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Operators in Logistics

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1.1. Sheet 5: Transport and Logistics Jobs

Key point

The nomenclatures of transport and logistics jobs are relatively numerous. They show a wide diversity of jobs. Some highlight jobs in both freight transport and passenger transport, such as Studyrama's nomenclature, while others are only involved in freight transport (see APEC – *Agence pour l'Emploi des Cadres* – Executive Employment Agency). The study conducted by ASLOG and the Michael Page recruitment agency lists 33 types of jobs to date that are encountered in transport and logistics.

1.1.1. *Families of jobs in transport and logistics*

Studyrama[1] presents four families of jobs in transport and logistics:

– transport: ambulance driver, postman, taxi driver, cash courier, delivery man, coach driver, bus driver, metro or tramway driver, train driver, truck driver, movers, merchant navy seaman, naval officer, barge or sailor, captain, first mate, executive driver or master driver;

– logistics: freighter, routing agent, transit agent, logistics agent, professional packager, warehouse or distribution agent, warehouse manager, operations manager, order picker, station manager, safety advisor, rail traffic regulator, freight agency manager and customs declarer;

1 http://www.studyrama.com/formations/fiches-metiers/transport-logistique/.

– sales: commercial agent in railways, commercial agent in air transport, commercial agent in public transport, controller of public transport, industrial vehicle rental company, private car rental company and business manager;

– technical: maintenance agent, handling agent, wire-guided lift operator, chief mechanic and deck mate, railway maintenance operator and training manager.

APEC (*Agence pour l'Emploi des Cadres* – Executive Employment Agency) lists a total of 22 job profiles[2], which are classified into four families:

– Family 1: "flow design" with six job profiles, namely logistics analyst, logistics consultant, supply chain manager, shipping receipt manager, operations manager and platform manager;

– Family 2: "flow management" with seven job profiles, i.e. supplier, product flow manager, warehouse manager, dispatch manager, stock management manager, preparation/receipt manager and technical maintenance manager;

– Family 3: "commercial negotiation" with seven job profiles that are charterer, agent (maritime, air), agency manager, transit manager, line manager, transport purchasing manager and fleet manager;

– Family 4: "rules, standards and contracts" with two profiles, i.e. customs declared responsible for contracts.

1.1.2. *Key Transport and Logistics Functions according to ASLOG and Recruitment Firm, Michael Page*

On March 31, 2015, the study of functions (and remuneration) of logistics and supply chain jobs, co-constructed by the recruitment agency Michael Page and ASLOG (*Association Française de la Supply Chain et de la Logistique* – French Supply Chain and Logistics Association), was published. The general finding of this study highlights the following points:

– *"an increasingly strategic sector of the future for companies with a branch that has more than 1.6 million employees*;

2 https://recruteurs.apec.fr/resource/mediatec/domain1/media27/15198-hqm8c6dq39u.pdf.

– a dynamic job market looking for experienced, internationally oriented profiles: a 22% increase in the hiring rate between March 2014 and February 2015 according to APEC"[3].

ASLOG and the Michael Page recruitment agency conducted a study on the basis of 80,000 profiles of candidates sought in transport and logistics. A total of 33 key functions in three different sectors are listed in Table 1.1.

INDUSTRY
1. Supply Chain Manager: "He/she leads the supply chain and is the interface between the sales department, production, financial services, purchasing and logistics, in order to take into account the requirements of these various departments and optimize the global organization".
2. Logistics Manager: "He/she covers all component and finished products stores, as well as all intra-and inter-site flows. [...] It is differentiated from the supply chain manager by a smaller margin, centered on the management of resources and operations".
3. Supply Chain Coordinator: "He/she covers the entire activity of a factory within a large group or the entire supply chain in PME/PMI. [...] He/she is in charge of all the logistics flows following the evaluation and planning of demand".
4. Logistics Coordinator: "He/she covers all operations and factory resources within a group, or across the entire company in a PME/PMI environment".
5. Head of S&OP (*Sales & Operations Planning*): "He/she works on the development of the Industrial and Commercial Plan (ICP) through a monthly collaborative and decision-making process".
6. Sales Forecasting Manager: "He/she leads meetings to collect and update forecasts [...] and manages activity reporting through key performance indicators".
7. Planning Manager: "He/she provides a global anticipation role, in order to drive supply chain processes".
8. Procurement Manager: "He/she guarantees the availability of components, sub-assemblies and/or sub-contracted finished products at the site, in accordance with the contractual purchasing conditions, while controlling the lowest possible level of stock".
9. Transport Manager: "He/she organizes transport, and the geographical and functional areas assigned to him/her".
10. Logistics Supervisor: "He/she acts as a facilitator capable of optimizing the interface between the logistics/transport, commercial, sales administration teams and logistics/transport partners, in order to improve the quality/cost/delay triptych".
11. Buyer/Transport: "He/she is in charge of purchasing transport services (road, air, sea, inland waterway, etc.) for the company".
12. Sales and Customer Service Supervisor: "He/she acts as the interface between sales, production and logistics".
13. Logistics Methods Engineer: "He/she mainly works in project mode [...] in engineering and re-engineering missions".
14. Information Systems/Supply Chain Project Manager: "He/she identifies the issues, conducts scoping studies and leads projects to implement the supply chain strategy".

3 Source: http://etudes-presse.michaelpage.fr/etudes/etude-2015-de-fonctions-et-remunerations-des-metiers-de-la-logistique-et-de-la-supply-chain-2/.

DISTRIBUTION
15. Director of Supply Chain Operations: “He/she leads the teams of logistics, transportation, sales forecasting, inventory and supply management and sales administration, and even purchasing”.
16. Logistics Director: “He/she is the director of the entire logistics and transportation business”.
17. Director – Logistics Platform Manager: “He/she is in charge of directing a platform at the operational, administrative, financial and social levels”.
18. Operations Manager: “He/she is in charge of managing and supervising the logistics operations on site and coordinating the warehouse’s activities”.
19. Procurement Manager: “He/she optimizes and manages the flow of goods between vendors and stores through warehouses if necessary”.
20. Transport Manager: “He/she organizes transportation as best as can be done, within his/her assigned perimeter”.
21. Project Manager Organization Methods: “He/she works on performance optimization in supply chain projects”.
22. Customer Service Manager: “He/she is the guarantor of customer satisfaction and loyalty”.
23. Import/Export Logistics Manager: “He/she is in charge of administrative order management and international freight forwarding”.
24. Sales Administration Manager: “He/she manages sales”.
SERVICE SECTOR
25. Director of Business/Division: “He/she offers specialized services and solutions that can be transportation, customs, international trade and/or physical or administrative logistics”.
26. Regional Director: “He/she is responsible for a geographic region with multiple logistics sites”.
27. Site Manager: “He/she is responsible for a site (storage, cross-docking and industrial logistics provided on customer site)”.
28. Operations Manager: “He/she organizes and plans the logistics operations assigned to him/her”.
29. Transport Director – Agency Manager: “He/she organizes transport operations in the company’s catalogue of services or tailor-made to his/her various clients”.
30. Transport Operations Manager: “He/she organizes transport operations for a site or geographical area”.
31. Engineer in charge of Methods: “He/she is entrusted with the tasks of starting new activities, new warehouses, re-engineering existing files, improving or standardizing the warehouse’s logistics processes”.
32. Engineering and Deployment Project Manager: “He/she is in charge of engineering/re-engineering, deployment, improvement or standardization of logistics processes”.
33. Key Account Operations Manager – Contract Manager: “He/she is the interface of commerce and operations”.

