



Guide to waste management opportunities

Minimise your waste. Maximise your business.

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Introduction

The separation of waste is already common practice in many businesses. However, there is still far too much being sent to landfill. As a result, the cost of waste management is often much higher than it needs to be and there is still a lot to be gained by looking critically at the waste in your company. This booklet will help you with that.

This booklet was made as part of the Interreg 2 Seas project Upcycle Your Waste and is supported in part by the Centre for Sustainability of Leiden University, Delft University of Technology and Erasmus University Rotterdam. The aim of this project is to accelerate the adoption of circular business cases by SMEs, to convert their waste streams at local level into the highest possible value of raw materials and products (upcycling). This is achieved by developing and introducing knowledge, tools and facilities that enable SMEs and local authorities to make this transition. This booklet is both a source of knowledge and tools that enable SMEs to better separate their waste streams, by preparing them for upcycling and at the same time saving costs.

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1. Why improve waste separation?

Why should companies separate their waste?

1. It is a legal requirement.
2. It saves money spent on waste bills.
3. It makes business operations more efficient and sustainable.

The legislation

The UK government is already encouraging businesses to embed the circular economy in their processes, by introducing specific legislation. Companies are obliged by the Waste (Circular Economy) Amendment to Regulations SI 2020/904 to separate their waste, carry out the waste hierarchy to prioritise re-use, prevent recyclable or re-usable materials from entering landfill or being incinerated and prohibit mixing of waste that hinders recycling.

Reducing costs through better waste separation

Without too much effort, a business can save an average of 25% on their waste bill by separating their waste more efficiently. By recognising that there is value in waste products and capitalising on this, businesses can reduce costs and even gain some profit.

For example: an installation company with 15 full-time employees (or equivalent) collects all plastic and paper waste separately, which enters recycling streams rather than being collected for landfill or incineration. The resultant savings from their general waste bill is £4,250 per year, purely from reducing the volume of general waste.

Increasing efficiency of business operations

The waste costs for a business consist of the invoice from the waste collector and any internal costs involved in waste management. After all, the resulting waste and processing after collection does not contribute to the manufacturing processes of a product. Large savings can be achieved through altering the manufacturing processes and business operations, to make the end of life or re-use of materials easier.

For example, if a supplier delivers a product in a box that can be folded closed rather than taped, this will save time and money on processing the cardboard after use.

"Lean manufacturing" is a philosophy in operations management, where the focus is on increasing quality and productivity, as well as minimising waste. Does this achieve the maximum value for the customer? By increasing the focus on the quality of the production process and preventing errors, less material is wasted and the customer benefits from higher quality products and less waste to deal with themselves.

Contributing to sustainable entrepreneurship and creating a better image

By manufacturing and separating waste more efficiently, the volume of general waste is reduced, and the quality of the separated waste streams improves. This allows for a high rate of recycling, to a better quality. This reduces your operating costs as well as the impact on our environment. In short, your business becomes more sustainable and this improves the image of your company among its customers, suppliers, staff, future employees, neighbours and government.



1.1 What does the law require?

The rules on waste separation, applicable to businesses, are set out in the Waste (Circular Economy) Amendment to Regulations SI 2020/904. Separate waste collections will need to be arranged for paper (including car and cardboard), plastic, metal and glass if it is necessary to help prepare the waste for re-use, recycling or other recovery operations. This is in line with Articles 4 and 13 of the Waste Framework Directive. This legal requirement only applies to the waste collectors, rather than the producers. Producers of waste (e.g. businesses) have a legal duty to take reasonable steps to apply the waste hierarchy and correctly dispose of their waste. However, the waste producer can work with the waste collector to separate waste more than is legally required, to the benefit of the business and the environment.

There are however strict obligations for waste that is deemed to be hazardous, which must not be mixed with non-hazardous wastes or hazardous waste from different classes. Medical waste and waste containing harmful chemicals therefore must not be put into the general waste bin. The [Technical Waste Classification Guidance](#) is a good reference to check which wastes are classed as hazardous and must be treated as such. Any more specific information on accepted materials should be checked with your waste provider.

