



ABSTRACT

Packaging business models in Europe

Assessments and conclusions

BY



FOR



Contents



Executive Summary

Introduction

Glossary of definitions used in the study

Visual key

Adopted Schemes and socio-economic aspects



PART 1

Qualitative Features of EPR Management Schemes

General characteristics of the PROs

For-Profit / Non-Profit

Centralised structures / Multiple structures

Relationship with Local Authorities

Prevention activities



PART 2

Defining the Clusters

“Integrated PRO” and “Multiple PRO” Clusters



PART 3

Assessing Performances

Operational responsibility and Clusters

Recycling / operational responsibility ratio and Clusters

Aggregate indicator of costs 2021 (Aggregate Fee) and Clusters



PART 4

Conclusions – Final considerations

Cluster evaluation

Main PROs evaluation

Countries surveyed

Austria, Belgium, Bulgaria, Czech Republic, Estonia, Finland, France, Germany, Italy, Luxembourg, Netherlands, Poland, Portugal, Romania, Slovenia, Spain, Sweden, United Kingdom.



Executive Summary

This executive summary outlines the key findings of a study carried out by Centro Materia Rinnovabile for CONAI.

The study analyses and evaluates **packaging and packaging waste management systems** currently active in Europe, and the position of the **CONAI System** in this context.

The focus of the research concerns the differences among the main operating models implemented in accordance with the different European management schemes. In particular the **EPR scheme** - Extended Producer Responsibility - has been considered, since the **EPR device** is the one that has unquestionably obtained the most significant results and allows comparisons of homogeneous parameters (albeit with their inevitable exceptions).

The research covered **18 of the 27 European Union member states**, in which packaging and packaging waste management systems are in operation, identifying a list of cases representative of the main existing models.

The aforementioned schemes are made up of **Producer Responsibility Organization (PROs)**, ie organizations that on behalf of the obliged companies comply with the Extended Producer Responsibility schemes. The **EPR regime** can in some cases be combined with a Deposit Return System and Tax service compliance.

A “Main PRO” was identified for each national scenario as the best representation of an overall performance in that country.

Hence, in addition to available data from national and international sources, the study was also based on documentation provided directly by the PROs, thus obtaining the level of details required for the study.

Therefore, all parameters considered in the following analysis refer to the specific Main PRO, understood as a meaningful representation of the working model of the relevant country’s system.

With regard to methodology, two distinct types of comparison parameters were chosen.





“Qualitative” parameters

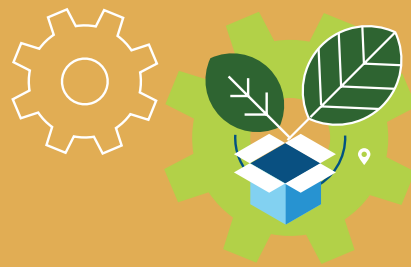
Parameters that can be defined as “qualitative”. Namely, those that concern the effectiveness of the management system in relation to the environmental and socio-economic benefits expressed by the Main PROs, in the interest of prevention and the Circular Economy, and in support of local authorities.

“Quantitative” parameters

These are the technical-economic parameters set out in European legislation: collection, recovery, and recycling figures, as well as the extent of contribution per material paid by obligated parties.

Therefore, the analysis was set up according to the structure outlined below:

-  **1. Qualitative Features of EPR Management Schemes**
-  **2. Defining the Clusters**
-  **3. Assessing Performances**
-  **4. Conclusions**



PART 1

Qualitative Features of EPR Management Schemes

General characteristics of the PROs

The **Main PRO** for each country is identified taking into consideration its **representativeness** with respect to national history and its **Market Share** in terms of packaging put on the market.

For each Main PRO the following **4 quality parameters** are considered:

- **For-Profit / Non-Profit**

The distinction between the two models is important because the different economic management affects the quality of the «public service» provided.

- **Centralised structures / Multiple structures**

“**Centralised structures**” refers to cases in which the Main PRO has a significant influence on the national management model and operates in an integrated and transparent way alongside other public and private parties.

“**Multiple structures**”, meanwhile, is used when PROs operate in a non-coordinated manner, within independent market niches.

- **Relations with Local Authorities for collection activities**

When integration between Main PRO and Local Authorities is strong, the management system actively contributes to the development of Circular Economy policies in the region.

- **Prevention activities**

Prevention activity performance is assessed by aggregating three parameters:

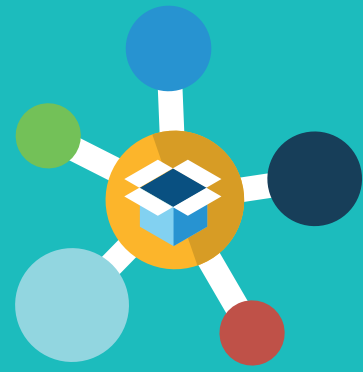
- **Information - Training**

- **Transparency - Reporting**

- **Fee modulation as an economic prevention tool**

PART 2

Defining the Clusters



Based on the considered criteria, **Main PROs in the 18 countries** were grouped into **two Clusters** having broadly homogeneous characteristics:

AUSTRIA
BELGIUM
CZECH REPUBLIC
FINLAND
FRANCE
ITALY
LUXEMBOURG
NETHERLANDS
PORTUGAL
SPAIN
SWEDEN

INTEGRATED PROs

One Cluster (11 countries) that we can call "INTEGRATED PROs", where central coordination, Non-Profit bodies, High Prevention, and good territorial integration prevail.

BULGARIA
ESTONIA
GERMANY
POLAND
ROMANIA
SLOVENIA
UNITED KINGDOM

MULTIPLE PROs

One Cluster (7 countries) that we can call "MULTIPLE PROs" with prevailing For-Profit, independent bodies, detached from Local Authorities, with Medium-Low Prevention and problematic reporting.

PART 3

Assessing performances



At this point, the Clusters themselves (and no longer their constitutive Main PROs) are considered as reference points for a performance comparison, to test to what level the different qualitative models influence quantitative outcomes.

The average value of three parameters has been analysed:

- **Operational responsibility ratio:**
the share of waste actually managed by the PROs
- **Recycling /operational responsibility ratio:**
the share of waste actually recycled by the PROs
- **Aggregate Fee:**
a specific indicator to assess the management system's costs

Main PROs are ranked within each parameter for each Cluster.

PART 4

Conclusions



The study ends with an overall assessment of the parameters considered - both qualitative and performance - to highlight:

- which of the two identified clusters represents the most sustainable and circular management model;
- which countries, within the most sustainable cluster, are interpreters of particularly significant best practices with respect to the national context.

Evaluation of Clusters

Adding all the parameters considered, the study shows that **the Integrated PRO Cluster constitutes the most sustainable and circular model**. The one that expresses the best operational configurations, able to successfully reconcile public interest and private initiative.

The following diagram, in fact, shows that the PRO INTEGRATE Cluster shows better operational configurations in six out of seven parameters.

		INTEGRATED PRO CLUSTER	MULTIPLE PRO CLUSTER
Qualitative features	PRO Features (Non-Profit)	●	
	Centralised structure	●	
	Strong relationships with Local Authorities (for collection)	●	
	High level of Prevention Activities	●	
Quantitative features	Higher share of Operational Responsibility	● 82%	78%
	Higher share of Recycling (relative to operational resp.)	● 83.4%	83.3%
	More favorable Aggregate Fee Indicator	6.93 €	● 6.79 €

PART 4

Conclusions



Evaluation of Main PROs

By analyzing the characteristics of the individual Main PROs, it is also possible to highlight the collective systems that are interpreters of best practices within the INTEGRATE PRO Cluster.

This is a purely indicative evaluation, as it is not possible to make mechanical comparisons or apply scores to national realities with such different socio-economic characteristics.

The diagram below shows the best practices of the Main PROs in relation to the seven characteristics considered (4 qualitative + 3 quantitative), highlighting the countries that recur in the top seven positions.

PRO FEATURE (NON-PROFIT)	CENTRALISED STRUCTURE	STRONG RELATIONSHIP WITH L.A.	HIGH LEVEL OF PREVENTION ACTIVITIES	OPERATIONAL RESP.	RECYCLING/ OPERATIONAL RESP.	AGGREGATE FEE
FRANCE	FINLAND	FRANCE	SWEDEN	FRANCE	FINLAND	ITALY
ITALY	ITALY	ITALY	ITALY	NETHERLANDS	BELGIUM	LUXEMBOURG
SPAIN	NETHERLANDS	SPAIN	FRANCE	SPAIN	PORTUGAL	PORTUGAL
NETHERLANDS	CZECH REP.	NETHERLANDS	SPAIN	SWEDEN	AUSTRIA	SPAIN
BELGIUM	PORTUGAL	CZECH REP.	BELGIUM	FINLAND	LUXEMBOURG	BELGIUM
CZECH REP.	SWEDEN	BELGIUM	AUSTRIA	BELGIUM	ITALY	NETHERLANDS
PORTUGAL	FRANCE	FINLAND	NETHERLANDS	LUXEMBOURG	SPAIN	FRANCE
SWEDEN	SPAIN	LUXEMBOURG	CZECH REP.	CZECH REP.	NETHERLANDS	FINLAND
AUSTRIA	AUSTRIA	PORTUGAL	FINLAND	AUSTRIA	CZECH REP.	CZECH REP.
FINLAND	LUXEMBOURG	AUSTRIA	PORTUGAL	PORTUGAL	FRANCE	AUSTRIA
LUXEMBOURG	BELGIUM	SWEDEN	LUXEMBOURG	ITALY	SWEDEN	SWEDEN

Evaluating the recurrences of the countries that are interpreters of best practices in the first 7 positions, the following countries are highlighted:

Italy, Spain, Netherlands, France, Belgium, Finland, Portugal



INTRODUCTION

Glossary of definitions used in the study

Local Authorities: the municipal public bodies charged with managing the separate waste collection service for (urban) domestic packaging.

Fee: the charge requested by the Compliance Organisation to Producers, which is apt to cover the management of packaging until its end of life.

EPR (Extended Producer Responsibility): a series of measures adopted by the Member States to ensure that product manufacturers bear the financial or financial and operational responsibility for managing the phase of the life cycle when the product becomes waste, including separate collection, sorting, and treatment operations.

This obligation can also include organisational responsibility and the obligation to contribute to waste prevention and product reusability and recyclability.

Product-producers can fulfil their obligations either individually or collectively. (EU Directive 2018/851)

Material organization chain: bodies dedicated to recovering and recycling a specific material (paper, glass, plastic, etc.), which operate in conjunction with packaging waste management organisations.

Fillers: those who put on the market or import “filled packaging”, i.e. packaged goods.

PRO (Producer Responsibility Organisation): an organisation – collectively funded by participating producers – that takes responsibility for the environmental management of packaging waste generated by its associates. A PRO’s responsibility includes data management, financial liability, and organisational tasks. This responsibility can be complete or partial.

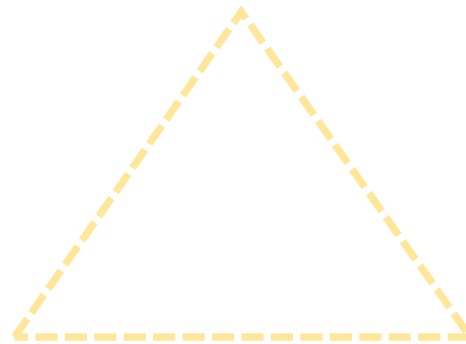
Urban waste / domestic waste: these terms refer (depending on the various regulations and translations) to packaging waste collected on public land, as well as special waste “assimilated” to urban waste.

Visual key



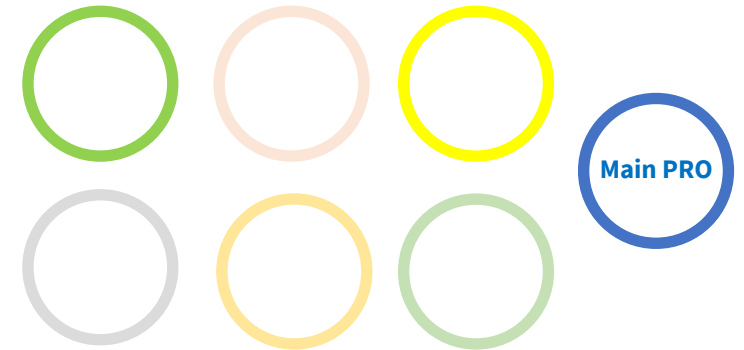
Governance PRO

The figure represents a structural coordination relationship between the Main PRO and other related organizations



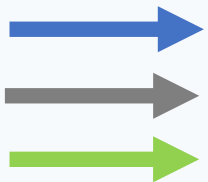
Coordination & reporting

Also here, the figure reports a coordination relationship between Main PRO and other organizations, weaker than the previous one and regulated through reporting procedures.



Licensed PROs - Main PRO

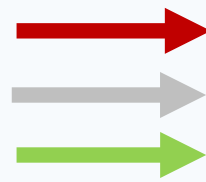
The Main PRO, identified with the blue color, stands out from the other PROs represented with different colors.



Compliance
Reporting
Collection

Model of the country management system

In these graphs, different colored arrows highlight compliance relationships, reporting obligations and collection flows.



Economic flow
Compliance flow
Materials flow

Model of Licenced PRO management system

In these graphs, the arrows of different colors highlight the flows of economic transactions carried out by the PROs, the flows of the expected obligations and the flows of materials management.

Adopted Schemes and socio-economic aspects

The 18 countries assessed in the study were chosen for their ability to represent the most common models of packaging and packaging waste management schemes in Europe.

Socio-economic features and the different historical stages of access to and consolidation of their respective EPR regimes were considered.