Table 1.1. *The 33 key functions in transport and logistics (source: extract from ASLOG and the Michael Page recruitment agency [PAG 15])*

1.2. Sheet 6: The Supply Chain Manager

Key point

The function of the Supply Chain Manager is the "apotheosis" of the logistics and transport function. It corresponds to the strategic competence that affects the internal and external aspects of the company. It demonstrates the ability to set up large-scale projects that combine various fields of expertise, covering logistics, production, finance and human resources.

1.2.1. *Tasks, activities and skills of the Supply Chain Manager*

In 2011, Livolsi carried out an analysis of the tasks, activities and skills assigned to job offers in France under the title of Supply Chain Manager, from the period of 2001 to 2008. Large companies in the industrial sector recruit this type of profile, with 69% of them expecting a dual language proficiency (English required) and 54% of them having a good grasp of the IT tools dedicated to logistics[4]. Table 1.2 lists the main criteria used in the advertisements reviewed[5].

A look at the job offers posted on the Internet at that time tends to confirm these results. Nevertheless, there are two terms that have been "added", namely transport management and tracking. Furthermore, competences such as "dynamism" and "creativity" aside, it is "autonomy", "empowerment" and "interpersonal skills" that are currently favored.

1.2.2. *The Supply Chain Manager and his/her relationship with other company activities*

The profile of the Supply Chain Manager position, as described by Livolsi [LIV 11], shows the cross-disciplinary skills of the Supply Chain Manager, both intra- and inter-organizationally. In order to describe the Supply Chain Manager's relationship with other activities within the

4 % in the 2006–2008 period.

5 The newspapers studied are *La Tribune, Le Monde, Le Figaro, L'Express, Le Point, Logistiques Magazine, Supply Chain Magazine, Stratégie Logistique, L'Usine Nouvelle* and the *Cadreemploi* website.

company, we will rely on the Porter's classic value chain framework [POR 86]. Still widely used to this day, Porter's value chain regards a company as being composed of core activities (which contribute to the design and sale of the product) and backing or support activities (which support core activities).

Period/analyzed offers	2001–2005 Nb. = 86	2006–2008 Nb. = 66
Assigned tasks:		
Optimization of logistics exchanges	70%	45%
Coordination of operations	2%	18%
Reduced logistics costs	2%	15%
Creation, management and change of the supply chain	16%	18%
Management activities:		
Purchasing	40%	24%
Procurement	81%	79%
Production (implementation of sales and production plans)	40%	57%
Distribution	74%	85%
Sales (forecast)	58%	48%
Logistics	84%	82%
Managerial and organizational skills:		
Organization (changes, processes, etc.)	84%	97%
Management	77%	91%
Management tools (projects, dashboards, lean production, management control, problem-solving, etc.)	63%	85%
Dynamism	25%	33%
Creativity	21%	12%

Table 1.2. *Tasks, activities and skills of the Supply Chain Manager (source: Livolsi [LIV 11])*

Core activities

– *"internal logistics. Activities associated with the receipt, storage and allocation of the means of production required for the product, such as handling, warehousing, inventory control, scheduling of transport and referrals to suppliers".*
➔ As defined by Porter, internal logistics is defined as upstream logistics or procurement. In this respect, the Supply Chain Manager will certainly consider the cost aspects, but will above all observe the deadlines and quality in the goods he/she receives, within a logic of not disrupting the production process. The link with the purchasing department is very important here.

– *"production. Activities associated with the transformation of means of production into finished products, such as machine operation, packaging, assembly,*

equipment maintenance, verification, printing and facility operations". ➔ Currently known as production or in-house logistics.

– *"external logistics. Activities associated with the collection, storage and physical distribution of products to customers, such as warehousing of finished products, handling, operation of delivery vehicles, order processing and scheduling"*. ➔ External logistics mainly relates to downstream or distribution logistics.

– *"marketing and sales. Activities associated with the provision of means by which customers can and are encouraged to purchase the product, such as advertising, promotion, sales force, selection of distribution channels, dealer relations and pricing"*. ➔ Here, it is mainly regarding the selection of distribution channels where the Supply Chain Manager will play a role. Thus, in his/her objective of designing warehouses and/or distribution platforms, he/she verifies the most reliable and easy axes and accesses for receiving and delivering the product. The notion of distribution channels is also defined in the relationship with suppliers. Furthermore, it is also possible at this level to define the package shape, the Supply Chain Manager is better able to determine the packaging, therefore avoiding any breakage and/or damage (linked with Research & Development).

– *"services. Activities associated with the provision of services, aiming to increase or maintain product value, such as installation, repair, training, supply of spare parts and adaptation of the product"*. ➔ With regard to Porter's definition, we find all the notions of reverse logistics. In this respect, the Supply Chain Manager will manage everything related to repair, waste management or remanufacturing, the purpose of which is to give a second life to the product.

Support activities

– *"supplies. Supplies refer to the purchasing function of the means of production used in the company's value chain, not to the means of production themselves. In this purchasing function, we consider the purchase of raw materials as well as machinery, temporary labor, entertainment expenses, such as meals and lodging or strategic consultations"*. ➔ In his/her relations with the purchasing department, the Supply Chain Manager addresses "constraints" of time and quality above all, so that his/her production line does not suffer any stoppages. Obtaining discounts, rebates and reductions is more specifically the role of the buyer. On this point, his/her influence can be assessed on the threshold of quantities to be ordered, in order to respond to the presence of emergency stock.

– *"technological development. Technological development involves a range of activities that can be combined into a set of efforts, in order to improve the product and production process"*. ➔ Technological development calls for product and process innovation. On these two points, the Supply Chain Manager has an important role to play. He/she is indeed the one who can consolidate in the fulfillment of the product, with regard to the technological and human resources that are at his/her disposal. In terms of process, the Supply Chain Manager must constantly review his/her processes in order to eliminate redundant tasks and bottlenecks.

– *"human resources management. It consists of the activities involved in recruiting, hiring, training, personal development and payment of all categories of personnel"*. ➔ In his/her relationship with HRM, the Supply Chain Manager – due to the technical and physical aspects of the jobs associated with transport and logistics – is the most competent in defining job profiles, the necessary training and/or refresher courses and working conditions.

– *"the company's infrastructure. It consists of a number of activities that include general management, planning, finance, accounting, legal, external relations and quality management"*. ➔ In his/her relationship with the Executive Management, the Supply Chain Manager decides on the types and standards of investments to be made (building, machinery, etc.). With finance, he/she checks the solvency of short (stock–customer–vendor relationship) and long (investment; leasing) term. With the quality department, all ISO standards must be consolidated with the Supply Chain Manager. His/her action is also crucial in determining (quality) processes.

