EXPERTISES

GLOBAL OVERVIEW OF INCENTIVE SCHEMES AIMING TO BRING ELVS (END-OF-LIFE VEHICLES) THROUGH AUTHORISED PROCESSING CHANNELS

FINAL REPORT

ADEME
Agence de l'Environnement et de la Maîtrise de l'Energie

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INTRODUCTION

Issues and objectives of the study

While there are approximately 1,700 authorised ELV centres in the legal processing channel in France, in 2014 the Ministry of the Environment estimated there were nearly 800 sites illegally processing end-of-life vehicles (ELVs) in the country. In report on extended producer responsibility (EPR) channels dating from March 2018, Jacques Vernier estimated that nearly one third of ELVs are sent to an unknown destination in Europe.

Illegal channels are still thriving, both in France and abroad, with undeniable environmental, economic and safety consequences. Given the limited effectiveness of control operations and communication and awareness campaigns, **some countries have put in place direct or indirect incentives to ensure ELVs are processed through a legal channel**. For the French system, two of the four proposals made by Jacques Vernier to fight against illegal ELV processing include incentives:

- Proposal No. 14: Creating a fund that will allow the payment of a scrapping premium when end-of-life vehicles enter the legal channel. This is financed by a contribution at the moment of purchase of a vehicle or by an additional tax, either on fuel, car registration documents or insurances;
- Proposal No. 15: Forbidding the termination of a car insurance without proof that the end-of-life vehicle has been sent to an authorised ELV centre[1].

In this context, Deloitte Développement Durable was commissioned to assess incentive schemes aimed at bringing ELVs through authorised processing channels at an international level. The aim of this study is therefore to identify and characterise incentive schemes specifically designed to promote the treatment of ELVs in authorised channels, and then to analyse the options and conditions to transpose some of these schemes in France.

Scope and methodology

The scope of the study includes financial incentive mechanisms dedicated to bringing ELVs towards authorised processing channels. These mechanisms can be:

- **Direct:** scrapping incentives, i.e. direct payment to the last owner to encourage the disposal of the ELV to an authorised processing centre;
- **Indirect:** other incentives indirectly encouraging the disposal of ELVs through legal channels, such as road taxes paid by motorists if no proof of the legal disposal of the vehicle was provided.

Measures that are not specifically dedicated to bringing ELVs through the legal processing channel, such as scrapping premiums (which aim to renew the vehicle fleet) or new ELV definitions (with multiple targets), are not included in the scope of this study.

The study consisted of two successive methodological phases:

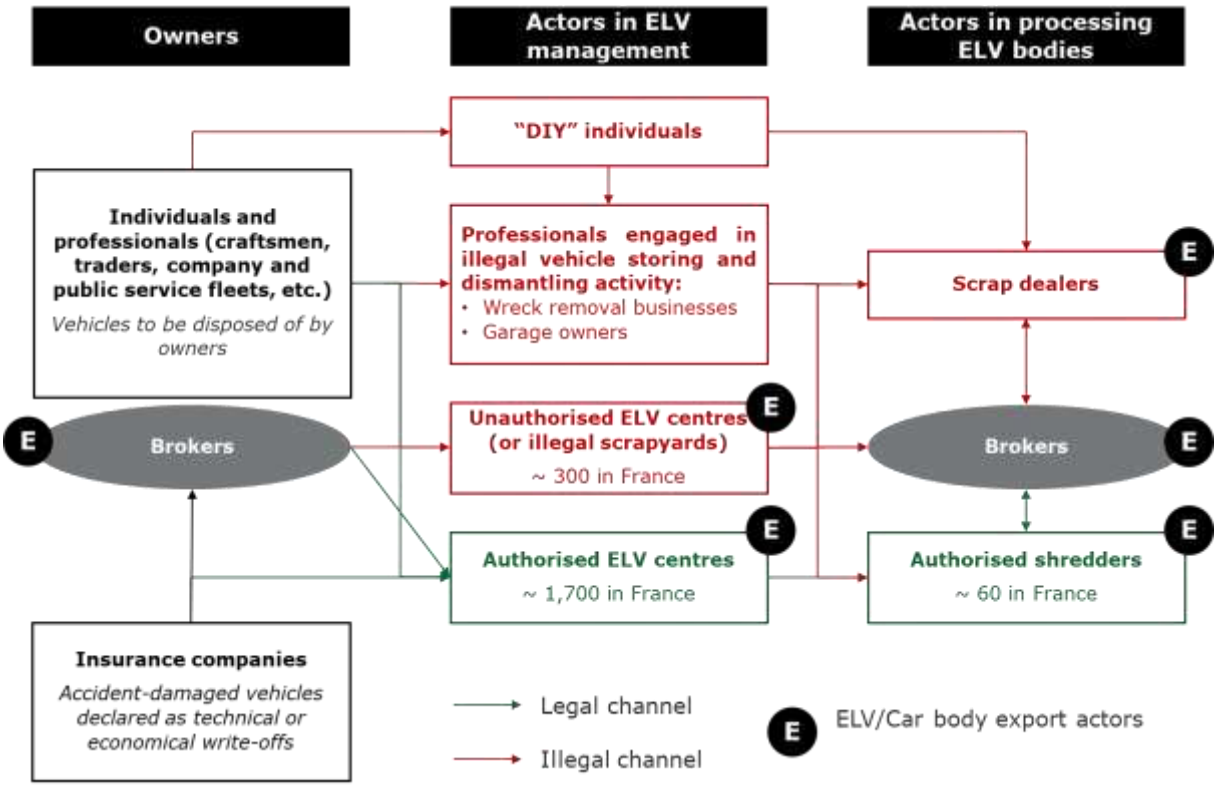
- **Phase 1 (June to October 2018)** understanding the French ELV sector, through interviews with the main French experts, followed by a simplified overview of incentive schemes at the global level. At the end of phase 1, four schemes were selected for further investigation in phase 2;

[1] *It should be noted that this proposal alone has a low incentive, as in France, a vehicle can be unregistered easily for free on a temporary basis. This practice should be made more complicated, so that the measure suggested by Jacques Vernier is more difficult to circumvent, and therefore becomes an actual incentive.*

- **Phase 2 (October 2018 to February 2019)** in-depth analysis of the incentive schemes selected at the end of Phase 1, including a study on how they could be transferred to the French context.

1 Summary of the functioning of legal and illegal channels in France

The diagram below, prepared based on interviews with various French experts on end-of-life vehicles, presents a mapping of the legal and illegal actors involved in the processing of ELVs in France.



Actors mentioned on this diagram include:

- **Brokers:** Legal entities that purchase vehicles (usually in batches) for resale to legal or illegal processing and export businesses. As their name suggests, brokers are not directly involved in the processing and export of vehicles, but act as intermediaries between dealers (insurance companies, ELV centres, scrap dealers) and buyers: they are purely traders. These actors, indicated in grey, are often characterised by opaque practices on the verge of legality.
- **"DIY" private individuals:** Private individuals who dismantle ELVs at home (a few vehicles per year) and resell spare parts in private sales or via digital platforms such as Leboncoin. This dismantling and resale activity is considered as a "hobby" for private individuals who wish to have an additional income.
- **Car body removal businesses:** Car body removal businesses obtain ELVs from private individuals through advertisements (small posters at traffic lights, phone numbers given on digital platforms, etc.). As their activity is not legally registered and does not comply with any environmental standards during the ELV decontamination stage, they are able to offer better purchase prices to owners than authorised ELV centres.

- **Garage owners:** Car repair professionals who take part in illegal dismantling activities (including the decontamination stage for which they are not licensed) and potential illegal parts resale.
- **Unauthorised ELV centres (or illegal scrapyards):** These ELV centres provide similar services to that of authorised ELV centres, they store and process ELVs, but they do not have the authorisations to do so and therefore do not comply with environmental standards for vehicle decontamination. These illegal scrapyards are generally well-known in their area.
- **Authorised ELV centre:** Authorised business required to decontaminate all the vehicles they receive. In France, these are the only legal points of entry in the ELV management system.
- **Scrap dealers:** Scrap dealers are businesses which are not considered as authorised ELV centres and that illegally collect scrap metal and car bodies from private individuals and professionals. Scrap dealers manage other waste in addition to ELVs, as long as the waste contains ferrous or non-ferrous metals that are generally exported or sold to shredders.
- **Shredders:** Businesses which are authorised by the prefecture and that collect, store and shred vehicles that have been previously decontaminated and dismantled by an ELV centre (any operation that separates at least ferrous metal from other matter using ELV fragmentation or sorting equipment is considered as a shredding operation).

2 International panorama of schemes to fight against illegal processing channels

Over thirty international experts from 20 countries were interviewed to identify measures and incentives to fight against illegal ELV processing channels found worldwide. The aim of this exercise was to achieve a comprehensive identification of schemes by checking every geographical area. However, a quarter of the countries identified as possibly concerned by an incentive scheme were not correctly characterised due to the lack of feedback from the experts contacted.

The table below summarises all coercive (and not incentive) measures collected during interviews between the project team and international experts.

Table 1: Non-incentive measures aimed at fighting against illegal ELV processing and export channels

Geographical area	Country	Measure against illegal channels
Europe	Austria	**Possibility of seizing the waste illegally collected and transported** Customs, the police, the Ministry of the Environment and Tourism and the competent local authority (*Bezirksverwaltungsbehörde*) are allowed, by Austrian law, to temporarily seize the waste, while awaiting a decision by the local competent authority on the legality of the waste collection or transport (import/export). If the waste (ELV in this case) does not comply with current laws, the *Bezirksverwaltungsbehörde* may declare a permanent seizure and request its processing in legal ELV centres. **Decree to help distinguish a second-hand vehicle from an ELV** In 2015, the Ministry of the Environment issued a decree to help precisely identify ELVs and distinguish them from second-hand vehicles[2]. For example, in Austria, any vehicle whose cost of repair is estimated greater than its residual value is considered as an ELV. The decree also specifies the obligations of operators in the ELV collection and processing channel.
Europe	Belgium	**Computerised ELV tracking system** FEBEL Auto has developed the "EMS" IT system which allows ELV centres to: • Issue certificates of destruction; • Automatically transfer this data to the Belgian Car Registration Authority to write off the vehicle chassis numbers for processed ELVs. • Ensure the tracking of all the data related to ELV processing
Europe	Italy	**Controlling exported vehicles** In Italy, a second-hand vehicle can no longer be exported if its roadworthiness test is not up-to-date. If a vehicle fails this test,

[2] This is similar to the circular drafted in France by the Ministère de la Transition Écologique et Solidaire (French Ministry of Ecological and Sustainable Transition - https://www.ecologique-solidaire.gouv.fr/sites/default/files/BPGD-16-135%20Note%20nomenclature%20du%2025%20avril%202017_final.pdf), except that this circular has no legal value, unlike the decree published in Austria.

Geographical area	Country	Measure against illegal channels
		it can be exported as an ELV but not as a second-hand car.
Europe	Norway	**Support to processing operators (ELV centres)** Since 2009, in Norway, vehicle importers guarantee, as part of the EPR, a payment to ELV centres if the price of metal goes below a minimum threshold. On the other hand, if the price goes beyond a maximum threshold, ELV centres and importers share the profits from the sale of metal. Thanks to this practice, operators of ELV centres are guaranteed to obtain an acceptable profitability.
Europe	The Netherlands	**Support to processing operators (ELV centres) - 1995 to 2012** Until 2012, there was a system in place in The Netherlands where, upon registering a car, the owner had to pay 45 euros to the Automotive Recycling Netherlands (ARN). This organisation set specific targets for ELV centres: xx% of rubber to be recovered from a car, yy% of plastic from bumpers, zz% of glass, etc. This led to a total recovery of 93.5% in The Netherlands. If an ELV centre achieved the dismantling targets, the centre received 75 euros per vehicle from the ARN. The difference between 45 and 75 euros is due to the volume of exports to The Netherlands, considering that half of the vehicles sold in The Netherlands are processed in that country. **Support to processing operators (shredders) - since 2012** In 2012, the ARN decided to build a post-shredding sorting unit to separate the light fraction from shredder waste. This unit replaced "conventional" dismantling practices; nowadays, ELV centres are only required to decontaminate vehicles before sending to shredders. The ARN no longer subsidises ELV centres: the organisation still receives the money due from the first registration of cars (currently 38 euros), but this premium is used to support the post-shredding sorting unit which is not profitable at the moment.
Europe	Sweden	**Auction of economical or technical write-offs is prohibited** In Sweden, for the past 50 years, car producers have collaborated with insurance companies. Car producers include a three-year insurance policy in their sale price, which is subcontracted to insurance companies provided that they dispose of economic and technical write-offs in ELV centres only. In this case, auctions of write-offs is not possible. In return, ELV centres also provide insurance companies with spare parts that can be used to repair those vehicles that are still repairable.

Geographical area	Country	Measure against illegal channels
Europe	Switzerland	**Support to processing operators (shredders)** In Switzerland, the funding of a vehicle's end-of-life is based on the "polluter pays" principle. Founded in 1992, the aim of the non-profit Auto Recycling Foundation is to promote environmentally friendly disposal of motor vehicles registered in Switzerland, more specifically with the environmentally friendly processing of non-metallic waste from vehicles. As such, the foundation supports the recycling of shredder waste: when a vehicle is purchased, the foundation applies a tax for processing (called "regulatory contribution for subsequent disposal"), which is redistributed to shredders.
America	United States (California)	**Coordinated action to control illegal sites** In California, an intervention group made up of agents with different prerogatives (environment, taxation, etc.) was created to crack down on unauthorised institutions. To do so, the group identifies suspicious sites and carries out control operations to check whether the site complies with all regulations: accounting, work certificates, compliance with environmental requirements, etc. If the sites do not comply with all or sections of the regulations, agents may discover and shut down on illegal operators.
Asia	Japan	**Strict vehicle registration and tracking system** In Japan, a vehicle is registered in a digital system throughout its entire life, from being placed on the market to being disposed of. "Recycling tickets" are purchased by private individuals upon buying the vehicle, and are worth between 50 and 100 euros depending on the type of vehicle and the number of airbags. These tickets follow the vehicle until its end of life, and are managed by the Japan Automobile Recycling Centre (JARC). It should be noted that 110 million euros were initially invested in the management system for vehicles in use and at their end of life. **Support to processing operators (shredders)** Thanks to the recycling tickets, the JARC is able to subsidise processing operators provided that they recycle three components from the end-of-life vehicles: • Fluorinated gases (CFC/HFC/HCFC); • Airbags (two types); • Automotive shredder waste. According to official figures, this system is effective as the recovery of automotive shredder waste has reached 97% and 85% for airbag recovery. There are however no other requirements such as tracking requirements of other material such as metals, plastics, tyres, etc. which are naturally recycled by operators.

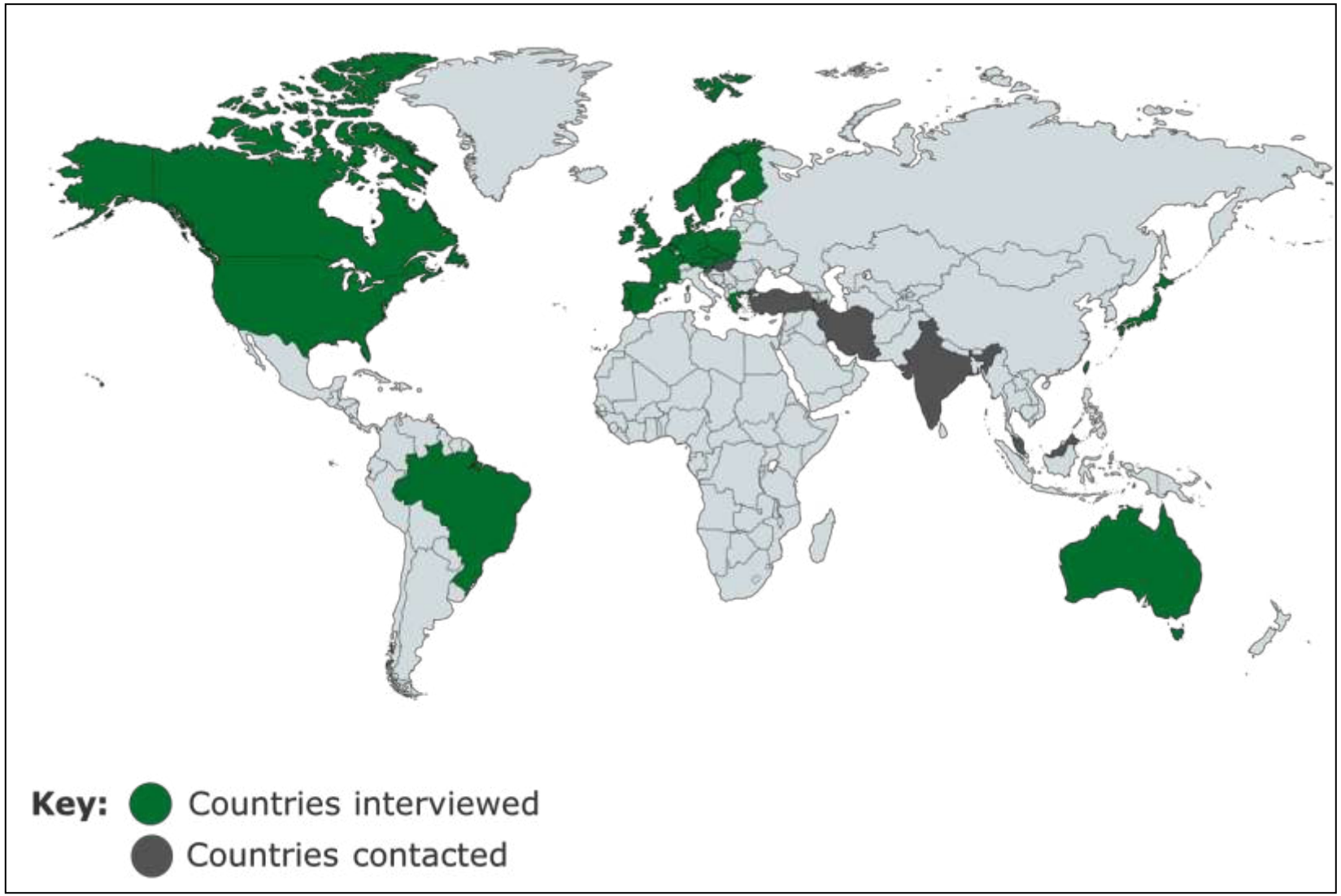


Figure 1: Map of countries interviewed vs. countries contacted

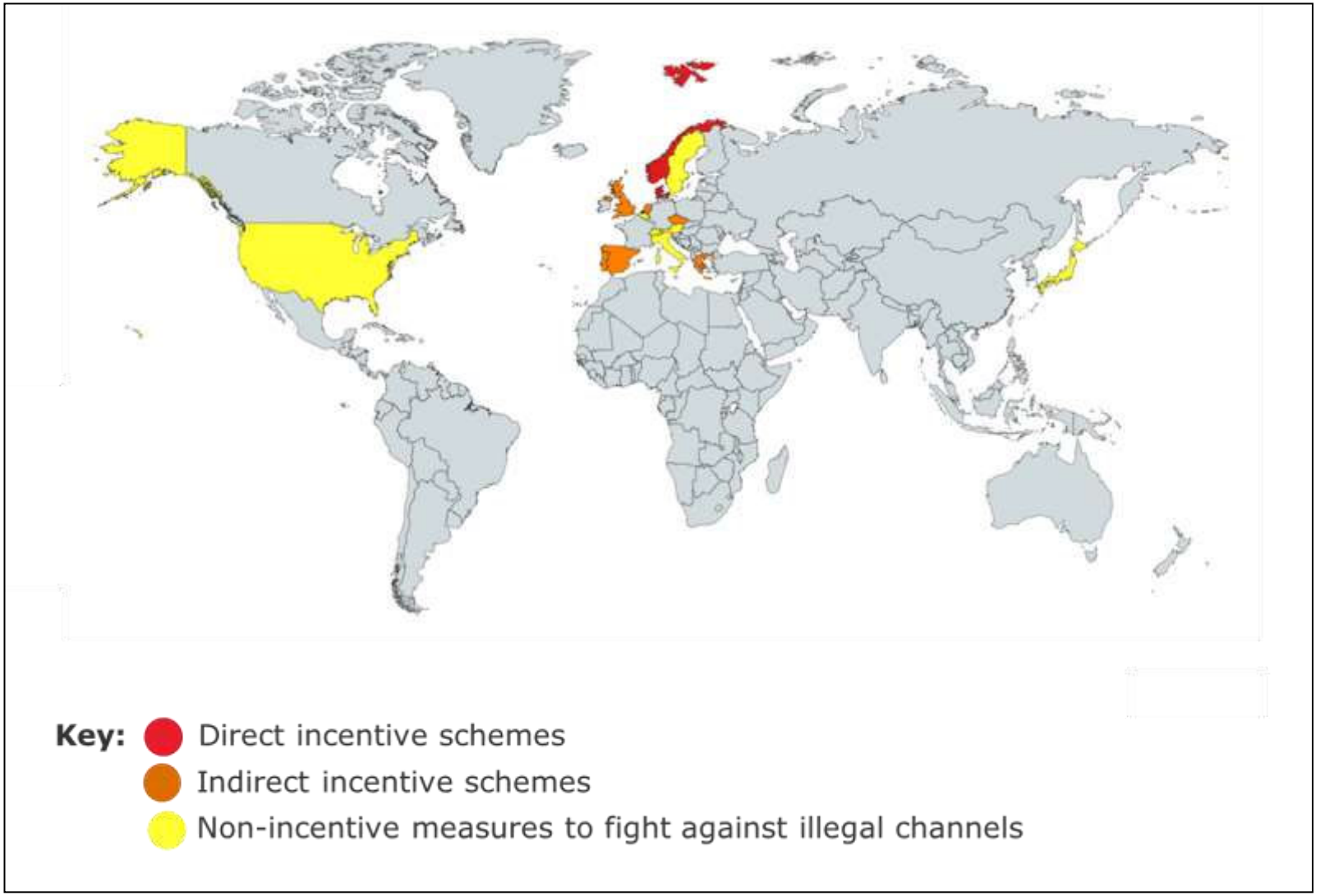


Figure 2: Map of countries fighting against illegal channels

3 Analysis of incentive schemes identified

In addition to the schemes presented above (non-incentive), four types of incentive schemes were identified during this assessment. The table below summarises these four different schemes.