Examples of waste that must always be separated

| | |
|------------------------------------|--|
| General waste | <ul style="list-style-type: none"> • Batteries and accumulators or appliances containing them • Fire extinguishers and pressurised canisters • Electrical and electronic equipment containing hazardous substances over a certain level • Light bulbs or fluorescent tubes • Non-edible oils • Any waste containing chemicals harmful to humans or the environment (hazardous waste) • Hot ash |
| Waste for landfill (non-hazardous) | <ul style="list-style-type: none"> • Any liquid waste, including waste water • Explosives, corrosive, oxidising or flammable waste • Infectious material or veterinary waste • Chemicals from research and development where the effects are unknown • Paper, metal, glass or plastic separated specifically for recycling • Gypsum based wastes cannot go to landfill that accepts biodegradable material |
| Waste from vehicles | <ul style="list-style-type: none"> • End-of-life vehicles before being depolluted • Whole or shredded tires, except bike tires or those with a diameter larger than 1.4m • All car oils • Brake fluid • Car batteries • Fuel tanks • All components containing mercury |

| | |
|---|--|
| Construction and demolition waste | <ul style="list-style-type: none"> • Asbestos-containing waste with concentrations higher than 0.1% • Concrete, bricks, tiles or ceramics containing hazardous substances • Wood, glass, plastic or metal containing hazardous substances • Asphalt with a concentration of benzo[a]pyrene above 50ppm (mg/kg) • Any waste containing coal tar with a concentration higher than 0.1% • Soil and stones containing hazardous substances • Sewage, sludge or septic tank sludge • Cables containing oils • Un-set or un-used cement • Paint containing organic solvents • Paint or varnish remover • Adhesives or sealants containing organic solvents |
| Waste from agriculture | <ul style="list-style-type: none"> • Pesticides • Biodegradable waste (by 31st Dec 2023*) • Animal by-products |
| Waste from industry, utilities and minerals | <ul style="list-style-type: none"> • Hazardous sludge from waste water treatment • Hazardous waste from power stations • Acids and bases from chemical processes |
| Other specific waste | <ul style="list-style-type: none"> • Waste mineral oils (liquid fuels and lubricants, synthetic oils and waste oil separator contents) • Other waste oils (diesel, biodiesel etc) • Wastes that contain or are contaminated with oil • Medical waste • Waste containing mercury • Printer toner • Solvents • Equipment containing ozone depleting substances (like fridges) • Hazardous waste container |

The UK has also set recycling targets for particular materials, which are set out below.

| Material | 2020 (%) | 2021 (%) | 2022 (%) |
|-------------|----------|----------|----------|
| Glass | 80 | 81 | 82 |
| Plastic | 57 | 59 | 61 |
| Aluminium | 64 | 66 | 69 |
| Steel | 85 | 86 | 87 |
| Paper/Board | 75 | 79 | 83 |
| Wood | 48 | 35 | 35 |

1.2 Reducing your waste bill

The more often that waste collectors empty your bins, the more they earn from you! The table below gives an idea of charges for disposal of general waste. The waste company does not care whether the bins are actually full; your business simply pays the full cost per bin emptied. By minimising the volume of general waste produced and maximising the use of your bins, you can save costs by reducing the number of bins that require emptying or reducing the frequency of your collections.

| Bin capacity | Weekly collection | Twice weekly collection | Collection 5 times a week |
|--------------|-------------------|-------------------------|---------------------------|
| 240 liters | £510 | £1,020 | £2,040 |
| 1100 liters | £1,275 | £2,550 | £5,100 |
| 5000 liters | £4,250 | £6,800 | £13,600 |

Global rates (£/year) of residual waste collections (including rent, collection and final processing, price level 2021)