Box 1.1. *The value chain (source: Porter [POR 86]) and its interpretation of current logistics*

1.3. Sheet 7: Logisticians and Interactions with Other Internal Departments of the Company

Key point

As previously mentioned, logisticians are called upon in order to interact with several internal departments of a company. Indeed, as a flow specialist, his/her role of coordination involves interfaces.

1.3.1. *Daily relationships with other services*

The logistics department is called upon to collaborate with all the internal operators/services present in the company.

Services	Link(s) with logistics
Executive Management	Through its systemic action, both internally and externally, logistics influences short- and long-term decisions. It is therefore often linked to decision-making, such as investments in technical installations, machinery and equipment (balance sheet nomenclature).
Research and Development	Logistics is a player in innovation, both in a technological and organizational sense. Through the design test phases of new products, it verifies the feasibility of production in terms of time, quality and cost (number of materials used). It also gives its opinion on the type of packaging to be used. Logistics acts on product design. Between theory and fulfillment, we have to think about feasibility. The logistician's technical competence is in play here because he/she is in the best position to specify whether the machines, and/or the so-called direct labor force he/she uses, can produce this new product.
Purchases	Although the purchasing department's principle is to obtain maximum discounts from the supplier, raw materials can only be ordered on this criterion alone. The raw material is the first step in the production process. It is therefore important that it is of quality, at the risk of resulting in excessive waste and/or delays due to lower quality. Similarly, the logistician is led to determine a safety stock[6] for certain products and will therefore ask the buyer to take this surplus into account in the order placed. The logistics department is increasingly involved in the technical aspects of drawing up the contract between the company and the supplier. The issue of the number of load breaks[7] is addressed at this stage. Finally, depending on the specificity of the raw material, the logistician is the person who gives the buyer the possible flexibility, in terms of product fragility and the possible waiting period for delivery.

6 A safety stock is an "additional stock" to deal with certain contingencies (difficulty to obtain a material quickly, willingness to avoid a non-sale in case of a bad sales forecast). The presence of a safety stock is subject to the availability of a place in a warehouse, a cost of ownership bearable by the company, and consideration of a possible use-by date for the product.

7 *In the transport sector, a load break is a stage during which goods or passengers carried by a first vehicle are transferred to a second vehicle, either immediately or after a storage period* (source: wikipedia.org).

Marketing/Commercial	There are many relationships between the logistics department and the marketing/sales department. They concern: – the determination of sales forecasts, which have a direct impact on the Industrial and Commercial Planning (ICP) and therefore on production launches; – feedback from customers' expectations on the use/complexity of the product. It should be noted that the customers' expectations are also reflected in the R&D department; – customer dissatisfaction with quality. For example, inappropriate packaging and/or lack of instructions for use; – the importance of holding (over-)inventories of finished products. Indeed, the marketing/sales department is in direct contact with the customer, so it is able to determine the importance of having a rapid response to the customer's order, which is all the more important if the company is located in a very competitive sector; – on the distribution network, the logistics department is particularly vigilant to the distribution network, both in the establishment of factories/warehouses/platforms and their accessibility. Its advice is a strong element to consider and is carried out in coordination with the marketing department.
IT	Information technology is omnipresent in the life of the logistician: when the number of product references is important, when it is necessary to program and schedule orders, in the follow-up of workstations, etc. The logistician must clearly specify his/her information needs in terms of timing/recording, so that input is easy for all operators involved, both internally and externally, and that there are no errors and delays.
Financial	Like any position in a company, the logistics function is accountable to the financial department. It is therefore obliged to control the costs incurred by its service, and beyond, when its action takes place throughout the entire supply chain. Knowledge of the construction of flagship indicators (via dashboards), activity-based accounting, full cost accounting, etc. are prerequisites for the logistics function.
Staff	The jobs in logistics are complex and require a thorough knowledge of the skills to be identified. The Human Resources Department needs the logistician's expertise

	when preparing job descriptions, whether it be when recruiting or when career development offers are made.
Legal	The question of the contract is at the heart of the discussions. In the face of a possible problem, it is he/she who takes note of the judicial decision. For the logistician, the clauses of the contract must be as precise and protective as possible. In addition to the "standard" contract, environmental constraints imposed by decrees are increasingly being added to this day, and the logistician must now include them in his/her work. Furthermore, from the perspective of outsourcing (IT, transport, inventory management, industrial process part), the outsourcing contract must specify both the management of skills transfer and the future of the employees bound by the agreement. As such, the logistician must clearly be aware of his/her leeway for maneuver.
Quality	The relationship between logistics and quality service was recognized early on [WAG 89]. Logistics relies on a large number of tools, resulting from quality improvement such as, for example, "activity flow sheets", which allow us to understand the steps of a process, or "control sheets", in order to visualize productivity improvements.

Table 1.3. *Examples of relationships between logistics and other internal departments of the company*

1.3.2. *The "new" relationships: the ecology/environment service*

The logistician becomes a privileged operator of ecology. He/she acts on various aspects that affect the environment. And in the event that the structure has a department dedicated to ecology, he/she will be a key interlocutor. The logistician's action regarding ecology is established at several stages of the industrial process, such as:

– beforehand, when thinking about the construction of a product and a service, he/she can be a source of proposals on the technical aspect (format and quality of the parts);

– throughout the process, advising on the use of a particular packaging (pallet, protective film, etc.) for reuse;

– on the upstream–downstream and downstream–downstream chain, he/she studies and seeks to manage the number of waste emitted as best (or

rather more accurately, the least) as possible. The objective here is to limit the existence of ultimate waste, that is, that which cannot be reprocessed and is landfilled. He/she also acts on remanufacturing issues, namely giving a second life to an already manufactured product. Therefore, the product does not undergo total manufacturing, since we start from an existing product to either fix or improve it [MIC 10, ELK 10]. It also considers the transportation of goods in full containers on the way out and, if possible, when returning.

He/she can also act ecologically on the construction of a building. From the point of view of construction and/or refurbishment, and according to environmental approaches such as BBC (*Bâtiment Basse Consommation* – Low Energy Consumption Building) or HQE® (*Haute Qualité Environnementale* – High Environmental Quality), the expertise of the logistician is crucial, for example, in the smoothing of the ground in order to avoid shaking when forklift drivers pass by with their equipment (impact on the back).

RT 2012 regulation, BBC label and HEQ® approach (source: http://www.connaissancedesenergies.org/batiments-quelles-differences-entre-rt-2012-bbc-et-hqe-111220 - December 20, 2011)

*The "RT 2012" is the French thermal regulation in effect for new buildings, which has been applied since October 28, 2011, to certain tertiary buildings and housing built in the ANRU (*Agence Nationale pour la Rénovation Urbaine – *National Agency for Urban Renewal) zone. It will apply to all new residential buildings starting January 1, 2013. Among other things, this regulation sets a maximum primary energy consumption threshold ("Cepmax") of 50 kWh/m^2/year on average.*

*"BBC" or "Low Energy Building" refers to the highest level of performance of the HPE (*Haute Performance Énergétique – *High Energy Performance) label based on thermal regulations. It is currently allocated to buildings that meet the maximum consumption threshold of 50 kWh/m^2/year.*

"HQE" or "High Environmental Quality" does not constitute a regulation nor a label. It is a qualitative and voluntary approach that aims to integrate the principles of sustainable development into the built environment.