Schemes	Direct	Indirect
	Payment to the last owner to encourage the disposal of the ELV to an authorised processing centre (scrapping premium);	Road tax or insurance premium paid by the motorist until a proof that the vehicle is handled by the legal channel
Actual practical incentives	Denmark, Norway (1)	The Netherlands, The Czech Republic, Spain, Portugal (2)
	Taiwan (3)	
Incentives in principle but not in practice	-	Finland, Greece, Ireland, United Kingdom (4)

3.1 Type 1 schemes: genuinely direct incentive schemes

Denmark and Norway have set up place directly incentive schemes (i.e. scrapping incentives), which have proved to be efficient. These schemes are detailed in the tables below.

Geographical area:	Europe	
Country:	Denmark	
Number of vehicles on the road:	2,919,455 (2016)	
Number of registered vehicles:	260,388 (2016)	
Population density:	134 inhabitants per km²	
Type of incentive scheme:	Direct	
I. Background ELV management		
Extent of the illegal channel	Between 20 and 25% of ELVs are missing Of these, about 45% are illegally processed, 45% are illegally exported and the remaining 10% are abandoned in public areas. [1]	
	Legal channel	**Illegal channel**
Management capacity: - Number of ELV centres - Number of shredders	 200 [1] 2 [1]	 n/a n/a
Volumes managed (total): - of which processed ELVs - of which exported ELVs - of which abandoned ELVs	**140 000** 120,000/year [1] 20,000/year [4] n/a	**20 000** 10,000/year [1] 10,000/year [1] 2,000/year [1]
ELV processed/Number of vehicles on the road	4,8%	
ELV processed/Number of registered vehicles	46,1%	
Operator inspection by public authorities	- There are almost no control actions in Denmark, as it is considered more expensive than the scrapping premium scheme in place. Local authorities audit their ELV centres every 3 years [1] - Shredders are asked to notify the authorities if they receive an ELV that has not been processed through the legal system - however, in reality, this is not done (all incoming ELVs are processed regardless of their provenance). [1] [3]	
Communication actions towards vehicle owners	In 2016, a public awareness campaign on "sorting" at the end of the vehicle's life was organised. This was indirectly funded by vehicle owners since part of the annual contribution is dedicated to information campaigns. [1][3]	
II. Incentive scheme Incentive scheme in place		
Summary of the scheme	A scrapping premium of 300 euros per car, funded by an annual contribution of 12 euros on insurance, has been in place since 2000. [1]	
Start date	2000 [1]	
End date (if applicable)	n/a	

Payment reception/payment (product stage)	
Cause of action	Owning a registered vehicle on the road [1]
Basis for calculation	Car insurance premium: the contribution collected is a parafiscal tax [1] [3]
Frequency	Annual [1]
Value	85 DKK (11 euros)/year (the amount is identical for all vehicles) [1] [3] *Note: the value of the premium is difficult to modify, hence the need to properly manage the fund so that the amounts collected upstream are sufficient to cover downstream payments. [3]*
Revenue Management	
Managing body	Private fund managed by car producers: https://www.bilordning.dk [3]
Total revenue	_
Revenue destination	Payment of the premium to the last registered owners. However, a non-registered owner may be compensated on request if: - the last registered owner has died - the last registered owner has given the power of attorney to another person to take his car for disposal - relatives of the last owner can make a declaration that the last registered owner is unable to make a decision on the disposal of the car - the car is sold as a second-hand car and not registered by the buyer (the Danish Environmental Protection Agency may, on request, waive the general rule, and the buyer must prove that there are special conditions applicable, for example that the car was bought or taken in exchange for renovation, but was deemed in a condition which was too bad to be repaired) - the police and/or the municipality have taken away or confiscated a vehicle: if they submit an end-of-life car for disposal, they cannot receive an indemnity - after determining total damage, an insurer handles a vehicle and processes the claim for compensation for the owner in compliance with current regulations.
Disbursement/cessation of payment (waste stage)	
Cause of action	Provide a certificate of destruction
Value	2,200 DKK (295 euros)/vehicle [1]
Beneficiary	Last owner (or person delegated by the owner) [6]

III. Evaluation

Meeting targets

Targets at the time of setting up the scheme	- Regulate the management of ELVs as part of the "polluter pays" principle; - Reduce fly-tipping: Before 2000, ELVs were often abandoned in public spaces, causing environmental damage as well as visual and urban pollution; - Simplify collection for the last owner: previously, ELV centres charged for their services (costs that were excessive for some owners). *It should be noted that the 2000 ELV Directive prohibits charging for handling ELVs (except if the vehicle is not complete).* [5]
Qualitative evaluation on meeting targets	- Application of the "polluter pays" principle: targets achieved; - Fly-tipping reduction: targets achieved. In Denmark, abandoned vehicles are now quite rare; - Simplified collection: target achieved. It should be noted that all these targets have also been met thanks to the EPR channel set up in 2000. This means that producers in Denmark must provide owners with at least one collection point within a 25 km radius around cities of more than 20,000 inhabitants, and within a 50 km radius around any address in Denmark. [3]
Overview of the scheme	
Key factors of success	- Environmental protection must be the main objective of the incentive scheme; [1] - According to Stig Thorlak, requirements applicable to ELV centres should not be too stringent, otherwise legal business will be put off from complying with regulations even though there are minimum technical and administrative requirements imposed by the ELV Directive. [2]
Scheme efficiency	**Positive results:** - In 2017, the value of the scrapping premium increased from 1,500 DKK (200 euros) to 2,200 DKK (295 euros) and, at the same time, the number of missing vehicles is estimated to have decreased from 20-25% to 10%. [1] **Perverse effects:** - Illegal operators have identified weaknesses within the system and are able to abuse the latter: for example, if they illegally recover a vehicle, ask a legal operator to apply to the compensation fund for a scrapping premium and share the amount received with the legal operator while processing the vehicle illegally. [3] [4]
Safeguards in place/planned	In Denmark, certificates of destruction can only be issued by ELV centres or car dealers who have a contract with ELV centres. Car dealers cannot issue their own certificates of destruction, but can do so on behalf of a partner ELV centre. [1] [2]In addition, a project to set up a digital vehicle registration and tracking system is planned for 2020 where: - Vehicle owners will be identifiable when their vehicles are registered; [4] - Payment of the scrapping premium will be made to a bank account linked to the social security number of the final owner to avoid fraud. [3] [4]

Social acceptability	**- Citizens:** good. In Denmark, citizens are used to having taxes on cars; [1] - **Insurers:** good now. As a general rule, citizens do not check the details of their insurance premium, so the end-of-life contribution for vehicles is unnoticed. [2] [3] **- Manufacturers:** n/a **- Processing operators:** good: the scrapping premium guarantees a volume of vehicles to be processed. Some processing operators may travel a relatively long distance to collect a vehicle, because they are sure to received the scrapping premium. [3]

Sources

Contacts

- Mathias Nylansted Benediktson (Environmental Protection Agency) [1]- Stig Thorlak (Danish Protection Agency) [2]- Andreas Kryger Jensen (Deloitte Danemark) [3]

Literature review

- Hot topics in the Danish Dismantling Industry, Stig Thorlak, 2017 [4]
- European Commission (2017), Assessment of the implementation of Directive 2000/53/EU on end-of-life vehicles (the ELV Directive) with emphasis on the end of life vehicles of unknown whereabouts [5]- https://www.bilordning.dk/Spoergsmaal-og-svar [6]

Figure 3: Incentive scheme in place in Denmark

Geographical area: Europe
Country: Norway
Number of vehicles on the road: 2,737,988 (2016)
Number of registered vehicles: 191,774 (2016)
Population density: 14 inhabitants per km²
Type of incentive scheme: Direct

I. Background

ELV management

Extent of the illegal channel	Today, there are very few unauthorised ELV centres in Norway (although their numbers tend to increase when metal prices are high); they are not considered as a major issue in the country.

	Legal channel	**Illegal channel**
Management capacity: - Number of ELV centres - Number of shredders	 80 [1] 10 (2014) [4]	 n/a n/a
Volumes managed (total): - of which processed ELVs - of which exported ELVs - of which abandoned ELVs	**140 000** 140,000 (2017) [3] Close to none n/a	**n/a** n/a n/a n/a
ELV processed/Number of vehicles on the road	5,1%	
ELV processed/Number of registered vehicles	73,0%	
Operator inspection by public authorities	- The Environmental Protection Agency audits ELV centres every 4 to 5 years; - The Environmental Protection Agency, road authorities and tax authorities have partnered with other actors to identify and arrest illegal actors (not just those in the ELV sector). [1]	
Communication actions towards vehicle owners	- Since 2008, as part of the REP sector, campaigns are launched to get citizens to act appropriately at the end of life of their vehicles; however, their awareness is already raised due to the scrapping premium that has been in place for 40 years and is therefore deeply rooted in people's minds; [1] - Since the introduction of the scrapping bonus, authorised ELV centres also raise awareness among the final owners of an ELV [2].	

II. Incentive scheme

Incentive scheme in place

Summary of the scheme	A scrapping premium has been in place since 1978, the value of which today amounts to 350 euros (paid to the last owner when the ELV is taken to an ELV centre approved by public authorities). [1]
Start date	1978 [1]
End date (if applicable)	n/a

Payment reception/payment (product stage)

Cause of action	Owning a registered vehicle on the road [1]
Basis for calculation	Registered vehicle [1]
Frequency	Single payment (when purchasing a new or imported vehicle)
Value	250 euros/vehicle [1]

Revenue Management	
Managing body	Norwegian Tax Authorities
Total revenue	_
Revenue destination	Payment of the scrapping premium to the last owners (since all imported vehicles - new and second-hand - pay the 250 euros contribution, any type of owner may receive the scrapping bonus). [2]
Disbursement/cessation of payment (waste stage)	
Cause of action	Provide a Norwegian Certificate of Destruction (a online system is in place: the "Norwegian Tax Authorities" validate or not the certificate of destruction and pay the scrapping premium) [1] [2]
Value	350 euros/vehicle [1]
Beneficiary	Last owner [1]
III. Evaluation Meeting targets	
Targets at the time of setting up the scheme	- Create a network of authorised ELV centres throughout the country (ensuring proximity for a collection solution for the owners of an ELV), by guaranteeing a sufficient volume of ELVs to all the centres including the most isolated. - Ensure ELVs are processed in authorised centres. [3]
Qualitative evaluation on meeting targets	- Network throughout the country: target achieved. There are far fewer abandoned vehicles, especially in the most remote areas in Norway; [2] - Promotion of authorised ELV centres (to the detriment of illegal actors): target achieved. There are very few illegal ELV centres in Norway. [1]
Overview of the scheme	
Key factors of success	- A centralised and efficient registration system: in Norway, if a certificate of destruction is issued, the vehicle's insurance contract is automatically terminated and MOT reminders stop [3]; - Communication actions to get citizens to act appropriately at the end of life of their vehicles. [1]
Scheme efficiency	**Positive results:** - There are few illegal ELV processing actors, so this is not a major issue; [1] - The ELV collection rate is estimated at more than 90%. [3] **Perverse effects:** n/a
Safeguards in place/planned	n/a
Social acceptability	**- Citizens:** very good. In Norway, citizens are used to this scheme; [2] **- Insurance companies:** n/a **- Manufacturers:** n/a **- Processing operators:** n/a
Sources Contacts - Siri Sveinsvoll (EGARA) [1]- Ole Thomas Thommesen [2] Literature review - A brief description of the Norwegian ELV system, Norges, Biloppsamleres Forening (NBF), 2018 [3] - European Auto Shredder List and Map, Recycling Today, 21 August 2014 [4]	

Figure 4: Incentive scheme in place in Norway

3.2 Type 2 schemes: genuinely indirect incentive schemes

Spain, Portugal, the Czech Republic and the Netherlands have set up indirectly incentive schemes (i.e. road taxes or insurance premiums), which have proved to be attractive. These schemes are detailed in the tables below.

Geographical area:	Europe
Country:	Spain
Number of vehicles on the road:	28,451,448 (2016)
Number of registered vehicles:	1,319,803 (2016)
Population density:	92 inhabitants per km²
Type of incentive scheme:	Indirect

I. Background

ELV management

Extent of the illegal channel	There are few illegal actors in Spain. [1]	
	Legal channel	**Illegal channel**
Management capacity: - Number of ELV centres - Number of shredders	 1,300 [1] 28 (2014) [2]	 50 [1] n/a
Volumes managed (total): - of which processed ELVs - of which exported ELVs - of which abandoned ELVs	**750 000** 750,000 (2017) Very few (more import than export) n/a	**5 000** 5,000/year [1] n/a n/a
ELV processed/Number of vehicles on the road	2,6%	
ELV processed/Number of registered vehicles	56,8%	
Operator inspection by public authorities	Controls on ELV centres can range from a simple fine (for administrative non-compliance) to imprisonment (environmental damage).	
Communication actions towards vehicle owners	The last vehicle owners are informed on internet of the collection points closest to their home (car manufacturers' websites and/or traffic authorities website).	

II. Incentive scheme

Incentive scheme in place

Summary of the scheme	In Spain, vehicle owners must pay an annual traffic tax that can range from 20 to 300 euros every year, depending on the vehicle taxable horsepower and type. It should be noted that the tax for a 4-year old Citroën Picasso is 92 euros in the province of Valencia. To stop paying this tax, a certificate of destruction, sale or export must be presented. [1]
Start date	1966
End date (if applicable)	n/a

Payment reception/payment (product stage)

Cause of action	Owning a registered vehicle on the road [1]
Basis for calculation	Horsepower, type and town/city in which the vehicle has been registered [1]
Frequency	Annual [1]
Value	Variable: from 20 to 300 euros [1]

Revenue Management

Managing body	Municipalities
Total revenue	*No aggregated figure at national level*
Revenue destination	General finances

Disbursement/cessation of payment (waste stage)

Cause of action	Provide a certificate of destruction or proof of export or sale of the vehicle [1]
Value	0 €
Beneficiary	Owner of the vehicle

III. Evaluation

Meeting targets

Targets at the time of setting up the scheme	Limiting illegal ELV processing operators was not the primary objective, but it was vital to understand and better manage the number of vehicles on the road. For this purpose, this tax is very effective.
Qualitative evaluation on meeting targets	n/a

Overview of the scheme	
Key factors of success	Have an effective system for an administrative tracking of the vehicles. [1]
Scheme efficiency	**Positive results:** there are few illegal actors in Spain. [1] **Perverse effects:** temporary deregistration: in December, when the tax is due, Spain has twice as many deregistrations as during the rest of the year. Some of these deregistrations are temporary. [1]
Safeguards in place/planned	To limit abuse, traffic authorities want to allow temporary deregistration for one year only (pending further amendment of the law to this effect).
Social acceptability	**- Citizens:** in general, vehicle owners are not in favour of paying taxes. However, the tax has been in place for over 40 years and people are used to paying it. **- Insurance companies:** n/a **- Manufacturers:** n/a **- Processing operators:** good. The scheme favours legal ELV processing operators as these emit certificates of destruction to deregister vehicles.

Sources

Contacts

- Manuel Kindelan (Sigrauto) [1]

Literature review

- European Auto Shredder List and Map, Recycling Today, 21 August 2014 [2]

Figure 5: Incentive scheme in place in Spain

Geographical area:	Europe
Country:	Portugal
Number of vehicles on the road:	4,829,224 (2015)
Number of registered vehicles:	242,337 (2016)
Population density:	112 inhabitants per km²
Type of incentive scheme:	Indirect

I. Background

ELV management

Extent of the illegal channel	There are very few illegal ELV recycling businesses in Portugal and these are not a major issue.	
	Legal channel	**Illegal channel**
Management capacity: - Number of ELV centres - Number of shredders	 300 [1] 6 [1]	 n/a n/a
Volumes managed (total): - of which processed ELVs - of which exported ELVs - of which abandoned ELVs	**70 000** 70,000 (2017) [1] n/a n/a	**n/a** n/a n/a n/a
ELV processed/Number of vehicles on the road	1,4%	
ELV processed/Number of registered vehicles	28,9%	
Operator inspection by public authorities	Control actions in Portugal are not efficient enough: - Inspection services are understaffed and unable to check all ELV centres; - Operators of the registration system do not always require a certificate of destruction when a vehicle is deregistered; - Owners can deregister their vehicle for 5 years, which may result in a loss of traceability. [1]	
Communication actions towards vehicle owners	There are campaigns to raise awareness among citizens. Valorcar, a private non-profit organisation that promotes a good ELV management devotes 5% of its annual budget, i.e. 51,000 euros in 2017 (non-statutory and variable share depending on the year). [1]	

II. Incentive scheme

Incentive scheme in place

Summary of the scheme	In Portugal, vehicle owners must pay the Single Road Tax (IUC) every year. Its amount is determined according to the type of vehicle; it may vary from 30 euros to 1,000 euros. It should be noted that most common vehicles pay between 100 euros and 300 euros. To stop paying this tax, proof of sale, export or a certificate of destruction must be presented. [1]
Start date	2007
End date (if applicable)	n/a

Payment reception/payment (product stage)

Cause of action	Owning a registered vehicle on the road [1]
Basis for calculation	Vehicle type, according to four criteria: vehicle capacity, fuel type, CO_2 emissions, age [1]
Frequency	Annual [1]
Value	Variable: from 30 to 1,000 euros [1]

Revenue Management

Managing body	Tax office [1]
Total revenue	400 million euros [1]
Revenue destination	General finances [1]

Disbursement/cessation of payment (waste stage)

Cause of action	Provide a certificate of destruction or proof of export or sale of the vehicle [1]
Value	0 €
Beneficiary	Owner of the vehicle

III. Evaluation

Meeting targets

Targets at the time of setting up the scheme	Transfer high taxes, which were paid at the time of purchase of the vehicle, over the entire lifetime of the vehicle. [1]
Qualitative evaluation on meeting targets	Target achieved

Overview of the scheme

Key factors of success	- Commitment of all actors involved: State, producers and ELV centres; - Computer system to which access is granted by the State to authorised ELV centres, which are the only ones able to issue certificates of destruction. [1]
Scheme efficiency	**Positive results:** There are few illegal ELV processing actors which are not a major issue. [1] **Perverse effects:** when the scheme was launched in 2007, the registration file had to be "cleaned" which resulted in an "amnesty" granted to vehicles that were registered in the system but: - did not pay the single road tax; - no one could prove that these vehicles had been sold, exported or destroyed. [1]
Safeguards in place/planned	n/a
Social acceptability	**- Citizens: g**ood; **- Insurance companies:** n/a **- Manufacturers:** good, since reduced tax when the vehicle is purchased makes it possible to reduce the price of vehicles; **- Processing operators:** good, since the tax has helped regulate the illegal ELV processing channel.

