occur. So, as well as managing materials and resources, it is important to structure these interfaces. Internal links are as important as external ones.

At every point in the Logistics process you need to know where the materials and resources are, what quantities of them exist, where they have come from and what has to happen to them next. So Logistics is also about the management of information. Tracking and control of materials through the supply chain is fundamental to effective Logistics management.

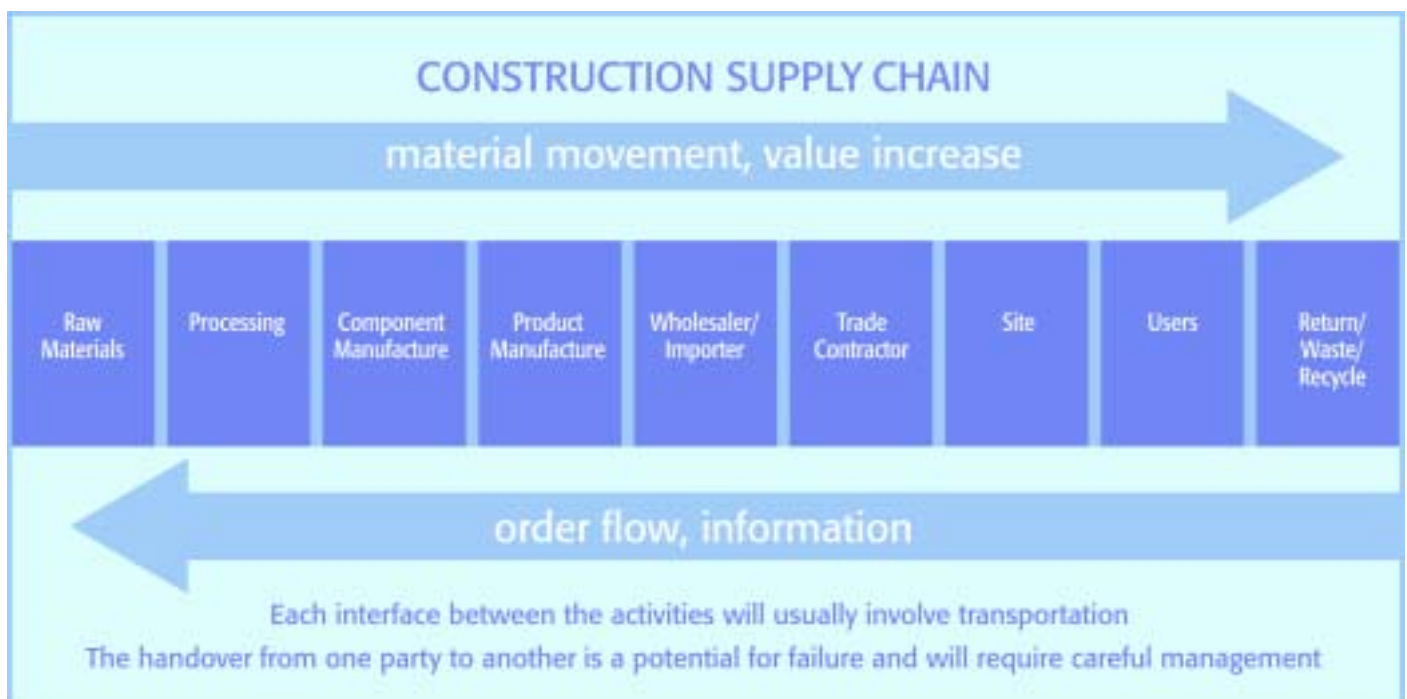
What are the benefits of Logistics?

Good Logistics management can:

- help ensure all activities are focused on customer service;
- help ensure the right items and resources are in the right place at the right time at the lowest overall cost;
- reduce the time taken to perform many activities;
- improve service and thus help to gain more business;
- reduce physical waste and wasted time;
- help to use resources more effectively;
- contribute significantly to improved safety by promoting tracking and control of all activities;
- increase profitability by reducing the costs of doing business;
- encourage integration and the development of supply chain teams;
- help to offer improved and wider services to your customers at lower costs to your business.

Applying Logistics in practice

Logistics principles are not difficult in themselves, but putting them into practice takes commitment, effort and attention to detail, with an emphasis on manageability. On the following page are some of the key action areas that should be addressed:



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1 Service, time and cost

These factors are key to all Logistics activities, to ensure that an organisation:

- provides better service than its competitors;
- reduces the time to deliver what the customer wants;
- provides this service at a lower cost.

Logistics processes focus on continuous improvement in each of these areas.

How much time is spent dealing with materials – receiving them, often unannounced, chasing up orders, counting and checking quantities? These activities are often hidden or are an accepted part of the job, but significant savings are possible. One example showed that for a modular building construction project the build time of 10 days included more than 1.5 man days just checking components received. On smaller sites this is often done by skilled craftsmen taking them away from key added-value activities, adding to the real cost.