The HQE approach has taken two standards into account since 2001:

– the Environmental Management System (EMS), a set of procedures relating to project supervision, put in place during construction by the client;

– the Définition Explicite de la Qualité Environnementale *(DEQE) (Explicit Definition of Environmental Quality), a sort of charter that lists requirements, particularly in terms of eco-construction, health and comfort.*

LAW no. 2015-992 of August 17, 2015 on the energy transition for green growth

JORF no. 0189 of August 18, 2015 (source: https://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000031044385&categorieLien=id)

This law includes several topics and articles on energy transition. Only the titles of this law are listed here.

Title I: Defining common objectives for a successful energy transition, strengthening France's energy independence and economic competitiveness, preserving human health and the environment and combating climate change.

Title II: Better renovate buildings to save energy, cut costs and create jobs.

Title III: Developing clean transport to improve air quality and protect health.

Title IV: Combating waste and promoting the circular economy: from product design to recycling.

Title V: Favoring renewable energies to diversify our energies and develop the resources of our territories.

Title VI: Strengthening nuclear safety and informing citizens.

Title VII: Simplifying and clarifying procedures to increase efficiency and competitiveness.

Title VIII: Empowering citizens, businesses, territories and the State, in order to act together.

Box 1.2.

1.4. Sheet 8: The Supplier–Customer Relationship

Key point

The glossary of standard definitions (ISO 9000:2005)[8] specifies that:

– "*A supplier is an organization or person that provides a product. It includes, for example, the producer, distributor, retailer, merchant, service or information provider. A supplier may be internal or external to the organization*[9]*. And in a contractual situation, the supplier can be called 'contractor';*

– *a customer is an organization or person who receives a product. For example, it could be a consumer, customer, end user, retailer, beneficiary or buyer. A client may be internal or external to the organization."*

Of these definitions, any relationship is based on a supplier–customer exchange. In the representation of a supply chain, it is therefore necessary to clearly specify which name(s) of operator(s) is/are concerned by the exchanges induced by a relationship, such as the supplier of raw materials, the industry, the distributor, etc. [GAR 03].

1.4.1. *The supplier, the focal company and the customer according to Lambert et al. [LAM 98]*

Mapping relationships between operators in a supply chain is strategic [GAR 03]. In itself, any relationship is built through a supplier–customer relationship. Still widely used today, the representation of the Lambert *et al.* supply chain [LAM 98] is configured around these two operators, while specifying the focal company. The logistics chain is therefore built around the focal company. Relationships are initially displayed from the focal company, locating the place of the supplier and/or customer. Thus, starting from the focal company, Lambert *et al.* [LAM 98] recommended presenting the suppliers – by levels 1, 2, 3 and 4, level 4 being the supplier furthest from the focal company (the one from which the raw material comes) and

8 http://www.e-filipe.org/modules/qualite/glossaire.pdf.

9 According to ISO 9000:2005, an organization is a set of facilities and people with responsibilities, powers and relationships. An organization may be a company, corporation, company, enterprise, business, institution, charity, self-employed person, association, or part or combination thereof.

the customers – by levels 1, 2, 3 and 4, level 4 being the customer furthest from the focal company (the one who receives the finished product).

1.4.2. *The supplier – the industry – the distributor – the end customer: the supply chain quartet*

For a better understanding of a supply chain, it is still preferable to specify the name/status of each operator. In fact, when it comes to the supply chain, the "dual supplier–customer relationship" is somewhat represented through a quartet. Thus, interfaces are established via the supplier (of raw materials), the manufacturer (producer/manufacturer), the distributor (retailer) and the final consumer [PAC 00] (see Figure 1.1).

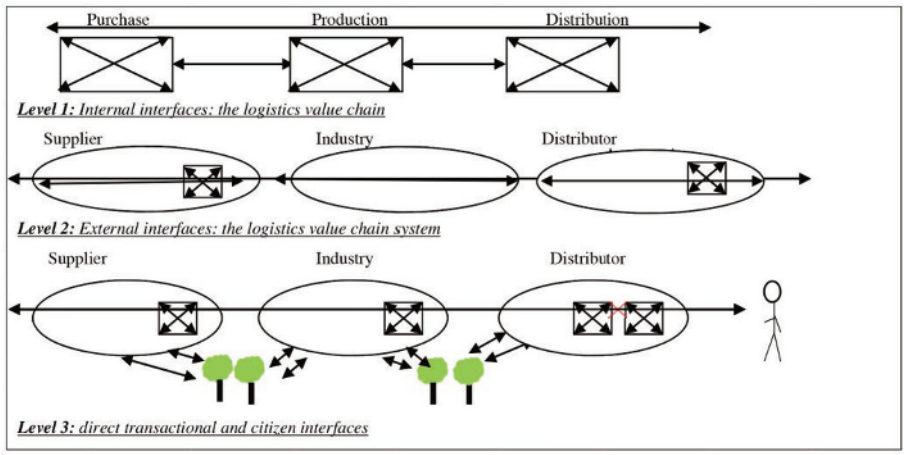

Figure 1.1. *Internal, external, direct and transactional logistics interfaces (source: Paché and Colin [PAC 00])*

Philippe [PHI 97] clarified the roles played by the producer, manufacturer, industry, distributor and retailer:

– the producer is *"the company that designs the product (model, materials), controls its manufacture and sets its sales price (for the first transaction affecting the finished product)"*. The manufacturer is *"the company that owns the machinery necessary for manufacturing"*. As for the industry, it *"ensures the design of the model, the choice of materials, manufacturing, national advertising*";

– the distributor *"recovers a finished product, highlights it, and if necessary provides specific services (consulting, alterations, after-sales services, credit, local advertising) […]*. The retailer *is an independent merchant, but they never own the merchandise*".

Box 1.3. *Who does what?*

1.4.3. *Other operators in the supply chain*

In a classical architecture where each operator is placed on the same line, Min and Zhou [MIN 02] specified even more operators. Thus, in addition to suppliers, manufacturers, distributors and end customers, their representation identifies retailers and logistics service providers.

Finally, other operators can interfere in the supply chain. Thus, without being a supplier and/or customer, they can influence the act of sale and/or the act of purchase. These include the following:

– governmental and public institutions, both nationally and globally. Standard and regulatory constraints can change the structure of a supply chain. Consumer organizations can also change the way a supply chain operates. Perhaps the most telling example is the constraints of waste reprocessing. For example, Decree no. 2014-928 of August 19, 2014 on the waste management of electrical and electronic equipment[10], arising from the European directive WEEE 2012/19/EU, or Decree no. 2012-22 of January 6, 2012 on the waste management of furniture components[11], requires the recycling of these goods and has forced logistics chains to adapt, either by reprocessing with existing operators in the initial chain or by calling upon other operators (see Sheet 40);

– shareholders who can sometimes impose a particular choice of supply chain configuration (transfer of subsidiaries abroad or, conversely, favor of local logistics);

– professional unions that can, for example, influence a decision to outsource activities.