Sources

Contacts

- Ricardo Furtado (Valorcar) [1]

Figure 6: Incentive scheme in place in Portugal

Geographical area:	Europe
Country:	Czech Republic
Number of vehicles on the road:	6,032,825 (2016)
Number of registered vehicles:	278,932 (2016)
Population density:	134 inhabitants per km²
Type of incentive scheme:	Indirect

I. Background

ELV management

Extent of the illegal channel	There are very few illegal actors in the Czech Republic even though, since the opening of borders, many vehicles are imported from neighbouring countries (Poland, Slovakia, etc.) and can be processed through the illegal channel. [1]

	Legal channel	**Illegal channel**
Management capacity: - Number of ELV centres - Number of shredders	 510 [1] 5 [1]	 Approximately 20 [1] n/a
Volumes managed (total): - of which processed ELVs - of which exported ELVs - of which abandoned ELVs	**146 000** 146,000 (2016) [1] n/a n/a	**n/a** n/a n/a n/a
ELV processed/Number of vehicles on the road	2,4%	
ELV processed/Number of registered vehicles	52,3%	
Operator inspection by public authorities	ELV centres are regularly inspected by the Environmental Inspectorate. [1]	
Communication actions towards vehicle owners	Vehicle owners can visit the Ministry of Transport website for information on ELV processing procedure. [1]	

II. Incentive scheme

Incentive scheme in place

Summary of the scheme	In the Czech Republic, car insurance is compulsory; the annual fee varies from 16 to 390 euros per year depending on the taxable horsepower and the type of vehicle. To deregister the vehicle and stop paying insurance, a certificate of destruction, sale or export must be presented. If this is not done, a fine of approximately 1,950 euros must be paid to deregister the vehicle and the insurance cannot be terminated. [1]
Start date	2005
End date (if applicable)	n/a

Payment reception/payment (product stage)

Cause of action	Owning a registered vehicle on the road [1]
Basis for calculation	Horsepower and type of vehicle [1]
Frequency	Annual [1]
Value	Variable: from 16 to 390 euros [1]

Revenue Management

Managing body	n/a
Total revenue	n/a
Revenue destination	n/a

Disbursement/cessation of payment (waste stage)

Cause of action	Provide a certificate of destruction [1]
Value	0 €
Beneficiary	Owner of the vehicle [1]

III. Evaluation

Meeting targets

Targets at the time of setting up the scheme	The primary target of implementing insurance was not to remedy the problem of illegal actors nor for the environment. The requirement for insurance was introduced due to lobbying by insurers. [1]
Qualitative evaluation on meeting targets	n/a

Overview of the scheme

Key factors of success	- Only ELV centres are able to issue certificates of destruction (which complies with specific environmental standards); - Make the certificate of destruction mandatory to deregister a vehicle: in the Czech Republic, if not provided, a fine of 1,950 euros is given to the last owner; - Prohibit individuals from selling spare parts: in the Czech Republic, this results in a fine of up to 2,000,000 euros; - Have a centralised system: in the Czech Republic, insurers inform the Ministry of Transport of the vehicles they insure, using the vehicle identification number (VIN-number). [1]

Scheme efficiency	**Positive results:** There are few illegal actors in the Czech Republic. [1] **Perverse effects:** - Temporary deregistration only if the registration card and the registration certificate of the vehicle are issued. - False proofs of sale: some people make forged sales papers to destroy a vehicle that does not belong to them (these cases are very rare). - Occasionally, vehicles that have been deregistered by the ELV centres (which are supposed to have been destroyed) are found abandoned on the roads, but when this happens, the police finds the ELV centre that issued the certificate of destruction and inspect it. [1]
Safeguards in place/planned	- Owners of temporarily deregistered vehicles must inform municipal authorities annually of the location of their vehicle. - In the past, it was easier to illegally process/disassemble vehicles as vehicle owners were selling them without checking that ownership data was modified in the registry (the original owner is still considered as the owner). This is no longer the case because anyone whose vehicle is registered must pay insurance. [1]
Social acceptability	**- Citizens:** good. (For non-compliance with law, a fine of approximately 1,950 euros is applied). [1] **- Insurance companies:** good. Insurance companies' turnover is guaranteed with this system. [1] **- Manufacturers:** n/a **- Processing operators:** n/a

Sources

Contacts

- Jaromir Manhart, Ladislav Trycl, Petra Choutkova (Ministry of Environment) [1]

Figure 7: Incentive scheme in place in the Czech Republic

Geographical area:	Europe
Country:	The Netherlands
Number of vehicles on the road:	9,281,741 (2016)
Number of registered vehicles:	453,449 (2016)
Population density:	411 inhabitants per km²
Type of incentive scheme:	Indirect

I. Background

ELV management

Extent of the illegal channel	There are few illegal ELV export and processing actors, although a specific type of illegal operation has been identified: ELVs processed in unauthorised centres and reported by (fraudulent) companies approved by the RDW (road agency) to change the status of the vehicle as exported. The number of exported ELVs is unknown for the Netherlands. Only vehicle exports are registered (whatever condition they are in). As a result, about 10,000 vehicles are reported as exported even though they remain in the country and are used for their spare parts and later shredded. The ARN (Auto Recycling Nederland) has identified 5 companies in this case and the Provincial Environmental Protection Agency is examining these entities.

	Legal channel	**Illegal channel**
Management capacity: - Number of ELV centres - Number of shredders	 500 [1] 13 [2]	 50 [3] n/a
Volumes managed (total): - of which processed ELVs - of which exported ELVs - of which abandoned ELVs	**250,000 to 300,000** 250,000 to 300,000 [1] [2] n/a n/a	**10 000** 10,000 [1] n/a n/a
ELV processed/Number of vehicles on the road	3,2%	
ELV processed/Number of registered vehicles	66,2%	
Operator inspection by public authorities	- Authorised ELV centres: audited by the RDW (the Dutch Vehicle Registration Authority) once a year and, during audits, 5% of vehicles are inspected randomly; - Unauthorised ELV Centres: RDW has recently identified 5 companies and will monitor them in partnership with environmental authorities. Illegal actors are liable to a fine of 10,000 euros or imprisonment. [1][3]	
Communication actions towards vehicle owners	There are no communication campaigns in the Netherlands since it is widely known that ELVs must be processed in authorised centres. [1] [2]	

II. Incentive scheme

Incentive scheme in place

Summary of the scheme	In the Netherlands, all vehicle owners are subject to three payment requirements: annual road tax, insurance costs and MOT (safety test and compliance with emission standards). It is very difficult to leave the registration system: the only way to leave the system is to export or have the vehicle destroyed. As long as an owner does not provide a certificate of export, sale or destruction of the vehicle, these three mandatory annual payments are currently required in the Netherlands. [2]
Start date	1994
End date (if applicable)	n/a

Payment reception/payment (product stage)

Cause of action	Owning a registered vehicle on the road [1]
Basis for calculation	- The road tax is based on the type of fuel and vehicle weight; - Insurance depends on the value of the vehicle, its weight, the place of residence of the owner, the type of insurance (third party or comprehensive) and the claims history; - The MOT is identical whatever the model of the vehicle. [1]
Frequency	The road tax is paid quarterly, insurance and testing are due once a year [1]
Value	- The value of the road tax is at least 150 euros (gasoline, weight below 651 kg) with a maximum 6,500 euros (diesel, weight above 5,050 kg); - The insurance starts at approximately 300 euros and can reach a few thousand Euros; - The cost of MOT varies according to the company testing the vehicle. [1]

Revenue Management

Managing body	- The road tax is managed by the Ministry of Taxes; - Insurance is managed by insurers; - The roadworthiness test is managed by RDW. [1]
Total revenue	_
Revenue destination	The road tax is used for road maintenance [1]

Disbursement/cessation of payment (waste stage)

Cause of action	Provide a certificate of destruction or proof of export or sale of the vehicle [1]
Value	0 €
Beneficiary	Owner of the vehicle [1]

III. Evaluation

Meeting targets

Targets at the time of setting up the scheme	The road tax has been put in place to generate additional revenue for the government while insurance and MOTs are European requirements [1]
Qualitative evaluation on meeting targets	_

Overview of the scheme

Key factors of success	- Have a strict vehicle registration and tracking system: in the Netherlands, the only way to leave the system is to export, sell or have the vehicle destroyed. [1]
Scheme efficiency	**Positive results:** There are few illegal actors in the Netherlands [1] **Perverse effects:** The registration of a vehicle can be suspended, but this is not free: it costs 75 euros per year and it must be renewed every year (its renewal costs 25 euros) [2]
Safeguards in place/planned	- If a vehicle is in circulation while its owner has suspended its registration, the fine imposed by the Dutch tax authorities is equal to 3 months of road tax; [1] - If the payments are not made, penalties ranging from fines to imprisonment are incurred by the vehicle owners. For example, if an owner does not pay insurance and does not carry out an MOT while the vehicle registration is not suspended, the fine is 400 euros. As the insurance and the MOT are controlled by the RDW, this automated fining process is very efficient; - Thanks to the digitisation of the system, fraud is easily detectable. The RDW manages the system and only authorised, randomly audited companies can provide a certificate of destruction, sale or export. [1]

Social acceptability	**- Citizens:** good. These requirements are deep-rooted in the habits of citizens. **- Insurance companies:** good. Insurance companies see their turnover guaranteed with this system. **- Manufacturers:** n/a **- Processing operators:** n/a *Note: The road tax already existed before 1994 and insurance and roadworthiness test were mandatory* [1]

Sources
Contacts

- Cees Archterberg (RDW) [1]- Henk Jan Nix (EGARA) [2]- Thomas Van Der Sluis (Renault Nissan) [3]

Figure 8: Incentive scheme in place in the Netherlands

3.3 Type 3 schemes: direct and indirect schemes

Taiwan has implemented a hybrid incentive scheme (direct and indirect) that appears very efficient. This scheme is detailed in the table below.

Geographical area:	Asia
Country:	Taiwan
Number of vehicles on the road:	7,677,000 (2015) [3]
Number of registered vehicles:	–
Population density:	650 inhabitants per km²
Type of incentive scheme:	Direct

I. Background
ELV management

Extent of the illegal channel	Nowadays, there are very few unauthorised ELV centres in Taiwan. The Environmental Protection Agency has identified 6 cases of illegal actors and started a site legalisation procedure. [1]

	Legal channel	**Illegal channel**
Management capacity:		
- Number of ELV centres	308 [1]	n/a
- Number of shredders	4 [1]	n/a
Volumes managed (total):	**330 000**	**n/a**
- of which processed ELVs	330,000 [1]	n/a
- of which exported ELVs	73,051 [1]	n/a
- of which abandoned ELVs	n/a	n/a
ELV processed/Number of vehicles on the road	4,3%	
ELV processed/Number of registered vehicles	–	
Operator inspection by public authorities	- The Environmental Protection Agency provide ELV centres and shredders with a licence; - The Environmental Protection Agency identifies and stops illegal ELV processing businesses. [1]	
Communication actions towards vehicle owners	- For the past 20 years, the ELV recycling scheme and the scrapping premium have been promoted through advertising. [1]	

II. Incentive scheme
Incentive scheme in place

Summary of the scheme	An EPR channel for recycling ELVs has been in place in Taiwan since 1994. It is funded upstream by an eco-contribution and includes a downstream scrapping premium as well as subsidies for ELV centres and shredders: - Upstream, an eco-contribution of 150 euros per vehicle is paid by the producer, together with an eco-modulation aimed at promoting the eco-design of vehicles (for their end of life); - Downstream, the scrapping premium now reaches a value of 30 euros for cars and 8 euros for motorcycles (provided there are complete). Authorised centres receive 21 euros for cars and 5 euros for motorcycles and shredders 105 euros per ton of metal. [1]
Start date	1994 [2]
End date (if applicable)	n/a

Payment reception/payment (product stage)	
Cause of action	Placing a car or motorcycle on the market [1]
Basis for calculation	New vehicle (produced locally or imported) [1]
Frequency	Unique (when the vehicle is put on the market) [1]
Value	150 euros per car and 23 euros per motorcycle, amount indirectly paid by users as automotive manufacturers and importers include this amount in the vehicle selling price [1]
Revenue Management	
Managing body	Recycling Fund Management Board [1]
Total revenue	_
Revenue destination	Payment of the scrapping premium to the final owners, ELV centres and shredders. [1]
Disbursement/cessation of payment (waste stage)	
Cause of action	The owner brings his/her vehicle to an authorised ELV centre [1]
Value	30 euros per car and 8 euros per motorcycle [1]
Beneficiary	Last owner [1]

III. Evaluation

Meeting targets

Targets at the time of setting up the scheme	_
Qualitative evaluation on meeting targets	_

Overview of the scheme

Key factors of success	In addition to the recycling scheme, Taiwan also implemented the following: - A scrapping premium of 1,390 euros for cars and 111 euros for motorcycles; [4] - A tax that vehicle owners must pay annually until a certificate of destruction, sale or export is presented. The amount received by the final owner from the 3 schemes when the ELV is sent for recycling in an authorised ELV centre may reach several thousand Euros.
Scheme efficiency	**Positive results:** - There are few illegal ELV processing actors and these are not a major issue; [1] - Thanks to the recycling scheme in place (and also because of the increased number of vehicles on the road, from 6,652,000 in 2005 to 7,677,000 in 2015 [3]), the number of recycled vehicles is increasing every year: in 2000, 137,668 cars and 266,034 motorcycles were recycled [2] and in 2017, 330,071 cars and 670,442 motorcycles were collected. [1] **Perverse effects:** n/a
Safeguards in place/planned	n/a
Social acceptability	**- Citizens:** **- Insurance companies:** **- Manufacturers:** **- Processing operators:**

Sources

Contacts

- Peng Chi Liao, Foundation of Taiwan Industry Service [1]

Literature review

- Taiwan experience in the recycling of end-of-life vehicles, Resource recycling fund management board, Chiipwu Cheng, November 2006 [2]
- OICA, Vehicles in use, 2015 [3]
- Taiwan EPA, Tax Subsidies Available for Replacement of Old Vehicles: https://www.epa.gov.tw/ct.asp?xItem=61786&ctNode=35637&mp=epaen

Figure 9: Incentive scheme in place in Taiwan

3.4 Type 4 schemes: indirect genuinely non-incentive schemes

This section of the report presents countries with one (or more) annual motor tax, which motorists must pay until their vehicle is sold, exported or destroyed. In principle, these schemes are incentive but they are in fact easy to circumvent and therefore do not encourage the last vehicle owners to process their ELVs through authorised ELV centres.

3.4.1 Finland

In Finland, when a vehicle is removed from the vehicle registry or dismantled in an authorised ELV centre, the owner receives a certificate of destruction. Insurance companies and the Finnish Transport Safety Agency (Trafi) are then informed of its destruction. As a result, the vehicle insurance and motor tax are cancelled, since a vehicle that enters the recycling system cannot be put back on the road. The motor tax, which is compulsory for all registered vehicles, consists of a basic tax and a tax based on the horsepower. It varies between 100 and 500 euros.

There is however a flaw in this scheme: the motor tax can be suspended for 5 euros. This temporary deregistration can become permanent with no associated penalty. For this reason, in 2017, 72,210 certificates of destruction were issued even though many more ELVs were actually processed. Many vehicles were indeed sold to Baltic countries and Africa via this temporary deregistration. These vehicles become “ghosts” or “unknown whereabouts” in Finland.

3.4.2 Ireland[3]

In Ireland, vehicle owners pay an annual motor tax, which stops once the certificate of destruction is issued or the vehicle is sold or exported. For vehicles purchased before July 2008, the tax is based on engine horsepower, while it varies according to CO_2 emissions for vehicles purchased after July 2008. This tax costs between 120 and 2350 euros. However, if a vehicle is temporarily deregistered, the owner is not required to pay tax. There is therefore no incentive for the final owner to process his vehicle through the legal channel.

3.4.3 Greece

In Greece, cars owners must pay a yearly road tax. It can vary between 0 and 1,000 euros. For vehicles purchased before 2011, the tax is based on engine size, while it varies according to CO_2 emissions for vehicles purchased after 2011.

There are two ways to stop paying this tax:

- By exporting, selling or dismantling the vehicle and providing a certificate of export, sale or destruction.
- By having the vehicle temporarily deregistered. To do so, the license plate must be taken to the tax office.

This second option highlights the weaknesses of the Greek system. Temporary deregistration is free and can be unlimited, which is an open door to illegal channels.

3.4.4 United Kingdom

Since 1920, vehicle owners must pay an annual road tax in the United Kingdom. Nowadays, it varies between 10 and 2,300 euros for the first payment (depending on CO_2 emissions), followed by annual payments of approximately 150 euros. Originally, this was implemented to fund road maintenance but has been funded by government grants since 1936.

[3] http://www.citizensinformation.ie/en/travel_and_recreation/motoring_1/motor_tax_and_insurance/motor_tax_rates.html

There are two ways to stop paying this road tax:

- By submitting a proof of sale or export or a certificate of destruction;
- By temporarily deregistering the vehicle by requesting a SORN (*Statutory Off Road Notification*) from the vehicle registration agency, if the event the vehicle is not used on the road - i.e. left in a garage or used only on private ground.

This second option highlights the weaknesses of the British system. SORNs are free and do not need to be renewed every year. It is also important to note that the number of SORNs is very high: around 300,000 every month, which represents 4 million every year[4].

4 Justification for selecting countries for Phase 2

Following the assessment and analysis carried out in Phase 1, four countries were selected for an in-depth analysis of their incentive schemes promoting the disposal of ELVs through authorised channels. The selected countries are:

- Denmark, for its direct scrapping incentive scheme;
- The Netherlands, because motorists are required to pay three taxes including a road tax;
- Spain, because of the tax implemented on mechanical traction vehicles;
- The Czech Republic, as owners are required to have and pay for insurance.

Countries were chosen in order to asses both direct (1) and indirect (3) schemes. Furthermore, some schemes implemented in other European Union member states were selected, as they have adopted a similar regulatory framework as France, more specifically anticipating upcoming revisions of the European ELV Directive.

The monographs resulting from the in-depth analysis of the selected schemes are presented below.

[4] https://www.gov.uk/performance/sorn

5 Monographs

5.1 Direct scheme in Denmark

5.1.1 General background

5.1.1.1 Overall ELV situation in the country

The Danish ELV system has a similar organisation as that of France. It seems to be one of the most advanced EPR (Extended Producer Responsibility) schemes in the country, although there is still room for improvement.

In 2000, the country implemented an incentive scheme aimed at fighting against unauthorised disposal of ELVs in the countryside (fly-tipping). This scheme includes a scrapping premium paid out to the last owner of the vehicle when it is disposed of in an authorised ELV centre. It is funded through parafiscal taxes on the car insurance premium.

Population	5.77 M
Area	42,924 km² (excluding Greenland)
Population density	136 habitants per km² (excluding Greenland)
Demographic growth	0.7%
GDP	324.9 billion dollars
GDP per capita	$56,307 per capita
Hourly labour cost	42.5 euros per hour

Table 2 : Geographical, demographic and economic data for Denmark (2017)

Fleet of vehicles in use	2,862,000 (2016) (+ 500,000 vehicles since 2007)
Number of new registrations per year	287,000 (2016)
Number of deregistrations per year	170,000
Number of ELVs processed	117,124 (of which 108,730, i.e. 92.8% have benefited from the scrapping premium)[5]
Number of authorised ELV centres	198
Number of shredders	2
ELV import	Low, only for shredding (from Norway)
ELV export	Low, only for shredding ELVs (to Germany) Large export of second-hand vehicles (estimated at 35 to 50,000 vehicles per year)
Estimation of the illegal ELV	Not available

[5] 93% of the ELVs entering the legal channel were allocated the scrapping premium. The remaining 7% were ELVs that did not meet all the criteria required to receive the scrapping premium (see Procedure to obtain the scrapping premium)

processing channel	
Estimated number of illegal ELV processing	Estimated at 20 to 35,000 per year (15 to 23% of all the vehicles processed in 2018)
ELV processed/Fleet of vehicles in use	4.1%
Reuse and recycling rate in 2016	88.8% (22.2% only in ELV centres)
Reuse and recovery rate in 2016	97.1%

Table 3: Overview of the automotive and ELV sector in Denmark (2017 data)

This data is presented in appendix 3 Indicator table for all the countries assessed and in France.

5.1.1.2 Legislative and regulatory framework for the ELV sector

The ELV sector is essentially governed by Law No. 372 of 2 June 1999, implemented by Decrees No. 860 of 29 November 1999 and No. 141 of 25 February 2000. These texts provided a framework for the management of motor vehicle waste, setting out a number of targets and rules, and laying the foundations for extended producer responsibility, in anticipation of European Directive No. 2000/53/EC of 18 September 2000 relating to end-of-life vehicles. Order No. 1312 of 20 December 2012 supplemented the previous law on the management of waste and waste fractions from ELVs. These texts also determine an obligation to provide a network of ELV centres throughout the Danish territory, with the provision of at least one collection point within a 25-km radius around cities of over 20,000 people, and within a 50-km radius of any location in Denmark. This obligation is theoretically borne by producers and falls within their scope of extended producer responsibility.

Overall, these texts anticipated and then used European texts, and the Danish ELV processing channel is broadly similar to that of the French sector, with one exception: Danish legislation interpreted the requirement for ELV centres to recover and process an ELV at no cost for the last owner, as set by European Directive No. 2000/53/CE[6], differently. In Denmark, most ELV centres charge for ELV decontamination services, especially if the processing of the vehicle is not economically attractive. If the final owner refuses to pay for their services, they may not accept the vehicle. Some ELV centres part of the Refero network (see **Automobile producers (importers)**) do not charge for their services, thereby allowing producers to meet their obligations. This is specific to Danish legislation and not fully in line with other European countries regarding free disposal in all ELV centres. This is, however, mitigated by the effect of the scrapping premium, an incentive scheme encouraging final owners to process their ELVs through an authorised centre. The scrapping premium of 2,200 DKK (approximately 300 euros) is rarely received in full by the final owner and is generally used, in part, to pay for the decontamination service provided by the ELV centre. The cost of the decontamination and processing services can be very different from one ELV centre to another, notably depending on the model and condition of the vehicle.

It should be noted that there is a network of ELV centres operated by Stena Recycling (one of the two shredding companies based in Denmark) jointly with the vehicle importers association, “De Danske Bilimportører”, which represents all Danish automobile producers (since no vehicle producer is currently present in the country). This network, called Refero, is made up of 38 ELV centres whose seemingly exemplary practices meet the different obligations for importers with regards to ERP, namely:

[6] Producers are required to set up a network of authorised ELV centres and can collaborate with one another to meet this requirement collectively. Standard agreements concluded by the group with the different ELV centres must guarantee the principle of compulsory and free disposal of any ELV.
Member States may decide that ELV disposal is not completely free of charge in cases where the ELV no longer includes essential components of a vehicle (especially engine and body) or if it contains added waste.