The **analyses and comparisons are focused on EPR schemes** as they represent the most important and significant experience gained in Europe in the field, both for the extent of the flows managed and the quality of the environmental and social effects brought about.

This also makes it possible to use parameters that are consistent with each other.

COUNTRIES ASSESSED

AUSTRIA

BELGIUM

BULGARIA

CZECH REPUBLIC

ESTONIA

FINLAND

FRANCE

GERMANY

ITALY

LUXEMBOURG

NETHERLANDS

POLAND

PORTUGAL

ROMANIA

SLOVENIA

SPAIN

SWEDEN

UNITED KINGDOM

Adopted Schemes and socio-economic aspects (cont.)

The study also reports cases in which **EPR schemes** are combined with **Deposit Return System (DRS)** or **Tax service compliance**: the following page proposes a map that highlights, country by country, the management solutions adopted.





Countries were also considered, such as **Germany** and the **United Kingdom**, which represent very particular cases but which - for historical and dimensional reasons - nevertheless constitute important reference points.

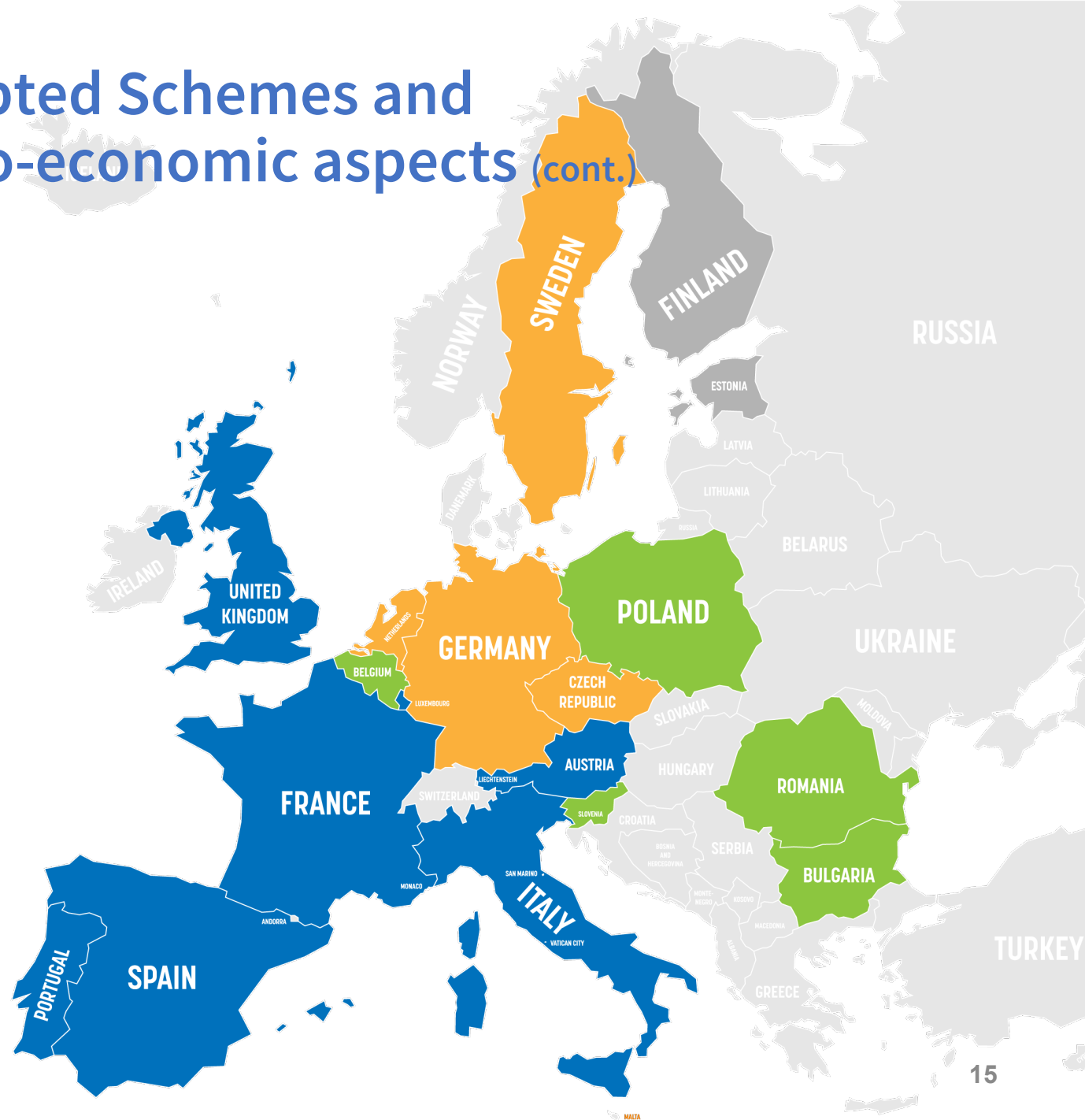
For certain managing systems where only partial data are available (such as Poland and Portugal), comparisons are made only in relation to documented quantities.

For case by case insights please refer to the documents for each individual country.

Adopted Schemes and socio-economic aspects (cont.)

Mapping of the different management solutions adopted in the 18 countries.

-  EPR Schemes
-  EPR Schemes + DRS
-  EPR Schemes + Tax service compliance
-  EPR Schemes + DRS + Tax service compliance



Adopted Schemes and socio-economic aspects (cont.)

	Area km ²	Pop. Density/Km ²	GDP per-capita Euro (€)	Population
GERMANY	357.123	232	35.400	83.019.213
UNITED KINGDOM	244.820	272	36.009	66.647.112
FRANCE	543.965	120	32.200	65.273.511
ITALY	302.073	198	26.138	59.816.673
SPAIN	505.970	93	26.083	46.937.060
POLAND	312.679	121	13.577	37.972.812
ROMANIA	238.390	81	10.524	19.414.458
NETHERLANDS	41.540	416	45.189	17.282.163
BELGIUM	30.528	375	55.226	11.455.519
CZECH REPUBLIC	78.867	135	19.598	10.649.800
PORTUGAL	92.225	111	20.103	10.276.617
SWEDEN	438.574	23	46.136	10.230.185
AUSTRIA	83.879	106	43.537	8.858.775
BULGARIA	111.002	63	7.875	7.000.039
FINLAND	338.435	16	42.662	5.517.919
SLOVENIA	20.273	103	22.107	2.080.908
ESTONIA	45.227	29	19.727	1.324.820
LUXEMBOURG	2.586	237	97.223	613.894

The 18 countries are ordered by population size and divided into three groups (as per the bars on the left):

- Over 20M inhabitants
- Between 20M and 10M inhabitants
- Under 10M inhabitants



PART ONE

QUALITATIVE FEATURES OF EPR MANAGEMENT SCHEMES

Overview of the general characteristics of the PROs

A national management systems is made up of **Producer Responsibility Organisations (PROs)**, which are groups of companies referring to the **Extended Producer Responsibility (EPR)** regime.

To assess the features of national management schemes, **the study identifies the most representative PRO in each country** (*the Main PRO*). The analysis is focused solely on the Main PRO, seen as a prototypical expression of the national operational configuration (*access to detailed data would otherwise be impossible*).

Aiming to compare the overall functionality of these models, in the first part of the study we opted to assess **parameters** that can be defined as “**qualitative**”. These are related to the **environmental and socio-economic benefits** generated by management systems for the communities and regions in which they operate. The parameters are as follows:



Overview of the general characteristics of the PROs

Classification parameters

- For-Profit / Non-Profit Organisations
- Centralised structure / Multiple structure
- Relationships with Local Authorities
- Prevention activities

The “Main PROs”

PAESE	MAIN PRO
AUSTRIA	ARA
BELGIUM	FOST PLUS + VALIPAC
BULGARIA	ECOPACK
CZECH REPUBLIC	EKO-KOM
ESTONIA	ETO
FINLAND	RINKI
FRANCE	CITEO + ADELPHÉ
GERMANY	DER GRÜNE PUNKT
ITALY	CONAI
LUXEMBOURG	VALORLUX
NETHERLANDS	AFVALFONDS (SAV)
POLAND	INTERSEROH
PORTUGAL	SPV
ROMANIA	ECO-ROM
SLOVENIA	SLOPAK
SPAIN	ECOEM + ECOVIDRO
SWEDEN	FTI
UNITED KINGDOM	VALPAK

PROs are organizational models, well defined and traced enough to meet all assessment criteria required by this study (something which would have not been possible for the countries in their entirety).

Thus it was decided to identify the **Main PRO for each national system** – namely the organisation that best represents the overall performance in the country – and assess its characteristics and performance as prototypical expressions of the organisational solutions adopted at the national level.

The “**Main PROs**” were selected based on the amount of waste flows managed, the willingness to make their data public, as well as in relation to their historical function in setting up the **country’s waste management system**.

Waste streams and Market Share

The first organisations in the EU-15 countries focused on domestic flows, priority being given to solving the main environmental and economic problems.

EU enlargement toward Eastern Europe coincided with the spread of PROs dedicated to the collection of **Commercial/Industrial waste flows**, which are more economically advantageous. Actually, managing both flows requires increased “**system responsibility**” on the part of the Main PRO, which can plan more efficient economies (*as in the case of Italy*).

At present, **most Main PROs are engaged** (*at least in terms of financial responsibility*) on two flows: **Domestic + Industrial/Commercial**. A choice also due to increasing EU targets.



The Market share of a Main PRO is the percentage of packaging for which the organization bears financial responsibility, having been placed on the market by its members and for which fees have been paid.

The **Main PRO selected**, as leading structures in the country, have a significant average Market share, **on average over 50%**.

Waste streams and Market Share (cont.)


Small market shares are caused by two different reasons: either there is a plurality of similar PROs (*such as Germany, Poland, or Romania*), or the Main PRO manages only the Domestic flow (*Germany, Spain, France*).

There are also special cases:



- ★ **For the United Kingdom**, given the operational scheme of the system (*based on PRN, tradable recycling certificates*), it is not possible to quantify the Market share of Main PRO.
- ★ **In France, Spain, and Belgium**, the study considers as a single Main PRO the pairing of the two main organizations of the country, which operate in a coordinated and integrated manner.
- ★ **In Romania**, the study identifies ECO-ROM, with its minimal market share of 3%, as the Main PRO, due to the fact that ECO-ROM was the first to organize a system in the country and is the only PRO whose data are publicly available.
Furthermore, it is the one managing both Domestic and Industrial/Commercial flows.

Waste streams and Market Share (cont.)

MAIN PRO Domestic flow only

		 Domestic	Market share
FRANCE	CITEO + ADELPHE		39%
GERMANY	GRUNE PUNKT		28%
SPAIN	ECOEM + ECOVIDRIO		36%

MAIN PRO Both flows

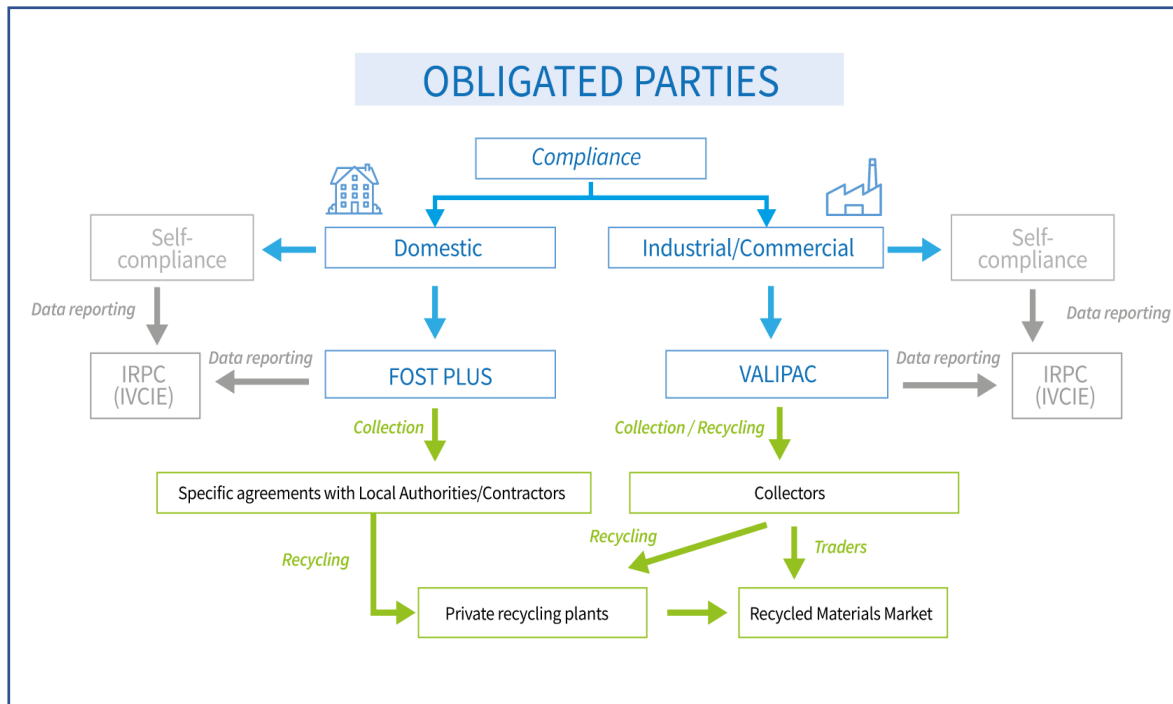
		 Domestic	 Ind. / Comm.	Market share
AUSTRIA	ARA			76%
BELGIUM	FOST PLUS + VALIPAC			91%
BULGARIA	ECOPACK			33%
CZECH REPUBLIC	EKO-KOM			92%
ESTONIA	ETO			21%
FINLAND	RINKI			100%
ITALY	CONAI			99%
LUXEMBOURG	VALORLUX			58%
NETHERLANDS	AFVALFONDS (SAV)			99%
POLAND	INTERSEROH			26%
PORTUGAL	SPV			86%
ROMANIA	ECO-ROM			3%
SLOVENIA	SLOPAK			15%
SWEDEN	FTI			76%
UNITED KINGDOM	VALPAK			-