Analyse your invoice

Using the invoices from your waste company, you can get a good overview of what you pay for different waste streams. The invoice includes the costs of renting the containers, emptying, transport and sometimes processing costs. Identify the top 3 most expensive waste types for your particular business. Usually, general waste is the most expensive. This 'top 3' allows you to focus on certain areas of your business, for increasing efficiency and reducing costs. Because you also know the volume of the container and how frequently the bins are emptied, you will know the volume that is collected monthly (regardless of whether the bins are actually full). This way you also know the costs per cubic meter of having an empty container 'collected'. Compare all your costs with those of your industry peers and always check whether the rates are correct per waste type. Have there been any changes? Why is that and is this correct? Does the cost make sense? Speak with your collector if you have any concerns.

Be wary of extra charges

Do you understand all the surcharges listed on your invoice? If not, ask your waste company to remove any surcharges or at least explain them. Do you also use all bins mentioned on your invoice? Keep track of whether the bins are indeed full before the collection truck comes along. This will let you know if your business is being charged for bins that are not needed. Reduce the number of bins you have or ask for them to be emptied less frequently where you can, to save on your waste bill.

Shop around

Ask your waste company and two other waste companies in your area what you can save by separating your waste more efficiently. Be sure to compare the quotes you receive and ask the companies to explain any differences in price. Also ask about the possible profit that could be achieved from some materials/products that are currently in your general waste and how your business can benefit from utilising this. If obtaining a profit from the re-use of materials is not a possibility in the meantime, then there are websites such as <https://reuse-network.org.uk/> which connect businesses to opportunities to donate goods

and materials. This helps to alleviate poverty by giving to those in need and reduces your volume of general waste.

Challenge

Challenge your collector to significantly reduce your costs during the contract period. A good start is a request for a 30% cost reduction. This way you can benefit from the knowledge and skills that the collector has accumulated already. If your waste company can provide no help with this, then seek an independent advisor, possibly in partnership with other businesses around your area. Any actions that you can take, when done at scale will be more effective, so partnering up with other local businesses to tackle waste will benefit all involved. These consultants also pay for themselves very quickly because of the savings that they can bring you.

1.3 Efficient and sustainable business operations

Packing and unpacking

Businesses can receive raw materials, parts, semi-finished products and products in packaging. In addition to packaging creating a waste product, it also takes time to unpack and process the packaging for disposal. This time comes at the expense of productivity. Therefore, consult with your suppliers about what can be improved in the way that their products reach you. Is the packaging necessary or can the product be unpacked faster? Can the packaging be lighter or is multi-use packaging an option? Your customers can

also benefit from reduced packaging because they are dealing with less waste themselves. Your business can also make savings by not having to purchase so much packaging with your products. Ask the top 5 of your customers if they are satisfied with the way you deliver your products now. From such a conversation, both parties can achieve great benefits.

“Lean manufacturing”: reducing waste

What you dispose of as waste, you once purchased as useful material. Reducing the waste from this useful material is achieved through “lean manufacturing”, for example by using:

- Technical measures to prevent material loss during production
- Recovery of materials to use in your own production processes again
- Recovery of material to use elsewhere
- Reduced use of packaging (e.g. reusable packaging materials and returning packaging)
- Behaviour change of employees
- Redesign of products and production processes

The waste that is produced by your business can be an indication of inefficiencies, where “lean” strategies could be applied. Labour, energy and capital also tend not to be used efficiently in these areas. To aid applying lean manufacturing to your business, the acronym TIM WOOD can be used:

1. Transport. Unnecessary transport in the company is wasteful and can also cause more waste through using too much packaging for travel and re-packaging in the logistics system.

2. Inventory. Products and stock, which have not been sold or deployed, are wasteful and

produce losses. Inventory not only consumes space, but often packaging as well. If a product or material is kept for too long, it may no longer be able to meet the quality specifications. That causes breakdowns and therefore more waste.

3. Motion (movement). Machinery and employees, who are carrying out their 'movements' above capacity can lead to failures and defects in production. This costs energy, labour and produces further waste.