- Network of ELV centres throughout the country;
- Decontamination and processing of ELVs with a reuse and recycle/recovery target set by law (the overall target for the whole sector is for 85% of the total mass of a vehicle to be reused and recycled and 95% to be reused and recovered[7]);
- Free disposal of ELVs in ELV centres.

Centres belonging to the Refero network wish to be exemplary by committing to the decontamination vehicles in accordance with their legal obligations, to the return of the full amount of the scrapping premium to the final owner, without charging for their services, and to an active participation in achieving the reuse and recycling/recovery targets set by law.

5.1.1.3 Organisation of the sector

The ELV sector in Denmark is organised in a similar way as the French sector, bringing together the same actors, but with sometimes different responsibilities and obligations.

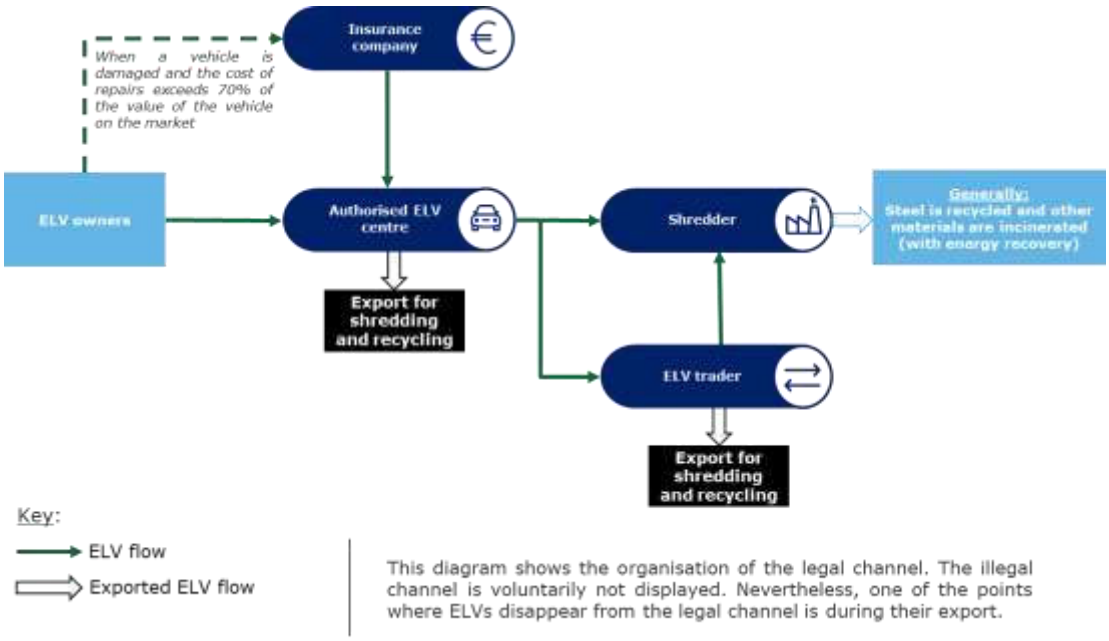


Figure 10: Main physical flows of ELV between the different actors of the sector

[7] Targets are similar to those set from French actors, and are fixed in Denmark by Order No. 1312 of 20 December 2012.

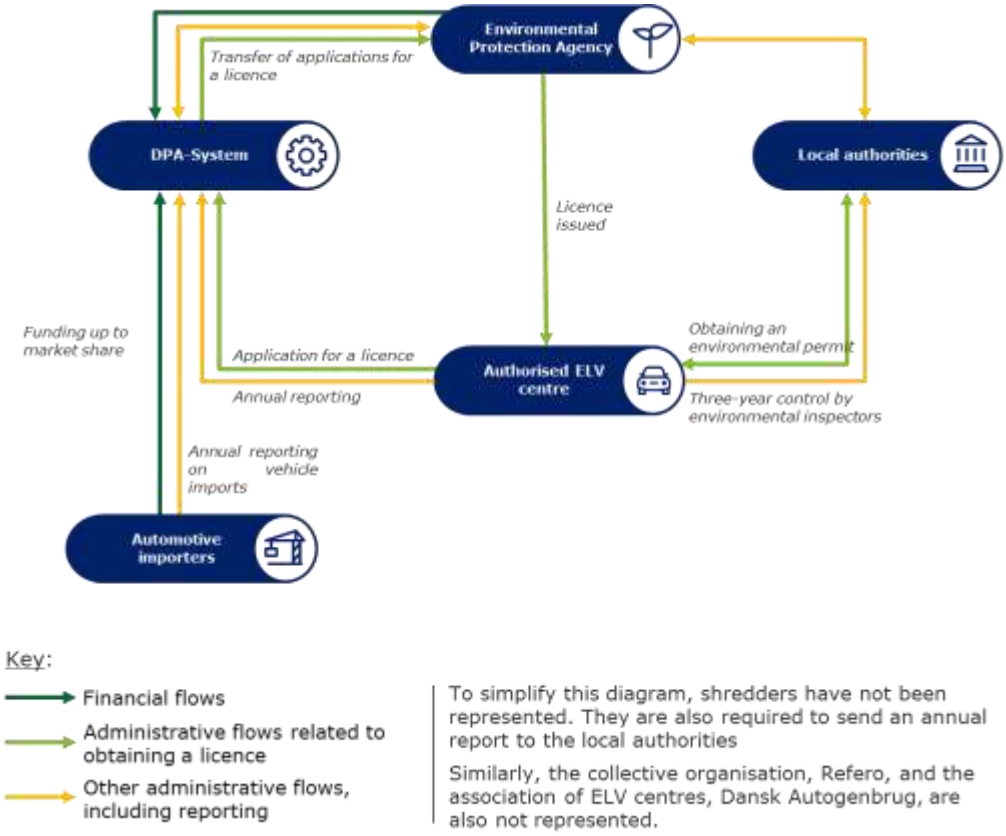


Figure 11: Main financial and administrative flows between the different actors of the sector

5.1.1.3.1 Automobile producers (importers)

There are no vehicle producers in Denmark. As vehicles are imported, importers bear the producer's responsibility, particularly with regards to the regulation on end-of-life vehicles. Importers may also be structures affiliated with producers who directly import their products, or independent import companies acting on behalf of one or more producers. Most importers (around 99% of the market) are represented by the Danish vehicle importers association, De Danske Bilimportører. This association represents the interests of importers in the Danish territory and is the point of contact with various local actors and institutions. Thus, it bears the responsibility of producers in Denmark and is in direct interaction with actors of the end-of-life vehicle sector.

The association is funded by importers, based on their market share. These grants are used for the association's internal administration, but also to finance its actions, including meeting the producer obligations of importers. These grants are used to finance the DPA-System, which is the sector's administrative management service, providing various services directly related to producer responsibility (see **DPA-System: administrative manager for the sector**). The values of the grants are decided on an annual basis, jointly with the EPA, and consist in grants for each vehicle registered on December 31st of the previous year. In 2018, these grants amounted to 1.82 DKK per registered vehicle (around 0.244 euros), for a total of 5.2M DKK (approximately 700k euros).

In order to ensure the proper enforcement of their EPR-related obligations, in terms of ELV centre networks, ELV decontamination and processing and finally compliance with targets, importers rely on the Refero network (see **Legislative and regulatory framework for the ELV sector**).

It should be noted that in Denmark, taxes on imported cars (new and second-hand) are relatively high, up to 150% of the value of the imported vehicle. These taxes vary according to a set of parameters (market price, model, fuel consumption, type of fuel, etc.) and apply to all imported vehicles. They are directly passed on to the final purchase price, and therefore to the consumer. The value of this tax is intrinsically included into the value of the vehicle on the market throughout its lifetime, thus greatly increasing the price of vehicles, including second-hand cars. These taxes may dissuade a customer of purchasing a new vehicle and contribute to the aging of the in use vehicle fleet, due to low turnover. Statistics do not actually reflect this low turnover because of the increase in the size of the Danish car fleet (about +21% in 10 years).

Part of these taxes can be recovered from the Tax Ministry when exporting second-hand vehicles, generating a strong vehicle export activity in Denmark. There is also a thriving illegal export sector (export of ELVs as second-hand vehicles for example), which takes advantage of the refund of the import tax. Furthermore, because of the inadequate traceability with regards to the tax reimbursement, it is difficult to obtain actual figures concerning the number of exported second-hand vehicles. There is also little certainty when assessing the flows in this sector, notably those used to estimate the number of ELVs directed towards the illegal channel.

5.1.1.3.2 Monitoring and control sector actors

Environmental Protection Agency (EPA)

The Environmental Protection Agency is the equivalent of ADEME in Denmark. Its role is to ensure the functioning and monitoring of the sector. The EPA also actively works with sector actors to ensure they all comply with their obligations.

The EPA issues licences to ELV centres, although this process also involves other actors. In fact, municipalities actually issue environmental permits to the ELV centres that wish to obtain licences. ELV centres must then register them into the DPA-System, the ELV sector administrative management system. After that, the EPA issues the required licence to begin (or continue) the ELV dismantling and decontamination activity. It should be noted that municipalities are the main actors in charge of controlling ELV centres and shredding units.

In addition, the EPA handles the DPA-System which monitors the ELV sector and organises the scrapping premium. The EPA is in charge of the overall management of the funds used to finance the scrapping premium: the EPA recovers the fees collected by insurers, and transfers them to the fund within the DPA-System on a monthly basis. The DPA-System is then in charge of paying out the scrapping premium to those eligible (see **Figure 12**).

DPA-System: administrative manager for the sector

DPA-System [8] is the non-profit organisation in charge of the administrative management of the ELV sector since January 1st 2014. DPA-System was created in 2009 to ensure the administrative management of the EPR schemes for batteries and waste electrical and electronic equipment, which still fall within its scope of responsibility. For the ELV sector, DPA-System supports the following tasks, for which there are six dedicated FTEs:

- Update of the registry of vehicle importers;
- Registration of ELV centres in the list of authorised ELV centres;
- Annual quantitative monitoring of the sector, via the annual declaration of ELV centre performance;

[8] DPA for Dansk Producent Ansvar, literally “Responsibility of Danish Producers”

- Management of the scrapping incentive: all forms to request a scrapping premium are sent to DPA-System. These forms are checked and the data is entered into the system to initiate the payment of the scrapping premium.

DPA-System also acts as a referent for all questions related to EPR for all sector actors. The organisation must inform the EPA of each of its tasks, to guarantee a correct understanding and application of environmental laws.

This organisation is therefore part of the scheme which allows car importers to fulfil part of their obligations with regards to their extended producer responsibility, i.e. quantitative monitoring and administrative management of the sector. As such, 50% of funds used by DPA-System are provided by importers, in line with the importers' market share: see Automobile producers (importers). These funds are supposed to cover the costs associated with the tasks endorsed by DPA-System to meet producer responsibility (registration of importers and ELV centres, information provided to actors, monitoring of the sector). The EPA directly funds the rest of the DPA-System requirements, i.e. approximately 5M DKK per year (about 670k euros). This theoretically covers the costs related to the administrative management of the scrapping premium (in practice, this is not part of the producers' scope of responsibility). The funding directly comes from the amounts collected through the parafiscal tax on car insurances, set up to finance the scrapping premium (see **Collection of the parafiscal tax**).

It should be noted that the ELV sector was directly managed, from an administrative point of view, by the automotive importer association, De Danske Bilimportører. They had an entire team dedicated to this mission that was transferred to DPA-System in 2014. To date, the president of the importers' association still sits alongside other producer representatives on the board of directors of DPA-System.

Municipalities and local authorities

In their area, local authorities control ELV centres and shredder units, via their environmental inspection services. As such, the law set a three-year interval between each ELV centre inspection by environmental inspectors from the municipality. During these inspections, the inspectors check that decontamination and decommissioning processes comply with a number of criteria (safety of the installations, environmental performance of the site, performance monitoring, etc.).

After these inspections, the ELV centre is rated according to the criteria, and this score determines the frequency at which inspectors check the site. If the ELV centre receives a poor score, inspectors will check the site more often to ensure that an improvement approach is set up to amend the differences observed with regards to the centre's obligations. In practice, most ELV centres are inspected every year by municipalities.

If major irregularities are observed during an inspection, authorities may oblige the centre to make the required changes. It then has three months to correct the irregularity. However, the municipality has no coercive power: if the irregularity is not corrected within three months, it can inspect the ELV centre again, and can issue a second injunction if nothing was done to improve the situation. ELV centres can be financially penalised for non-compliance with their legal obligations, but this sanction is rarely enforced due to the procedure's administrative burden: environmental inspectors do not have the power to directly sanction ELV centres, and must obtain a police report before placing an appeal to the court which will then decide on a sanction.

Finally, municipalities are in charge of issuing environmental permits to ELV centres, allowing them to obtain their licence from the DPA-System (with EPA upstream validation).

5.1.1.3.3 Actors in ELV processing

ELV centres

Authorised ELV centres are the only businesses allowed to accept ELVs for dismantling and decontamination. There are 198 authorised ELV centres in Denmark, scattered throughout the country, in order to have an extensive network to meet importer obligations. On average, these ELV centres process approximately 150 ELVs per year, although centres with larger processing capacities (more than 500 ELVs per year) do exist in the territory. As explained above, most ELV centres, excluding those belonging to the Refero network, require payment for their decontamination services.

ELV centres are represented by the Dansk Autogenbrug (DAG) association, that plays the role of spokesperson for ELV centres when dealing with the State and partners of the sector. The association also promotes the use of second-hand spare parts throughout the territory. It has 70 members, and almost all Refero ELV centres are DAG members.

Similarly to the French situation, Danish ELV centres must meet certain regulatory requirements and must have a set of authorisations and certifications to obtain the required licence for their activity.

Obtaining an authorisation

An ELV centre may receive an authorisation if it meets one of the following conditions:

- Having an ISO 14001 certified environmental management system;
- Having an ISO 9001 or ISO 9002 certified quality management system;
- Having an EMAS certified environmental management system (European ISO 14001 certification).

These certifications can only be obtained from third-party certifying bodies, which verifies that practices and equipment in an ELV centre comply with the criteria required for that certification during a certification audit. The ELV centre must choose and appoint its own certification body to become certified. The certification is valid for three years, at the end of which the ELV centre renews the certification procedure. Such certification involves an annual follow-up audit, and a more extensive audit for the first certification, as well as for its renewal. The ELV centre is free to change certification bodies when it wishes.

In addition and prior to this certification, the ELV centre must obtain an environmental permit from local authorities, issued as a result of site inspections by environmental inspectors. This environmental permit also entails a control visit every three years by the authorities that issued the permit. The frequency at which the centre is monitored mainly depends on the means implemented by local authorities, as well as the level of risk estimated from observations made by environmental inspectors. They can decide on more frequent checks if required.

Once ELV centres obtain these documents, ELV centres must register via the DPA-System platform to finalise their application for an authorisation. The EPA then accesses the requests and delivers a licence to ELV centres which meet the conditions mentioned above. Once an ELV centre is licensed, it is identified with a unique identification number and is included in the list of authorised ELV centres on the DPA-System website. This unique identification number is used to link scrapping premium requests to the ELV centre which processed the vehicle in question.

Scope of responsibility and ELV processing obligations

Vehicles processed by ELV centres as part of the Extended Producer Responsibility (EPR) are light vehicles (passenger cars up to 9 seats) and light commercial vehicles

(with a maximum total weight of 3,500 kg). ELV centres are required to carry out the following processing operations:

- Draining all vehicle fluids, i.e. fuel, engine oil, brake fluid, etc.
- Dismantling plastic bumpers, accumulators and other batteries, tyres, catalytic converters, airbags, mercury switches, audio equipment, pressure vessels... etc.

Beyond these requirements, the ELV centre may choose to dismantle other valuable parts, either for reuse or for recycling. For reuse, the part must be reconditioned (this usually involves a simple cleaning step) and its functionality tested before it can be sold on the second-hand market.

Reporting

Each year, ELV centres must report their annual performance to DPA-System and to the municipality. As required, they report the figures of the number of ELVs received for processing, the tonnage of extracted materials and their final destinations, the number of ELV sent for shredding, etc. These statistics can be checked by authorities during on-site inspections. The figures reported in DPA-System are used to establish national statistics on the performance of the sector, which are transmitted to Eurostat. The DPA-System Annual Reporting Tool already contains some data via the applications for scrapping premiums for specific ELV centres, including the number of ELVs processed and for which the final owner has received a scrapping premium. This figure can be used to check for consistency by comparing the tons of extracted material with the number of ELVs processed.

Shredders

There are two companies in charge of shredding in Denmark, who each only have one shredding site in the country. Overall, the market is equally distributed between both companies. ELVs for shredding are imported from Norway, but this remains marginal when compared to the national ELV shredding activity.

Shredders received decontaminated ELVs from ELV centres. There are two supply channels:

- Either via their internal network of buyers, in charge of contacting ELV centres and buying their stock at the best price, directly on site;
- Or via ELV traders, who buy ELVs from ELV centres and resell large volumes to shredders in order to negotiate interesting prices.

The first channel is preferred by shredders as it allows them to have more control over the quality of incoming flows.

Obligations to achieve sector targets and reporting

As the entire sector is subject to reuse, recycling and recovery targets, shredders are an essential link in achieving these targets. To do so, they are included in the common effort of sorting as much as possible the different materials extracted from vehicles during shredding. This is especially the case for plastics, which are sorted out from the rest of the streams for recycling. Unfortunately, the market for these kind of recycled plastic is not mature enough in Denmark to make this operation economically attractive, and the recycling of sorted plastic streams after shredding is still at an experimental stage.

Shredders are required to report the volumes of plastic, glass and metal produced from their shredding operations to the EPA every year, as well as the tonnages of ELV car bodies received from ELV centres. This data is used to establish the sector's annual statistics.

The quality of the supply is highly inconsistent

Shredders have repeatedly pointed out the highly inconsistent quality they receive from ELV centres. According to shredders, the ELV decontamination process is not always carried out correctly within many ELV centres. This can lead to significant safety problems during the shredding process. Some ELV centres would use ELVs to dispose of various types of waste, hazardous or not, by filling the ELV with waste before crushing upstream of the ELV delivery to the shredder. Despite these issues, shredders do not consider themselves legitimate to report companies that do not comply with their obligations since they are economically dependent on the incoming flows of ELVs and therefore on ELV centres. This financial motive also explains why shredders do not report ELV purchases from illegal channels to the EPA despite their regulatory obligations.

5.1.1.3.4 Other actors of the ELV sector: insurance companies

Even though insurance companies do not have an actual role in the management and organisation of the ELV sector, they appear to be major players, especially given the flows of ELVs they are in charge of. For example, in the case of an accident involving irreversible damage to a vehicle, the insurance company buys the vehicle from its owner and takes care of its delivery to an authorised ELV centre. Therefore, when a vehicle is damaged to more than 70% of its market value during an accident, i.e. when the cost of repair exceeds 70% of the vehicle's estimated price on the market, the vehicle is considered as totally destroyed and is not repaired. The insurance company must then buy the vehicle from its owner and, if the latter agrees[9], is in charge of its end of life. For example, the insurance company will sell ELVs to the highest-bidding ELV centre. The vehicles offered for sale by insurance companies are usually interesting in relation to the reuse parts they contain: they generally contain second-hand parts in good condition, which are used to supply the second-hand part market. These ELVs are therefore usually purchased at decent prices.

Moreover, vehicles considered as economical write-offs lose their "right to be registered", which is obtained via the payment of an import tax, as mentioned previously. An ELV centre which wants to put an economical write-off purchased from an insurance company back on the market after repairs and various compulsory technical inspections will have to pay a second fee equal to the original import tax. By paying this fee and gaining a roadworthiness test approval, the vehicle can then be reregistered and returned on the market as a second-hand vehicle. However, the value of the tax is highly dissuasive for most vehicles (even if this is passed on the sale price), and ELV centres generally prefer to destroy the vehicles. As a consequence, and partly because of the tax, many economical write-offs that could still technically be repaired and returned to the market are destroyed. Note: small vehicles have lower taxes (because of models, fuel consumption, etc.), and a repair and resale activity exists as the tax appears less dissuasive.

Insurance companies use two major channels to sell their stocks of ELVs, usually one by one:

- Directly selling ELVs to one or more ELV centres in a private channel;
- Selling ELVs via online platforms, to which only authorised ELV centres have access through their licence number. ELVs are put up for sale online and anonymously by insurance companies during auctions, and the highest bidder wins the ELV. Note: the use of the platform is subject to a commission fee on all transactions, which explains the development of a second channel of direct sales.

[9] When the owner refuses the offer made by the insurer, then he remains the owner of the damaged vehicle and becomes responsible for disposing of the vehicle at an authorised ELV centre.

Finally, insurance companies play a major role in the scrapping incentive scheme. In order to get all the road users to fund the scheme, insurance companies (with all vehicles insured to circulate on public roads in Denmark) must collect the parafiscal tax (see **Functioning of the** scheme).

5.1.1.3.5 Zoom on the illegal channel and the irregularities of the sector

Overall, all actors interviewed seem to agree on the absence of an illegal large-scale dismantling sector, although they recognise that a few businesses do have operations in that sector. Given the scale of the country, similar to the former Rhône-Alpes region, it seems difficult to imagine the existence of illegal ELV centres managing large flows of ELVs on the Danish territory, as it would not be discreet. Thus, the actors interviewed believe that there is a small scale and relatively fragmented illegal dismantling activity in the territory. Municipalities are usually in charge of fighting against these illegal actors (control and closing of illegal sites, with the means that are available to them).