2 Focus on customer service

No Logistics process can be managed unless there are clear targets for customer service. It does not matter whether the customer is external (a paying customer) or internal (working for the same organisation but still requiring a service). The primary driver for Logistics is setting and meeting customer service levels. It is essential to meet with customers to understand what their needs are. These might not be the same as they are asking for, simply because of their expectations of what is on offer. Helping customers to understand what they really need is good Logistics practice. For example:

- When are the goods and services needed?
- What quantities are required?
- How should they be delivered?
- How frequently are they to be delivered?
- Precisely where does the customer want them delivered?
- Are there some tasks that would be better undertaken before delivery takes place?

The answers to these questions will then lead to thinking about how they can be delivered at the lowest possible cost and greatest benefit to both parties.

Case Study 1 – McDonalds

Through the development of modular units for their restaurant buildings, McDonalds have reduced on-site work by 12 weeks, enabling them to open and earn income that much earlier. Within the modular building programme, which itself enables accurate and repetitive processes to be carried out with improved control, reductions in build time have been achieved by involving suppliers in the partial configuration before delivering components to the manufacturing point.

Electrical components are assembled so that each usable item is pre-wired to cable runs which are made as partial looms for easy assembly within the module. They are clearly labelled according to the drawing number and boxed and labelled again for each section within each building module.

This means they can be checked easily, and delivered to the point of use within the module, selected against the drawing number and are then simply fixed and plugged together.

3 Appoint a Logistics Manager for the project

For large project this might be a dedicated, full time role. For smaller projects it can be combined with wider project management responsibilities. In either case however, the role should be given authority and support from senior management. The Logistics Manager should be appointed as early as possible in the project life cycle so that Logistics can be considered at the design stage whilst it is still possible to make changes to accommodate good Logistics practice.

4 Agree a Logistics strategy for the project

This is the first priority of the Logistics Manager. This should help ensure that management of materials is optimised. The detail of this will depend on the nature of the project but objectives would include:

- Minimising the number of suppliers;
- Minimising waste in all its forms;
- Minimising vehicle movements into a site;
- Minimising congestion;
- Avoiding vehicle queuing;
- Minimising the storage of materials on site;

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- Keeping track of goods, materials, equipment and people and knowing where these resources are at all times;
- Planning how the use of resources, such as hoists, will be allocated.

5 Plan and organise the site

When materials are stored they need to be clearly labelled and in nominated areas, separated to provide easy access and arranged to minimise subsequent handling. As much as possible should be moved straight to the point of use at the time of delivery. This might result in more frequent deliveries in smaller quantities.

Centralising the management of materials receipts and intra-site movement can reduce the number of vehicle movements significantly.

- Delivery should be made in accordance with pre-booked and planned orders. Deliveries should only be accepted if they arrive at the scheduled time with the correct order. Sometimes referred to as OTIF (on time, in full).
- The site should be managed according to agreed Logistics zones. The use of zones is planned and controlled for loading and unloading, for storage, for the use of assets (e.g. cranes) and other resources.
- Each delivery should be sorted for easy checking.
- Materials should be clearly labelled to a set standard to allow easy identification and selection.
- Materials should be packaged in known regular quantities.

Case Study 2 – BAA Heathrow

At BAA's Heathrow Airport they have established a materials consolidation centre, using established warehouse management techniques, to receive all but the bulk deliveries and then re-deliver these to the point of use during the night.

Benefits include local traffic mileage reduced by 20,000 km, re-use of assets, cost savings of 2.5%, incomplete tasks due to lack of materials reduced by 80%.

However, the processes used here are just as applicable to a site of, say one hectare, where a key supplier could provide the same service.

- To facilitate the use of information technology, labels should be machine-readable, using bar codes for example.
- Storage areas and other controlled zones should be established, clearly signed and managed.

6 Consider pre-assembly

As far as possible materials should be obtained partially configured to their final use. For example, this might include electrical components made into partial wiring looms, or plasterboard pre-cut to the size needed. The next step might be for component materials could to be prepared in packages appropriate to a room, a floor or other de-lineated area.

A key objective is to reduce the amount of thinking time whilst the job is in progress. By taking a Logistics view it is possible to do most of the thinking during the planning stages.

7 Data collection

Information is key to effective Logistics management but collecting it can be difficult. However, understanding what is required to help monitor the detailed activities in the Logistics process is the start point. Data should be collected about:

- Orders and call-off quantities by material and by supplier
- Period over which this will be required
- Method of packing or format for delivery
- Time taken to unload according to the handling equipment to be used Any restrictions on access either of timing or physically
- How much can be transported directly to the point of use
- How much will require some intermediate storage

8 Agree KPIs and targets for improvement

Measurement provides the basis for improved forecasting of activities and scheduling, and better risk management. It can contribute to certainty in a construction programme, in relation to project timing and the ability of staff to keep working to plan.

Monitoring specific and relevant Key Performance Indicators (KPIs) will indicate current performance and trends, and show where action needs to be directed. These will be different for every project, or even part of a projects to be measured but understanding the flow and quantities of materials in detail allows the effect of change to be measured and the benefits to be quantified.