10 https://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000029387124&categorieLien=id.
11 https://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000025114585&categorieLien=id.

1.5. Sheet 9: Operators of Distribution

Key point

Distribution or downstream logistics is the link in the supply chain that has been the subject of early attention from professionals and researchers. It is at this stage that the relationship with the final consumer is closest. As a result, a multitude of jobs appear on this chain.

1.5.1. *Principles of distribution in a supply chain*

Philippe [PHI 97] noted that the overall downstream relationship of a supply chain is grasped through the duality between producer and distributor. Therefore,

> "*The manufacturer ensures the design of the model, choice of materials, manufacturing and national advertising. If there is a real distribution network, it is he who manages it and coordinates the action of its members through a range of contracts under his control: territorial exclusivity, exclusive or selective distribution, linear or twin fares*[12]*, franchising. The distributor, on the other hand, collects a finished product, showcases it, and if necessary, provides specific services (consulting, retouching, after-sales service, credit, local advertising). He is supposed to know the fine details of local demand and possibly inform the producer about it"* [PHI 97, p. 102].

The relationship between producer and distributor therefore seems to be clearly defined. But, as Philippe [PHI 97] pointed out, this is not always the case. In fact, the distributor can intervene in the decision to design the product, in other words, at the producer's premises. Or, some producers are present directly on the distribution market, such as Levi's products.

12 *"A binomial rate is a two-part rate, consisting of a fixed amount (independent of the quantities ordered) plus a unit price"* [PHI 97, p. 102].

1.5.2. *Distribution jobs*

Filser *et al.* [FIL 01] noted that *"the size and complexity of commercial organizations make it essential to coordinate and optimize the exchange of goods and services, but also information flows"*. In this respect, logistics is directly impacted by these exchanges. These exchanges take the form of two types of sales, with or without a store (see Table 1.4). In terms of logistics, sales with and/or without a store[13] thus have consequences for the methods of preparation and delivery of orders. For example, the method of preparing orders made without a store, that is, online, follows two basic models [PAC 08, DUR 10]:

– dedicated on-site preparation in the warehouse. This type of preparation is used when the merchant is mainly active digitally;

– in-store preparation, where there is less electronic activity.

As for the mode(s) of delivery, the location of the warehouses and/or platforms plays a role in view of the place served and the place of origin of the delivered product (see Sheet 34).

1.5.3. *The case for wholesalers*

Also known as wholesale trade, a wholesaler is a business that buys and/or sells goods and/or services to other businesses and professionals. According to the European Communities, wholesale trade is defined as *"any undertaking whose economic activity consists exclusively or principally of reselling goods in its own name either to traders, processors or professional users, including craftsmen or other users. The goods may be resold as is or after processing, treatment or conditioning, as customarily practiced in these professions"* [DUG 00, CAP 13]. We are in a BtoB or Business to Business[14] relationship. Among the traditional wholesalers, the best known are Groupe Métro (food, equipment, supplies, etc.) and Alibaba (products manufactured in China).

13 More commonly used, the expressions for this type of sale are BtoB or Business to Business when the sale is made via a physical store and BtoC or Business to Consumer when the sale is made without a physical store, via computer.

14 An employment training site for trade professionals is dedicated to this activity: http://www.mybtob.fr/.

Store Types[15]	**Specifications**
SALE WITH STORE[16]	
Traditional shop	Assisted sales Specialized assortment
Grocery	Assisted sales Specialized assortment
Large department store: *free entry with fixed-price selling, in other words, displayed in combination with a wide and deep assortment* Examples: Le Printemps and Galeries Lafayette	Assisted sales Non-food, non-specialized broad and deep range of products
Specialized large surface area	Self-service Specialized assortment
Hard discount: *low prices and minimum service*	Self-service Non-specialized assortment
Hypermarket: *department store on the outskirts of urban centers, low prices* Examples: Carrefour and Leclerc	Self-service Non-specialized, food and non-food assortment
Factory Store	Self-service Specialized assortment
Popular Store	Assisted sales Large and small, non-specialized food and non-food assortment
Market	Assisted sales Non-specialized assortment
Small general store in rural area	Assisted sales Non-specialized assortment
Discount store, sales depot	Self-service Specialized assortment
Supermarket Examples: Casino and Intermarché	Self-service Food-dominated non-specialized assortment

15 There are seven main distribution formulas, namely the hypermarket (over 2,500 m²), the supermarket (between 400 and 1,000 m² for the supermarket and 1,000 and 2,500 m² for the large supermarket), the hard discount (between 300 and 1,500 m²), the popular store (on average, 1,500 m²), the convenience store (between 120 and 400 m²) and the specialized food store (on average, 200 m²). (source: http://www.distripedie.com/distripedie/spip.php?article978).

16 Sales with stores are part of the retail trade, that is, the sale of products by unit and/or in small batches with little or no modification. Two types of brands are represented in stores: the one under the manufacturer's brand name and the one that is called MDD, that is, *Marque de Distributeur* (Distributor Brand) which is created and owned by the distributor. Prices offered by MDD's are often lower than the prices of producer brands.

SALE WITHOUT STORE	
Electronic commerce	*Presentation of products on a virtual support, with the possibility to buy online*
Teleshopping Example: M6 boutique	*Television program presenting a product that viewers can order by telephone*
Distribution tour Example: rural grocery truck in rural areas	*Mobile point of sale, serving each dwelling in a geographic area according to a fixed schedule*
Truck sale Example: sale of tooling	*Point of sale that punctually serves a point in a town*
Automatic sale Example entry: Selecta	*A vending machine allows the purchase of some products at a location associated with a strong flow of shoppers*
Sale by catalogue Example: La Redoute	*Periodic production of a catalogue (usually twice a year) from which customers place orders that are delivered to their homes or delivery points*
Sale by meeting Example: Tupperware	*An employee of the company organizes meetings, either at home or with private individuals, to present products and record orders*

Table 1.4. *The different types of sales (source: adapted from Filser et al. [FIL 01])*

It should be noted that logistics providers (see Sheet 10) are increasingly assuming the role of traditional wholesalers [CHA 12, CAP 13].

1.6. Sheet 10: Logistics Service Providers

Key point

Transport and/or inventory management can be a burden for a company. It is binding, as it does not necessarily have the technical means (truck, warehouse/platform formats) and/or human resources (skills). Similarly, these functions may not be considered "strategic" in the core activity of the company. In this case, it will seek to outsource, to make up the work via other operators whose core business is the same. This is the positioning of logistics service providers (PSLs): to position themselves on linkages in the supply chain that are not always considered as value creators. However, as time has passed, the logistics service has evolved from an operational provider to a strategic one; a force for proposals.

1.6.1. *Logistics services: between subcontracting and outsourcing*

The "logistics service provider" is part of the subcontracting business, because it meets a set of specifications previously defined by the client[17]. Subcontracting *"is a mode of organization in which a contractor entrusts a supplier with a task that the supplier must perform according to his instructions"* [HAL 04]. Halley [HAL 04] pointed out that subcontracting differs from outsourcing, which *"refers to the strategy of selling a business and the reasons for this decision"*.