Most illegally trafficked vehicles would be exported from the territory, due to the shredder's obligation to only accept ELVs from EPA-authorised centres. ELV export actors include ELV "traders" (see part ***Shredders***) who buy dismantled ELVs from authorised and non-authorised actors to get good prices by pooling the flows and selling them back to shredders. If the "traders" consider that the prices of ELVs from Danish shredders are not interesting, they can sell their goods via the illegal channel, by illegally shipping ELVs to other countries.

Illegal export, before or after dismantling, especially to Germany or by boat to Africa, represents an activity which *seems* to be flourishing, and that sometimes includes significant fraud with regards to refunding the import tax (see **automobile producers (importers)**).

Globally, actors of the ELV sector have little knowledge on how the illegal channel works, as there is greater focus on fighting against unauthorised disposal of ELVs than against the illegal channel. However, actors agree that the issue of illegal export is more important than illegal dismantling in the country, which does not appear to be crucial in Denmark.

Sector companies more voluntarily point out irregularities in the legal channel, such as:

- An alarming number of ELV centres which fail to meet their decontamination targets (fluids not drained, airbags not triggered, etc. resulting in risks for the following ELV destruction processes);
- The lack of control and sanctions from public authorities against these ELV centres;
- The lack of control of vehicle and ELV flows, thus increasing uncertainties during the sector's quantitative overview and the estimation of the flows going towards the illegal channel;
- The need to increase the reliability and the security of the scrapping premium application form in order to limit fraud.

5.1.2 Functioning of the incentive scheme

5.1.2.1 Description of the scheme

In Denmark, as of the 1st of June 2000, a scrapping premium was introduced in application of the law of 2 June 1999. This law was initially put forward by the Environmental Protection

Agency (EPA) of Denmark and, in anticipation of EU legislation on ELVs, by EPR leaders in the country, i.e. automotive importers (via the importers association, Deke Bilimportører).

Owners of end-of-life vehicles (ELV) thus paid a fixed premium of 2,200 DKK (approximately 300 euros) when sending their ELV for destruction in an authorised ELV centre. This scrapping premium is funded by the drivers themselves via a parafiscal tax which must be paid annually. It is collected by insurance companies via the payment by policyholders of the car insurance premium, which is compulsory to drive vehicles on public roads in Denmark. The premium and parafiscal tax amounts are reviewed every four years. Since 2016, the tax is of 84 DKK (about 11 euros) per insured vehicle per year.

It should be noted that the scrapping premium scheme is only applicable to passenger cars up to 9 seats, and to vans with a maximum total weight of 3,500 kg.

5.1.2.2 Targets for this scheme

When it was initially launched, the scheme essentially aimed to tackle the health, safety and environmental issues posed by abandoned ELVs. Indeed, large numbers of ELVs were abandoned in public spaces or in the countryside. The measure aimed to resolve these issues, by encouraging the processing of ELVs in authorised ELV centres, which could be too expensive for some citizens in the past (before the application of European Directive 2000/53/EC of 18/09/00 on end-of-life vehicles, which requires ELVs to be processed in ELV centres for free in Europe).

Beyond these environmental and health considerations, the scheme is now perceived as a tool to effectively control the activities of ELV centres. To trigger the payment of the scrapping premium, ELV centres are required to report the number of accepted ELVs to the EPA, thus providing additional means of control over the annual reporting: comparing the recovered volumes of fluids, tyres, batteries, etc. with the number of ELVs actually processed.

Finally, and to a lesser extent, the scheme appears to most actors as a useful tool in the fight against the illegal channel, giving authorised ELV centres competitiveness compared to illegal ELV centres. It can also make users participate in the scheme's funding, by responsibly choosing their ELV centre.

5.1.2.3 Functioning of the scheme

The scrapping premium, the role of each actor and the different financial flows are detailed in Figure 12.

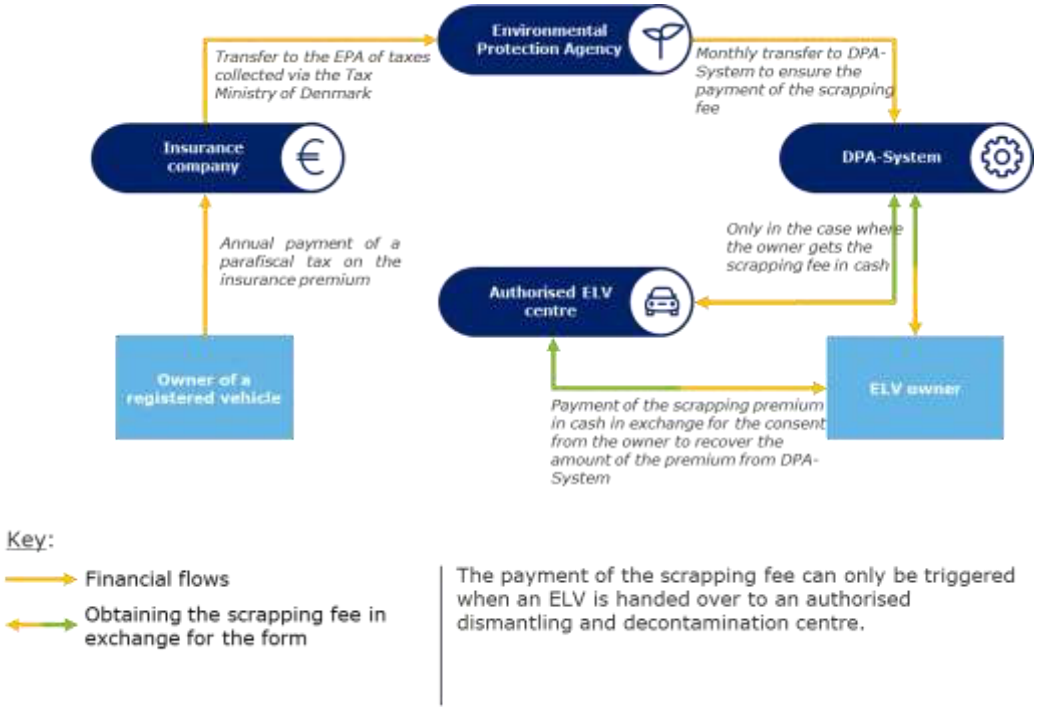


Figure 12 : Scrapping premium funding scheme

5.1.2.3.1 Collection of the parafiscal tax

The scheme is funded by a parafiscal tax collected by insurance companies, as all individuals must be insured to drive on public roads in Denmark.

This tax is set at 84 DKK per year, or approximately 11 euros, and this amount is reviewed every four years, similarly to the scrapping premium. In recent years, the tax has been reduced (and the premium increased) several times, in light of the balance of the fund used to finance the premium.

The tax is paid by the insured people in the same way as their insurance premium, and can be paid in instalments according to the contract between the insurer and the policyholder (monthly, quarterly, semi-annually or annually). The insurance premium in Denmark varies according to the driver, the model of the car and its age, from 5,000 to 10,000 DKK (about 700 to 1,400 euros). Therefore, the value of the tax is very small when compared to the insurance premium's total cost, representing between 0.8 and 1.6% of the annual amount paid to insurers.

The taxes collected are remitted to the Tax Ministry of Denmark every month, which is the French equivalent of the Ministry of the Economy and Finance. In 2018, 247.2M DKK (about 33.1M euros) were collected thanks to this parafiscal tax on insurance. It should be noted that a certain share is intended to fund the DPA-System, in order to cover the scrapping premium's management costs, reaching approximately 5M DKK per year (approximately 670,000 euros).

5.1.2.3.2 Payment of the scrapping premium

Amounts collected by insurers are paid in full each month to the Tax Ministry of Denmark and then to the EPA fund used to finance the scrapping premium.

On a monthly basis, the EPA estimates as accurately as possible the total sum that will be paid to users the following month as part of the scrapping premium, based on statistics from previous years. This amount is communicated to DPA-System which then sends an invoice to the EPA equal to the amount communicated. The EPA then

transfers the estimated amount to the DPA-System's account, which is then responsible for the scrapping premium's distribution according to the requests received. If needed, monthly adjustments can be made to meet the scrapping premium requests received by DPA-System.

The scrapping premium is of 2,200 DKK, approximately 300 euros. It can only be transferred to a bank account and cannot be paid in cash directly from the EPA or DPA System. There are, however, alternatives to get a cash premium (see **Procedure to obtain the scrapping** premium). The premium is not taxable for individuals.

In 2018, almost 250M DKK (approximately 33.4M euros) were paid as part of the scrapping premium. This fund seems to be in deficit, when comparing the amounts collected and those paid in 2018. In fact, the fund was profitable for many years and the deficit was only voluntarily implemented since 2016, through a substantial increase in the scrapping premium. The aim is now to restore the financial balance of the fund.

5.1.2.3.3 Procedure to obtain the scrapping premium

The procedures to obtain the scrapping premium are described in Law No. 372 of 2 June 1999, enforced through Decrees Nos. 860 of 29 November 1999 and 141 of 25 February 2000. These texts describe the scope of application, eligibility provisions to receive the premium and different exceptions. They also include actual means to obtain the scrapping premium.

Scope of application

Only light vehicles (passenger cars up to 9 seats) and light commercial vehicles (with a maximum total weight of 3,500kg) are eligible for the premium. Cars that were burnt are eligible for the premium.

To receive the scrapping premium, the vehicle must have been registered in Denmark and deregistered after the 1st July 2000, when the scheme was launched. Most often, vehicles are deregistered when delivered to an ELV centre, by the authorised centre itself. All ELV centres have direct access to the online vehicle deregistration tool. The vehicle's license plate is removed and immediately returned to the ELV centre for destruction when a vehicle is deregistered. It should be noted that driving on public roads without registration is forbidden, though it can still be used on private land.

Only authorised ELV centres may handle ELVs for decontamination and dismantling (see criteria and procedure for obtaining a licence in the part **ELV centres**). They are therefore the only ones able to trigger the payment of the scrapping premium.

Eligible people

The people eligible for the scrapping premium are the last registered owners (via the vehicle registration system) sending their ELV to an authorised ELV centre for destruction. Eligible people can choose between two types of payment:

- They either fill out the scrapping premium application form themselves (valid for a certificate of destruction) and send it to DPA-System by mail once the vehicle is deregistered and the form signed by the ELV centre to which the vehicle was delivered for destruction. In this case, they receive the scrapping premium directly on the bank account whose IBAN was indicated on the application form. To date, the identity of the person applying for the premium is checked against the identity of the person holding the account receiving the scrapping premium;
- Elsewise, the scrapping premium application form is sent by post to DPA-System by the ELV centre processing the ELV, with the written agreement of

the owner. In this case, the ELV centre gives all or part of the cash premium to the owner of the ELV. All the administrative procedures to receive the scrapping premium are made by the ELV centre, who directly receives the full amount of the premium. In this most widespread configuration, the final owner does not usually receive the full premium, as part of it is deducted by the ELV centre to cover its administrative costs, or sometimes its processing and decontamination costs depending on the ELV's condition.

Most ELV centres in Denmark set fees for ELV management, especially the decontamination stages, which represent a cost for the ELV centre. This billing is not in line the ELV directive which requires the free return of vehicles as long as they are complete. However, ELV centres from the Refero network are not concerned as they are required to return the full premium to the last owner and to handle the ELV free of charge.

Specific cases

There are a number of specific cases for which the last owner does not receive the scrapping premium (or signs the premium transfer form for the ELV centre in exchange for all or part of the cash premium). These specific cases are defined below:

- The last registered owner is deceased: in this case, a power of attorney may be given by a notary to one of his heirs (in agreement with the rest of the heirs) who will then receive the scrapping premium provided a proxy document is included with the application form. If not, the notary may directly proceed to the destruction of the vehicle in an ELV centre and the sum corresponding to the scrapping premium is added to the rest of the inheritance before it is shared between the heirs, provided the appropriate document is included with the application form;
- The last registered owner gives power of attorney to another person to destroy the vehicle: this person can apply for the scrapping premium provided a proxy document is included with the application form;
- The last registered owner is declared unable to request the destruction of his vehicle: the premium can be requested by the owner's relatives, provided a sworn statement attests of the owner's inability to proceed to the destruction of his vehicle;
- The vehicle was abandoned on public roads[10]: In this case, the municipality or police services check the identity of the last owner using the car registration. If the owner is not found, the municipality or the police have the vehicle removed (by a third party, usually paid for by part of the premium) and dismantled in an authorised ELV centre. Municipality or police services will then receive the scrapping premium, provided the required documents are presented;
- The vehicle has been purchased by the insurance company of the insured party following an accident causing irreparable damage (if the cost of repairs exceed 70% of the value of the vehicle). In this case, the insurer is considered as the last owner of the vehicle and can receive the scrapping premium if the vehicle is destroyed.

It should be noted that an exception was recently removed from the regulatory framework on the 1st July 2018. If a second-hand vehicle is sold to another person for repair, and this person does not immediately proceed to its registration (pending the refurbishment of the vehicle), then this person is not *a priori* entitled to the scrapping premium if the vehicle is handed over to an ELV centre: only the last owner having

[10] In the event the vehicle is deemed abandoned after an impoundment procedure, the car pound does not become the owner of the vehicle. Only the municipality may receive the scrapping premium. However, the car pound is compensated for the service rendered, notably using the scrapping premium paid to the municipality.

registered the vehicle is entitled to claim the premium. Furthermore, the person who purchased the vehicle and who did not reregister it has to prove, in order to claim the scrapping premium when the vehicle was destroyed, that it was bought for repair but that these repairs were not possible. Given the complexity of this particular case, the EPA removed it from the scheme. In addition to the exceptions mentioned above, only the last registered owner of the vehicle is eligible for the scrapping premium.

If a vehicle breaks down abroad and is handed over to foreign authorised ELV centres, it is still possible to receive the scrapping premium. This is done by providing the certificate of destruction issued by the legal ELV centre as well as the vehicle's license plate to an organisation able to deregister a vehicle (an authorised ELV centre for example, or the SKAT, the vehicle registration authority). A special request is then made to the scrapping premium manager by providing the certificates of destruction and deregistration as well as any information required to receive the payment (full name, bank account, etc.).

Conditions to apply the scrapping premium

At the moment, payment of the scrapping premium is requested on paper, via the certificate of destruction. This document is available online on the DPA-System website[11], from the scrapping premium manager or from all authorised ELV centres, to be printed and filled in. It must be sent to DPA-System by post and validated to trigger the payment of the premium.

To receive the scrapping premium, the form must be filled out by the last registered owner (exceptions - see above), the vehicle must be handled by an authorised ELV centre able to dismantle the said vehicle and it must be deregistered (step required to issue a certificate of destruction).

The front page of a blank certificate of destruction, used as the scrapping premium application form, is shown below:

[11] https://www.bilordning.dk/

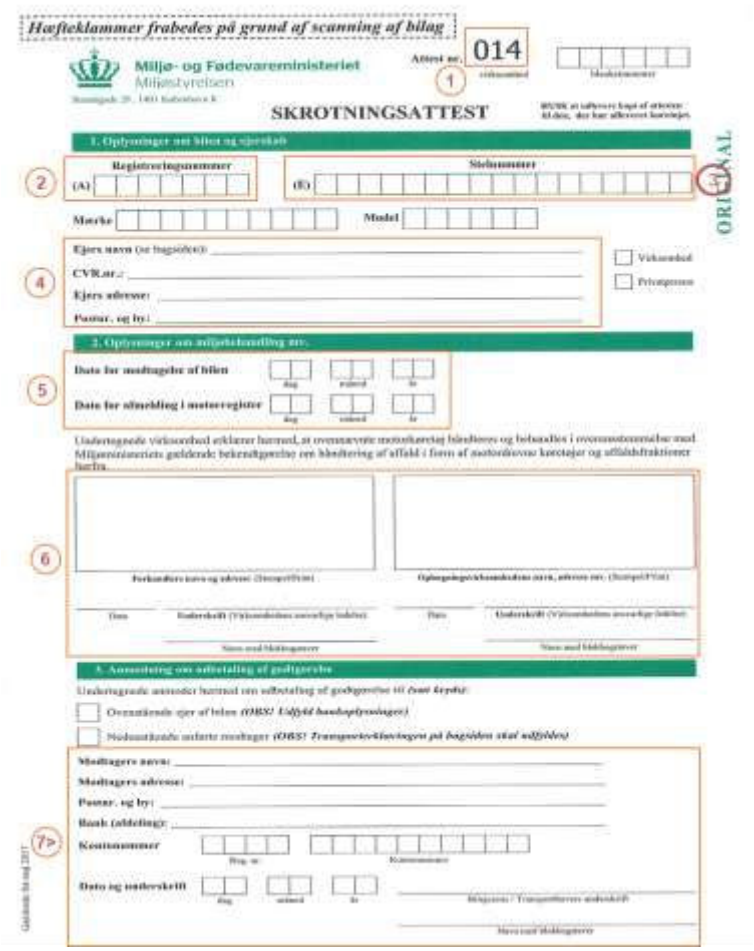


Figure 13: Front page of the blank scrapping premium application form, containing the main identification information on the ELV, the owner and the ELV centre.

The following information is required to fill in and validate the Certificate of Destruction, which is then used to claim the scrapping premium:

1. The identification number of the authorised ELV centre: all accredited ELV centres are recognised by the unique identification number they were given by the EPA upon applying for a licence. With this number, the authorised ELV centre processing the ELV can be identified, and the number, information and signatures in box 5 can be checked;
2. The registration number of the vehicle: this registration number binds the vehicle to its last owner. By filling in this number, the last owner must:
   a. Have already deregistered the vehicle and therefore provide a proof of deregistration, via the vehicle registry to which the ELV centre has access, or by providing a certificate of deregistration. A vehicle can be deregistered, even when it is not yet an ELV. To do so, the vehicle is deregistered by an authorised centre or organisation in charge of registrations, and the license plate of the vehicle is returned and then destroyed. For example, a vehicle used on private land can be deregistered as registration is not mandatory in this case;
   b. Deregister the ELV directly with the ELV centre: in this case, after the removal of the registration plate, the ELV centre will carry out the vehicle's online deregistration by accessing the deregistration tool. The registration certificate must of course be provided;

3. The Vehicle Identification Number (VIN): This number is linked to the vehicle, so connects the vehicle and its registration and therefore links it to its last owner via the vehicle registry. The VIN makes it possible to check the identity of the ELV's owner against the identity of the person applying for the scrapping premium;
4. Personal information, including owner address and full name. The surname and first name must be identical to those found in the vehicle registry for the last owner of the vehicle;
5. The vehicle deregistration date must match the date listed in the vehicle registry as well as the date the ELV was handed in to an authorised ELV centre;
6. The signature of the person handing in the vehicle must match, with some exceptions, that of the last registered owner of the vehicle. In the same manner, the signature (or stamp) of the ELV centre in charge of dismantling the vehicle must match the information linked to the identification number of the authorised ELV centre, entered in box 1;
7. The bank details of the person or entity receiving the scrapping premium, depending on whether the owner has decided to receive the premium directly in his account, or a cash payment from the ELV centre which will then be sent the premium if applicable (by filling here his bank details).

In the case where the ELV owner wants to receive the premium as a cash payment from the ELV centre, the latter receives the premium from DPA-System. The owner must then fill in the back of the previous document (see **Figure 14**), in which he certifies receiving a cash premium from the ELV centre.

Skal sendes til:

Miljøordning for Biler
Vesterbrogade 6D, 4.
DK-1780 København V

VEJLEDNING TIL UDFYLDELSE AF SKROTNINGSATTESTEN

Oplysninger om bilen og ejerskab
Oplysninger om registrerings- og stelnummer finder du på bilens registreringsattest.
Ejers navn og adresse mv. skal være aktuel folkeregisteradresse. Hvis et forsikringsselskab ved konstatering af en total-skade har overtaget en bil, skal forsikringsselskabet anføres som ejer.

Oplysninger om miljøbehandling mv., herunder afmelding af bilen
Afmelding af bilen kan foretages hos SKATs motorcenter og hos godkendte nummerpladeoperatører (se www.skat.dk)."Dato for afmelding" skal være den dato, som fremgår af motorregisteret.
Der skal være påført underskrift og dato relevante steder. Navn på den, der underskriver, skal samtidigt anføres tydeligt med blokbogstaver.

Anmodning om udbetaling af godtgørelse
Skal udbetalingen ske til ejeren, skal feltet "Ovenstående ejer af bilen" afkrydses, og der skal påføres oplysninger om bankkonto til brug for bankoverførsel.
Hvis skrotningsgodtgørelsen ønskes udbetalt en anden person/virksomhed end ejeren, f.eks. den registrerede virksomhed efter den forhandler, der modtager bilen, skal der sættes kryds i feltet "Nedenstående anførte modtager", og navn, adresse mv. samt oplysninger om bankkonto for godtgørelsesmodtageren udfyldes. Desuden skal nedenstående "TRANSPORT-ERKLÆRING" udfyldes. Anmodningen skal underskrives af bilejeren.
Der skal være påført underskrift og dato relevante steder. Navn på den, der underskriver, skal samtidigt anføres tydeligt med blokbogstaver.