4. Waiting. By having to wait unnecessarily for things, the "flow" of production can be interrupted. This allows products and materials to stand for too long and therefore cause defects.

5. Overprocessing. Certain processes may be too fast, or products with too close a tolerance may be made. This can cause waiting times or direct defects further down the production line.

6. Overproduction. By overproducing products or making them too early, an excess of inventory is made. For example, overproduction is caused by working with excessive stock, lead times that are too long or poor communication/relationship with the supplier. This increases the risk of failure and can cause waste.

7. Defects. Waste is often caused by defects. In the event of a defect, there is more damage in the company than just the waste that results from it. There are customer complaints, delivery errors, reduced production capacity, extra work to fix defective products and longer lead times.

Sustainable entrepreneurship

By separating waste and packaging it efficiently, you are showing your customers that your business is operating sustainably; this strengthens the image of your company. Mining or harvesting raw materials and working up to the desired material often takes a lot of energy, with high levels of CO₂ emitted (see table below).

| Material | Energy consumed (MJ) | CO ₂ emissions (kg) | Equivalent consumption of natural gas (m ³) | Average natural gas consumption of one family (for comparison) |
|-----------------|----------------------|--------------------------------|---|--|
| 10 kg steel | 230 | 22 | 7.2 | 1.5 |
| 10 kg aluminium | 1580 | 152 | 50 | 11 |
| 10 kg plastic | 500 | 48 | 18 | 4 |
| 10 kg paper | 150 | 14 | 4.7 | 1 |

Table: Energy consumption saved by recycling and the associated CO₂ emissions saved. This table demonstrates 10kg of material because this is the amount of steel and aluminium that disappears into general waste on average ever year. 10kg of paper is the weight of a full box collected for recycling.

Waste separation and reuse prevent our raw materials from being depleted and save a huge amount of energy, both in production and in the waste phase. More efficient waste management can save your business money and allows you to contribute to the circular economy and prove your commitment to greater sustainability.

2. Practical approach

Not all companies are the same. For practical reasons, there is a distinction between:

1. Small, well-organised companies with a limited number of employees (< 50 FTE). Processes tend to be simpler and 1 employee may be able to enact change quite quickly.
2. Larger, more complex companies have 50 or more FTE, multiple departments and more complex processes. In these circumstances, initiating change can be a slower process.

2.1 Approach for smaller companies: the quick method

In smaller businesses, the situation is often clear. A quick check of the waste bins can highlight whether more material could be separated from general waste and the necessary measures will quickly become clear. However, caution is advised as a spot check like this may not produce the most reliable results. For example, if the waste observed happens to be measured in a quiet period or the quantities and costs are underestimated.

To aid your approach, answer the following questions:

1. What kind of waste do you have?
2. To which waste streams does the law apply? (see section 1.1)
3. How much waste is there (per week/month/year)? You can track this with your own tables.
4. Are the containers full when they are emptied?
5. What do you actually pay for? And do you know what your waste bill means? (see also section 1.2)
6. What types of materials are left in the general waste bin?
7. Do you know what value or yield you throw away with the general waste? (see Chapter 3)
8. Do your staff have to walk far to the nearest bin?
9. Do your suppliers' products have excessive packaging? Can they be delivered unpackaged? (see section 1.3)
10. Would a waste plan be useful for you? (see Chapter 5)

With these 10 questions, you can get a better picture of the waste situation in your business. It is a quick and easy approach for a broad overview of the current situation. It does not give an exact picture but it does show the possibilities of more efficient waste processing.

2.2 Approach for larger companies: the thorough method

Many companies take measures to keep recyclable material and reusable products separate. Nevertheless, the general waste bin remains very full. General waste is often the largest cost item of a company's waste bill. It can be difficult to determine what materials are being thrown away in general waste and at what cost to the company. However, by using a waste test, it can be fairly simple to find out. The idea of this test is to accurately measure how much of each waste stream you are producing, rather than just going by

how much your waste company thinks they need to collect from you.