AN EXAMPLE

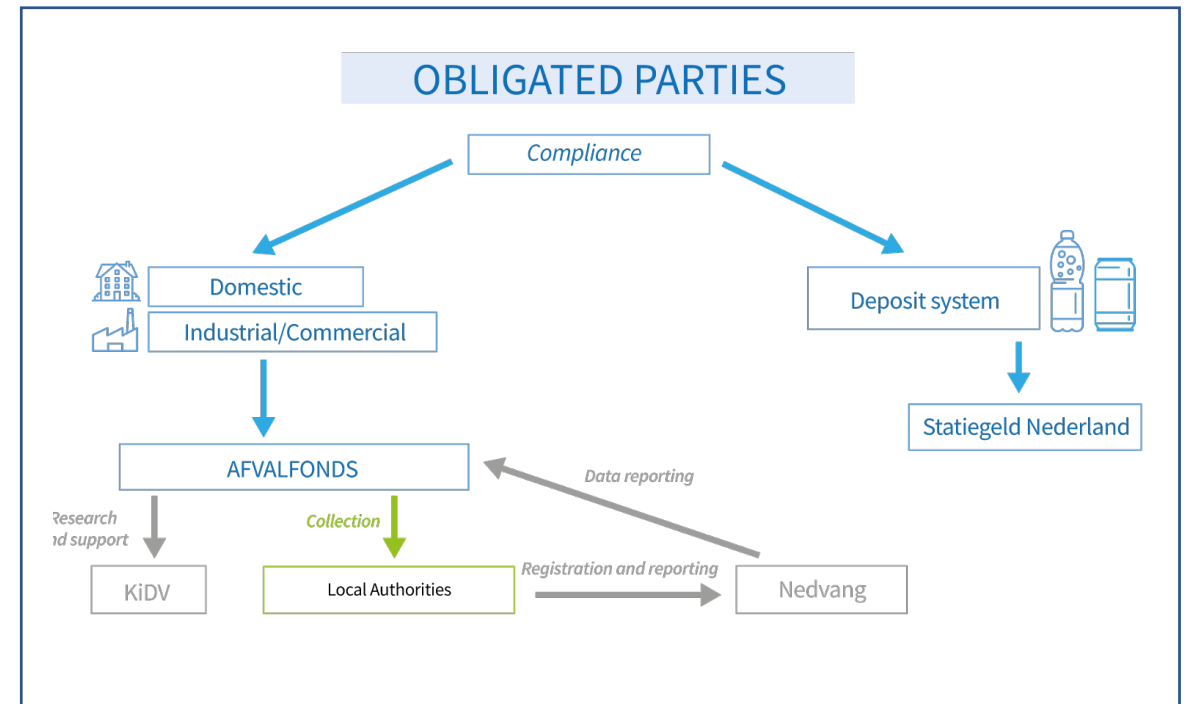
two different management models for “Domestic” and “Industrial/Commercial” flows

In **Belgium**, two complementary PROs (**FOST PLUS** and **VALIPAC**) respectively manage **Domestic** and **Industrial/Commercial** waste flows with different fees per material. In the **Netherlands**, instead, the Main PRO manages **both** flows with the **same** fee.

BELGIUM



NETHERLANDS



For-Profit / Non-Profit Organisations

Generally, **Non-Profit PROs** correspond to a “systemic” body that optimises flows and minimises logistics chain costs, to the benefit of the “public service” function of EPR systems. **For-Profit PROs**, on the other hand, are more punctual and specialised in specific flows when these are consolidated as a business.





















The recent gradual growth of For-Profit bodies is also due to the “**new economy of waste**” whereby, in many sectors, the value of collected materials has surpassed the cost of managing the associated waste.

In general, when **For-Profit organisations** operate in critical markets (such as domestic packaging waste having costs greater than revenues), they charge both the costs and their profit on the community, thus resulting, in principle, more expensive (as in the case of Germany).

Among European PROs, **Non-Profit bodies** are prevalent (*as is indeed recommended by EU directives on EPR*). The exceptions are Germany, the United Kingdom, and Poland, which are also special cases in relation to other parameters.

It should also be noted that, in relation to the totality of licenced PROs, **For-Profit organisations** are rather numerous: in the **18 countries** in the study, in addition to the Main PROs (*one per country*), there are **80 For-Profit PROs** and only **25 Non-Profits**.

For-Profit / Non-Profit Organisations (cont.)

COUNTRIES	MAIN PRO	Market share	For-Profit	Non-Profit		Other For-Profit PROs	Other Non-Profit
 GERMANY	GRUNE PUNKT	28%	★		+	8	
 POLAND	INTERSEROH	26%	★		+	19	
 UNITED KINGDOM	VALPAK	-	★		+	25	1
 AUSTRIA	ARA	76%		★	+	4	1
 BELGIUM	FOST PLUS + VALIPAC	91%		★	+	0	1
 BULGARIA	ECOPACK	33%		★	+	3	1
 CZECH REPUBLIC	EKO-KOM	92%		★	+	0	
 ESTONIA	ETO	21%		★	+		2
 FINLAND	RINKI	100%		★	+		2
 FRANCE	CITEO + ADELPHÉ	39%		★	+	1	4
 ITALY	CONAI	99%		★	+	1	2
 LUXEMBOURG	VALORLUX	58%		★	+		1
 NETHERLANDS	AFVALFONDS (SAV)	99%		★	+		1
 PORTUGAL	SPV	86%		★	+		4
 ROMANIA	ECO-ROM	3%		★	+	13	
 SLOVENIA	SLOPAK	15%		★	+	5	
 SPAIN	ECOEMBES + ECOVIDRIO	36%		★	+		3
 SWEDEN	FTI	76%		★	+	1	2

AN EXAMPLE

Non-Profit organisation (France) versus For-Profit organisation (Poland)

FRANCE

Priority given to the main problem: domestic packaging.

Structured relations with Local Authorities to facilitate their economies.

Fee modulation to promote prevention policies.

Complete coverage of Local Authorities' collection and recycling costs.

Maximum control and traceability of the packaging chain

Administered market designed to cover all externalities.

Medium/high fees.

POLAND

No distinction between domestic and industrial/commercial packaging.

Optional relations with Local Authorities, implemented by the PROs through Contractors.

No fee modulation.

No funding for Local Authorities; delta-cost refunded to Contractors.

For-Profit PROs do not publish management data.

Free market, with Recycling Certificate trading, aimed at maximum containment of costs.

Fees are not made public.

Centralised / Multiple Structures

In this study, “**Centralised Structures**” are defined as those systems in which Main PROs have a significant influence on the national management model. This means that the operational model originating from the Main PRO shapes and coordinates the other organisations operating in the country.

In these circumstances, the Main PROs have a market share that is, on average, higher than 50%.

The term “**Multiple Structures**”, on the other hand, indicates situations in which PROs operate in a non-coordinated way, through independent market niches, with a strong presence of profit organisations and corresponding reduced market shares.

Multiple Structures prevail across **Eastern European systems** (*where PROs have started by only handling industrial and commercial packaging*) and include special cases such as **Germany** and the **United Kingdom**.



Centralised Structures operate in an integrated way with other public and private subjects, offering greater management transparency.

Centralised / Multiple Structures (cont.)

The 18 countries are divided into these two types of structures. The **Centralised Structures** are ordered based on their respective Market Shares, while **Multiple Structures** are ordered according to the number of “other” PROs operating in the country.

Centralised Structure Systems	Market share Main Pro
FINLAND	100%
ITALY	99%
NETHERLANDS	99%
CZECH REPUBLIC	92%
BELGIUM	91%
PORTUGAL	86%
AUSTRIA	76%
SWEDEN	76%
LUXEMBOURG	58%
FRANCE	39%
SPAIN	36%

Multiple Structure Systems	No. of PROs
UNITED KINGDOM	27
POLAND	20
ROMANIA	14
GERMANY	9
SLOVENIA	6
BULGARIA	5
ESTONIA	3

AN EXAMPLE

“Centralised structure” versus “Multiple structure”

In Spain, the Main PRO Ecoembes and Ecodidrio work in close collaboration and cover all materials. Two minor PROs are in operation for phytosanitary goods and pharmaceuticals.

In Romania, there are numerous PROs (14) that act as independent bodies in competition, without any form of shared responsibility. The Main PRO is Non-Profit but all the other organisations are For-Profit.

SPAIN



ROMANIA



Relations with Local Authorities

Agreements between Main PROs and Local Authorities for waste collection are crucial in assessing the system model.

Strong integration means that the Main PRO actively participates in developing Circular Economy policies, thus helping local administrations with regard to domestic waste.

Therefore, in this study, this element is seen as an **important indicator of the overall quality of the EPR regime**.

We identify three agreement formulas:

- Agreements at the national level;
- Mixed local agreements, defined case-by-case;
- Contracts defined by the PROs.

Relations with Local Authorities (cont.)

The first group of systems – where national framework agreements between Local Authorities and PROs are prevalent – presents the best quality of integrated coordination at a national level.

The second group presents weaker integration since the relations between PROs and Local Authorities are combined with other solutions (*Contractors / Autonomous PRO collection*).

The third group presents low, occasional integration because collection is predominantly managed directly by the PRO.

**The United Kingdom was added to the third group despite the lack of any relations between PROs and Local Authorities.*

1. Prevalence of national framework agreements between Local Authorities and PROs

FRANCE	CITEO + ADELPHÉ
ITALY	CONAI
NETHERLANDS	AFVALFONDS (SAV)
CZECH REPUBLIC	EKO - KOM
SPAIN	ECOEM + ECOVIDRIO

2. Mix of specific agreements between Local Authorities, PROs and Contractors

BELGIUM	FOST PLUS + VALIPAC
ESTONIA	ETO
FINLAND	RINKI
LUXEMBOURG	VALORLUX
PORTUGAL	SPV
SLOVENIA	SLOPAK

3. Prevalence of autonomous PRO collection

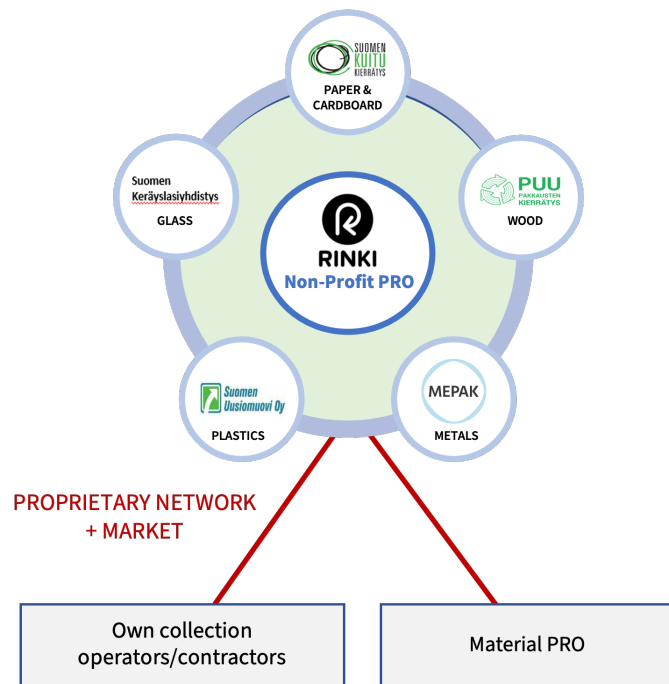
AUSTRIA	ARA
BULGARIA	ECOPACK
GERMANY	GRUNE PUNKT
POLAND	INTERSEROH
UNITED KINGDOM *	VALPAK
ROMANIA	ECO-ROM
SWEDEN	FTI

AN EXAMPLE

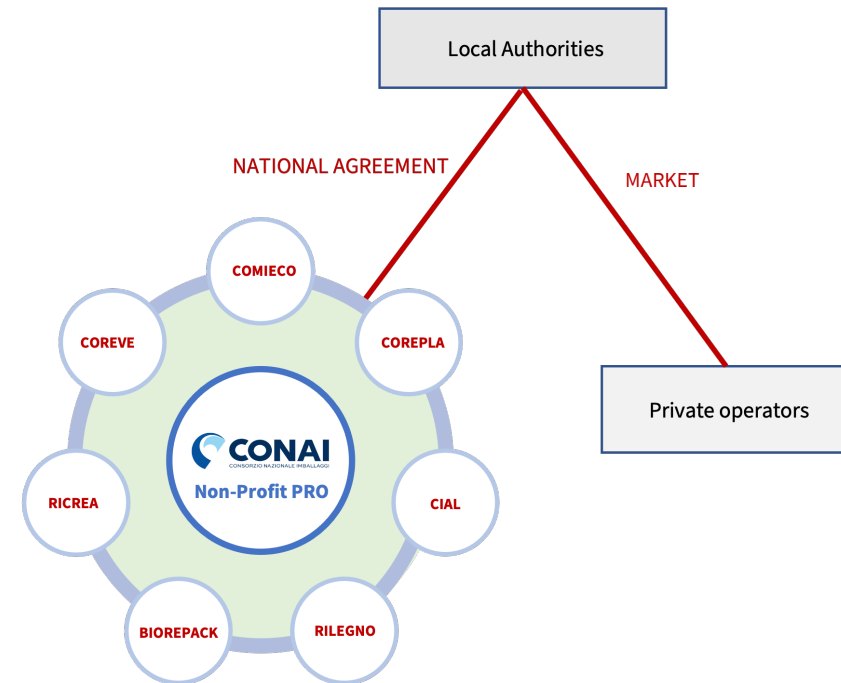
“Poor Integration” (Finland) versus “Strong Integration” (Italy)

The two compared diagrams show **Finland**, where the RINKI system works exclusively with its own operators or through materials associations, and the **CONAI system**, where the large majority of domestic packaging waste is collected thanks to framework agreements with Local Authorities.

