

EVERYTHING FLOWS

Logistics today: What has to be done to ensure it gets there

1. The definition If you want to speak about logistics, you must know what you are talking about. A first-term economics student could probably be dragged out of bed at four in the morning and come up with the answer “getting things from A to B”. He would then go on to list the six Rs of logistics professor Reinhardt Jünemann, who was Head of Material Flow and Logistics at the Fraunhofer Institute until 2000.

His classic definition is as follows: “The task of logistics is to make the right quantity of the right articles available at the right place of the right quality at the right time and at the right cost.”

This actually sounds quite simple.

However, anyone who opens the Handbuch Logistik (Logistics Manual) will already be confronted with mathematical equations in the introduction. For example on page 23: $G(S^*) = (r - p)\mu - (cM + cO) f_{01}(zCR)$.

Logistics is clearly not as simple as all that.

2. The example The T-shirt is the most widespread item of clothing in the world. If we assume that every person owns five of them, there must be around 35 billion at the present time. Each T-shirt requires around 400 grams of cotton. Most of this cotton is grown between 43 degrees north and 36 degrees south, in the so-called cotton belt. This covers parts of China and India, Brazil and Pakistan as well as some of the southern United States. Altogether around 75% of the world's cotton is produced there. But African countries such as Burkina Faso also produce natural fibres. The harvested raw materials therefore come from a variety of regions around the world.

After harvesting, the fibres are separated from the seeds. They are then pressed into large balls or packed into sacks and tied up for transport. This is because the product is rarely processed on site but mainly in countries such as Bangladesh, Cambodia or Vietnam. Three thousand textile factories exist in Dhaka, the capital of Bangladesh, alone. There the cotton flock is spun into threads and these are woven together; the various parts of the T-shirt (front, back and sleeves) are also cut out and sewn together. If the T-shirt has to be dyed, dye factories become involved, and these must previously have ordered and received delivery of the appropriate pigments. Once the T-shirt is finished, it must then be taken from the factory to its destination.

Around 34,000 shirts can fit into a container. Depending on the destination, the container ship will spend two or three weeks at sea. Once the load has reached the port, it is distributed to shops, traders or to the warehouses of online shops. When the T-shirt is ordered by phone or online, it is then delivered to the final customer's home address.

This therefore involves a lot of moving around.

And T-shirts are only one of many products. There are also computers, their circuits, monitors and enclosures, which are created with the help of 400 to 500 suppliers. Or cars, the parts of which are supplied by as many as 3,000 to 5,000 companies. The logistics becomes correspondingly more complicated.

3. Nothing works any more You don't notice what logistics really means until it doesn't work. When border crossings are suddenly closed and lorries are left queuing, when railway workers go on strike and goods can no longer be transported by rail, when an Icelandic volcano erupts and air freight comes to a standstill. Or when a planned delivery of 1,000 car engines is mixed up with 1,000 boat engines. That is when the flow of goods to which we have naturally become accustomed unexpectedly stops. Then you really notice what logistics is about.

4. From A to B? Logistics is a paradox. On the one hand, it produces virtually nothing. On the other, it has become such an integral and important component of the world economy that nothing works without it any more. Most people are unaware of its crucial importance. For them logistics means the same as transport – in the case of a company like Hermes, personified by the employees in their blue uniform who deliver a package to a customer's door. This attitude is understandable. After all, for a long time after man started to settle, the economy was confined to a small area, limited to one's own farm, perhaps the local village market or, in exceptional cases, to transactions between merchants of different towns. Transport was by cart, horse-drawn carriage or caravan. Information was sent by letter and carried by messengers on horseback. “The roads were, of necessity, short,” wrote the journalist Wolf Lotter in 2010 in the economic journal “Brand Eins” about the time before industrial capitalism. And he reported that news of the storming of the

Bastille, which started the French Revolution, took a fortnight to reach an abbey a good 80 miles from Paris.

Today, a delivery man stands at your door and confirmation of receipt is sent as soon as it has been signed to the head office and from there on to the customer who sent it. Behind all of this are very complex systems involving the acquisition of goods, their storage and their distribution. “Logistics is one of the few truly modern, all-embracing and, for that very reason, seriously interdisciplinary sectors of the economy,” adds Wolf Lotter.

5. The big picture The term “logistics” – derived from the Ancient Greek word “λογιστική” (logistikí, practical arithmetic) and the French term “logistique” (supplies) and used mainly in the military sector – entered into general use only relatively recently. However, with globalisation – which gained momentum after the fall of the Berlin wall – and the digital revolution – which has significantly speeded up many economic processes since the emergence of the internet at the start of the 1990s – it has quickly gained in importance. There are two main reasons for this. On the one hand, technological progress: when Toyota introduced the “just in time” production principle in the 1950s, which meant that axles, fan belts and rear lights no longer had to be available in large quantities but merely supplied when they were needed, the Japanese automotive manufacturer made huge savings on its storage costs. However, it also meant that dependency on suppliers grew. If a part was missing, production would come to a standstill.