The waste test

With a regular look in the general waste bin, you can see and track which various recyclable materials and reusable products are being thrown away. Often this is paper, cardboard, plastic, wood, pallets, and even metal. This website from the Netherlands provides a good resource for finding other examples of 'upcyclable' materials, like conveyor belts, coffee grounds and cork (use your browser to translate to English): <https://watrest.nl/afnemers/>. For this waste test, you will place extra waste bins (or boxes/buckets) for specific waste streams close to where your staff work or visit frequently. You will then ask staff to use these separated bins to sort their waste as they throw it away – the test and the importance of separating waste must be communicated effectively with staff to work well. This allows you to keep track of how much of each waste material you are producing over a certain period of time. Ultimately these bins will be thrown back into your general waste at the end of the experiment (unless you already have the facilities for recycling these waste types), but it gives you an indication of which streams you could be separating and the volumes that are being produced. If you feel it is needed, you can even take everything out of the bins at emptying to demonstrate which waste belongs where, as a staff awareness raising exercise.

Measuring is knowing – brief outline

By keeping track of how much of each waste stream has been collected each week, you have an impression of the possible savings that you could make by reducing the volume of material going into your general waste bin. You can keep track of that quantity by measuring the volume, for example, counting the number of 20l bin bags that you have filled. You can now decide whether you should have fewer general waste bins or have them collected less frequently, or require more bins for separated recycling. This information will be very useful when the renewal your waste contract is due. You can also challenge the waste collector by having them come up with suggestions for greater efficiency and ask other waste companies for information and comparative quotes. Please note: in practice, you usually pay for the placement and emptying of the container and not for the number of kilos of waste produced.

The manager should conduct and monitor the execution of the test as follows:

- Management sets an ambition for waste and cost savings. For example: the amount of separately collected waste/material is increased from 50% to 75%. A cost saving of 40% is achieved. This objective is achieved in 12 months.
- A colleague is appointed to carry out/organise the measurement of waste produced (the coordinator)
- The measurements are taken at certain times of the year, for example: for two weeks in spring and summer months.
- Solutions are then devised to separate more waste and reduce residual waste
- After the measurement, the solutions are carried out with the (new) waste collector.
- After 1 year, the waste collection, the separation rate and the costs are evaluated to assess success.

Measuring is knowing – in detail

The previous section briefly indicated how to measure the amount of recyclable waste your business produces. Here the measurement is explained further in 3 steps.



Step 1: Collect your recyclable waste

By separating the waste by type for a week or a longer period of time and storing it separately, it becomes clear what kind and how much of each material normally ends up in the general waste bin. It is important that this is done in partnership with the staff and possibly also with the cleaning service.

To collect the recyclable waste separately, you can take cardboard boxes, crates or other bins as a test that can temporarily serve as waste bins. Below are some tips that work well:

- The bins for recyclable waste are located where the waste is produced. This prevents your colleagues from having to walk too far for their recyclable waste and ensures that the waste ends up in the right container.
- Use open bins for the recyclable waste types. In this way, your colleagues can see which waste types are valuable and are encouraged to participate in the separate collection of these. It also clearly demonstrates which materials should go where and reduces the effort of recycling for individuals. For example, an open mesh container with flattened cardboard boxes makes the intention clear to everyone immediately.
- The bins for the general waste are much smaller than the bins for recyclable waste; large waste bins encourage the production of lots of waste.
- The bins for recyclable waste are sufficiently large, in large numbers and always near a workplace.
- Place clear instructions (photos included) on the collection bins that indicate what should and should not be put in the bin.

When you start following this strategy in the workplace, partnership with your colleagues is very important. During work meetings, you can involve members of staff in the trial by asking about their preference for, among other things, the placement of the waste bins. Keep your colleagues informed of the progress of the trial, such as things that are going well, things that are not going well (e.g. wrong waste in the bin), how much waste is collected separately and which products are made from the recycled material. You can do this with the help of newsletters or by hanging feedback in the right place. Align this with your facility service if possible.