FINLAND



ITALY





Zoom on the case of the United Kingdom

The British system is set up completely atypically compared to the rest of Europe. It is based solely on recovery/recycling outcomes, represented by **PRNs – Packaging Recycling Notes** – which are tradable certificates representing one tonne of recycled material.

Accredited recyclers receive blank **PRNs from Government Agencies** and hand them over to Obligated Parties (and PROs) upon completion of recycling.

Each Obligated Party is required to raise the right PRNs to meet its targets.

The targets are assigned to Producers **based on Business Targets** established by law.

The British system **does not provide economic support to the collection infrastructure** and **makes no distinction between packaging flows**, leaving the market to carry out collections wherever they are less costly and more functional.

Obligated parties delegate the 27 PRO to obtain the PRNs

The PROs:

- Negotiate PRNs with recyclers on behalf of their associates
- Do not operate collections

Recyclers are the system's fulcrum:

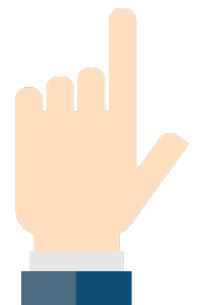
- They receive materials from all collection points
- They sell PRNs to obligated parties and the PROs

Local Authorities:

- Carry out autonomous collection
- Sell materials to recyclers
- Trade PRNs

PROS ARE NOT EXTENDED RESPONSIBILITY REGIMES

THE TRANSITION TO AN EPR SYSTEM, STARTING IN 2023, IS IN CONSULTATION IN THE UNITED KINGDOM





Zoom on the case of Germany

Germany, alongside France, is the country that has most influenced the European Union in the push toward managing packaging and packaging waste.

The Main PRO, Grune Punkt – **currently one of 9 licenced PROs** – has long held a dominant position in the country. It has embodied the dual model, which has since inspired other countries, including Austria, Sweden, Finland, and several Eastern European countries.

The **dual system** involves the creation of private collections for domestic flows parallel to those carried out by Local Authorities. It is a competition-based model, **in contrast to integration with Local Authorities**.

All steps in the chain (collection, treatment, and recycling) and relative costs are managed autonomously by the PROs.

Obligated parties delegate to PROs by paying “service” fees.

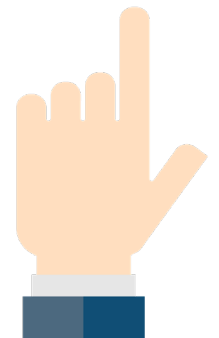
Organisations are licenced as PROs only for domestic flows.

PROs decide independently to whom to entrust the collections (Contractors, independent operators, Local Authorities) and pay their costs.

PROs handle recycling.

ALL GERMAN PROS ARE FOR-PROFIT

MAIN PRO GRUNE PUNKT RECEIVES FEES ONLY FOR DOMESTIC FLOWS



Prevention Activities

It is well-known that EPR regimes explicitly require that all organisations carry out prevention activities, meaning that they contribute in all possible ways to reduce the quantity and improve the quality of all generated waste.

Hence, in this study, the quality of prevention is understood as an **important indicator of the overall quality of the EPR system**.

To simplify the analysis, prevention activities are assessed by combining the most significant actions (*as shown in the following slide*) into a single score. In particular, these include:

→ **Information/reporting actions:**

the set of activities and initiatives aimed at businesses and the public, as well as the publication and recording of all system operation data;

→ **Fee modulation in relation to the sustainability of packaging:**

an economic prevention tool that is effective in promoting eco-design for packaging.

The score divides prevention quality into three categories: “High” – “Medium” – “Low”

Prevention Activities *(cont.)*

COUNTRIES	MAIN PRO	PREVENTION AND SUSTAINABILITY				Prev. & Sust.	FEE MODULATION			PREVENTION AND MODULATION Final Assessment	
		Prevention Activity	Communication Activity	Recycling & Collection Initiatives	Sustainability Report 2019		Sector (Dom. / Ind.&Comm.)	In relation to recycling	Other variables		Modulation
AUSTRIA	ARA	●	●	●	●	High	●	●		Medium	HIGH
BELGIUM	FOST PLUS	●	●	●	●	High		●	●	Medium	HIGH
BULGARIA	ECOPACK	●	●	●	●	High			●	Low	MEDIUM
CZECH REPUBLIC	EKO-KOM	●	●	●	●	High	●	●		Medium	MEDIUM
ESTONIA	ETO		●			Low	●			Low	LOW
FINLAND	RINKI	●	●	●	●	High	●	●		Medium	MEDIUM
FRANCE	CITEO	●	●	●	●	High		●	●	Medium	HIGH
GERMANY	GRUNE PUNKT	●	●	●	●	High		●		Low	MEDIUM
ITALY	CONAI	●	●	●	●	High	●	●		Medium	HIGH
LUXEMBOURG	VALORLUX	●	●	●		Medium	●	●		Medium	MEDIUM
NETHERLANDS	AFVALFONDS (SAV)	●	●	●	●	High		●	●	Medium	HIGH
POLAND	INTERSEROH	●	●	●	●	High				Low	MEDIUM
PORTUGAL	SPV	●	●	●		Medium	●		●	Medium	MEDIUM
ROMANIA	ECO-ROM	●	●	●		Medium	●			Low	MEDIUM
SLOVENIA	SLOPAK		●			Low	●			Low	LOW
SPAIN	ECOEMBES	●	●	●	●	High		●	●	Medium	HIGH
SWEDEN	FTI	●	●	●	●	High	●	●	●	High	HIGH
UNITED KINGDOM	VALPAK	●	●	●	●	High			●	Low	MEDIUM

AN EXAMPLE

“High Prevention” (Austria) versus “Low Prevention” (Slovenia)

AUSTRIA (ARA)

ARA proposes fee modulation (“*Design for Recyclability*”) and the use of recycled materials in packaging as strategic prevention measures.

It implements many **prevention activities aimed at businesses**: for example, the “**Circular Packaging Design Guidelines**” to promote resource-saving during the design phase and provide guidance on recyclability and on the use of recycled materials.

ARA **develops communication activities** aimed at different targets, such as the “**Anti-Littering**” awareness campaign to **prevent waste and reduce litter**.

Sustainability Report 2019 quantifying CO2 savings thanks to recycling activities.

Initiatives promoting separate waste collection and recycling: an example is the “**Consultants in the matter of waste**” project.

SLOVENIA (SLOPAK)

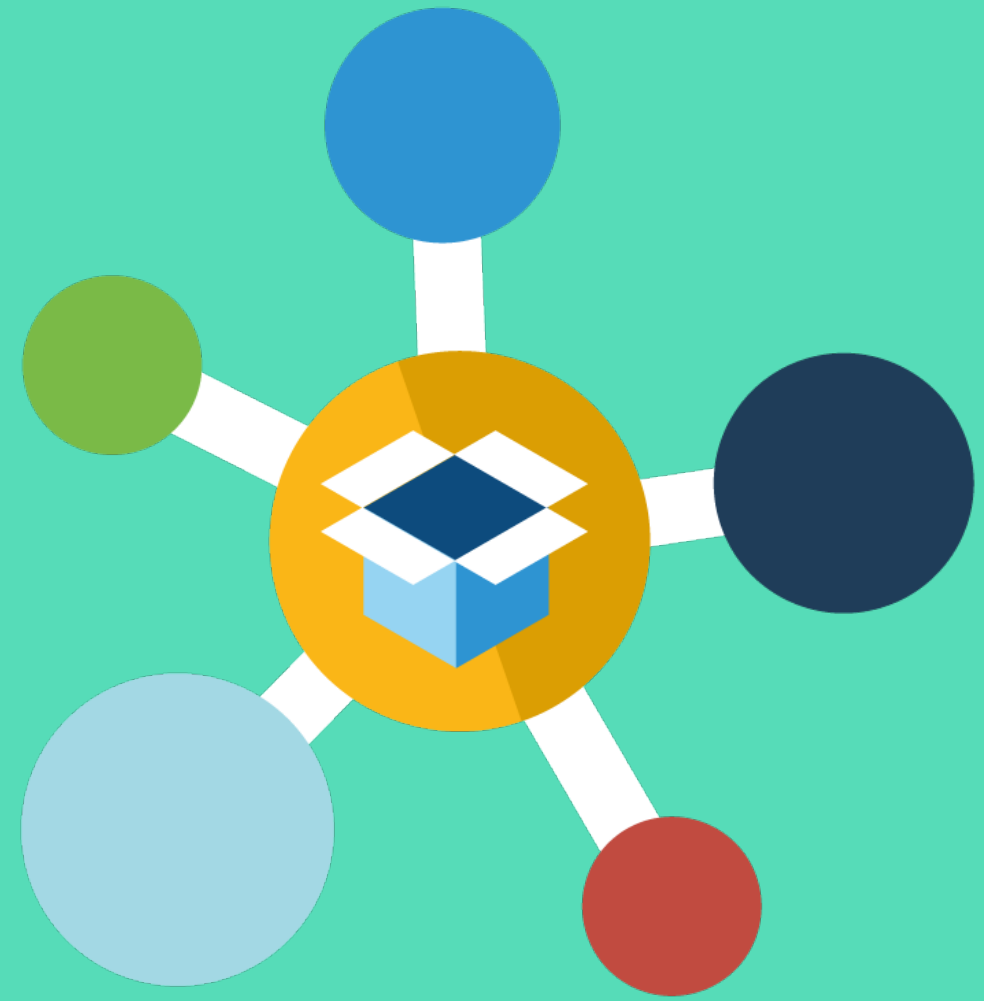
SLOPAK does not modulate its fees.

It does not carry out or promote actions to prevent waste or incentivise collection and recycling.

Limited communication activities directed primarily at education for children. For example, the “**Packaging is all around us**” competition for schools.

Did not publish a Sustainability Report for 2019.

Does not implement initiatives promoting separate waste collection or recycling



PART TWO

DEFINING THE CLUSTERS

DEFINING THE CLUSTERS

Based on the criteria considered thus far, it is possible to group the 18 countries' Main PROs into two Clusters with reasonably homogeneous characteristics:

→ **Integrated PROs:**

One Cluster (**11 countries**) that we can call “INTEGRATED PROs”, where Non-Profit PROs are prevalent, featuring centralised structures, strong integration with Local Authorities, and a high degree of prevention.

→ **Multiple PROs:**

One Cluster (**7 countries**) that we can call “ MULTIPLE PROs” with prevailing For-Profit, independent structures, detached from Local Authorities, with Medium-Low Prevention and problematic reporting.

The following slide presents a summary of the qualitative features examined thus far, highlighting the reasons on which the grouping was based. The subsequent two slides outline the Clusters.



The INTEGRATED PROs Cluster exhibits the best qualitative features (sustainable and circular).

“Integrated” PROs and “Multiple” PROs

COUNTRIES	PRO Features (For-Profit/Non-Profit)	Centralised/ Multiple structure	Relationships with Local Authorities (for collections)	Prevention Activities
GERMANY	For-Profit	Multiple	-	Medium
UNITED KINGDOM	For-Profit	Multiple		Medium
FRANCE	Non-Profit	Centralised	+	High
ITALY	Non-Profit	Centralised	+	High
SPAIN	Non-Profit	Centralised	+	High
POLAND	For-Profit	Multiple	-	Medium
ROMANIA	Non-Profit	Multiple	-	Medium
NETHERLANDS	Non-Profit	Centralised	+	High
BELGIUM	Non-Profit	Centralised	+ -	High
CZECH REPUBLIC	Non-Profit	Centralised	+	Medium
PORTUGAL	Non-Profit	Centralised	+ -	Medium
SWEDEN	Non-Profit	Centralised	-	High
AUSTRIA	Non-Profit	Centralised	+ -	High
BULGARIA	Non-Profit	Multiple	-	Medium
FINLAND	Non-Profit	Centralised	+ -	Medium
SLOVENIA	Non-Profit	Multiple	+ -	Low
ESTONIA	Non-Profit	Multiple	+ -	Low
LUXEMBOURG	Non-Profit	Centralised	+ -	Medium

“Integrated” PROs

We define “Integrated PRO Cluster” the one that collects the following 11 Main PRO, which have the common features listed here. The Cluster therefore represents the collective expression, at European level, of the integrated and Non-Profit model.

AUSTRIA	ARA
BELGIUM	FOST PLUS + VALIPAC
CZECH REPUBLIC	ECO-KOM
FINLAND	RINKI
FRANCE	CITEO + ADELPHÉ
ITALY	CONAI
LUXEMBOURG	VALORLUX
NETHERLANDS	AFVALFONDS (SAV)
PORTUGAL	SPV
SPAIN	ECOEMBES + ECOVIDRO
SWEDEN	FTI

Common features:

- All the Main PROs are Non-Profits.
- All the systems have a Centralised Structure.
- With the exception of Sweden, all the Main PROs have strong integration with Local Authorities.
- All the Main PROs have a market share higher than 35%.
- The average prevention performances are very high: 7 out of the 11 Main PROs show a “High” performance and 4 a “Medium” performance.

“Multiple” PROs

We define "Multiple PRO CLUSTER" the one that collects the following 7 Main PRO, which have the common features listed here. The Cluster, therefore, represents the collective expression, to European level, of the multiple model, mainly For Profit and little integrated.