Subcontracting, a punctual contract between principal and subcontractor

Subcontracting is a contract by which a principal entrusts another company – called the "subcontractor" – with the execution of part of its production or the components it needs.

In this context, the subcontractor must therefore carry out work, according to precise specifications, submitted by the principal in order to comply with its own standards.

Subcontracting is usually ad hoc *or temporary and involves a specific mission, so it is a "task-based" contract.*

Outsourcing, a long-term collaboration

Outsourcing consists of entrusting an entire business process or service to another company on a contractual basis, usually on a multi-year basis. Most companies choose to outsource business processes that are not part of their core business.

In general, outsourcing can only concern one service, if an industrial company wishes to outsource one of the elements of its production line to a third party, it will be called subcontracting.

Box 1.4. *Difference between subcontracting and outsourcing (source: extract from Cotraitance.com, 2014[18])*

17 At the supply chain level, subcontracting can also be part of a production process.
18 http://blog.cotraitance.com/externalisation-et-sous-traitance-quelles-sont-les-differences/.

According to Halley [HAL 04], there are three orders of subcontracting, namely:

– capacity subcontracting: secondary, low complexity and low value-added activity;

– specialty subcontracting: support and strategic activity where a strong technical competence of the subcontractor is generally required;

– intelligence subcontracting: secondary, complex and low value-added activity. This includes, for example, delivery and logistics support.

1.6.2. *Levels of expertise in logistics services*

Fulconis *et al.* [FUL 11] pointed out that the emergence of PSLs dates back to the early 1970s in the United Kingdom, with a boom towards the end of the 1980s when specialization appeared in various markets.

Roques and Michrafy [ROQ 03] listed three components of the PSL supply system:

– the core business includes order picking, storage/warehousing, inventory management and transport;

– additional services to the customer which are located in the after-sales service, invoicing for customer accounts and archiving;

– the new business lines which consist of site installation, co-manufacturing, packaging, call center management, co-packing, packing and information technology.

Among the new jobs of the PSL,

– co-manufacturing *is defined as "collaboration between companies, based on the specific skills of each company to jointly produce a final product. These tasks range from product design to manufacturing and assembly. These delayed customization operations are often entrusted to logistics service providers, particularly when they are integrated into flow management operations. It may involve pre-manufacturing as part of the operations carried out during the procurement phase, or post-manufacturing during the distribution of the products*" (source: http://www.cat-logistique.com/vocabulaire.htm);

– co-packing: *refers either to grouping products together in the same packaging in batches for promotional purposes or grouping together items which must be associated for sale. (Example: toy + battery, CD sets, tool sets, etc.)*" (source: http://www.cat-logistique.com/vocabulaire.htm);

– packing: *"it is the preparation of a parcel before shipment. Packing includes packaging and protecting the objects to be shipped"* (source: http://www.linternaute.com/dictionnaire/fr/definition/colisage/). Packing follows the picking operation *"which consists of taking, from their place in stock, the various elements (pallets, parcels or consumer sales units) of an order"* (source: Lexipro [LEX 14]).

Box 1.5. *New jobs of logistics service providers*

The Lexipro published by Logistiques Magazine [LEX 04] categorized logistics service providers into three types of operators:

– *"traditional logistics service providers, who carry out physical logistics operations (transportation and warehousing) and whose management system is limited to the monitoring of the latter, on behalf of the client company*;

– *value-added logistics service providers, who integrate a number of services into the traditional provider's offer, ranging from handling complex handling operations (co-manufacturing, co-packing), to the management of administrative operations (invoicing, orders) and information management (tracking and tracing[19], etc.);*

– *logistics service integrators, who are characterized by the near absence of their own physical means and whose specificity is to integrate the services of different subcontracting companies (transport, warehousing, value-added operations, etc.) and to ensure their coherence and management, by controlling the related information flows"*.

The consulting company Arthur Anderson, now called Accenture, offers a classification into levels of expertise in terms of logistics services:

– 1PL for First Party Logistics (Provider), which manages the outsourcing of transport or warehousing;

– 2PL for Second Party Logistics (Provider), which includes the outsourcing of transport and warehousing;

19 See Sheet 36 on traceability.

– 3PL for Third Party Logistics (Provider), logistics service providers who manage the different flows. The services offered are varied, such as transport, warehousing, stock management, return management, etc.;

– LLP for Lead Logistics Provider, which is located halfway between 3PL and 4PL. It provides a service both through its own assets and those of other companies;

– 4PL for Fourth Party Logistics (Provider). The management of logistics flows is only done in an informational way. It acts as a link between the company, the market and other service providers;

– 5PL for Fifth Party Logistics (Provider), which coordinates the activities of various subcontracting companies and designs new logistics IT solutions.

		Logistics CA	Warehouse area	Permanent logistic staff	
1	GEODIS	€670 M	1, 353, 281 m^2	NC	3PL and 4PL for its SCO division: Supply Chain Optimization created in 2009 (2012 data)[20]
2	KUEHNE+NAGEL	€625 M	1, 500, 000 m^2	6 000	4PL in Europe, but 2PL or 3PL depending on the region of the globe (2013 data)[21]
3	NORBERT DENTRESSANGLE	€489 M	2, 000, 000 m^2	5 000	3PL, 4PL and LLP (2013 data)[22]
4	STEF	€465 M	4, 603, 000 m^2	NC	3PL, 4PL
5	ID LOGISTICS	€418 M	1, 910, 000 m^2	NC	3PL

Table 1.5. *Top 5 of the top 100 PLs in France (source:* Issu de Logistiques Magazine*, December 2014 and information on their status in reading the website)*

20 *Prestataires logistiques: du stockage au pilotage de flux, Supply Chain Magazine*, May 2012, no. 64, pp. 42–72 – http://www.supplychainmagazine.fr/TOUTE-INFO/Archives/SCM064/APPELS-OFFRE-64.pdf

21 VON PFUHLSTEIN H., Kuehhe + Nagel: Challenges and adaptation of the operating model, Powerpoint of the Vice President, Head of Corporate Development, November 2013, p. 19, http://www.rolandberger.ch/media/pdf/Roland_Berger_OperatingModelKN20131107.pdf

22 Norbert Dentressangle – *Dossier de presse* 2013, *Des réponses humaines aux enjeux de la supply chain*, 24 p. http://www.norbert-dentressangle.com/var/norbert-dentressangle/storage/original/application/ f4978bf61236e8d39b42053f73c8576a.pdf

1.7. Sheet 11: Operators in the Transport of Goods for Third Parties

Key point

A company can choose to transport its own goods. It can manage its own-account transportation. Or it can outsource this activity. It is therefore in a third-party account management mode and it is part of the logistics services jobs (see Sheet 10). Logistics services include transport and/or storage management. In this way, the management of a warehouse can follow relatively standard rules (see Sheets 17 to 22), as transport management requires different skills and professions.

1.7.1. *Modes of freight transport*

Freight transport can be carried out by six means, alone or combined. There is road, rail, air, sea, inland waterway and postal transport [LEG 08]. ADEME notes that road transport is higher in France than the European average, with 84% compared to 76%, and lower for rail transport: 13% compared to 17% in 2011 (source: ADEME, 2014–2017).