Logistics thus became more important.

Then in the 1960s, the invention of the container revolutionised the transport of goods. If the 34,000 T-shirts mentioned on the previous page had had to be removed from the ship’s hold by hand up to that point, this is now done by a container crane in less than two minutes. Logistics thus became faster. The success of e-commerce changed everything again. Goods can be bought at any time, 24 hours a day, seven days a week. And if the bed linen the customer wants to buy online is stored in Germany, France or China, it’s of no consequence to him. Logistics thus became essential.

The second reason: in Europe and the United States at least, one has to assume that the markets are largely saturated. For example, the average American owns about 30,000 things, and each year Germans throw away an average of 448 kilos each as general domestic waste. While the basic needs of a person are more than met, as a consumer, the person is able to choose between a wide variety of products on the basis of criteria such price, convenience or service. By this point, logistics changes from being a simple necessity to the thing that makes it all work: the more quickly, flexibly and reliably logisticians act, the more self-evident the sector becomes. This is because, in the words of Eberhard von Kuenheim, Chairman of the Board of BMW, “The mobility of people and goods is not the consequence of our prosperity but the basis of it”.

Logistics thus includes:

- The procurement of raw materials
- The packaging of goods
- The storage of goods
- The transport of goods within a company and outside
- The distribution of goods
- The disposal of goods and packaging

Numerous additional services directly or indirectly associated with the above, such as the on-site assembly of furniture, the completion of customs clearance formalities or the settlement of payments.

This gives rise to a genuine chain which is divided up into four large areas: procurement, production, distribution and disposal. To make sure this chain is not broken, two other things are needed: the flow of information and the flow of materials.

6. The chain and its links Things are gradually becoming more complicated (apologies!). What was true in times of war is also true in times of peace: As Dwight “Ike” Eisenhower, Supreme Commander of the allied forces in Europe during the Second World War, was aware, “logistics influences battles. And it wins many of them”.

Along the chain, countless questions have to be answered. How can raw materials such as chemicals be transported safely? How are manufacturing processes organised on an assembly line? How can it be ensured that the quality of goods is right? How should one react to fluctuations in supply and demand so that shorts are available in the spring and fruit when it is ripe? What should be done if a night-flight ban is suddenly introduced at a destination airport? Should one change one’s means of transport if the oil price rises? How can a warehouse be designed to ensure that the things you want can be easily reached? How sophisticated must software be to manage cash payments in retail trade and bill payments in the mail order sector? What packaging should be used to protect goods, make transport easier, enable goods to be identified and produce minimum waste? How can less CO₂ be emitted when travelling over, or around a mountain? And so on and so forth.

7. And now to advertising The Hermes Group answers all of these questions for its commercial customers because its range of services is much wider and more international than many who merely associate the brand with sending packages imagine. Hermes is active along the entire value chain – from goods procurement via international transport logistics, quality control and goods testing, storage, commissioning and dispatch right up to the delivery of goods to the final customer. The company also acts as a web enabler for many of its customers. Its services also include the development of marketable products, collections and new brands.

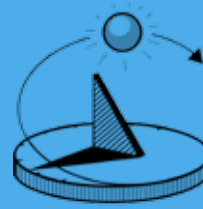
SEVEN THINGS THAT HAVE CHANGED LOGISTICS

THE WHEEL

The wheel, a disc and circular shaped object which rotates around a symmetrical axis, is thought to have come into being in the middle of the 4th century BC. Historical finds in Central and Eastern Europe and Mesopotamia point to this. Although at the beginning it was “only” used to transport light loads, the wheel has completely changed the world. Without it there would be no machinery, no vehicles and thus much less movement – and no modern logistics either.



At the beginning of the chain there is sourcing by Hermes-OTTO International. This unit sources fashion items, furnishings and leisure goods from bras to wall units, and from curtains to flat-screen TVs. Its portfolio also includes the initial testing of goods on-site. This is done by its global network in Asia, Europe and in North and South America. The next link in the chain is Hermes Hansecontrol, which is responsible for the physical and chemical checking of all goods to ensure their quality and determine whether they contain harmful substances. Hermes Hansecontrol has the necessary laboratories in China, India, the United States and Germany (Hamburg). The company also offers appropriate training and draws up instructions for use. Then transport comes into play, supplied by Hermes Transport Logistics. This global operator, which is essentially the Group’s haulage company, transports goods from the warehouse to the port or airport, handles import and export formalities, including customs clearance, and then distributes goods by road (on swap bodies or trailers), rail or inland waterway to the appropriate warehouse.