BULGARIA	ECOPACK
ESTONIA	ETO
GERMANY	GRUNE PUNKT
POLAND	INTERSEROH
ROMANIA	ECO-ROM
SLOVENIA	SLOPAK
UNITED KINGDOM	VALPAK

Common features:

- All the systems have a Multiple Structure.
- All the Main PROs (except Czech Republic) have a market share below 33%.
- Three of the major Main PROs are For-Profit (Germany, United Kingdom, Poland).
- Poor integration with Local Authorities is prevalent (except Estonia).
- Average prevention performances are Medium/Low: 5 out of 7 Main PROs score “Medium” performance and 2 score “Low”.



PART THREE

ASSESSING PERFORMANCES

ASSESSING PERFORMANCES

Once the two Clusters and their specific characteristics have been identified, evaluations are carried out following three parameters:

→ **Operational responsibility:**

According to EU terminology, this is the ratio between the share of packaging waste actually managed by a PRO and the share of packaging for which the PRO bears “financial responsibility”, meaning quantities put on the market by its associates. Therefore, it is a **percentage value**, as per the following ratio:

$$\frac{\text{AMOUNT MANAGED BY THE PRO}}{\text{AMOUNT PUT ON THE MARKET BY PRO'S ASSOCIATES}}$$

→ **Recycling relative to operational responsibility:**

This is the ratio between the amount of waste actually recycled by the PRO and its operational responsibility. This is also a **percentage value**, as per the following ratio:

$$\frac{\text{AMOUNT RECYCLED BY THE PRO}}{\text{AMOUNT MANAGED BY THE PRO}}$$

→ **Aggregate Fee indicator:**

This is obtained by adding together - for each PRO - the price of four Fees, each relating to a prototype package.

Operational Responsibility

Operational responsibility is – at the same time - a performance datum and an indicator of the Main PRO’s “territoriality” with regard to its country’s system. Infact, if the **Main PRO is a For-Profit body**, it tends to occupy the whole market area in which it operates and to manage all possible flows. Instead, a **Non-Profit Main PRO** tends to focus its operational activities on areas that are not economically self-sufficient (*where costs are greater than revenue*).

Hence, the parameter is not to be read in absolute terms but in relation to the context.

By way of example, it is noteworthy that in Italy, CONAI decided to focus its operational management primarily on domestic packaging, leaving to the free market the sectors that are suited to economic self-sufficiency, maintaining coordination of the national system as a whole according to a subsidiarity principle.

The following slides present Cluster comparison data in terms of operational responsibility.



The INTEGRATED PRO CLUSTER shows the highest percentages (about 4% more)

Operational Responsibility Integrated PROs

COUNTRIES	OPERATIONAL RESPONSIBILITY	
FRANCE	CITEO + ADELPHÉ	100%
NETHERLANDS	AFVALFONDS	100%
SPAIN	ECOEM + ECOVIDRIO	100%
SWEDEN	FTI	100%
FINLAND	RINKI	100%
BELGIUM	FOST PLUS + VALIPAC	87%
LUXEMBOURG	VALORLUX	84%
CZECH REPUBLIC	EKO-KOM	71%
AUSTRIA	ARA	66%
PORTUGAL	SPV	51%
ITALY	CONAI	42%

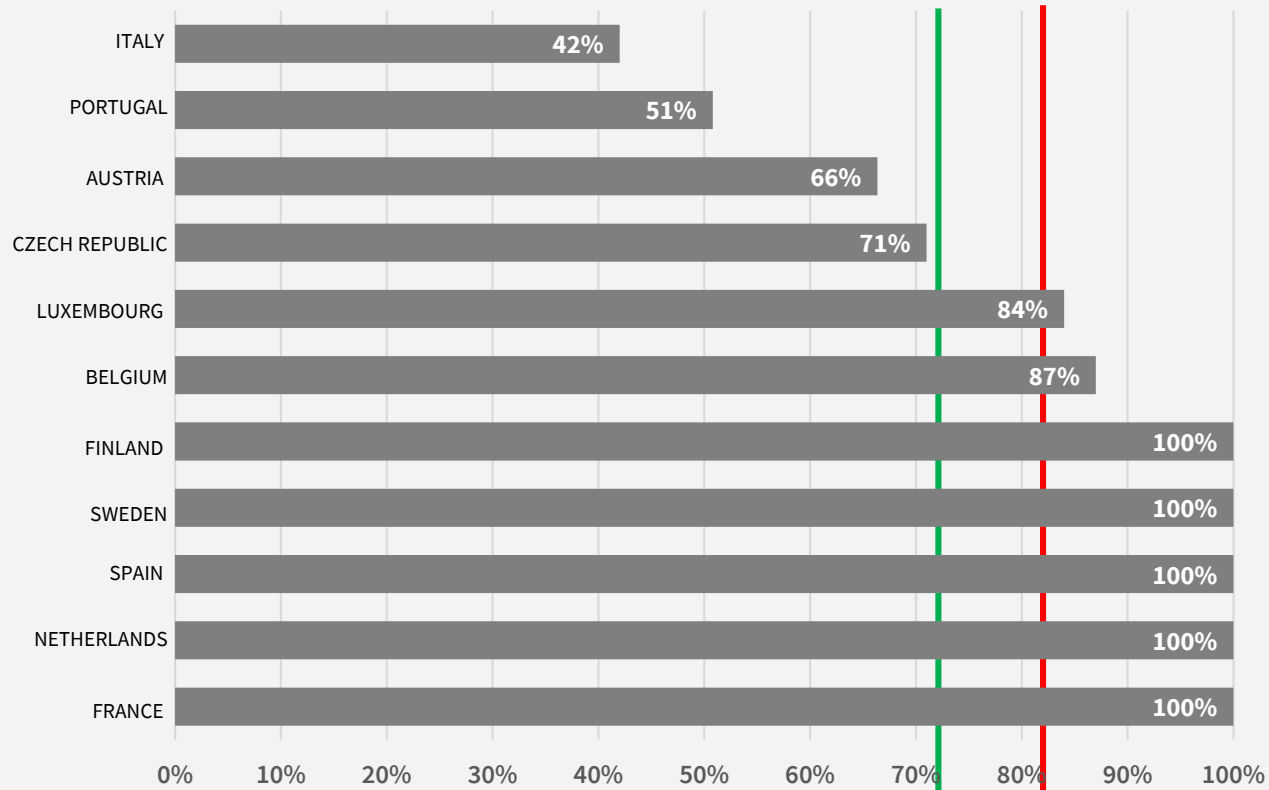
STANDARD AVERAGE **82%**

MARKET SHARE	QUANTITIES HANDLED (MT)	TOTAL POPULATION	POPULATION SERVED BY THE PRO	COUNTRY SHARE OF WEIGHTED AVERAGE
39%	5,10	65.273.511	25.456.669	20,7%
99%	3,12	17.282.163	17.109.341	13,9%
36%	2,74	46.937.060	16.897.341	13,8%
76%	1,27	10.230.185	7.774.940	6,3%
100%	0,04	5.517.919	5.517.919	4,5%
91%	1,42	11.455.519	10.424.522	7,4%
58%	0,07	613.894	356.059	0,2%
92%	0,84	10.649.800	9.691.318	5,6%
76%	0,71	8.858.775	6.732.669	3,6%
86%	0,33	10.276.617	8.837.891	3,7%
99%	5,28	59.816.673	59.218.506	20,2%

AVERAGE WEIGHTED BY COUNTRY POPULATION **73%**

PERFORMANCES

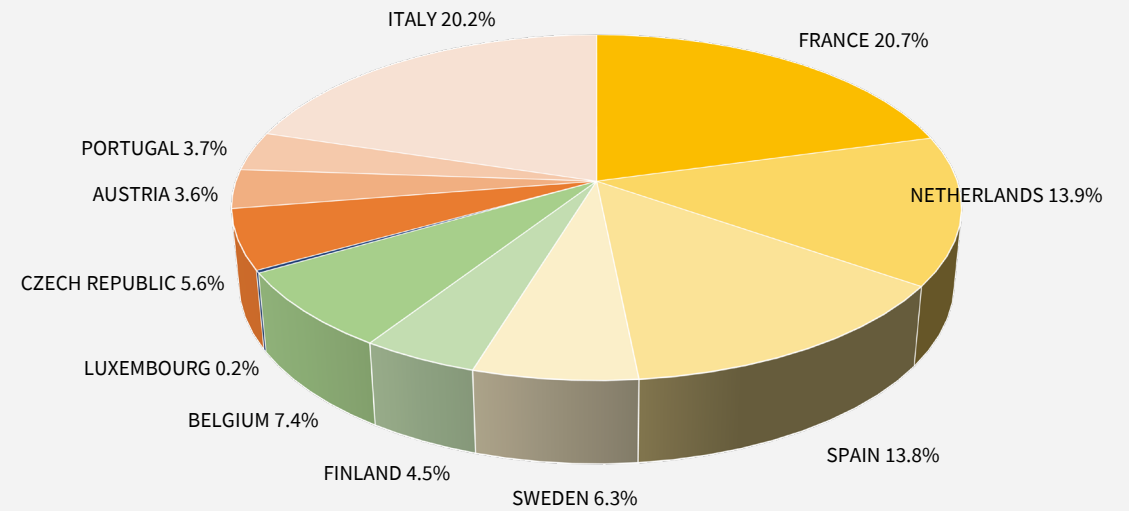
Operational Responsibility Integrated PROs



AVERAGE WEIGHTED BY COUNTRY POPULATION **73%**

STANDARD AVERAGE **82%**

COUNTRY SHARE OF WEIGHTED AVERAGE



Operational Responsibility Multiple PROs

COUNTRIES	OPERATIONAL RESPONSIBILITY	
GERMANY	GRUNE PUNKT	100%
ESTONIA	ETO	100%
POLAND	INTERSEROH	100%
BULGARIA	ECOPACK	61%
ROMANIA	ECO-ROM	61%
SLOVENIA	SLOPAK	48%

STANDARD AVERAGE **78%**

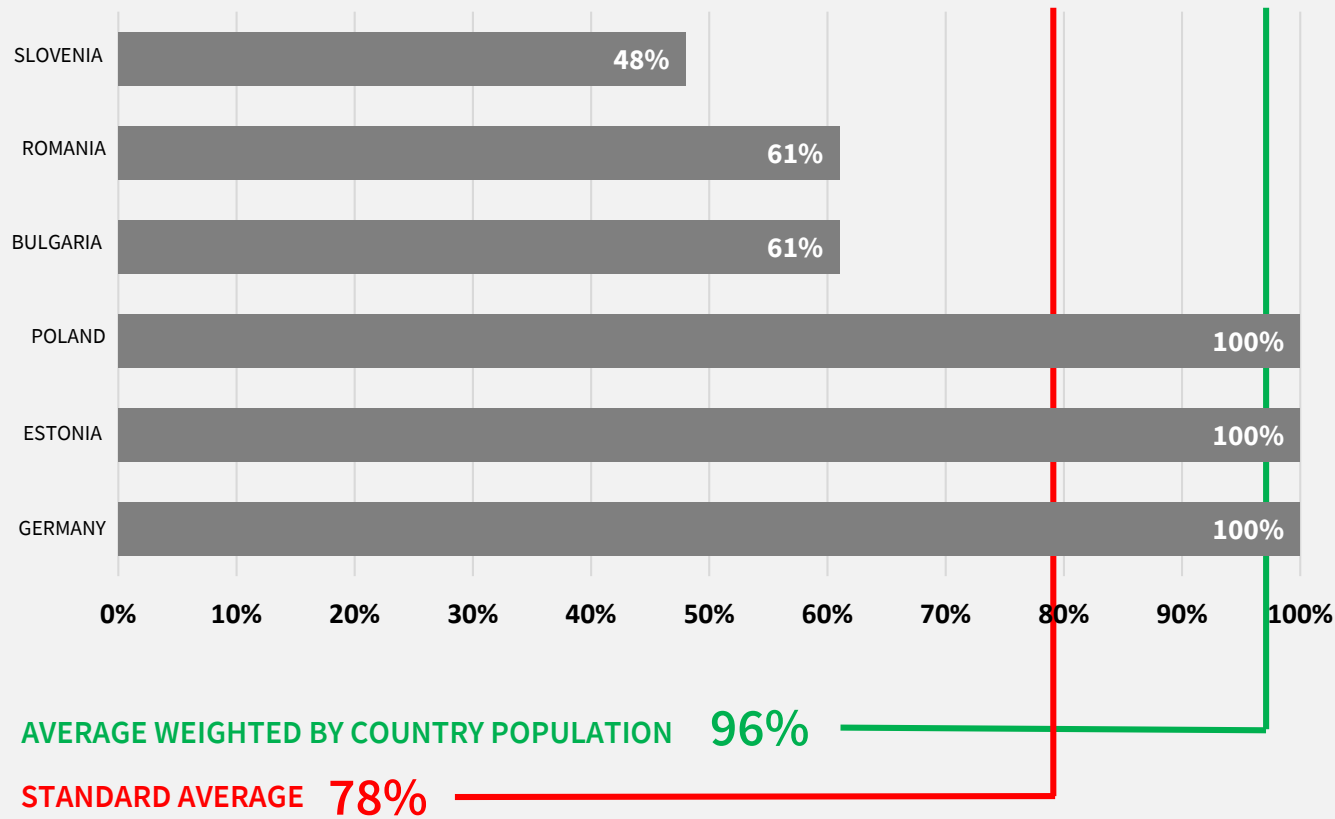
MARKET SHARE	QUANTITIES HANDLED (MT)	TOTAL POPULATION	POPULATION SERVED BY THE PRO	COUNTRY SHARE OF WEIGHTED AVERAGE
28%	5,28	83.019.213	23.245.380	65,8%
21%	0,04	1.324.820	278.212	0,8%
26%	1,41	37.972.812	9.872.931	28,0%
33%	0,10	7.000.039	2.310.013	4,0%
3%	0,03	19.414.458	582.434	1,0%
15%	0,02	2.080.908	312.136	0,4%