Step 2: Collect the information about the waste kept separately

It is then important to keep track of how full the waste bins are; this could be over one week or one month. Make sure to include how many bins are full, half full or only a quarter full just before collection. It is not necessary, but one can also measure the weight of the waste bags. This is easiest with a weighing hook (see photo). Also note when certain items or products are thrown away. These can be, for example, old furniture, computer equipment or large packaging materials such as barrels, big bags and pallets. By also keeping track of how full the residual waste bins are and what recyclable waste can still be found in them, you know how successful the test is, whether communication to your colleagues has gone well and whether the waste bins are in the right place.



Photo: weighing hook



You can keep track of that information for:

- Materials:
 - By type (e.g. plastics, wood and textiles)
 - By volume (e.g. full bin bags, or full waste bins)
 - By weight (measuring with a weighing hook)
- Objects:
 - Type of object (e.g. pallet, office chair or computer display)
 - Quantity (e.g. 5 pallets in 3 weeks)

Below is an example diagram of how a fictitious distribution company collects the data on materials from their general waste, split by type. The amount of waste paper and cardboard was not included, because they were already collected separately once a week.

| Type of material/object | Week 6 | Week 7 | Week 8 | Week 9 | Week 10 |
|-------------------------|-------------|--------------|-------------|---------------|-------------|
| Plastic | 14 bin bags | 5 bin bags | 17 bin bags | 10 bin bags | 11 bin bags |
| Coffee cups | 1 bin bag | 2 bin bags | 1 bin bag | 11/12 bin bag | 2 bin bags |
| Wood | 1 waste bin | 2 waste bins | 1 waste bin | 2½ waste bins | ½ waste bin |
| Metal | ½ waste bin | ½ waste bin | 1 waste bin | ½ waste bin | ¼ waste bin |
| Organic waste (kitchen) | 1 bin bag | 1 bin bag | 1 bin bag | 1 bin bag | 1 bin bag |
| Pallets | 2 | 3 | 6 | 3 | 4 |
| Canvas (truck) | | | 2 | | |
| Computer monitors | | | | 4 | |
| Office chairs | | | | 4 | |
| Residual waste | 6 bin bags | 7 bin bags | 5 bin bags | 4 bin bags | 7 bin bags |

Example schedule of separately collected waste in a distribution company over 5 weeks (emptying once a week)

Step 3: Estimate the level of fullness of the waste bin

The produced industrial waste is collected at regular intervals by the waste collector. How often this happens and how big your waste container is, is an important cost item. All waste collected separately will eventually end up in your general waste container from your waste company during the trial period before being collected.

By periodically checking your waste containers before they are emptied (for example, a day in advance) you can make an estimate of how full the containers are. This makes it clear whether the size of the waste bin and how often it is emptied, is appropriate for the type and amount of waste that is produced. With such an overview you can determine whether you might benefit from fewer waste bins, smaller waste bins or a reduction in collection frequency. Please note: in practice, you usually pay for the placement and emptying of the container, and not for the number of kilos of waste. An example of the costs for containers can be found in section 1.2.





Example: Keeping track of the filling rate of the waste containers

Below you will find a sample diagram of the filling rate of the waste containers at the distribution company. The company has bins for paper and residual waste. The waste is collected once a week. This example already shows that the number of residual waste bins can be reduced by one, and that the paper bins could be smaller.