1.7.2. *Operators in freight transport for third parties*

It is possible to classify the operators of transport, either through the typology of professions (carriers, renters of industrial vehicles, transport auxiliaries) or according to the legal acts carried out (haulers, freight forwarders, forwarding agents) [BER 06].

1.7.2.1. *Profession typology: haulers, industrial vehicle rental companies, transport auxiliaries*

The *Nomenclature d'Activité Française* (Nomenclature of French activity) (NAF) codifies three activities in terms of road transport of local goods (602L), long-distance (602M) and relocation (602N). To be able to practice the profession of freight transport, it is necessary to apply for registration in the road transport register (Cerfa no. 14557*03 – Order of December 28, 2011).

Industrial vehicle rental companies offer vehicles with drivers for a fixed period of time, knowing that only the costs associated with the vehicle and

the driver are charged to the renter. It should be noted that when this type of rental is long-term, it falls within the typology of own-account rental [BER 06].

Transport auxiliaries are called "freight transport organizers" in the NAF nomenclature. Examples are groupage and courier, express freight, chartering, international transport organization, customs agents and forwarding agents [OBE 87].

1.7.2.2. *Intermediaries: freight forwarders, inland freight brokers*

The freight forwarder is a regulated activity. It is *"also referred to as the freight transport organizer*[23]*, any service provider who organizes and arranges for the transport of goods to be carried out, under his own responsibility and in his own name, in accordance with the modes and means of his choice on the account of a principal"* (Inland Transport Guidance Act, 2003, O.J. no. 301). In itself, the freight forwarder does not transport the goods himself, but uses carriers, considered as his subcontractors. In a similar manner, it is he who chooses the mode(s) of transport. The term "in his own name" means that the carrier employed does not need to know the name of the freight forwarder's customer.

The practice of the freight forwarder profession is codified in the *code de transport* (transport code) and governed by Decree no. 2015-1693 of December 17, 2015[24]. In order to be able to practice his profession, the freight forwarder must hold a professional capacity, as provided for in Article R1422-11 of the transport code: *"In application of article 3°. R. 1422-4, any person wishing to practice the profession of freight forwarder in France, whether he resides in France, in another member state of the European Union or in a State party to the Agreement on the European Economic Area, may apply to the prefect of a region with territorial jurisdiction for recognition of the professional qualifications he has acquired in France or in those States, under the conditions provided for in Articles R. 1422-12 to R. 1422-14-1"*. Professional competence may be

23 The freight forwarder is also referred to as a "road charterer, air or sea freight forwarder, etc.".
24 https://www.legifrance.gouv.fr.

obtained either by written examination, professional experience or the equivalence of a diploma[25].

Decree no. 2013-293 of April 5, 2013, rescinded on May 28, 2014, sets out the clauses of a standard transport commission contract. It includes 16 articles that range from the definition of roles and product specifications to quotations and legal clauses.

Like the freight forwarder, the inland freight broker is a regulated activity. Article L4441-1 of December 1, 2010 of the *code de transport* (transport code) defines it as *"the natural or legal person who is mandated to put clients in touch with public carriers of goods by ship, with a view to concluding a transportation contract between them"*[26].

1.7.2.3. *Implementers: forwarding agent, customs agent, etc.*

Only the freight forwarder or freight broker is a regulated activity, the other activities are covered by private law, as is the case with the forwarding agent. For example, the forwarding agent is considered to be a representative, which means that he carries out a transport operation according to the instructions given to him by his customer. In itself, the forwarding agent's decision-making role is non-existent, and he is only responsible for the faults that are incumbent on him.

Within unregulated activities, but which require approval by the Ministry of Economy and Finance, there are customs agents who carry out customs formalities. Therefore, they do not have the status of freight forwarder.

Other implementers include consignees and handling agents. Consignees are found in the maritime sector and handling agents in the aviation sector. The consignee acts on behalf of the ship-owner or, where appropriate, on behalf of the owner of the goods on the ship. They are also called "line agents" or "general agents" and are governed by the law of January 3, 1969, the decree of June 19, 1969 and Article 51 of the decree of December 31, 1966 on maritime law. Handling agents act on behalf of the transporters.

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25 http://www.driea.ile-de-france.developpement-durable.gouv.fr/conditions-d-acces-a-la-profession-l-exigence-de-a882.html (June 16, 2017).

26 http://www.legifrance.gouv.fr/affichCodeArticle.do;jsessionid=7C494B148E6EA26442349C7603D75D1F.tpdjo06v_1?idArticle=LEGIARTI000023082626&cidTexte=LEGITEXT000023086525&categorieLien=id&dateTexte=20120710.

1.8. Sheet 12: Operators in Urban Logistics

Key point

Urban logistics is involved in the last level of the supply chain. It takes the delivery of products within cities into account. Several types of operators interfere in this logistics: private operators, consumers, public operators and residents also.

1.8.1. *The classification of Chanut et al. [CHA 12]*

In 2012, Chanut *et al.* categorized the operators of urban logistics into four groups of operators:

– flow inducers, which are manufacturers, distributors, e-commerce operators, etc. There are "classical" or "direct" operators, distributors such as Carrefour, pure players such as Cdiscount and Amazon, and wholesalers. The "second" members of this group include chambers of commerce and trade unions;

– flow regulators include cities, regions and local authorities, as well as local residents' and consumers' associations;

– flow and/or infrastructure managers are associated with logistics service providers and transport operators in the private and public sectors and transport unions, such as AFT-IFTIM;

– flow carriers highlight EDF-type energy suppliers, car manufacturers and leasing companies and research organizations.

1.8.2. *Cerema classification [CER 14]*

Cerema [CER 14] considered three types of operators:

– the first group of operators involves the institutional operators, which are the State and the inter-municipality/municipality. Their roles lie at three levels, in other words, the definition of a *national and local regulatory framework* (e.g. road code and environmental code), the allocation of *financial support* to certain members of the second group of operators, such as shippers or commercial, industrial and tertiary activities, and the application of *regulations* to delivery drivers and freight vehicles;

– the second group of operators includes economic operators. These include commercial, industrial and tertiary activities, the shipper, the logistics service provider, the carrier, subcontractors, delivery drivers and freight vehicles;

– between these two groups, the third group of operators is made up of the urban dweller, the taxpayer and the resident. From its links with the economic operators, it buys and receives goods, and from the links with the institutional operators, it pays taxes and makes demands.

1.8.3. *Urban courier operators [DUC 14]*

Finally, we can also mention the operators of courier services which are operators in urban logistics transport. They are specialized in parcels from 30 to 300 kg. For this reason, Ducret [DUC 14] suggested a categorization of the operators involved in urban courier (see Table 1.6).

1.9. Sheet 13: Reverse Logistics Operators

Key point

Reverse logistics is also referred to as reverse distribution, reversed logistics, return logistics, back logistics, and even retro-logistics. Reverse logistics refers to *"the process of planning, implementing and controlling the efficiency, profitability of raw materials, work-in-progress, finished products and relevant information from the point of use to the point of origin, in order to recover or generate value or to dispose of it in the right way, while ensuring an efficient and environmentally sound use of the resources implemented"* [LAM 03].