AVERAGE WEIGHTED BY COUNTRY POPULATION **96%**

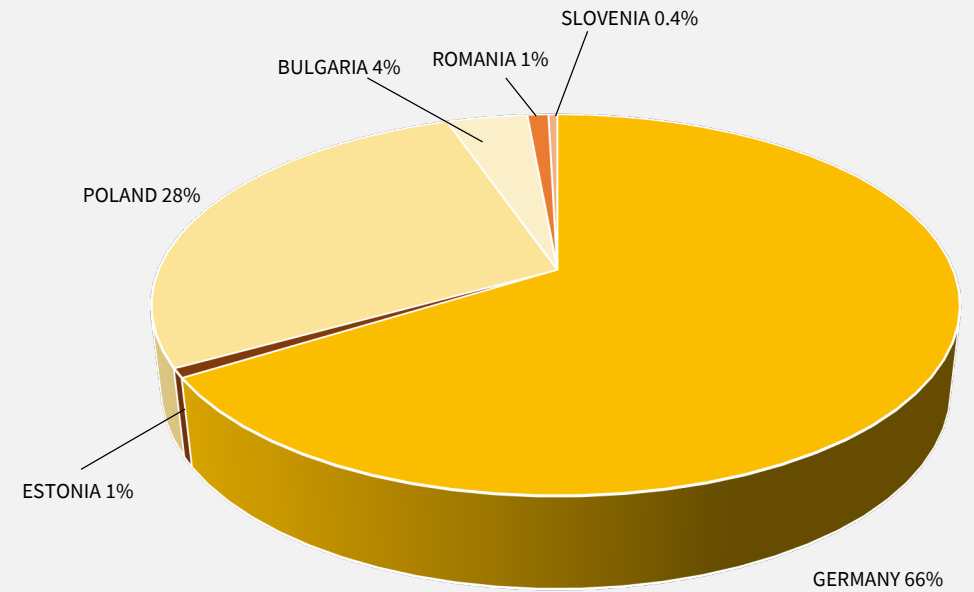
PLEASE NOTE: the United Kingdom is not included in this list because it only stipulates financial responsibility for recycling, not operational responsibility.

PERFORMANCES

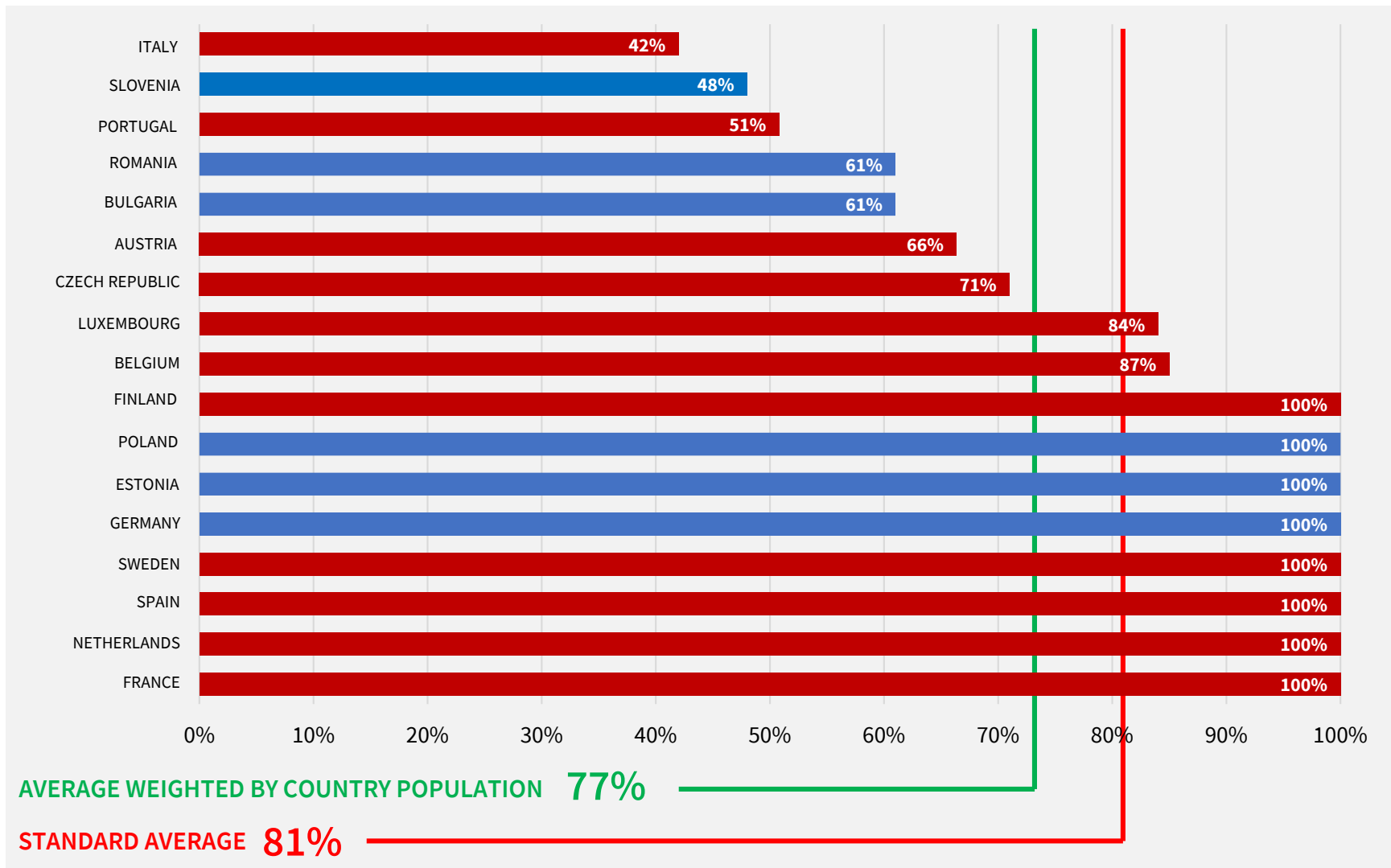
Operational Responsibility Multiple PROs



COUNTRY SHARE OF WEIGHTED AVERAGE



Operational Responsibility Integrated vs. Multiple PROs



■ PRO INTEGRATE
 ■ PRO MULTIPLE

The INTEGRATE PROs are the ones who present better operational performance: 82% against 78%

RECYCLING / Operational Responsibility ratio

Recycling / Operational Responsibility ratio was assessed with the data provided by the Main PROs.

It should be noted that, when talking about “recycled” quantities, some PROs are referring to quantities sent to recovery (*without distinctions for energy recovery*) while others refer more specifically to materials actually being recycled.

For the purposes of this study, the quantities officially reported as recycled by the Main PROs are considered as such.

The following slides present Cluster comparison data for recycling based on operational responsibility.



The INTEGRATED PRO Cluster shows slightly higher percentages (approximately 0.1%)

RECYCLING / Operational Responsibility ratio - Integrated PROs

COUNTRIES		RECYCLING PERFORMANCE / FINANCIAL RESP.	RECYCLING PERFORMANCE / OPERATIONAL RESP.
FINLAND	RINKI	74%	100%
BELGIUM	FOST PLUS + VALIPAC	81%	93%
PORTUGAL	SPV	47%	93%
AUSTRIA	ARA	59%	90%
LUXEMBOURG	VALORLUX	73%	87%
ITALY	CONAI	66%	82%
SPAIN	ECOEM + ECOVIDRIO	82%	82%
NETHERLANDS	AFVALFONDS (SAV)	79%	79%
CZECH REPUBLIC	EKO-KOM	50%	71%
FRANCE	CITEO + ADELPHE	70%	70%
SWEDEN	FTI	85%	70%

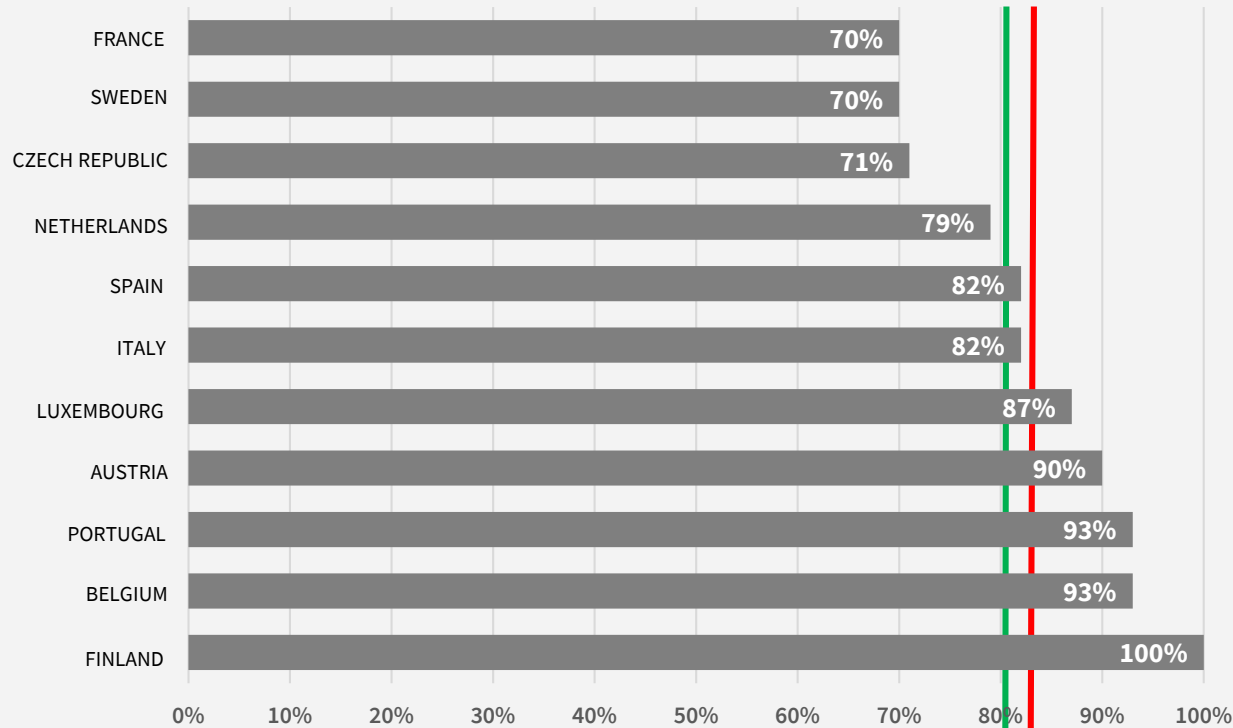
STANDARD AVERAGE **83.4%**

MARKET SHARE	QUANTITIES HANDLED (MT)	TOTAL POPULATION	POPULATION SERVED BY THE PRO	COUNTRY SHARE OF WEIGHTED AVERAGE
100%	0,52	5.517.919	5.517.919	4,1%
91%	1,32	11.455.519	10.424.522	7,1%
86%	0,31	10.276.617	8.837.891	6,0%
76%	0,64	8.858.775	6.732.669	4,5%
58%	0,06	613.894	356.059	0,2%
99%	8,39	59.816.673	59.218.506	35,7%
36%	2,26	46.937.060	16.897.342	10,2%
99%	2,48	17.282.163	17.109.341	9,9%
91%	0,60	10.649.800	9.691.318	5,1%
39%	3,55	65.273.511	25.456.669	13,1%
76%	0,88	10.230.185	7.774.940	4,0%

AVERAGE WEIGHTED BY COUNTRY POPULATION **80.9%**

PERFORMANCES

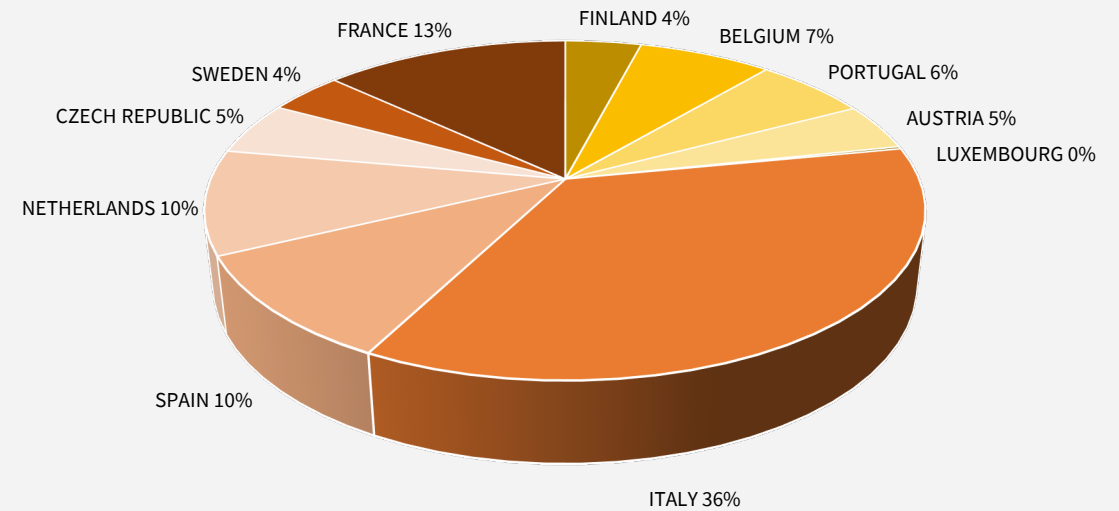
RECYCLING / Operational Responsibility ratio - Integrated PROs