Vejledning om reglerne generelt
For generel vejledning om reglerne om skrotningsgodtgørelse se www.bilordning.dk

UDBETALING AF GODTGØRELSE
Godtgørelsen kan udbetales når følgende betingelser er opfyldt: køretøjet er indleveret til særskilt behandling, køretøjet er afmeldt i Køretøjsregisteret og der er ikke opnået godtgørelse af registreringsafgiften hos SKAT.
Udbetalingen af godtgørelsen sker når Miljøordning for Biler (på ovenstående adresse) har modtaget skrotningsattesten.

(PS: Fold attesten på midten – så passer den i en standard rudekuvert)

TRANSPORTERKLÆRING

1 Undertegnede _____
transporterer hermed uigenkaldeligt mit krav på skrotningsgodtgørelse.

2 til: (Navn/firma som anført på forsiden)

Jeg har modtaget skrotningsgodtgørelsen og erklærer samtidigt under strafansvar, at der ikke er gæld i køretøjet:

_____ Dato

3 _____ Bilejerens underskrift
_____ Navn med blokbogstaver

Figure 14 : Back of the blank scrapping premium application form, allowing the ELV centre to receive the scrapping premium in exchange for a cash payment to the last owner

The following information is required for the ELV centre to receive the scrapping premium and pay the ELV owner in cash:

1. The name of the owner, which must match the information entered on the front page of the form;
2. The name of the ELV centre, which must match the information entered on the front page of the form, including the ELV centre identification number;
3. The signature of the person handing in the vehicle, which, with some exceptions, must match that of the last registered owner of the vehicle.

Main verifications

Upon receipt of the scrapping premium application form, DPA-System systematically checks:

- The vehicle deregistration: the scrapping premium cannot be paid if the vehicle appears as still registered in the vehicle registry;
- The authorised ELV centre identification number: a Certificate of Destruction can only be issued by an ELV centre registered with the EPA;
- That the premium has not already been requested for the vehicle (via the VIN);
- The signature of the owner appearing on the form, compared to that of the last registered holder linked to the registration of the vehicle.

If there is any doubt as to the veracity of the information, additional checks may be made, especially in relation to the consistency of the information provided with that of other available databases (vehicle registry and list of approved ELV centres).

5.1.2.4 Implementation of the scheme

5.1.2.4.1 Key phases

Originally, the scrapping premium was inspired by a joint discussion between car importers and the EPA, seeking to meet their broader responsibility as producers[12], prior to the enforcement of the European legislation. A set of schemes were assessed, including the implementation of a deposit on new vehicles for example. However, as the price of new cars was already particularly high in Denmark due to high import taxes, importers, in agreement with the EPA, decided to fund the scrapping premium through taxing the use of the vehicle rather than its purchase.

Actors in the sector therefore agreed to implement the scrapping premium as it is designed today. Insurance companies, the collectors of the parafiscal tax, do not take any responsibility during the collection, but their implication makes it possible to highlight their important role in the management of end of life of vehicles. This positive spotlight on their contribution to the environmental management of ELVs has been a motivation for their implication.

Therefore, on 2 June 1999, the Danish Parliament ratified, through Law 372, the implementation of an ELV scrapping premium, funded by a parafiscal tax on motor insurance, mainly to fight against the illegal disposal of ELVs on public roads and in the countryside. This law was enforced through Decrees No. 860 of November 29 1999 and No. 141 of February 25 2000, describing the terms and conditions for the implementation of the scrapping premium, as well as the obligations related to the management of waste motor vehicle.

[12] As there are no car manufacturers in the country, the importers have been in charge of implementing the EPR.

The scrapping premium was officially enforced on 1 July 2000. Before its launch, in June 2000, the scheme was explained to citizens via an information campaign, repeated in December 2000. An information meeting was also held with authorised ELV centres and those about to receive their authorisation.

At the start of this scheme, the scrapping premium value reached 1,500 DKK (approximately 200 euros) and the parafiscal tax used for its funding was 90 DKK (about 12 euros) per year and per insurance contract. These values are reviewed every four years in order to achieve a system that reaches a financial balance (avoiding both collection surpluses and deficits). Today, the tax has been reduced to 84 DKK (approximately 11 euros) while the value of the scrapping premium has considerably increased, reaching 2,200 DKK (approximately 300 euros) in 2017. This increase was decided following the publication of a study commissioned by the EPA on the efficiency of the scheme: for example, calculations showed that an increase in the scrapping premium would lead to a higher number of ELVs handed via the legal channel, limiting negative externalities associated with this increase (increase in annual premiums, effects on the second-hand market) and optimising positive externalities (cost of spare parts, recycling of resources). The effectiveness of this increase has been assessed since.

It should be noted that a scheme similar to the scrapping premium had already been set up before. During a campaign to encourage the destruction of older vehicles, a scrapping premium was paid based on a set of conditions, including the age of the vehicle.

5.1.2.4.2 Means implemented (financial, legal, human, technical, etc.)

A set of means had to be allocated by the government and the actors of the sector to help implement the scheme.

Firstly, the fund used to pay out the scrapping premium had to be initially financed from the budgets of the Tax Ministry of Denmark and the EPA. When the scheme was first implemented, an initial fund sufficient to pay out the scrapping premium while awaiting the collection of the annual fee was required. This was only financed once at the time the scheme was launched. Since then, the fund has been financed by parafiscal taxes on insurance. The tax and the premium were therefore set at such a value that the fund remained at a financial balance (avoiding deficits and limiting surpluses). The information on the budget needed for the first year of funding could not be found in this study. The only available information is that it has been calculated from an estimate of the number of ELVs shredded over the course of a year.

An independent organisation was then in charge of the management and secretariat of the scheme. This non-profit organisation called Miljøordning for Biler (MOB) was initially administered by De Danske Bilimportører, the Association of Automotive Importers. As the idea of a scrapping premium was originally their initiative, it seemed logical to ask them to manage the scheme at first. However, in 2014, the administrative management of the scrapping premium was transferred to DPA-System, which was already in charge of monitoring EPR schemes such as batteries and WEEE. MOB teams in charge of managing the scrapping premium before 2014 were transferred to DPA-System, to maintain the same teams for the administrative management of the scrapping premium. A team within the EPA is also in charge of monitoring the ELV sector as a whole (including managing the financial balance of the premium fund).

Thus, the administrative management of the scrapping premium, in its current configuration, requires six FTEs in total. The funding of DPA-System linked to its activiies in relation to the ELV sector is estimated at 10 million DKK (about 1.3 million euros) per year (5M DKK for the administrative management of the sector and 5M DKK for the administrative management of the scrapping premium) and is split 50-50 between the EPA and importers. Importers pay their share as a subsidy for registered

vehicles on the road and contribute in proportion to their market share. It should be noted that in the future, the management costs related to the scrapping premium will lower, given the changes in the management system: the digitisation of the scrapping premium application process (see Erreur ! Source du renvoi introuvable.) should reduce the number of people required for the administrative management of the premium to 1.5 FTE.

Finally, there have been several communication campaigns since the launch of the scrapping premium, specifically to raise awareness among citizens on the disposal of their ELVs in authorised centres, in order to ensure good environmental waste management. A major information campaign was organised in May 2016 by the EPA, with a series of public awareness workshops involving actors in the sector (shredders, ELV centres), distribution of flyers and poster campaigns. Actors in the sector eagerly wait for these awareness campaigns funded by the EPA. They feel the positive effects these campaign have on their activities.

5.1.2.4.3 Challenges faced

No major issues were encountered during the implementation of the scheme. All actors in the ELV sector have participated in developing the scheme and met regularly to discuss developments in the sector as a whole. Furthermore, since the scheme was first set up for environmental reasons, it found some form of consensus among actors in the sector. More specifically, insurers have fully agreed to take on the task of collecting the parafiscal tax, making it possible to highlight the public utility of their services.

However, ELV centres, at the heart of the scrapping premium scheme, have some reservations about this system: even though it is favourable to their business, the scrapping premium requires ELV centres to sometimes handle large cash flows due to the very large number of ELV owners wanting their premium paid in cash. These ELV centres sometimes have a "banking" role, paying the owners their scrapping premium and receiving the premiums directly into their accounts at a later date. With unscrupulous owners, who, despite the first checks in place, succeed in fraudulently selling a vehicle to an ELV centre (for example, with the vehicle having already received the premium, or not belonging to them), the ELV centre pays the scrapping premium in advance and in cash, without the certainty of recovering the amount from DPA-System. These pitfalls should be resolved with the digitisation of the scheme (see Erreur ! Source du renvoi introuvable.).

5.1.3 Overview of the scheme

5.1.3.1 Scheme efficiency

The efficiency of the scheme has not yet been quantitatively assessed. No specific indicator exists, although two studies were carried out on this topic, and DPA-System is also trying to monitor the results of the scheme it manages. The aim of these estimates is to measure the efficiency of the scrapping premium on its primary objective, i.e. fighting against fly-tipping. They are based on monitoring figures for the whole ELV sector:

- Figures reported annually by ELV centres and shredders;
- DPA-System monitoring of the number of scrapping premiums paid;
- The pool of registered vehicles on the road and the number of deregistrations;
- Customs figures (number of new imported vehicles and estimated number of exported used cars).

From these figures, several calculation methods, all questionable, made it possible to estimate the proportion of ELVs that are not processed through the legal channel[13]. DPA-System tries to estimate this figure by subtracting the number of cars exported (estimate) as well as the number of vehicles processed legally from the number of vehicles deregistered each year. It is then assumed that all deregistered vehicles are destroyed, which is debatable. The estimate of the number of used cars exported is very subjective as well[14]. Therefore, DPA-System estimated the number of ELVs processed outside the legal system in 2016 at 55,000, or nearly 40% of the estimated ELV flow. Nevertheless, this calculation is a highly subjective estimate, as proven by the varying estimate of the flow of ELVs sent to the illegal channel from one year to the next (see Figure 15).

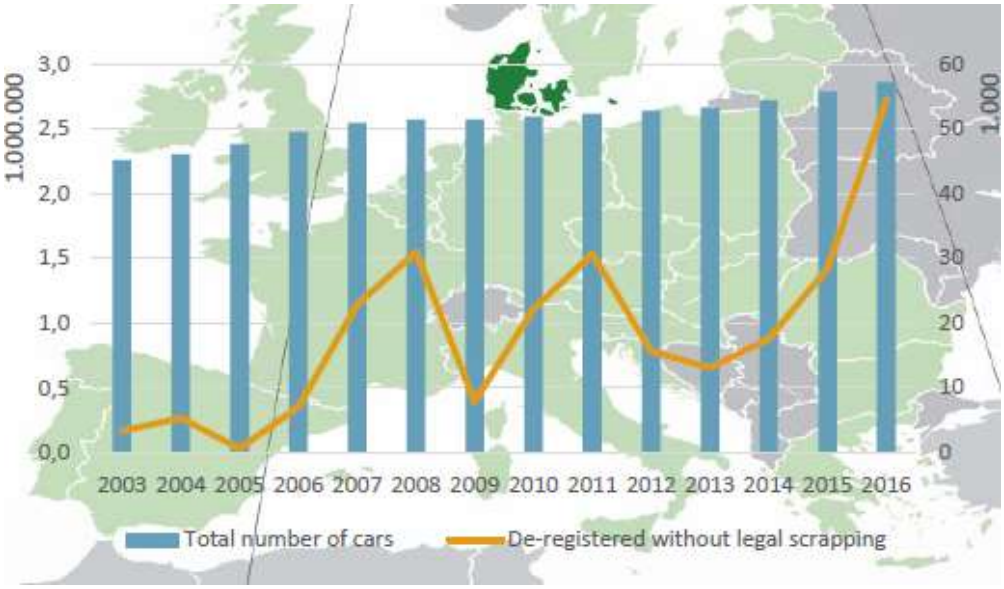


Figure 15 : Changes in the Danish car pool and estimate of the number of unregistered ELVs which are not processed by approved ELV centres[15]

The volume of illegally processed ELVs was also estimated in more detail in two comprehensive studies lead by the EPA and carried out by Deloitte Denmark. The last study was carried out in 2016. Various calculation methods are detailed, with an estimated flow of vehicles handled by the illegal channel ranging from 19,000 ELVs in 2014 to 35,000 ELVs on average over the last 10 years. Thus, on average, 20 to 25% of ELVs that are not processed by the legal channel are either sent to the local illegal processing channel, towards illegal ELV export and fly-tipping (see **Figure 16**). This estimate, which the EPA believes, was calculated when the scrapping premium was approximately 1,500 DKK (about 200 euros), and no study has been carried out since. At the time, the percentage of ELVs sent into the illegal channel with a premium of 2,200 DKK (about 300 euros) was estimated at 12%, 10 points less than with a 1,500 DKK scrapping premium.

[13] It should be noted that France is facing the same issues in estimating the flows into the illegal channel. The following formula is used in the Annual Report of the Observatory of the End-of-Use Vehicles Sector (ADEME) to estimate the annual number of ELVs and indirectly the flows taken by the illegal channel: Number of ELVs = pool of vehicles on the road on the 1st January N + vehicles placed on the market in N + imports of used vehicles in N - exports of used vehicles in N - pool of vehicles on the road on the 1st January N + 1 (N being the year of calculation).

[14] This estimate is based on the amount of import taxes refunded. Indeed, there are significant import taxes on new vehicles in Denmark, which are generally passed on to the purchase price for the consumer. Part of the amount of this tax can however be recovered during the export of the used vehicle, according to a set of conditions. The amount refunded varies from one vehicle to another, making it difficult to estimate the number of used cars exported.

[15] Source: DPA-System

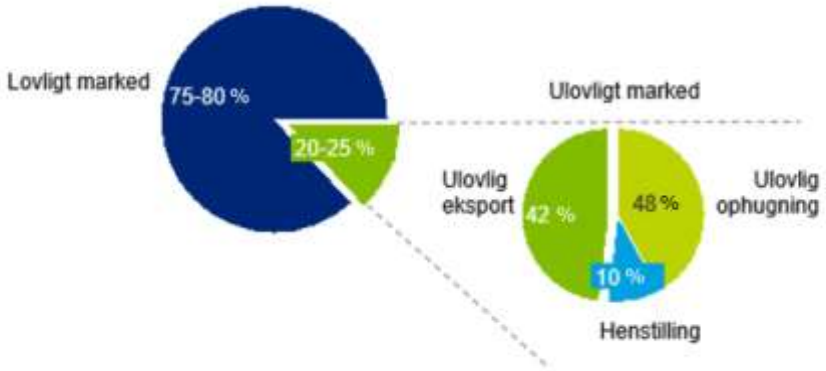


Figure 16 : Estimation of the ELV distribution on the market between legal and the illegal channels (2015)[16]

The study conducted in 2016 also led to a significant increase in the scrapping premium. It concluded, with supporting estimates, that an increase in the premium would significantly reduce the number of ELVs illegally processed. For this reason, the scrapping premium was increased from 1,500 DKK (around 200 euros) to 2,200 DKK (around 300 euros) in 2016.

Overall, the disparity in the figures used to estimate the number of ELVs that are not referred to the legal channel shows the difficulty in tracking the illegal channel - as in many other countries - and choosing the right monitoring indicator. However, it should be noted that all actors interviewed agree that the scrapping premium scheme had met its primary objective, since the number of fly-tipping has slightly decreased, from a subjective point of view.

5.1.3.2 Limitations of the scheme

Despite the many checks carried out by DPA-System, several cases of fraud were identified:

- An illegal actor handles the vehicle, gets the form filled in by the final owner to endorse the application process and has this form signed by an unscrupulous ELV centre. The form is then identified as coming from an authorised ELV centre. The centre receives the scrapping premium and shares the profit with the illegal actor;
- Several usurpation cases are possible (false signature), either by receiving the scrapping premium in cash or by giving the IBAN of a person other than the last owner as the holder of the beneficiary bank account is not verified.

On top of this, there still are issues specific to the sector and external to the scheme, namely the illegal export of ELVs as well as a lack of effective control of authorised ELV centres. Public authorities do not have enough deterrent power to ensure authorised ELV centres fully comply with the processing requirements. Shredders have reported that a number of ELV centres do not decontaminate the ELVs received, even though this is mandatory. Authorities, even though they regularly control ELV centres, do not have direct coercive tools. The procedure for sanctioning an ELV centre which does not meet its obligations is long and tedious, and therefore rarely carried out.

It should be noted that even if the association of importers has worked relentlessly for the implementation of the scrapping premium, and was in charge of the administrative management for the first years, importers now call into question the usefulness of this premium. Indeed, part of the premium is indirectly paid to the ELV centres via the process of billing the last business in charge of the final decontamination services (which should be free of charge according to European regulations). The last owners who apply for the cash premium directly at the ELV centre generally agree not to receive the full premium, the other

[16] Source: Analysis of the incentive character of the scrapping premium, carried out by Deloitte Denmark for the Environmental Protection Agency in 2016, based on 2015 data. https://www2.mst.dk/Udgiv/publikationer/2016/09/978-87-93529-04-5.pdf

part being indirectly taken by the ELV centre to cover its decontamination costs. However, ELV centres from the Refero network, supported by the importers (see **Legislative and regulatory framework for the ELV sector**), agree not to invoice their services and to hand out the full scrapping premium to the last owner. They agree to limit their margin in comparison with other ELV centre that charge for decontamination, which importers consider unfair. The scheme is mainly criticised due to the misapplication of European regulations, rather than on the scheme itself.

5.1.3.3 Safeguards implemented to avoid the limits of the scheme

All controls related to applications for scrapping premiums were presented in section **Procedure to obtain the scrapping** premium. Other controls are carried out on a wider scale on ELV centres, comparing their annual declarations of ELV processed and tonnages of extracted material with the number of scrapping premiums requests initiated by the ELV centre.

On the other hand, the EPA is working with DPA-System and sector actors to digitise the scheme. With this process in place, controls will be much more efficient and the payment of the scrapping premium more secure (see Erreur ! Source du renvoi introuvable.**)**.

5.1.3.4 Social acceptance of the scheme

Motorists were not adamantly opposed to the scheme during its implementation, given the low annual amount paid. For sector actors, who had worked together to implement the scheme, its implementation was met with a positive response and everyone fully accepted the role they had to play.

The “environmental protection” aspect of the measure contributed to its acceptability by all actors and by the general public.

5.1.3.5 Scheme evolution perspectives

The scheme is expected to undergo major changes in the coming year, as the application process for the scrapping premium is being digitised. This will bring major improvements, aimed at answering all issues encountered by the scheme management and sector actors.

The entire application procedure to obtain the scrapping premium will thus be done online, via a platform accessible through a unique citizen identification number[17]. The citizen will be able to access his space using this universal identification number, and find the vehicle(s) he owns and which he may wish to hand in for destruction. He will then be able to get his vehicle dismantled by choosing the centre from a list of 198 authorised ELV centres where to take his vehicle. The ELV centre must certify that the vehicle was received for destruction in order to initiate payment of the scrapping premium directly into the owner’s bank account linked to his universal identification number.

The digitisation of the application process should significantly reduce the risk of fraud as obtaining the scrapping premium from ELV centres will no longer be possible. The premium will be automatically transferred to the bank account of the last owner, therefore limiting the risk of the scrapping premium being received by illegal actors as well as limiting fraud related to identity theft. This will also solve any liquidity issues for ELV centres, and make the management of the entire scheme much easier, going from six FTEs in charge of its management to only 1.5 FTEs. This digitisation process may be launched in 2019, the final user interface for this platform still under discussion.

[17] In Denmark, every citizen is recognised by a unique identification number, the NEM-ID. This identification number, specific to each citizen, is used to access a set of state services (social services, social security, payment of taxes, etc.) or other services (banking, postal, telephone, etc.). Thus, to access these services, each citizen must identify himself via his NEM-ID: a bank account, *at the very least*, is associated with this NEM-ID and therefore directly to the citizen.

On the other hand, the scheme is used as a tool to encourage the renewal of a fleet of polluting vehicles. From February 2019, the value of the scrapping premium will double for handing in any diesel vehicle over 18 years old (registered before 1st January 2006). This additional measure, financed by the EPA for 30 million Danish Krones, will be effective for two years with the aim of removing the most polluting vehicles from circulation. Because of the coercive price of new vehicles (due to a very high import tax) the car fleet turnover is low and the vehicles on the road are aging. By making the destruction of these aging vehicles financially more attractive, the EPA hopes to encourage their replacement.

5.1.4 Analysis of transposing the scheme to France

5.1.4.1 Structural differences between Denmark and France

The main difference between Denmark and France comes from the size of the territory and their respective demographics. The car fleet is almost 14 times smaller and Denmark has a quasi-insular context, with cross-border trade mainly by sea or via the German border[18]. The difference in the automotive fleet size is reflected in the organisation of the end-of-life vehicle sector, with only two shredders and 200 ELV centres in Denmark, compared to nearly 60 shredders and nearly 1,700 ELV centres in France (1,7 centres per 1,000 ELVs processed in the legal channel in Denmark, compared to 1.5 in France). It should also be noted that, in the many French overseas territories (not the case for Denmark, with only a very sparsely populated Greenland) setting up new schemes encounters challenges that are often very different from those of mainland France.