Reverse logistics can be handled by several types of operators. You can find the company that designed, produced and sold the product and also manages its return, whether it is in the cycle of repair, redistribution, reconfiguration or destruction. However, these operators can be subcontractors of the company that wants to focus on its core business and outsource this activity. There are also "autonomous" operators that deal with end-of-life products without being attached to a specific company, such as car scrap yards.

Families of operators	*The inheritors*				*Other operators*		*New entrants*				
	Historic national postal operator	**Express courier services**	**Mail-order logistics services**	**Couriers**	**Other logistics services**	**Subcontractors**	**Network of relay points and instructions**	**E-commerce operators**	**Other authorized postal operators**	**Specialized urban couriers**	
										Other specialized urban couriers	**Green or neutral couriers**
	La Poste Coliposte	DHL; TNT; Fedex; Chronopost; UPS; GLS; France Express; Géodis Calberson	Mondial Relay; Relais Colis	Becycle; Novea; Groupe défense 2000; Les Nouveaux Coursiers; Les Coursiers Verts, etc.	Deret; Green Way; Géodis; Heppner; Astre City, etc.	Dilitrans; Flash; Taxicolis; JEP Transport, etc.	Relais Colis; Point Relais; Kiala; Pickup Services; PackCity; Abricolis	Amazon	Colis Privé	Star's Service; Speed Distribution	Colizen; Green Link; Kangourou Vert; Vert Chez Vous; La Tournée; La Petite Reine; Team Distribution; Les Triporteurs Rennais; Oxipio, etc.
Core business	Delivery of normal and express parcels formation				Majority of heavy freight deliveries	Final delivery without added value	Specialization in urban parcel delivery				
Strategic position with regard to urban parcel distribution	Adapting and diversifying the range of services offered Strengthening their positions or playing a new role in the new segment				Diversifying the offer of B2C services The parcel as a secondary activity but an axis of growth		New services Innovation and sustainability as key words				
Logistics organization	Majority of traditional logistics organizations Subcontracting Some innovative organizations				Mainly classic logistics organization Subcontracting		Innovative logistics organizations				

Table 1.6. *Table of the classification of operators and families of operators in urban parcel distribution (source: Ducret [DUC 14])*

1.9.1. *Different categories of stakeholders in reverse logistics*

In reverse logistics, we find the "standard" operators of a supply chain: producers, distributors, etc. However, when the returned good is an end-of-life good, there are two "new" operators, namely collectors and recyclers. Fleischmann *et al.* [FLE 97] observed six categories of operators in reverse logistics. They are as follows:

– suppliers;

– producers;

– distributors;

– consumers;

– collectors who may be the same operators as distributors, companies specializing in returns and communities;

– recyclers who are industrial producers or specialists.

Monnet [MON 11] subdivided stakeholders in reverse logistics into four groups of operators: third parties, marketers, collectors and operators. Third parties *"design, build and control regulatory tools"*, marketers *"finance the system"* as a whole from the extraction of the material to its destruction, and collectors and operators *"collect, sort, treat and recycle waste in compliance with regulations"*.

As for Carneiro *et al*. [CAR 13], they specified the categorization of Monnet [MON 11] into five stakeholder groups. They are as follows:

– third parties which are involved with government, institutions, associations, federations, lobby groups and the media;

– marketers which include producers, importers, dealers and distributors;

– collectors which include communities/groupings, reinsertion companies, associations, PSLs (logistics service providers) and recycling companies;

– operators which concern processing centers, recovery centers and producers;

– a "new" operator appears in the consumer, where we find households, public and private organizations. It is from them that reverse logistics begins, because they bring (back) the product to the end of its useful life for reprocessing.

1.9.2. *The example of waste treatment operators*

Many decrees are put in place to treat waste and limit the presence of ultimate waste, that is, non-reusable or untreatable waste, which is therefore landfill. Based on the polluter-payer principle, collection policies are part of the so-called "extended producer responsibility" chains (*Ministère de l'environnement, de l'énergie et de la mer* – Ministry of Environment, Energy and the Sea [FRE 16]). There are currently 11 types of waste in these sectors, including waste from household packaging, electrical and electronic equipment (EEE), end-of-life vehicles (ELV), used tires, batteries and accumulators, used textiles, graphic paper, unused medicines, furniture components, household specific release devices and infectious risk care activities produced by patients through self-treatment.

The example of the waste management of electrical and electronic equipment (WEEE) is commonly suggested in the logistics cycle. It is the subject of several directives (Directive 2002/95/EC-ROHS of January 27, 2003 on the restriction of the use of certain hazardous substances in electronic and electrical equipment; Directive 2002/96/CE-WEEE of January 27, 2003 on waste electrical and electronic equipment), decrees (Decree no. 2005-829 of July 20, 2005 on the composition of electrical and electronic equipment and the disposal of waste arising from such equipment (WEEE); Decree no. 2006-646 of May 31, 2006 amending the nomenclature of classified installations) and bylaws[27].

Electrical and electronic equipment comprises five product families which are (1) gray products relating to computer equipment (computers, office automation, telephones); (2) brown audio-visual products (television, hi-fi, video recorder); (3) white products relating to household appliances (small electrical appliances, refrigerators); (4) industrial products (electric cabinets, converters); and (5) manufacturing scrap (circuit breakers, switches). To date, five bylaws dating from 2006 give an approval for organizations whose purpose is to remove and treat this waste or as coordinators (see Table 1.7).

27 http://www.actu-environnement.com/ae/dossiers/DEEE/textes_reglementaires_DEEE.php4.

Bylaws	Status	Name
September 22, 2006 – application of Article 9 of Decree no. 2005-829 of July 20, 2005 (WEEE)	Coordinating body	OCAD3E SAS: Role: "Compensation for the costs of the selective collection of household WEEE supported by local communities. It is the financial link between eco-organizations (Ecologic, Eco-systems, ERP and Récylum[28]) and territorial administrations.
August 9, 2006 – application of Article 14 of Decree no. 2005-829 of July 20, 2005	Body for removal and treatment	Eco-systems – created in July 2005 www.eco-systemes.fr
August 9, 2006 – application of Article 14 of Decree no. 2005-829 of July 20, 2005	Body for removal and treatment	Eco-systems – created in December 2005 www.ecologic-france.com
August 9, 2006 – application of Article 14 of Decree no. 2005-829 of July 20, 2005	Body for removal and treatment	ERP for European Recycling Platform – created in 2002 www.erp-recycling.org
August 9, 2006 – application of Article 14 of Decree no. 2005-829 of July 20, 2005	Body for removal and treatment	Récylum – created in May 26, 2005 www.recylum.com

Table 1.7. *Operators in WEEE management (source: excerpt from http://www.actu-environnement.com/ae/dossiers/DEEE/textes_reglementaires_DEEE. php4)*

28 On June 30, 2017, the eco-organizations Eco-Systems (electrical and electronic devices) and Récylum (used lamps) are grouped together. They became ESR on January 1, 2018 (source: *L'Usine Nouvelle* – http://www.usinenouvelle.com/article/les-eco-organismes-eco-systemes-et-recylum-fusionnent.N560173).