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Typical KPIs could include:

- Number of unique items used and quantity of each;
- Cube and weight of material received;
- Distance material has travelled;
- Number of deliveries received;
- How much of a material was actually used against the quantity ordered;
- Number of suppliers delivered on each vehicle;
- Timing of deliveries against pre-bookings.

Suppliers could be assessed against agreed targets in the three areas of service, time and cost through KPIs relating to:

- Lead-time from order to delivery;
- Completeness of order delivered;
- Adherence to agreed delivery times;
- Level of damaged product received
- Response by suppliers to problems raised, such as time taken to resolve

9 Consider delivery consolidation

Consider working with a key supplier who would be contracted to act as a 'materials consolidator'. This supplier would set up a facility off site to receive deliveries from many other suppliers and consolidate their deliveries into full loads. The supplier would then provide daily (or perhaps more frequent) deliveries of all materials needed for the day ahead. If properly managed this has the potential to:

- Improve certainty of supply;
- Reduce site deliveries;
- Reduce site stock holding;
- Reduce waste and losses;

10 Schedule use of resources

All equipment that is used to handle materials and people should be monitored for utilisation rates. Use of hoists and cranes, for example, should be planned to ensure that such equipment is kept well-utilised, with no more installed than is necessary. Suppliers requiring the use of such assets should be required to pre-book their use. In some instances suppliers could be charged for the use of the asset to demonstrate its value to the project.

With centralised control of resources there will be a need to balance the conflicting demands of the users. Hence conformance to an agreed plan by suppliers will be an important KPI to be monitored and reviewed.

11 Agree and formalise supplier standards

Each supplier should conform to standards agreed with that supplier. These standards should be itemised and part of any agreement. Some suggestions for inclusion are:

Service Aspects

- Purchase orders – information that must be included
- Vehicle appointments – bookings
- Vehicle characteristics – limitations or preferred specification
- Load units – palletisation, crates or other requirements
- Delivery documentation – essential information to be included and its format

Material Packaging/labelling

- Outer packaging
- Unit packaging
- Returnable packaging
- Labelling
- Bar-codes or radio frequency tags

Case Study 3 – Canary Wharf

The constraints of space and access at the Canary Wharf site in London's Docklands, and the complexity of the building programmes has led them to manage access to crane and hoist capacity centrally. All main and trade contractors have to pre-book the date and time of delivery according to the materials being received and the destination building and floor within the building. Without this they are refused entry to site.

On arrival they are 'booked-in', then checked into the specific building project and its designated off-loading point. This will have been planned against the time capacity of the crane, and the related hoist, based on the floor to which the material is to be delivered. In this way they cope with an average of 300 vehicle movements per day.

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Site Receipt procedures

- Site operations – access and reporting points
- Site security
- Collections and returns process

Track and trace goods and materials

To manage materials effectively and keep control of how much and of what is where it will be necessary to use some form of Information Technology. Simple recording of materials on to a site against pre-notified orders is a good start point. Being able to track and trace materials to the point of use will release considerable detail about what actually happens. This is why machine-readable labels are of benefit, as they take most of the effort out of the process.

Suitable IT systems are relatively low cost and their use is becoming more widespread on construction sites. There is more to this subject than can be covered in this Guide but given the relatively low use of IT on construction sites at the present time, this is an area where considerable development is likely over the next few years.

Sources of information and further help

- Institute of Logistics and Transport: 01536 740100, www.iolt.org.uk, enquiry@iolt.org.uk
- Chartered Institute of Purchasing and Supply: 01780 756777, www.cips.org, info@cips.org
- ecentre UK: 020 7655 9001, www.e-centre.org.uk, info@e-centre.org.uk
- British Materials Handling Federation: 0121 200 2100, www.bmhf.org.uk, enquiry@bmhf.org.uk
- The Logistics Education Centre: 01234 750323, www.logisticseducation.co.uk, info@logisticseducation.co.uk

In a nutshell: where to start

- Map the processes for ordering, receiving and consuming materials
- Understand and document what the customers expectations are and identify the real (as compared with stated) needs.
- Measure your own activities and performance, such as the number of items used, how much is bought from each supplier, the number of suppliers and use this information to understand the cubic volume of materials handled and the relative importance of each material and supplier.
- Measure your consumption of materials against those ordered to identify waste.
- Set standards against which to measure your suppliers' performance beyond the price, such as order lead-times, timeliness of deliveries, accuracy of deliveries.
- Suppliers are expensive to manage. Reduce the number used and get them to work for you. Find out what else they can do, such as providing materials in different quantities, or carrying out some sub-assembly or configuration work off-site.
- Look at linking to all parties electronically so that communication is quicker and more accurate, and to ensure that everybody is looking at the same and latest version of information.
- Set up service level agreements at each interface is one way of achieving some structure. Such agreements will define each parties' role and responsibilities, and how their performance will be measured. That is, what is expected of each group.