AVERAGE WEIGHTED BY COUNTRY POPULATION **80,9%**

STANDARD AVERAGE **83,4%**

COUNTRY SHARE OF WEIGHTED AVERAGE



RECYCLING / Operational Responsibility ratio - Multiple PROs

		RECYCLING PERFORMANCE / FINANCIAL RESP.	RECYCLING PERFORMANCE / OPERATIONAL RESP.
BULGARIA	ECOPACK	61%	100%
SLOVENIA	SLOPAK	45%	96%
GERMANY	GRUNE PUNKT	92%	92%
ROMANIA	ECO-ROM	55%	91%
ESTONIA	ETO	64%	64%
POLAND	INTERSEROH	57%	57%

STANDARD AVERAGE 83,3%

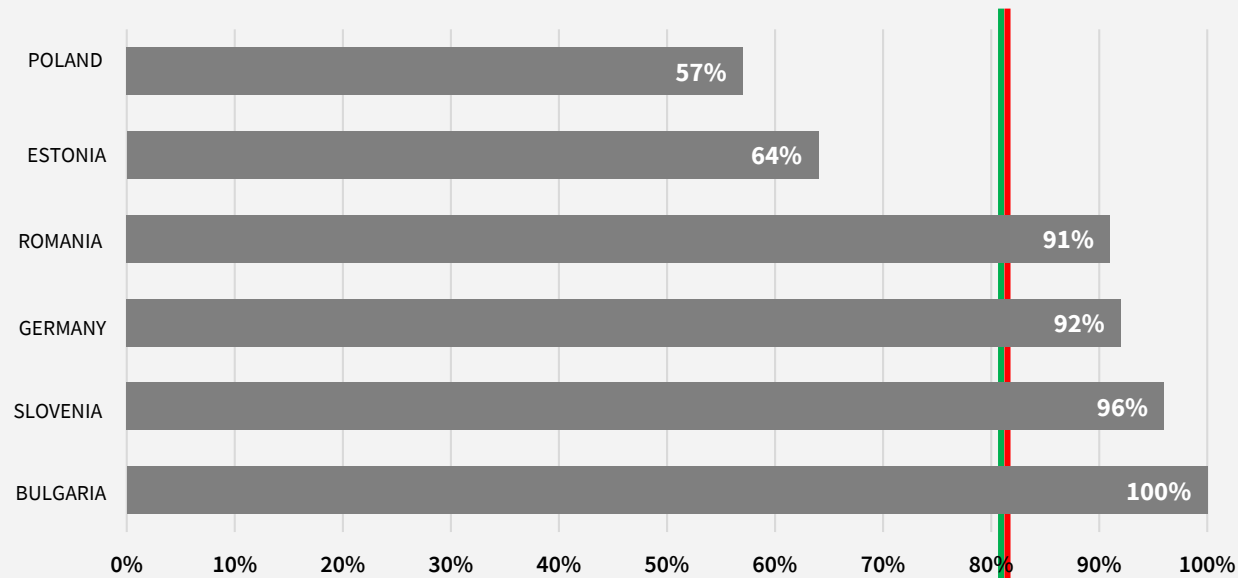
MARKET SHARE	QUANTITIES HANDLED (MT)	TOTAL POPULATION	POPULATION SERVED BY THE PRO	COUNTRY SHARE OF WEIGHTED AVERAGE
33%	0,10	7.000.039	2.310.013	7,6%
15%	0,02	2.080.908	312.136	1,0%
28%	4,85	83.019.213	23.245.380	70,5%
3%	0,02	19.414.458	582.434	1,7%
21%	0,03	1.324.820	278.212	0,6%
26%	0,80	37.972.812	9.872.931	18,6%

AVERAGE WEIGHTED BY COUNTRY POPULATION 82.9%

PLEASE NOTE: the United Kingdom is not included in this list because it only stipulates financial responsibility for recycling, not operational responsibility.

PERFORMANCES

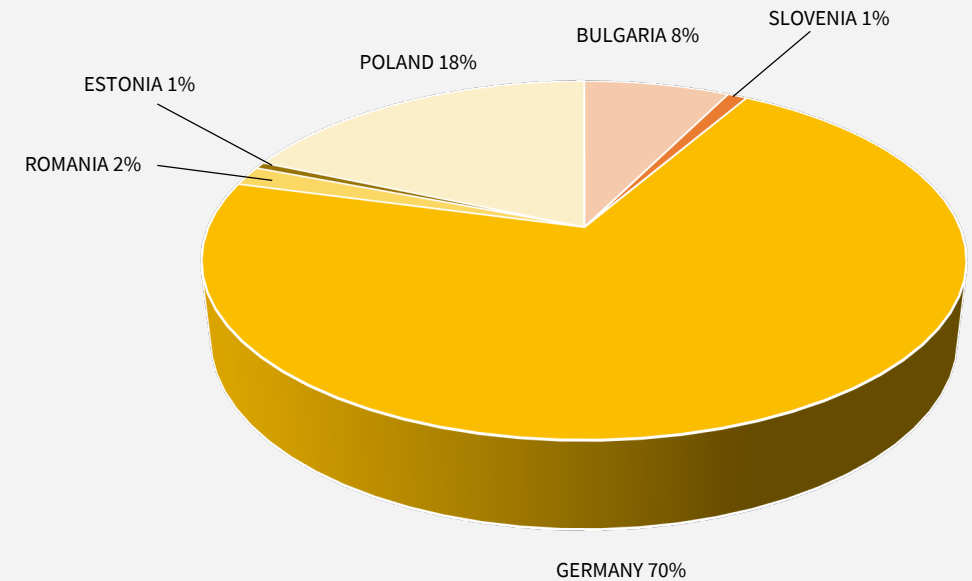
RECYCLING / Operational Responsibility ratio - Multiple PROs



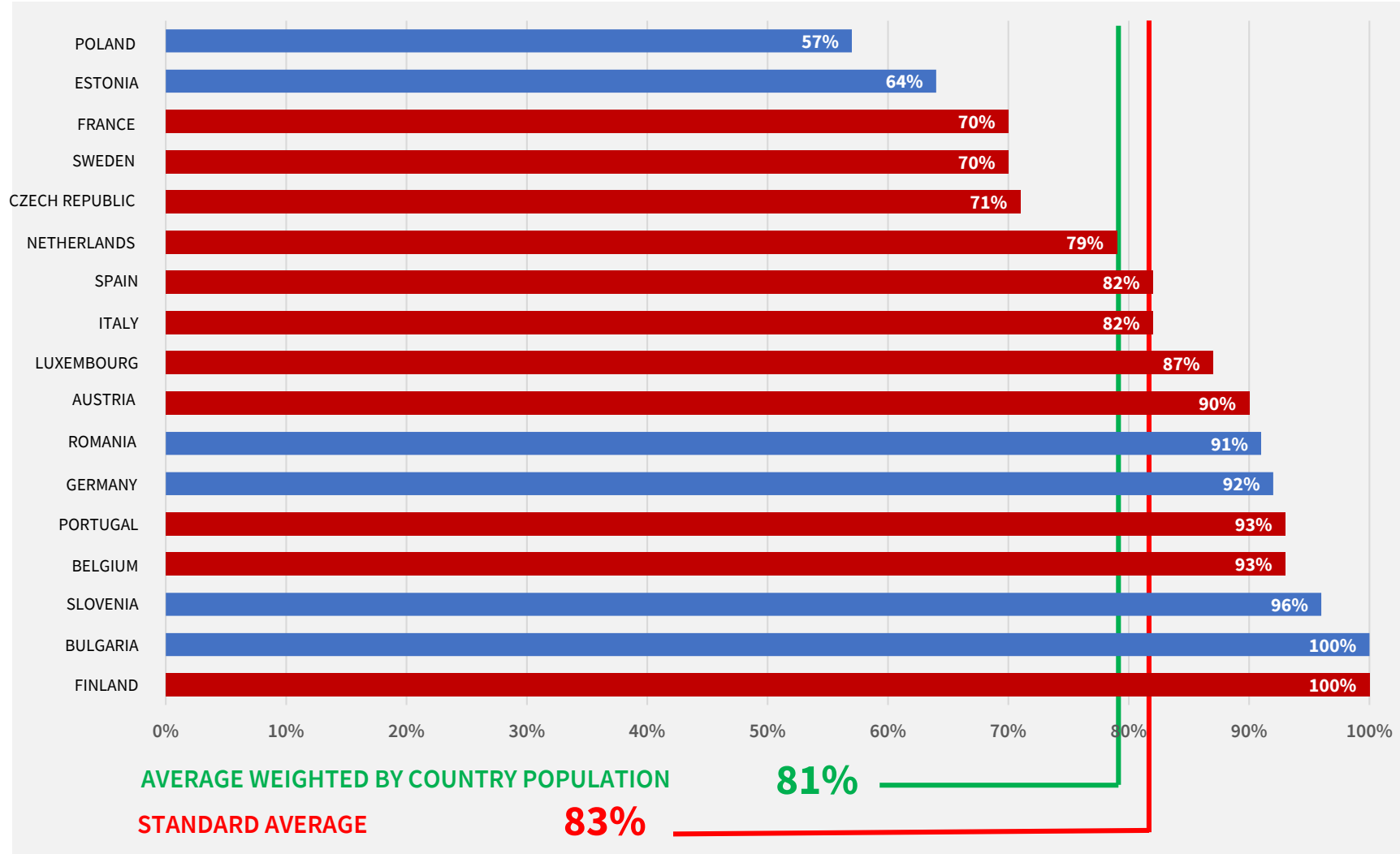
AVERAGE WEIGHTED BY COUNTRY POPULATION **82,9%**

STANDARD AVERAGE **83,3%**

COUNTRY SHARE OF WEIGHTED AVERAGE



RECYCLING Integrated versus Multiple PROs



■ PRO INTEGRATE
■ PRO MULTIPLE

INTEGRATED PROs show slightly higher performance in recycling/ operational responsibility: 83.4% to 83.3%.

The Composite Fee 2021

To build the cost indicator, **4 fees of prototypical packages** were calculated (*following data provided by each Main PRO*) and **summed up as a single voice of cost**, the Composite Fee 2021. The selected packages are:

- **Transparent PET bottle; 1.5 litres, 40g, 2g plastic cap.**
- **Aluminium can; 33cl, 16g.**
- **Cardboard box; 13.3 x 25.5 x 9cm, 222g.**
- **Transparent glass water bottle; 75cl, 480g, 0.60g screw-on aluminium cap.**

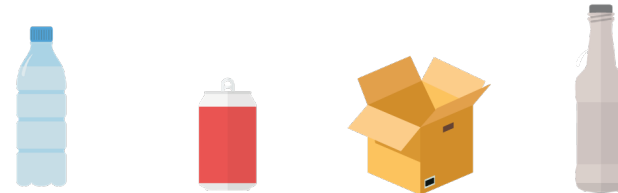
The following slides show the Composite Fees 2021, separately for the two Clusters.



The MULTIPLE PRO Cluster exhibits a slightly lower average Composite Fee (approximately 14 cents).

The Composite Fee 2021

This table shows the Composite Fees in all of the 18 countries, highlighting a ranking among them.



	MAIN PRO	FEE (€)	FEE (€)	FEE (€)	FEE (€)	4 -FEE SUM
SLOVENIA	SLOPAK	0.79	0.28	0.377	0.92	2.37
UNITED KINGDOM	VALPAK	1.03	0.39	0.26	0.95	2.63
ITALY	CONAI	0.94	0.02	1.22	1.77	3.95
LUXEMBOURG	VALORLUX	1.39	0.08	1.74	0.92	4.13
PORTUGAL	SPV	1.05	0.1	2.98	1.01	5.14
SPAIN	ECOEMBES	2.04	0.16	1.82	1.64	5.66
BELGIUM	FOST PLUS	0.87	0.07	2.63	2.39	5.96
NETHERLANDS	AFVALFONDS (SAV)	2.81*	0.17	0.48	2.69	6.15
FRANCE	CITEO	1.51	0.24	3.68	0.87	6.30
BULGARIA	ECOPACK	0.37	0.07	1.81	4.53	6.78
FINLAND	RINKI	0.98*	0.2*	1.62	4.71*	7.51
ROMANIA	ECO-ROM	0.61*	0.23	1.83	4.84*	7.51
CZECH REPUBLIC	EKO-COM	0.71	0.23	3.12	4.93	8.99
ESTONIA	ETO	1.71*	0.41*	2.33	4.91*	9.36
AUSTRIA	ARA	2.91	0.49	2.66	4.19	10.25
GERMANY	GRUNE PUNKT	3.47*	1.19*	4.12	3.35*	12.13
SWEDEN	FTI	2.31*	1.28*	4.97	3.64	12.20

**For countries where a Deposit Recycling System is active, the value of the fee was calculated with reference to packaging of equivalent in weight and materials.*

Aggregated Fee 2021 Integrate PROs

PRO INTEGRATE	Aggregated FEE
ITALY	3.95
LUXEMBOURG	4.13
PORTUGAL	5.14
SPAIN	5.66
BELGIUM	5.96
NETHERLANDS	6.15
FRANCE	6.30
FINLAND	7.51
CZECH REPUBLIC	8.99
AUSTRIA	10.25
SWEDEN	12.20

AVERAGE VALUE **6.93**

The indicator presents great variability.
The ratio between the highest value (Sweden) and the lowest (Italy) is about 3

AVERAGE VALUE: 6.93

The premium score has been assigned to the top 4 ranking countries.

Aggregated Fee 2021 Multiple PROs

Multiple PROs	Aggregated FEE
SLOVENIA	2.37
UNITED KINGDOM	2.63
BULGARIA	6.78
ROMANIA	7.51
ESTONIA	9.36
GERMANY	12.13
POLAND	-

AVERAGE VALUE **6.79**

In this case, the indicator shows even greater variability.