Figure: an empty or full waste bin costs the same in many cases.

| Containers | Week 6 | Week 7 | Week 8 | Week 9 | Week 10 |
|---------------------|-------------|-------------|-------------|----------------|----------------|
| Residual waste | 2 full | 3 full | 1 full | 2 full | 2 full |
| | 2 half full | 1 half full | 4 half full | 1 half full | 2 quarter full |
| | 1 empty | 1 empty | | 2 quarter full | 1 empty |
| Old paper/cardboard | 1 full | 1 full | 1 full | 1 half full | 1 quarter full |
| | 1 empty | 1 half full | 1 empty | 1 empty | 1 empty |

Sample schedule of tracking the filling rate in a distribution company in 5 weeks (emptying once a week)

Insight in 3 steps

You now know with these three steps:

- How much extra recyclable waste there is left, in kind and quantities of materials and objects in the waste bin.
- How much (extra) waste you can collect separately and how you can communicate about this in your organization.
- How full your waste bins are, and if one can go.

With these insights, you now have the right basis to estimate the savings on your total waste costs.

3. The value of your waste

The recyclable material that leaves your company as waste, such as waste paper, plastics and wood, also has value, in a similar way to scrap metal. For example, new paper is made from old paper, plastics are now increasingly being processed into new products and old wood often comes back as chipboard. Your "waste" is therefore raw material for another industry. It is not only collected, but also traded. Your company is rightly often seen as a source of raw materials.

The prices of these raw materials also vary and are often much lower than the old iron price. The recycling/re-use of these materials may cost money in connection with the container rental and front costs of the truck for transport. However, the recycling/re-use of these materials should not cost as much as the disposal of residual waste, which is where they would go otherwise. It is therefore important that you check your waste account carefully.

Below you will find some websites on which you can find the value of recyclable material:

Scrap (iron and other metals)

- <https://scraplocal.co.uk/scrap-metal-prices/>
- <https://www.reclamet.co.uk/scrap-metal-prices>

Waste paper (some commercial websites)

- <https://www.letsrecycle.com/prices/waste-paper/>
- <https://www.zestrecycle.co.uk/prices/>

For plastics and old wood there are few overviews of prices. It is best to approach a trader in old wood and plastics and ask them for a quote. More information can be found through these websites:

- <https://woodrecyclers.org/>
- <https://www.communitywoodrecycling.org.uk/>
- <https://rpcsltd.co.uk/sell-plastic-recycling/>
- <https://plasgranltd.co.uk/sell-your-plastic-waste/>

Old wood quickly has a value of several tens of euros per tonne. Pallets made of wood, the 'one-way pallets' or 'disposable pallets' can be worth more than old wood. With plastics, it is very dependent on the quality. When it comes to mixed plastics, the disposal can even cost some money. If it is clear which materials one has (e.g. foils), one can (re)negotiate with several waste collectors.

Purchase

Calculate the cost of disposing of a particular waste stream. Compare that with the purchase costs of the material that ends up in the waste bin. These purchase costs are often a plurality of the waste costs. The calculation immediately shows your potential savings from the prevention of waste.



4. Are you sure you have waste?

Waste is material that a company does nothing with and logically throws away, but in many cases the discarded material can still be useful.

Using waste in-house again

You may still be able to use the residual material from your business. There are no standard methods for assessing this but there are some general tips! Often material that was considered waste can be used as packaging material again. A well-known example is the paper waste that comes out of the paper shredder. For many companies, this is good filling material for transporting all kinds of things in boxes. There are machines that also transform cardboard into grid mats, which are used as sturdy industrial filling material.

Is it waste or something useful?

Often other markets are found for materials that were first disposed of as waste. Here are two examples:

1. Fruits and vegetables cannot always be sold at market. To dispose of the unsold fruits and vegetables, a company would have to pay to have the waste taken to be composted. Now, the unsold fruit and vegetables can be brought to horse farmers or cattle farmers as animal feed and in some cases this even brings in some money.
2. Large carpentry factories produce wood shavings as a by-product. Rather than disposing of the wood shavings, they can be sold as litter for poultry farms.