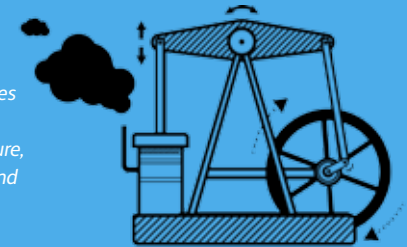


THE CLOCK

Sumerian clay tablets show that sundials were first used to measure time in around 3500 BC. British monks invented mechanical clocks in about 1300. Atomic and radio clocks are 20th century inventions. The timing of many daily processes, such as working hours, travel timetables or delivery schedules, has become tighter as accuracy in measuring time increases. Today we know that time is a) relative and b) experienced differently by everyone – despite the clock.

THE STEAM ENGINE

The first experiments already took place in the 16th century. But it was not until James Watt patented his engine in 1769 that machines were able to convert heat energy into mechanical work and replace muscle, wind or water power much more effectively. Its use in agriculture, mining, and, of course, manufacturing became the driving force behind the industrial revolution. Combustion engines and electric motors have now largely replaced steam engines.



This is logically followed by Hermes Fulfilment. This company owns four specialised logistics centres with automated high-bay storage and conveyer belts which are kilometres long. These carry scanned goods and current orders together to dispatch. Its range of services also includes call centres and overall debt collection.

Hermes NexTec performs a function which, depending on how you look at it, is situated at the beginning, in the middle or at the end of the chain. As an e-commerce supplier, NexTec designs, programs, develops and markets online shops with everything that requires. It also has something which not everybody has: its very own modular software.

The last link in the chain is distribution. This is where the Hermes Logistik Gruppe Deutschland comes in. It operates around 14,000 ParcelShops and supplies goods to the final customer via delivery agents. Six central hubs, 59 branches and around 400 depots make it possible to transport goods at efficient capacity and as quickly as possible.



NAPOLÉON BONAPARTE

Although the Roman army had non-combatative supply troops, the so-called tross, the French military commander and emperor (1769–1821) revolutionised military logistics. In the Russian Campaign of 1812, he was backed up by weapons technicians, engineers, doctors, craftsmen, traders, chaplains and even prostitutes. What had already worked in the adverse conditions of war was massively improved in times of peace.



THE CONTAINER

Is it really necessary to load a lorry, train or ship with crates and sacks one by one? And do this again at every interim stop? Malcolm McLean found it all too much. The American haulier developed a large-volume container which, from 1956, made loading and unloading, transport and storage much easier and faster. Today around 95% of the volume of world trade is transported in these sealed metal boxes.

JUST-IN-TIME PRODUCTION

In 1953, the engineer Taiichi Ōno tested a manufacturing system known as Kanban at the Japanese automotive manufacturer Toyota aimed at reducing overproduction and expensive interim storage. Some materials would only become available when they were actually needed in the production process. Kanban replaced central control and increased the flexibility and speed of manufacturing and all the logistics behind it.



THE INTERNET

Probably the greatest change to the dissemination of information since the printing of books was developed in the 1960s and became available in the industrialised world in the 1990s. Today, not even 20 years later, the world communicates via the internet. Goods are sold, information is provided and couples meet each other at the click of a mouse or by touchscreen. And without IT, nothing would work in logistics.



The Hermes Einrichtungs Service, with its own network and a central depot near Poznań, the centre of the Polish furniture industry, specialises in bulky and heavy goods. Whether you are talking about kitchens or large electronics goods, all items are transported by two employees to the home, company or school and assembled and connected there. Hermes generally offers its services internationally. In the UK, Italy and Austria, the company transports millions of consignments itself and is currently setting up operations in Russia as a deliverer of packages to businesses and private customers.

8. At the destination When the goods finally reach the customer without anybody giving even the slightest thought to the logistics behind it all, its job is done. Or at least that's what one might think.

The reality is quite different.

The world is constantly changing, everything is in flux. And logistics, whose job is it to make sure everything does, is facing major challenges. Some are structural – by 2050, for example, around 75% of people in the highly

developed countries will probably live in cities, compared with around 50% today. Some are ecological – at present transport accounts for 18% of greenhouse gas emissions in Germany, 28% of which come from road haulage. And some are, of course, unforeseeable because nobody knows how politics, the world economy, the climate and technology will evolve. Will we still have the euro in 2022, when Hermes celebrates its 50th anniversary? Will the United States and Europe still be world leaders or will Brazil, Russia, India and China have taken over? Will logistics be affected by adverse weather events? Will 3D printers, enabling people to produce textiles at home, change trade?

As an Arab saying goes, “humankind is divided into three classes. Those who can't, move. Those who can, move. And those who do, move.” Hermes is as adaptable as it is agile. The company – which no longer exists in the form in which it was founded 40 years ago – has proved this again and again. Hermes is a service provider, a “mover of mountains”.

And, as such, is always on the go. ■