Therefore, these structural differences, more specifically the difference in scale between the two countries, may make the scrapping premium scheme more difficult to implement in the French context:

- Denmark has shown it was significantly difficult to balance the funding of the scheme. The idea is to find a balance between the collection of insurance taxes and the total value of premiums paid out (while including the costs of the scheme's administrative management), in order to avoid the scheme from making too much of a profit or too much of a loss. This is all the more difficult to balance because of the high number of vehicles on the road, each euro collected or paid back potentially multiplied by several million users. Given the size of the car fleet in France, if the Danish model was transposed there, it would be quite difficult to determine as precisely as possible the respective value of the parafiscal tax on car insurance and the scrapping premium for the fund to be correctly managed and as close as possible to breaking even.
- Launching the scheme requires a first provision of funds to finance the payment of the first scrapping premiums (at the start of the scheme, no revenue is received from the collection of taxes on the insurance premium). This necessary advance may reach, in the French context, large amounts since, on average, 95,000 ELVs are handed in every month in France, not counting the ELVs processed illegally. For a scrapping premium equivalent to that of Denmark, at least 30 million euros would be distributed each month via the scrapping premium (the equivalent of what is distributed in one year in Denmark!), and therefore, when launching the scheme, several times this amount would be needed as an advance.
- The scrapping premium requires ELV centres to be deeply involved, since they are at the heart of the scheme. The effort to launch the system (informing and training ELV centres) would be much greater in France than in Denmark, given the number of ELV centres in the country. Even if the procedure for obtaining the scrapping premium is centralised, some of the operations are carried out by ELV centres and require a good understanding of the application tool (whether digital or not).

[18] There is also a single road linking Sweden to Denmark, between Copenhagen and Malmö.

Apart from these structural differences specific to each country, the end-of-life vehicle sectors in Denmark and in France remain relatively similar. The introduction of a scrapping premium in France would not cause an organisational upheaval for sector actors:

- French insurance companies are already familiar with the collection of taxes on insurance premiums. Most insurance premiums paid by policyholders usually include a (small) contribution, which is then transferred to the Tax Office, usually to finance various national solidarity funds: “fonds de garantie des victimes des actes de terrorisme” (fund for victims of terrorism), “fonds national de gestion des risques en agriculture” (national agricultural risk management fund) or the “fonds de financement de la protection complémentaire de la couverture universelle du risque maladie (CMU)” (fund for extended health insurance for the universal health cover). For insurance companies, setting up an additional contribution would not be a major issue.
- Because ELV centres are required to provide an annual performance report to the ADEME, they have already put in place tools for flow traceability, to which could be added the procedures to be followed when applying for a scrapping premium. ELV centres are indeed used to having to report on their activity to administrative authorities. This scheme could find its place in France, provided that it is not too heavy from an administrative point of view for ELV centres, especially if coupled with flow monitoring tools.
- The ADEME partly delegates the administrative management of the declaration tool for the ELV sector to a service provider. The format is different from that of Denmark, since the tasks of the service provider in France are almost limited to the quantitative monitoring of the sector, while DPA-System also takes care of other tasks specific to the administration of the sector (registration of producers and ELV centres, information on EPR, etc.). Nevertheless, it is easy to imagine that an external service provider could be in charge of the administrative management.
- Another notable difference is the presence of producers in France. However, most car producers and importers are also organised, as in Denmark, in associations. Their main task is to represent car producers and importers to the institutions, the CCFA (for French manufacturers) and the CSIAM (for foreign manufacturers). These institutions can play a very similar role to that of the Importers Association in Denmark. French producers and importers are already involved in the end-of-life sector of vehicles, including financially (e.g. the plan for removing ELVs abandoned overseas, carried and financed by French car producers and importers.[19]).

5.1.4.2 Administrative specificities related to the ELV sector organisation

Although ELV sectors are organised in a similar way, some administrative specificities of the Danish model can also be found, which it is important to underline before considering a potential adaptation in France.

First, the major difference lies in the enforcement of the European Directive No. 2000/53/CE of September 18, 2000, setting at European level the rules for the ELV sector in Europe, including the fact that ELV centres must accept ELVs for treatment (except in the case of ELVs that are not complete). In Denmark, the final owners are not guaranteed free ELV treatment, except when they hand in their vehicle to an ELV centre member of the Refero network. Most ELV centres charge for their services, unlike French ELV centres. If the scrapping premium is implemented in France, the entire scrapping premium must be paid to the last owner.

On the other hand, it is important to highlight the very high tax on vehicles in Denmark, weighing directly on the consumer. Import tax is particularly high and affects the vehicle throughout its life. By extension, Danish citizens were not really affected by the introduction of an additional tax on vehicles as part of the scrapping premium, via a tax on insurance premiums. This may be less the case if applied to the French model, where taxes are much

[19]See the Annual Report from the Observatory for the end of life vehicles, 2017 data.

lower for vehicles and citizens are more careful of their fees (a small tax in addition to the high general taxation is less visible than in the case of average general taxation).

Finally, the registration system, on which the scrapping premium is based, remains relatively similar in the two countries. ELV centres can access the French registration database to deregister a vehicle and set up the premium (registration, VIN, full name of the last owner). It is easy to imagine the same level of involvement of ELV centres and the same verifications as those made by DPA-System in Denmark (role taken on by an external provider for example).

Furthermore, the French ELV centres, as in Denmark, already have their unique registration number. They are assigned this number when they receive their authorisation from the prefecture. This unique number could be used, as it is in Denmark, to identify ELV centres on the scrapping premium application forms. It is only a matter of verifying that a database links this unique number to a verification element, such as an ELV centre stamp or signature in order to be able to identify possible frauds (such as not paying the scrapping premium requested by illegal ELV centres). This verification would not be necessary when setting up a digital premium application tool. In this case, only ELV centres could have access to this tool and thus initiate payment of the premium.

5.1.4.3 Issues with scheme acceptance

The main advantage of the system set up in Denmark is that it is entirely self-financing (once launched) with regards to paying the premium, but also for covering operating costs, thanks to the monies collected via tax on automotive insurance premium. Nevertheless, the standard of living in Denmark is much higher than that of France[20], the acceptability of tax by the citizens is *a fortiori* much more important than in France. More specifically, in the current French context, it would seem particularly difficult to enforce such a tax on motorists. If implemented, the scheme must be well explained for better acceptability (potential impact on the spending power, detail about the role of every party involved, objectives of the measure).

5.1.4.4 Specificities of the scheme

The scheme, as designed 20 years ago, is no longer viable, as the pitfalls and possibilities of fraud due to the paper-based process are significant. In addition, the paper-based process adds administrative issues. It seems wiser to implement the scheme directly in its digital form, to provide greater security with regards to the correct use of the scheme (scrapping premium received by the right person, fraud limitation) but also an easier administrative management.

French citizens are not required to have a bank account whereas in Denmark, this is mandatory. Achieving the same level of security as in Denmark would therefore be difficult. A secure website, to which each citizen could register via France Connect for example, would guarantee the identity of the citizen receiving the scrapping premium. This request would then be validated by the ELV centre once the ELV is handed in, including a check of the information provided via the registration certificate and then sent to the organisation in charge of managing the scrapping premium for its payment.

Finally, a study should be carried out to assess what amount the scrapping premium should be to become a good incentive to fight effectively against the illegal channel. It should be high enough for the scrapping premium to compensate for the different ELV processing rates in the legal and the illegal channels. In return, the amount of the tax added to the automobile insurance premium must be assessed to finance the scrapping premium, without making the citizens feel unjustly taxed.

[20] The Human Development Index (HDI) of Denmark is one of the highest ranking in the world, with a Gross National Income per capita 20% higher than that of France. Source: http://hdr.undp.org/sites/default/files/2018_human_development_statistical_update_fr.pdf

5.2 The indirect scheme in the Netherlands

5.2.1 General background

5.2.1.1 Overall ELV situation in the country

The Dutch ELV sector appears to be one of the most advanced in Europe. In 1994, the country introduced an indirect incentive scheme aimed at fighting against ELV fly-tipping. It was based on three payment obligations (road tax, insurance and roadworthiness tests) that all vehicle owners must pay until they provide a certificate of sale, export, theft or destruction of the vehicle.

Population	17.08 million
Area	33,670 km2
Population density	507 inhabitants per km² (2017)
Demographic growth	0.6%
GDP	737 billion €
GDP per capita	48,223 euros
Hourly labour cost	34.8 €/h

Table 4: Geographic, demographic and economic data for The Netherlands (2017)

Fleet of vehicles in use	9.3 million of which approximately 8.4 million cars and 0.9 million lorries (2016)
Number of vehicles registered per year:	Approximately 650,000: 450,000 new vehicles and 200,000 imported second-hand vehicles
Number of vehicles deregistered per year	Approximately 470,000: 220,000 ELVs and 250,000 exported second-hand vehicles
Number of ELVs processed per year	220,000 with an average age of 18.1 years
Number of authorised ELV centres	450 of which 225 are part of the ARN network
Number of collection companies	6
Number of shredders	14
Number of post-shredding companies (shredder waste processing)	1
Number of imported vehicles	200,000 (2015)
Number of exported vehicles	250,000 second-hand vehicles with an average age of 12.3 years old (2018)
Estimated number of ELVs processed through illegal channels	between 1,000 and 5,000[21] (<2.3%)
ELV processed/Number of vehicles on the road	2.3%
Reuse rate	22.5% for the 85% ELVs in the market part of the ARN network[22]
Recycling rate (including ELV centres, shredders and the post-shredding	64.6% for the 85% ELVs in the market part of the ARN network

[21] Source: ARN
[22] See section 1.2.1.b.

facility)	
Energy recovery rate (including ELV centres, shredders and post-shredding facility)	11.5% for the 85% ELVs in the market part of the ARN network
Reuse and recovery rate in 2016	98.6% for the 85% ELVs in the market part of the ARN network

Table5: Overview of the automotive and ELV sector in The Netherlands

This data is presented in Appendix 3 Indicator table for all the countries assessed and in France.

5.2.1.2 Organisation of the ELV processing channel

The ELV legal channel in the Netherlands is organised similarly to the French sector.

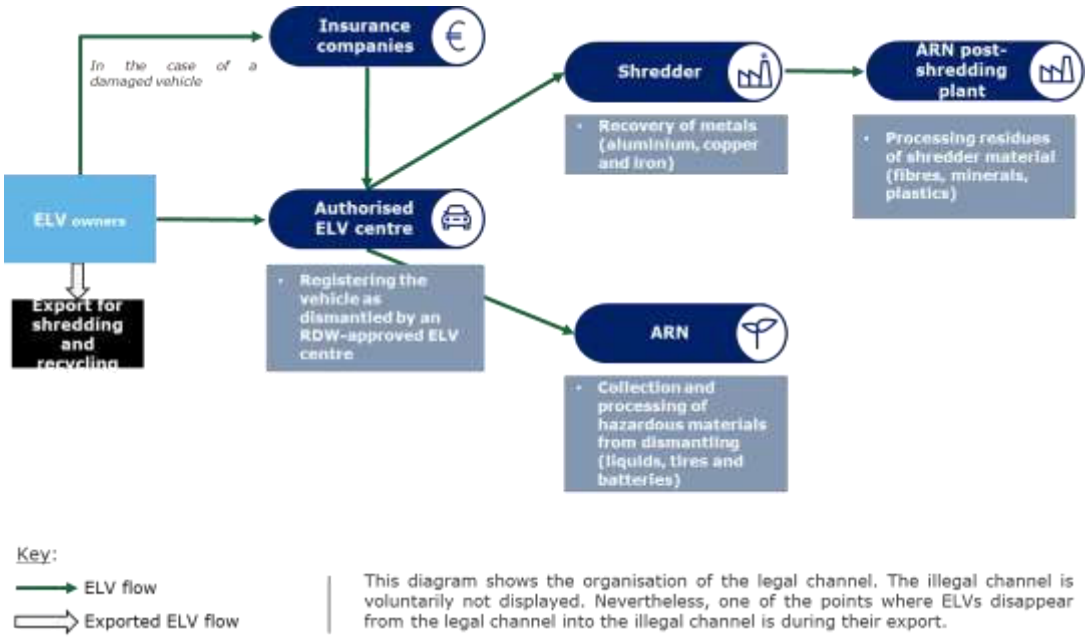


Figure 17: Organisation of the ELV processing channel (Source: Deloitte)

5.2.1.2.1 Actors monitoring and controlling the ELV sector

RDW (Rijksdienst voor het Wegverkeer)

The RDW is the national authority of the Netherlands (equivalent of the prefecture in France) in charge of, among other things, the registration and the deregistration of vehicles, the addition and removal from the vehicle registration and tracking system and the provision of authorisations to ELV centres, shredders, exporters, license plate producers and the police. In addition to accessing the registration and tracking system, operators can update this system once they have received their authorisation. To do so, environmental and economic licenses issued by other entities are required. The RDW controls all entities that receive this authorisation.

The RDW was a government organisation until 1996, when it became an independent, self-sustaining public body. The organisation still works in collaboration with the Ministry of Infrastructure and Water Management publishes an annual report of its activities (quality of vehicle registration and tracking system, control, etc.).

The RDW funds its activities via different resources such as:

- The fee paid by operators for their authorisation to access the registration system and the monitoring managed by the RDW (ELV centres, car dealers, vehicle importers, export traders, entities carrying out technical inspections and insurance companies);
- The tax paid by owners for the registration of a new vehicle (around 40 euros);
- The tax due by owners making a change of ownership to the vehicle (8 euros);
- The tax paid by owners exporting their vehicles (35 euros);
- The tax paid by ELV centres for the registration of vehicles dismantled in the system (approximately 3 euros per vehicle);
- The sale of data from the vehicle registration and tracking system is also a source of revenue for the RDW.

ARN (Auto Recycling Nederland)

The ARN, founded in 1995, collects and recycles waste from the automotive sector. This eco-organisation is administered by the actors of the Dutch automotive sector, such as:

- The Association of Car Dismantling Companies (STIBA);
- Vehicle Importers Association (RAI);
- Association of Car Dealers and Garages (BOVAG);
- Car Body Repairers Association (FOCWA).

It works towards meeting the ELV and battery processing targets by collaborating closely with actors of the automotive production chain.

The use of ARN services is not mandatory as it is a voluntary recycling scheme. In the Netherlands, 85% of the 220,000 ELVs are processed by the 225 ELV centres that are part of the eco-organisation network. The ELV centres processing the remaining 15% ELVs are of course subject to the same requirements as the members of the ARN (having a RDW authorisation and an environmental permit issued by the environmental authorities) but they have their own processing system and are not controlled by the ARN. These businesses, which are independent from the ARN, must also inform the government of their processing rates for materials extracted from ELVs (mandatory reporting). ELV centres that are not included in the ARN network are not considered illegal operators. Government control is however less strict for the latter than for those within the ARN network and does not affect any of these ELV centres.

60% of new vehicles equipped with lithium batteries are covered by the ARN system[23]. The ARN handles the collection and processing of lithium batteries at ELV centres for importers who pay a recycling fee on each of the batteries they placed on the market. Others, such as Renault for example, deal with the processing of batteries removed from their brand vehicles themselves. Batteries are repaired and used as new batteries, or are resold directly as second-hand parts.

The ARN is in charge of collecting and processing at its own expense any dangerous materials from ELV processing (liquids and batteries), as well as tyres. They also declare the performances of ELV centres (number of certificates of destruction and rate of reuse, recycling and recovery of materials) and manage post-shredding activities[24] to guarantee the processing of waste produced by the 14 shredders. The ARN also carries out audits in ELV centres belonging to their network. These annual audits carried out by an independent body and financed by the ARN are extremely strict: checking the number of ELVs and materials removed by ELV centres, checking the decontamination equipment as well checking the compliance with administrative

[23] Lead-acid starter batteries with a positive residual value are directly collected and processed by market actors.
[24] Plant located in Tiel (The Netherlands)

procedures. During these audits, ELV centres are given recommendations on new methods for processing ELVs.

Today, about sixty people work at the ARN of which forty in the post-shredding facility.

To finance its activities, the ARN receives a recycling premium[25] of 37.50 euros per new vehicle purchased (35 euros planned for 2020) and a recycling premium ranging from 5 to 180 euros for new batteries (depending on their weight). Vehicle importers pay back the premium to the "Auto & Recycling" foundation, the non-profit organisation in charge of fulfilling obligations once Dutch importers put the vehicles on the market. This organisation then transfers this revenue to the ARN[26]. This premium was mandatory until 2002 because ARN activities were supported by the government. Today, it has become a non-binding agreement between importers and the ARN. Now, 99% of vehicle importers pay the fee because the eco-organisation is in charge of enforcing the European ELV Directive and handling all new vehicles imported into the Netherlands.

Environmental authorities

Environmental authorities issue environmental permits to ELV centres to allow them to get their RDW authorisation to start processing.

In short, the RDW is the organisation that guarantees the quality of vehicle registration and deregistration, while the ARN and environmental authorities ensure the quality of vehicle processing.

5.2.1.2.2 ELV processing actors: ELV centres, shredders and post-shredding facility

Activities of ELV processing actors

The 450 Dutch ELV centres must meet certain legal requirements in order to carry out their activity: more specifically, they get an authorisation from the RDW and an environmental permit from environmental authorities.

Authorised ELV centres are the only businesses allowed to accept ELVs for dismantling and decontamination without applying a charge for this process. They buy back ELVs from their owners for a fee varying between 60 and 150 euros[27]. In exchange, ELV owners receive a certificate of destruction for their vehicle. ELV centres can access the RDW's vehicle registration and tracking system and state that the vehicle has been destroyed.[28].

When an ELV centre accepts a vehicle, its license plate must be removed and destroyed. The waste to be processed in then extracted (liquids, tyres and batteries). For ELV centres part of the ARN network, this waste is recovered and recycled by the ARN (collection and processing at the expense of the eco-organisation). Other ELV centres are responsible for processing the waste at their own expense.

ELV centres may recover economically reusable parts that can be sold as second-hand parts (engines, gearboxes, headlight optics, etc.).

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[25] Recycling premiums are defined for a period of 3 to 5 years. The calculation methodology is specified in the directive. Premiums and fees are proposed and based on estimates of processing costs, the number of ELVs and the number of sales of new cars.
[26] ARN is a subsidiary of the "Auto & Recycling" foundation.
[27] Source: ELV centre EGARA Dismantler association
[28] A vehicle that is registered as destroyed remains in the name of the ELV centre where the vehicle is dismantled in the RDW system therefore guaranteeing maximum traceability.

ELV centres can also legally import ELVs (mostly from Great Britain)[29]. The ARN does not process liquids, tyres and batteries from these vehicles since they are not registered in the RDW registration and tracking system. However, ELV centres may access the services of the ARN for a fee.

Car bodies of vehicles leaving ELV centres (whether ARN or not) are then sent to one of the 14 shredders, to recover metals (iron, copper, aluminium).

Finally, non-metal shredding waste (plastics, minerals, rubber, fibrous materials, etc.) is sent to the ARN post-shredding facility. During this last stage, the Netherlands meets a 95% reuse and recovery rate for all ELVs. The post-shredding plant contributes 16% to this rate.

Controlling ELV processing actors

ELV centres may be subject to controls by three bodies: the ARN, the RDW and environmental authorities.

The ARN checks the rate of reuse and recycling of ELV centres within its network. The eco-organisation instantly receives the list of vehicles destroyed (specifying the name of the ELV centre having processed this vehicle) via the RDW vehicle registration and tracking system. The recyclables to be extracted by each ELV centre is then easily estimated. For example, approximately 5 kg of liquids are extracted from an ELV. Therefore, if an ELV centre declares having processed 100 ELVs, it should recover 500 kg of liquids. If the collected volume is lower than expected, the ARN controls the ELV centre to make sure this difference is justified.

Environmental authorities check the correct application of the decontamination and processing requirements. They also check that outgoing material flow is consistent with the number of ELVs handed into the ELV centre[30]. If the ELV centre does not comply with environmental rules or is suspected of fraud, the control officers send that centre a report and allow a few weeks (at most 3 months) to meet the required standards.

The RDW, on the other hand, checks the quality of vehicle registration and deregistration. Every year, the RDW must report on the quality of its records to the Ministry of Transport as required by Dutch law. To do so, the entity has put in place internal processes to ensure the quality of its controls. External auditors also check the RDW and report to the Ministry of Transport and government auditors.

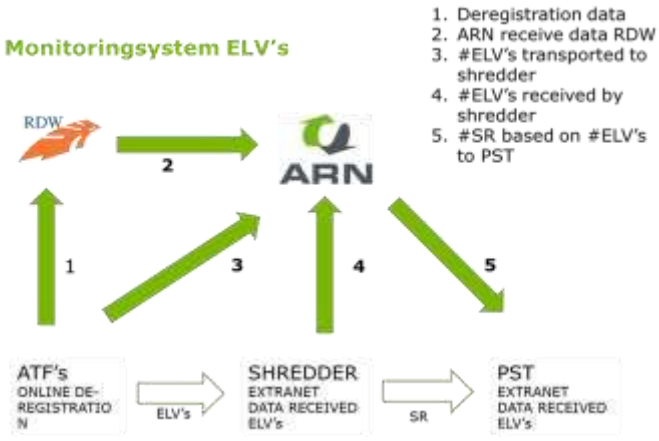

Figure 18: ARN control system

The ARN also compares the number of ELVs leaving ELV centres in its network to the number of ELVs accepted by shredders. This is used to check on the number of kilograms entering the post-shredding facility. To do so, ELV centres and shredders access the internal ARN registration system (ORAD) which allows real-time monitoring of ELV movements between the two parties. After that, ELV centres that are part of the ARN network can only send car bodies to shredders that have signed an agreement with the ARN since they

[29] ELV centres are required to report these purchases during their annual reporting.