As mentioned, there is not really a set method to see if your waste material can be re-used as 'new' material. The following tips often help:

- Find the product or material on the internet and use synonyms when searching. See which industries your material is used in and connect with those companies directly. Example: try searching wood shavings and then its synonym, sawdust to find opportunities for supply.
- Try to think outside of your normal market. If your company trades on a large basis, it can be tempting to overlook possibilities that are only suitable on a smaller scale. For example: a large molasses company uses 200 liter barrels, which are thrown away at the end of use. After rinsing out the molasses (a by-product of sugar preparation from sugar beets), the barrels can do well in the second-hand market as rain barrels or can be resold to traders.
- Think of further post-processing. With a few machines you can transform your waste stream into a product. Such as nuts and seeds that could not be sold for bird food (e.g. mix and wipe residues) which are used as animal feed after grinding.

Waste for charity?

Waste can also make a contribution by donating it to charities or social institutions. In many cases, this involves unneeded items that can still be useful, such as computers, tools

or machinery. In the context of education, you can also think of donating old technical posters, samples, books, products, models and openwork show products to schools. By donating it to education, your company directly invests in a better future for young people and encourages them into the workforce of your particular enterprise.



By donating it to civil society organisations, schools and all kinds of associations and clubs, a company achieves:

- an even better relationship with their surrounding neighbourhood (customers, other business etc)
- an opportunity for extra PR by involving the local press or gaining free advertising
- an investment in the neighbourhood and in local training. With the donated items of a company, other people and organisations get a little further
- greater motivation of its employees. Doing something right for your environment makes you feel good and generates a sense of the business being strengthened.

These links can provide further details on donating items to avoid sending them to landfill, while also helping to alleviate poverty:

- <https://reuse-network.org.uk/donate-items/#/>
- <https://www.recycleyourelectricals.org.uk/donate-electrical-goods/>
- <https://workaid.org/how-to-help/donate-tools/>



5. The waste plan

If a method to manage waste more efficiently has been identified, then you can define these strategies in a structured approach, through a waste plan. A waste plan can be part of your quality management plan and is not exclusively for larger companies. When the decisions and plans for waste are laid out, the improvements can be monitored more effectively.

The waste plan is based on the well-known Plan-Do-Check-Act cycle. One devises and plans measures (Plan), implements them (Do) and checks (Check) whether the desired effect has been observed on the reduction of general waste and costs. In the Case of (Act), one adjusts if things do not go entirely according to plan. The adjustment is part of the new plan and so the cycle starts again.

A waste plan states:

- The tightened objective and monitoring plan is set out by management. This follows the measures to be implemented (Plan). For example, an objective may be to reduce the % (or volume) of general waste from 40% to 20% or to reduce purchased packaging material by a specified amount, weight, volume or percentage.
- The implementation (Do) of the waste plan, such as:
 - Communication
 - Record filling levels of waste bins and contents of general waste bins
- The periodic evaluation (Check) of the waste plan in the company. This involves looking at:
 - The waste invoice (see page 7)
 - The filling rate of all waste bins
 - Materials that have been seen in the general waste, and report if they do not belong in it
 - Maintain good contacts with the waste company and potential customers for re-used materials
- Actions (Act) based on the evaluation, such as:
 - A test for other recyclable waste (see section 2.2)
 - Sharpen communication
 - Devise and implement prevention measures
 - Adjust waste contract with collector

After three months, an evaluation of the waste situation after the renewal of the waste contract is carried out. Management may choose to tighten the target again.

Part of the waste plan is to feedback to various parts of the company:

- Feedback of the waste plan to the Purchasing Department (Act), in order to
 - Renegotiate with the waste collector(s)
 - Ask suppliers to supply materials or semi-finished products that are less time consuming and produce less waste
 - Collaborate with suppliers to use packaging waste (take backs on packaging for example)
 - Draw up a list of customers for materials and re-use of items (recycling company, traders), such as for furniture that is released during removals or renovations.



- Feedback of found materials to the various production units, under lean manufacturing (Act). Based on what is found in the container, the production can be adjusted.
- Feedback of found materials to the sales department (Act), to sell recyclable materials, such as scrap, paper, packaging, etc.

It is possible to start the process again every year to re-map the amount of general waste produced.