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# Issue 31 of Renewable Matter magazine is available.

A special issue on soil, the first special of the year. Regeneration, bioeconomy, sustainable agriculture and struggle for soil protection, among the topics covered. Features Natalia Rodríguez Eugenio (FAO), David R. Montgomery (Washington University), Massimo

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Reverse logistics is sometimes described as the logistics going in the "wrong direction". Yet, by closing the loop of product lifecycles, it plays an important role to transitioning to a circular economy, an opinion shared by 87% of respondents in a <u>recent survey</u>.

**Reverse logistics** is defined as the process of moving goods from their point of consumption to a consolidation point for the purpose of capturing value or proper disposal. It encompasses the collection of goods, transportation to a central location, and sorting according to ultimate destination, e.g., refurbishing, reusing or recycling.

Today, **return flows** are not the exception anymore. 260 extended producer responsibility policies, which drive return flows, have been adopted worldwide in the last 15 years. 20% of material flowing through the economy in France is waste, and therefore return flow. The global reverse logistics market was valued at \$415.2 billion in 2017, and is projected to reach \$603.90 billion by 2025, registering a CAGR of 4.6% from 2018 to 2025.

Yet, unlike forward logistics, reverse logistics face major challenges. Goods to be collected are difficult to handle because they are usually not disassembled neither packaged. Quantity and quality of **returned goods** are highly variable and not predictable. Transportation cost, compared to the residual value of goods transported, is usually high. Lack of scale often hinders transport optimization. Storing returned goods **<u>can require</u> up to 20% more warehouse space** than storing new ones ().

Unfortunately, supply chain players are not prepared, nor willing, to address these challenges. Manufacturers barely design their products and packaging for reverse logistics. Most of them don't have a reverse logistics function or department. Logistics companies have limited incentives to invest **in reverse logistics services** where **profit margins are usually lower than forward logistics ones**. Indeed, reverse logistics cost is higher while customers willingness to pay is lower. Retailers design their stores to sale products, not to collect them. Finally, reverse logistics capabilities are often limited: of 400 analyzed U.S. trainings on supply chain management, only 7 included reverse logistics as a topic. As a result, reverse logistics costs are usually high and undermine the circular economy business case. Too often, these is no economic benefit to recycle materials or refurbish components because the cost of reverse logistics is too high. Hopefully, businesses have various options to improve the performance of their reverse logistics and reduce the cost

for collection, transportation and sorting operations.

#### **Design products for reverse logistics**

Most products are not designed for reverse logistics. They are often difficult to compact or disassemble to optimize truck loading. Packaging, assuming it is still available at time of collection, is usually not designed to be reuse. Limited information are available to determine if returned products can be reuse or should be recycled.

Hopefully, **some businesses are designing their products to fit the reverse logistics process**. For example, **Ahrend** sells an office desk with an easy to disassemble tabletop to facilitate transport. **Orange** ships its internet modems in a packaging that can be reuse when the customer wants to send its equipment back. To facilitate customer and distributor returns, **Xerox** provides protective packaging for returns that requires no tape. **Komatsu**, the manufacturer of construction and mining equipment, has fitted all standard equipment with sensors that collect data on their condition. Once an equipment is returned by a customer, Komatsu is able to quickly identify if its components can be reconditioned or should be recycled.

#### **Collaborate for scale**

Because goods to be collected are usually geographically dispersed and low-value products, **aggregating volumes** become essential. To reach sufficient scale, some companies consolidate their return flows. Return flows are usually easier to consolidate across companies than forward flows because they are not subject to the same timing and confidentiality constraints. Some service providers are offering to aggregate return flows within industry sectors. In the **textile industry**, **I:CO**, a reverse logistics company, manages the reclamation of 22,000 tons of used apparels daily in 60 countries for large apparel brands such as H&M, Puma or Levi's.

Return flows can also be consolidated with forward ones. When **STEF**, a logistics company, delivers fresh fishes to its customers in southern France, it picks up containers filled with fish wastes that will be used to produce fertilizers. To reduce collection costs, businesses can also incentive end customers to return their used products. For example, in some **IKEA** stores, **customers can return used furniture and be paid back in store vouchers**.



#### Work on frictionless collection schemes

For customers, it should be as easy to return a used product than to buy a new one. Customers should be allowed to choose among various pick-up or drop-off options such as neighbourhood collection containers, automated parcel lockers or courier pick-up. For example, **Adidas**, in partnership with start-up Stuffstr, dispatch courier in London to collect used garments at owner homes. In the Netherlands, postal service **PostNL** collects end-of-life electrical appliance from consumers' homes. Virgin Mobile uses a mailing polybag for returning a used cell phone as part of a trade-up program. Various services should be available at the time of collection such as used product deinstallation, disassembly, packing or labelling. For example, delivery services **UPS** and **FedEx**, as well as start-up **Happy Returns**, accept unboxed returns in some countries. In Ireland, postal service An Post uses its ReturnPal app to schedule carrier pickups of unlabelled parcels from the customer's home, then does the labelling at the post office.

#### Adopt alternative mode of transport

Traditional modes of transport, optimized for forward logistics, don't always fulfil reverse logistics cost and service specific requirements. Alternative modes of transport, such as electric cargo bike or autonomous vehicle, may be more relevant for reverse logistics. For example, **Movebybike** collects used furniture by cargo bikes in Sweden. UK parcel delivery company **Hermes** partnered with **Starship**, maker of small six-wheeled autonomous courier robots, to pilot a returns pickup service in London.

#### Leverage digitalization

Businesses use technologies to improve their forward logistics, not so much their reverse logistics. According to a **recent study**, the top four areas of the supply chain where digital technology is being applied are: delivery (46%), customer engagement (45%), manufacturing and remanufacturing (43%) and planning (43%). Only 27% of respondents are currently using digital technologies to improve reverse logistics.

Though, new technologies can also help firms manage return flows that are less predictable and more variable than forward ones. In France, **Heineken** identifies each of its returnable bottle used in the out-of-home market with a unique code. This code enables Heineken to track the lifecycle and location of each bottle and reduce returnable bottles losses. **CoremanNet**, a subsidiary of Bosch Group, has set up a dedicated logistics network and associated information system to manage the return flows in the automotive remanufacturing industry.

#### What to do next?

A recent Gartner survey showed **70% of supply chain leaders plan to invest in the circular economy** and that, in the next two years, reverse logistics will garner the most attention. To improve their reverse logistics, companies will first have to assess the maturity of their **reverse logistics processes**. A **<u>maturity model</u>**, describing the characteristics of successful reverse logistics processes across multiple dimensions, could support them on that path (). Having mapped the maturity of their processes, companies will be able to identify issues and selecting focus areas of improvement.

Companies has spent a lot of time and money fine-tuning their logistics. Today, they need to give just as much thought to their reverse logistics, should they want to capture the value of the circular economy.

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