There is a ratio of approximately 5 between the highest price (Germany) and the lowest (Slovenia).

AVERAGE VALUE: **6.79**

The Premium score has been assigned to the top 4 ranking countries.

AN EXAMPLE

Fee composition and comparison between Germany and Italy

	GERMANY		ITALY	
	DSD (2021)		CONAI (2021)	
	Per packaging material (Euro/Tonne)			
STEEL	667,00		18,00	
ALUMINIUM	746,00		15,00	
PAPER	186,00		55,00	(fee valid to 30/06/2021)
Plastic-coated paper			75,00	Included in Paper (fee valid to 30/06/2021)
Containers for liquids	746,00		75,00	Included in Paper (fee valid to 30/06/2021)
WOOD			9,00	
BIODEGRADABLE PLASTIC			294,00	From 1st July 2021
GLASS	69,00		37,00	
OTHER MATERIALS	110,00			
OTHER COMPOSITE MATERIALS	886,00			
	Diversified Fees / Contributions for Plastics			
PLASTICS	828,00	SINGLE TARIFF	208,00	Band B1: effective recycling (domestic)
			150,00	Band A: effective recycling (industrial and commercial)
			560,00	Band B2: recycling in development
			660,00	Band C: experimental recycling
Aggregate Fee:		Aggregate Fee		
12.13 euro		3.95 euro		

Per For both main PROs, the **fee is calculated based on packaging material and weight.**

Both subdivide the fees for paper but **only CONAI has a diversified fee for plastics.**

DSD offers an online “**Lincense Calculator**” to work out the real contribution, which is not published but can be discussed through private negotiations.

CONAI’s fees are established after proposals by the Materials PROs and fixed with the Ministry for the Ecological Transition, based on Italy’s environmental legislation (*Testo Unico Ambientale*).

The aggregate fee in Germany is approximately three times higher than in Italy.

PART FOUR
CONCLUSIONS



Final Considerations

The study ends with an overall assessment of the parameters considered - both qualitative and performance - in order to highlight:

- **which of the two identified clusters represents the most sustainable and circular management model;**
- **which countries, within the most sustainable cluster, are interpreters of particularly significant best practices with respect to the national context.**

Clusters evaluation

Clusters represent the collective expression, at European level, of the models considered; therefore the evaluation indicated here should be understood as **the evaluation of models**.

Adding all the parameters considered, the study shows that **the Integrated PRO Cluster constitutes the most sustainable and circular model**. The one that expresses the best operational configurations, able to successfully reconcile public interest and private initiative.

Evaluation of Cluster

The following diagram, in fact, shows that the PRO INTEGRATE Cluster shows better operational configurations in six out of seven parameters.

Cluster Performances – Indicative scores

		Cluster PRO INTEGRATE	Cluster PRO MULTIPLE
QUALITATIVE FEATURES	PRO Features (Non-Profit)	●	
	Centralised structure	●	
	Strong relationships with Local Authorities (for collection)	●	
	High level of Prevention Activities	●	
QUANTITATIVE FEATURES	Higher share of Operational Responsibility	● 82%	78%
	Higher share of Recycling (relative to operational resp.)	● 83.4%	83.3%
	More favorable Aggregate Fee Indicator	6.93 €	● 6.79 €

Evaluation of Main PROs

By analyzing the characteristics of the individual Main PROs, it is also possible to **highlight the collective systems that are interpreters of best practices** within the INTEGRATE PRO Cluster.

This is a **purely indicative evaluation**, as it is not possible to make mechanical comparisons or apply scores to national realities with such different socio-economic characteristics.

The diagram below shows the **best practices of the Main PROs** in relation to the seven characteristics considered (4 qualitative + 3 quantitative), highlighting the countries that recur in the top seven positions.

Evaluation of Main PROs (cont.)

PRO FEATURE (NON-PROFIT)	CENTRALISED STRUCTURE	STRONG RELATIONSHIP WITH L.A.	HIGH LEVEL OF PREVENTION ACTIVITIES	OPERATIONAL RESP.	RECYCLING/ OPERATIONAL RESP.	AGGREGATE FEE
FRANCE	FINLAND	FRANCE	SWEDEN	FRANCE	FINLAND	ITALY
ITALY	ITALY	ITALY	ITALY	NETHERLANDS	BELGIUM	LUXEMBOURG
SPAIN	NETHERLANDS	SPAIN	FRANCE	SPAIN	PORTUGAL	PORTUGAL
NETHERLANDS	CZECH REPUBLIC	NETHERLANDS	SPAIN	SWEDEN	AUSTRIA	SPAIN
BELGIUM	PORTUGAL	CZECH REPUBLIC	BELGIUM	FINLAND	LUXEMBOURG	BELGIUM
CZECH REPUBLIC	SWEDEN	BELGIUM	AUSTRIA	BELGIUM	ITALY	NETHERLANDS
PORTUGAL	FRANCE	FINLAND	NETHERLANDS	LUXEMBOURG	SPAIN	FRANCE
SWEDEN	SPAIN	LUXEMBOURG	CZECH REPUBLIC	CZECH REPUBLIC	NETHERLANDS	FINLAND
AUSTRIA	AUSTRIA	PORTUGAL	FINLAND	AUSTRIA	CZECH REPUBLIC	CZECH REPUBLIC
FINLAND	LUXEMBOURG	AUSTRIA	PORTUGAL	PORTUGAL	FRANCE	AUSTRIA
LUXEMBOURG	BELGIUM	SWEDEN	LUXEMBOURG	ITALY	SWEDEN	SWEDEN

Evaluation of Main PROs (cont.)

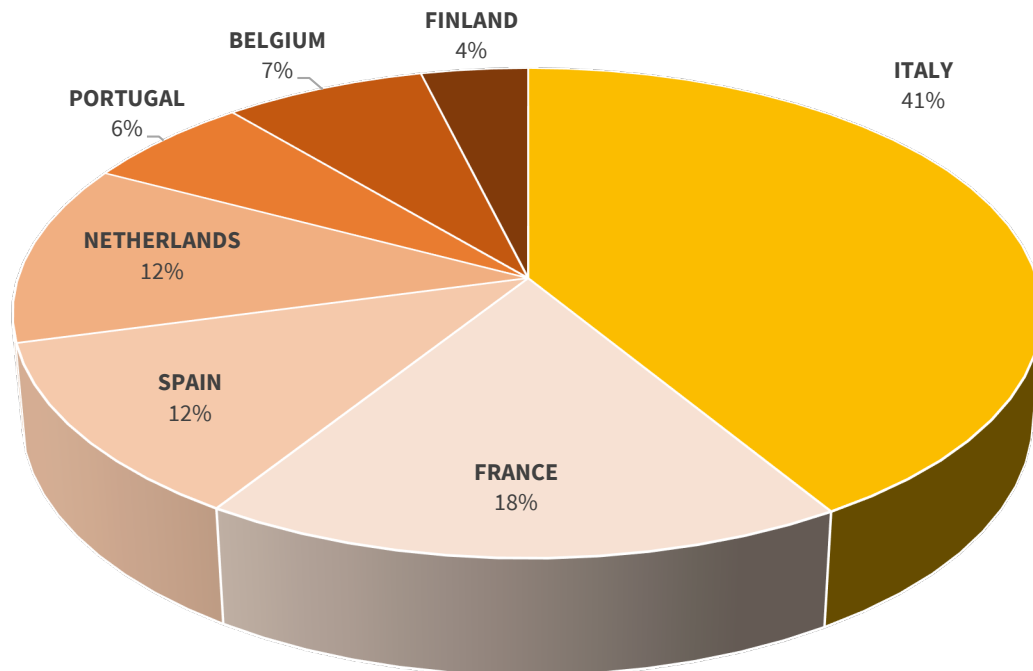
Evaluating the recurrences of the countries that are interpreters of **best practices** in the first 7 positions, the following countries are highlighted:

Italy, Spain, Netherlands, France, Belgium, Finland, Portugal

Evaluation of Main PROs (cont.)

Therefore, the seven Main PROs that show the best practices as EPR reference Models are the following:

ITALY	SPAIN	NETHERLANDS	FRANCE	BELGIUM	FINLAND	PORTUGAL
CONAI	ECOEMBES + ECOVIDRIO	AFVALFONDS (SAV)	CITEO + ADELPHÉ	FOST PLUS + VALIPAC	RINKI	SPV



Country	PRO	Population served	%
ITALY	CONAI	59.218.506	41%
SPAIN	ECOEM + ECOV.	16.897.342	12%
NETHERLANDS	AFVAFONDS (SAV)	17.109.341	12%
FRANCE	CITEO + ADELPHÉ	25.456.669	18%
BELGIUM	FOST PLUS + VALIPAC	10.424.522	7%
FINLAND	RINKI	5.517.919	4%
PORTUGAL	SPV	8.837.891	6%

CONCLUSIONS
Final Considerations

Main Parameters: Overall Summary Chart

COUNTRIES	Socio-economic features and size		Main PRO Name	Main PRO		Main PRO Centrality / Independence	Relationships with Loc. Auth.	Amount generated per country (MT)	Amount generated per Main PRO (MT)	Amount handled by Main PRO (MT)	Amount recycled by Main PRO (MT)	Market Share Main PRO	Relative Operational Resp.	Recycling relative to Financial Resp.	Recycling relative to Operational Resp.	Prevention & Modulation	Composite Fee
	Area (km ²)	Population		Main PRO	Non-Profit												
AUSTRIA	83,879	8,858,775	ARA	YES	YES	YES	LOW	1.41	1.08	0.71	0.64	76.19%	66.07%	59.46%	90.00%	HIGH	10.25
BELGIUM	30,528	11,455,519	FOST PLUS	YES	NO	YES	MEDIUM	1.80	0.88	0.75	0.73	48.95%	85.13%	82.52%	96.93%	HIGH	5.96
BELGIUM (TOT)	30,528	11,455,519	FOST PLUS + VALIPAC					1.80	1.63	1.42	1.32	90.62%	86.82%	81.08%	93.39%		0
BULGARIA	111,002	7,000,039	ECOPACK	YES	YES	YES	LOW	0.50	0.17	0.10	0.10	33.44%	60.68%	60.68%	100.00%	MEDIUM	6.78
ESTONIA	45,227	1,324,820	ETO	YES	YES	NO	MEDIUM	0.21	0.04	0.04	0.03	21.29%	100.00%	63.73%	63.73%	LOW	9.36
FINLAND	338,435	5,517,919	RINKI	YES	YES	YES	LOW	0.71	0.71	0.04	0.52	100.00%	100.00%	73.66%	100.00%	MEDIUM	7.51
FRANCE	543,965	65,272,511	CITEO + ADELPHÉ	YES	NO	YES	HIGH	13.22	5.10	5.10	3.55	38.55%	100.00%	69.64%	69.64%	HIGH	6.3
GERMANY	357,123	83,019,213	DER GRUNE PUNKT	NO	NO	NO	LOW	18.86	5.28	5.28	4.85	28.00%	100.00%	91.90%	91.90%	MEDIUM	12.13
ITALY	302,073	59,816,673	CONAI	YES	YES	YES	HIGH	12.76	12.66	5.28	8.39	99.18%	41.74%	66.31%	82.45%	HIGH	3.95
LUXEMBOURG	2,586	613,894	VALORLUX	YES	YES	YES	MEDIUM	0.14	0.08	0.07	0.06	58.00%	83.94%	73.21%	87.21%	MEDIUM	4.13
NETHERLANDS	41,540	17,282,163	AFVALFONDS (SAV)	YES	YES	YES	HIGH	3.14	3.12	3.12	2.48	99.4%	100.00%	79.42%	79.42%	HIGH	6.15
POLAND	312,679	37,972,812	INTERSEROH	NO	YES	NO	LOW	5.47	1.41	1.41	0.80	25.7%	100.00%	56.87%	56.87%	MEDIUM	0
PORTUGAL	92,225	10,276,617	SPV	YES	YES	YES	MEDIUM	1.78	0.65	0.33	0.31	86.0%	50.80%	47.09%	92.70%	MEDIUM	5.14
UNITED KINGDOM	244,820	66,647,112	VALPAK	NO	YES	NO	--	11.84	11.84	8.08	7.35	-	68.23%	62.08%	90.98%	MEDIUM	2.63
CZECH REPUBLIC	78,867	10,649,800	EKO-KOM	YES	YES	YES	HIGH	1.30	1.19	0.84	0.60	91.53%	70.90%	50.34%	71.00%	MEDIUM	9.96
ROMANIA	238,390	19,414,458	ECO-ROM	YES	YES	NO	LOW	1.57	0.04	0.03	0.02	2.66%	60.66%	55.50%	91.49%	MEDIUM	7.51
SLOVENIA	20,273	2,080,908	SLOPAK	YES	YES	NO	MEDIUM	0.24	0.04	0.02	0.02	15.0%	47.62%	45.58%	95.72%	LOW	2.36
SPAIN	505,970	46,937,060	ECOEMBES	YES	NO	YES	HIGH	7.54	1.84	1.84	1.42	24.44%	100.00%	77.10%	77.10%	HIGH	5.66
SPAIN (TOT)	505,970	46,937,060	ECOEMBES + ECOVIDRIO					7.54	2.74	2.74	2.26	36.29%	100.00%	82.56%	82.56%		0
SWEDEN	438,574	10,230,185	FTI	YES	YES	YES	LOW	1.35	1.03	1.27	0.88	76.37%	100.00%	85.57%	69.83%	HIGH	12.2

RESEARCH CONTACTS

The complete research, with the documentation of the 18 individual countries, can be found on the site:
<https://www.conai.org/>

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