[30] The ARN provides environmental authorities with approximate ratios.

are able to report the number of ELVs entering their facilities in the ARN system[31].
Note: shredders must also report ELVs received from ELV centres that are not part of the ARN network.

5.2.1.2.3 Other actors of the ELV sector: insurance companies

Insurance companies are proving to be important ELV sector actors, given the flow of ELVs they process due to accident-damaged vehicles.

When a vehicle is involved in an accident, it is first inspected by certified experts. Insurance companies agreed with the RDW a number of criteria allowing the experts to define whether:

- Damage to the vehicle is aesthetic only: in this case, the cost of repairs is assessed and, if it is cheaper to sell the vehicle than to repair it, the vehicle is auctioned. In this case, if the best offer is greater than the estimated cost of the vehicle minus the price of repairs, the vehicle is sold without being repaired. On the other hand, if the offer is lower than the residual value of the vehicle minus the cost of repairs, the vehicle is repaired for resale. If damage is minimal, insurance companies pay the garage directly to repair the vehicle.
- Damage to the vehicle exceeds RDW's technical criteria: in this case, the vehicle is be sold with the note "pending inspection" indicating that it must be tested by the RDW before being used again on the road[32]. Whether the vehicle is sold or repaired at the insurer's expense, the "pending inspection" signal will be directly recorded in the RDW Vehicle Registration System. When the vehicle is tested by an RDW organisation, the vehicle is removed from the "pending inspection" list and can be used on the road.
- The vehicle is considered technically irreparable: in this case, the vehicle is destroyed by an authorised ELV centre and its VIN is destroyed. As mentioned above, the "pending inspection" signal is recorded in the RDW Vehicle Registration System, meaning that the vehicle must be destroyed. The obligation to destroy the VIN of a vehicle deemed technically irreparable avoids the problem of stolen vehicles that use the identity of a vehicle that is deemed irreparable.

  For 30 years, insurance companies have collaborated with ELV centres (through private contracts) for the latter to handle their ELVs. Controls are carried out by insurance companies to check that ELVs are correctly recorded as destroyed in the RDW system. If ELV centres do not comply with this procedure, they incur a fine of 50,000 euros[33].

Insurance companies also play a key role in the functioning of the Dutch indirect incentive scheme since one of the three obligations linked to the ownership of a vehicle is the insurance premium.

[31] All shredders that accept Dutch ELVs have signed the agreement (these shredders are mainly located in the Netherlands, Belgium and Germany).
[32] In the vehicle is sold, the transfer of ownership of the vehicle between the policyholder and the buyer is done when the highest offer is accepted.
[33] In 2018, only one fine was imposed. The limitations of fines should be noted: in spite of their deployment, they are not always enforced.

5.2.2 Functioning of the incentive scheme

5.2.2.1 Description of the scheme

In the Netherlands, as of 1994, all owners of vehicles registered in the RDW vehicle registration and monitoring system must comply with three payment obligations[34] (also called vehicle ownership taxes): the road tax, insurance charges and the technical inspection (test of vehicle safety and compliance with exhaust emission standards).

Before 1994, these taxes were required only if the vehicle was used on public roads, which was very difficult to enforce.

The system functions as follows:

- To register a vehicle, it must be purchased in the Netherlands from a professional or imported directly[35]. There is a registration fee of 40 euros to be paid to the RDW.
- For a vehicle to be withdrawn from the registration system thereby authorising its owner to stop paying the corresponding taxes, it must be exported, sold, destroyed or stolen. It is very difficult for a vehicle to be withdrawn from the RDW system. Until the owner provides a certificate of export, sale, theft or destruction of his vehicle, he must continue to pay the three required annual taxes in the Netherlands. The vehicle status may be changed in the system only by entities which have an RDW licence and hence which have access to the registration system. If the vehicle is sold, the responsibility for taxes on vehicle ownership is transferred from the former to the new owner.

300 people work at the RDW to run the registration system.

5.2.2.1.1 The road tax

The Ministry of Finance oversees the road tax. It is based on the type of fuel and the weight of the vehicle. For a vehicle that weighs close to 1200 kg, in other words the average weight of a new vehicle today, the quarterly fee is 140 euros for a petrol vehicle and 300 euros for a diesel vehicle. For commercial vehicles, the fee is 76 euros whatever type of fuel used. The tax, paid on a quarterly basis via automatic bank transfer, enables the government to generate additional revenues and to help pay for the upkeep of the road network. Payment of the tax automatically ceases when the vehicle leaves the registration system.

5.2.2.1.2 Insurance

Similarly to France, insurance depends on the value of the vehicle, its weight, where the owner lives, the type of insurance (third party or comprehensive) and the driver's claim history. The annual premium starts at around 300 euros and can cost as much as a few thousand euros. It is the vehicle owner's responsibility to cancel his insurance policy when he deregisters his vehicle (N.B.: In the Netherlands, you may cancel your policy by making a simple call[36]).

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[34] In the Netherlands, vehicle registration is required. Hence, the vehicle owner is required to pay the three taxes on vehicle ownership.

[35] If a vehicle is directly imported by someone, the latter must pay a tax of 40% to the tax authorities before being entitled to request a number plate from the RDW and to be able to register the vehicle (this tax enables the government to maintain roads in good condition). As the tax authorities have access to the RDW vehicle registration and monitoring system to record payment of the tax, if the proof of payment did not show up in the system, the RDW would not be able to issue the number plate. However, if a vehicle is purchased from a dealer, the car is already registered since the seller has paid the tax. Hence the registration process is nearly instantaneous.

[36] In this case, the RDW is informed that the insurance has been terminated. RDW sends a letter to the owner within a week if the vehicle is not reinsured while it is still on the road. After one month, the RDW sends a fine if the vehicle has not been reinsured or destroyed or deregistered in the meantime.

5.2.2.1.3 The MOT or vehicle roadworthiness test

The roadworthiness test, which is the same whatever the make of the vehicle, is carried out by RDW after four years for petrol cars and then every two years. After eight years in use, a test is required every year. For diesel vehicles, the first test is carried out after three years and then every year. For heavy goods vehicles and special purpose vehicles (ambulance, taxis, etc.), it is carried out annually. Entities performing this inspection have RDW licences. They must declare that the vehicle roadworthiness test is completed in the vehicle registration and monitoring system. If a vehicle is not inspected, the RDW sends a letter to the owner reminding him of the vehicle inspection requirement[37]. If the vehicle roadworthiness test is still not carried out, a fine is sent to the owner (around four weeks after the letter is sent) ; and if there is an accident, the vehicle owner is no longer covered by his insurance contract. Once the vehicle is withdrawn from the registration system, the owner is automatically no longer required to take his vehicle for the roadworthiness test.
N.B. : Out of the 20,000 centres[38] which have the licence to perform roadworthiness inspections, 3% are inspected by the RDW every year.

Certain vehicles are exempted from the three obligations: vehicles with suspended registrations and vehicles registered as « in stock » in the registration system.
Both the owners of private and commercial vehicles may temporarily suspend registration of their vehicles for a maximum period of three years. However, there is a fee for suspension, which can be carried out online, and which must be renewed annually (the vehicle owner is automatically informed when he must renew the suspension). The fee is 73,10 euros the first year and 24,10 euros to be renewed (N.B.: : For vehicles more than fifteen years old, the fee is always 24,10 euros)[39]. If registration is suspended the vehicle is no longer authorised to be in use. However ,this also results in suspension of payment of vehicle ownership taxes.. If a vehicle is in use even though the owner has suspended its registration, the Dutch tax authorities enforce a fine equivalent to the amount of three months of road tax (or from 76 to 300 euros). The owner must also retroactively pay the road tax as from the suspension date to the day where it was arrested.

Registration of « in stock » vehicles has existed since 2016. It allows professionals managing vehicles (garages, ELV centres, dealerships, etc.) who already have insurance through their company to not pay the three obligations. Thisoption costs around 4 euros per vehicle and is valid for an unlimited period of time. Professionals receive a green temporary number plate which enables them to test the vehicles on the roads or to have them tested. RDW audits the entities with the in stock option once a year.

5.2.2.1.4 Enforcement of vehicle ownership taxes

RDW plays a major role in enforcing the three taxes. Every week, an automatic audit is carried out to verify that registered vehicles properly comply with the obligations. RDW has no executive power but plays a « data centre » role which it shares with the entities that have this expertise.

Hence, the Ministry of Justice is responsible for enforcing the law if the insurance is not paid or if the vehicle is not inspected. The vehicle owner risks having to pay a fine starting at around 60 euros and which can go up to 400 euros. After a length of time, the police intervenes and the penalty can include imprisonment[40]. When it comes to insurance, insurance companies report the movements of insured vehicles that they

[37] It is the vehicle owner's responsibility to complete the roadworthiness test. RDW is hence under no obligation to send a reminder letter. If the owner has not completed the test even though he has not received a letter, he will still be fined.
[38] This number includes garages and car dealers and RDW has 16 sites.
39 If the owner wishes to register his vehicle during the course of the year, no refund on the amount paid in advance is made.
[40] However, the limitations of fines should be noted: while they exist, they are not always enforced.

operate on a daily basis thereby enabling RDW to verify which vehicles are not insured and to send the information to the Ministry of Justice.

However, the road tax is enforced by the tax authorities which also receive information from the RDW registration and monitoring system on a weekly basis. Hence, they can enforce the legislation if an owner has not paid the tax. To do so, a reminder letter is sent to the vehicle owner and if the tax has not been paid within three months, the authorities may immobilise the vehicle. In addition, when a vehicle owner does not pay the road tax, he is not authorised to register other vehicles in the RDW system.

RDW also shares the information in its system with the police who can easily identify vehicles that do not comply with the obligations thanks to their number plate.

5.2.2.2 Targets for this scheme

The main aim of the Dutch scheme, when it was first implemented, was to prevent abandoned cars and the related environmental problems. Before taxes were implemented on vehicle ownership, many ELV vehicles were found abandoned in public areas or in the countryside. This measure aimed to remedy the problem by encouraging treatment of ELVs by authorised ELV centres.

5.2.2.3 Implementation of the scheme

In 1985, the association of car dismantling companies (STIBA) was created at the request of ELV centres. At a time when ground pollution was beginning to be a major issue and regulations regarding the activity of ELV centres were increasingly stringent, ELV centres wanted to be represented and heard by the government. They feared that the cost of running their activities would rise due to the new regulatory requirements.

In 1991, discussions began on implementing an eco-organisation to help vehicle treatment operators reduce their environmental impact. The focus group was mainly comprised of actors in the automotive sector (the association of vehicle dismantling companies (STIBA), the association of vehicle importers (RAI), the association of car dealers and garages (BOVAG), the association of car body repairers (FOCWA), and the association of car shredders (SVN at the time and MFR now)[41] had the support of the government (Ministry of the Environment, Ministry of Finances, and RDW) and the association representing the interests of its members in the field of mobility (ANWB).

The first objective was to shut down illegal ELV treatment facilities and to promote authorised ELV centres. In 1993, the eco-organisation ARN was created [42]. It has been operational since January 1, 1995, when automotive sector (RAI, BOVAG, FOCWA and SVN) organisations amassed a debt of 4.8 million Dutch guilders (or approximately two million euros). The ARN then came to an agreement with the government to be exempted from paying income tax for the first five years of activity. The debt was reimbursed faster thanks to this understanding.

The RDW vehicle registration and monitoring system has existed since 1951. The system was improved in the nineties. Since 1994, the road tax, insurance and roadworthiness test have been associated with ownership of a vehicle rather than with its usage. In addition, since 2015, it is no longer possible for a private individual to send an online request himself for a vehicle to be withdrawn from the registration system. This is because any change in status in the vehicle registration and monitoring system must be made by an entity which has obtained an RDW licence and which therefore has access to the registration system.

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[41] Only STIBA, RAI, BOVAG and FOCWA are part of the ARN executive committee.

[42] At the end of the 1980s, the Netherlands suffered from both a lack of landfill capacity and from insufficient thermal treatment capacity. This led to a change in the waste management policy leading in particular to organising management of certain priority waste streams including ELVs. Consequently, the automotive sector took the lead on setting up a voluntary system, in close collaboration with the government for the supporting regulations.

It was not difficult to set up the scheme since all the automotive sector organisations participated in setting up the ARN. In addition, there were several communication campaigns to educate citizens about the importance of bringing their ELVs to authorised centres, in order to ensure efficient treatment of waste from an environmental perspective.

5.2.2.4 Scheme advantages

The RDW vehicle registration and monitoring system is very effective:

- Traceability: the single connection between a vehicle (identified by the VIN assigned by the car maker) and its number plate in the system enables total traceability of the vehicle and of its owner since it is impossible to have a vehicle without a number plate, or a vehicle without an owner. Furthermore, as vehicle registration is carried out from start to finish through one single platform, monitoring is very effective. Thanks to this traceability, it is possible to fight against illegal treatment of ELVs.

- Absence of forged documents: deregistration of a vehicle in the RDW system may only be carried out by RDW authorised entities. This prevents the problem of forged proof of sale, export or destruction documentation.

- The owner's responsibility relative to the purchase of his vehicle: the three vehicle ownership taxes, directly associated with the vehicle and hence its owner, are an incentive for ELV owners to process their vehicles in authorised ELV centres and to leave the registration system through an official channel. Furthermore, temporary suspension of a vehicle from the vehicle registration and monitoring system is possible but there is a charge, and if there is a breach, the vehicle owner is fined. In fact, the Dutch system makes it difficult for the last owner to have his vehicle destroyed in the illegal channel.

- Data sharing: the vehicle registration and monitoring system generates a large quantity of data, which is shared with the entities who need it. This interconnection enables fiscal authorities and the Ministry of Justice to enforce current legislation in the Netherlands. Furthermore it enables the ARN and the environmental authorities to regularly monitor and assess the activity of ELV centres (comparing the quantity of fluids, tyres, batteries, etc. removed with the number of ELVs actually handled).

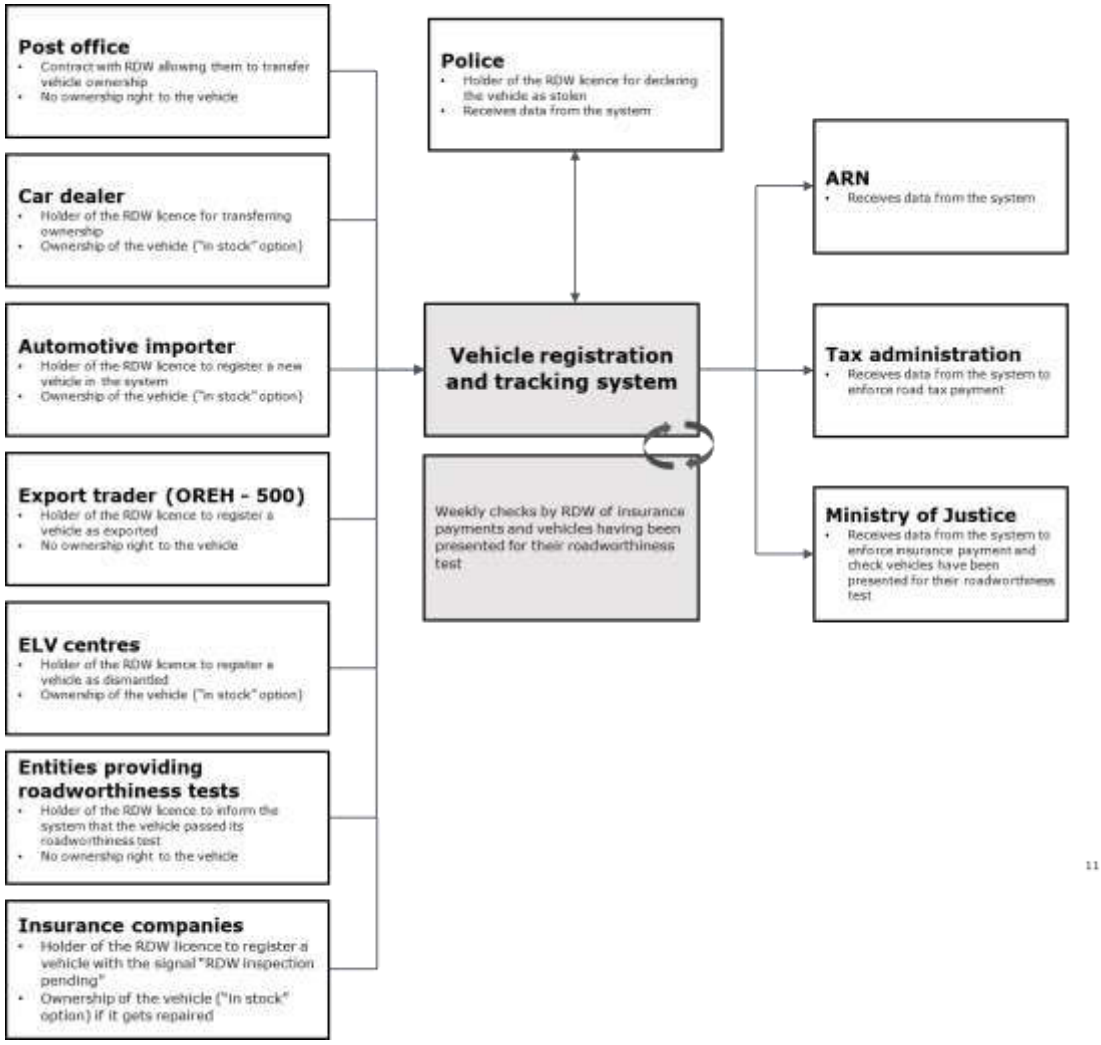

Figure 19: Dutch vehicle registration and monitoring system data flow

5.2.3 Overview of the scheme

5.2.3.1 Scheme efficiency

The efficiency of the Dutch scheme was not quantitatively assessed strictly speaking. No specific indicator was defined when the system was set up. However, all the actors interviewed agree that the Dutch system fulfilled its first purpose since the number of vehicles abandoned in the countryside has considerably decreased. In addition, owing to the ease of obtaining licences to operate vehicle dismantling businesses, there are very few illegal operators in the Netherlands. Furthermore, the Dutch consider the vehicle registration and monitoring system to be one of the most advanced in Europe. As already mentioned, the main strength of the system is the direct link between the vehicle and its owner.

5.2.3.2 Limitations of the scheme

While the Dutch system has its strengths, it does have certain limitations:

- Exporting of vehicles: once a vehicle is declared as exported in the RDW vehicle registration and monitoring system, there is no longer any possibility for verifications. In fact, even if the system keeps a record of the entity that has registered the vehicle as exported, there is no traceability as to the purchaser of the vehicle. Consequently, if it is indeed illegally processed as an ELV in another

country under the guise of a used car export, the system won't know it since it is no longer under the responsibility of Dutch operators. This limitation is reinforced by the fact that today in the Netherlands, vehicles can be exported without passing the annual roadworthiness test. To face the problem of exports for illegal processing abroad, one solution would be to require a minimum roadworthiness condition of the vehicle before export, attested to by the results of a roadworthiness test.

Another limitation related to vehicle exports is the problem of the number plate which is not systematically required by certain entities which have the RDW licence (authorised export broker, for example). Consequently, some vehicle owners declare their vehicle as exported while continuing to drive it in the Netherlands without paying the three taxes.

The ARN wanted to know if all the vehicles declared as exported were really exported. To find out, the eco-organisation analysed data from the RDW vehicle registration and monitoring system from 277,735 vehicles exported in 2015. Out of these, 5 to 10,000 vehicles were considered too old to be exported as used cars given the low demand for the latter in export markets. These vehicles are generally processed for destruction in the Netherlands rather than exported. Less than 5000 vehicles are suspected of being fake used car exports that are in fact either illegally processed in the Netherlands or processed (legally or illegally) abroad.

- Imported vehicles: vehicles that enter the Netherlands without being registered in the RDW system are not visible and hence can easily be illegally processed within the country.

  Furthermore, since there is no verification of imported vehicles, some illegal operators import foreign vehicles whose back section has had an accident but which still has an intact VIN. Then, they solder the front part of the imported vehicle to a Dutch vehicle with an intact back section (whose VIN has been destroyed by an authorised ELV centre). The vehicle that seems to be new is sold as is, but is in fact dangerous. RDW has taken 300 of these vehicles tout of circulation.

- Vehicle thefts: stolen vehicles are also dismantled and sold as spare parts online
- dismantling of stolen vehicles to sell spare parts online also occurs. Illegal operators can offer a very competitive price for these parts compared to the market price and the vehicles are registered in the RDW system as stolen.

- The environmental aspect: while the environmental permit is required to obtain an RDW licence, environmental inspections are not a priority. In fact, as in all countries, at environmental inspection agencies have limited staff.

5.2.3.3 Safeguards implemented to avoid the limits of the scheme

The efficiency of the current indirect incentive scheme in the Netherlands depends on the many safeguards set up to prevent fraud concerning:

- Suspension of registration: if a vehicle is driven while its owner has suspended registration, the Dutch fiscal authorities enforce a fine equivalent to three months of road tax. The owner is also required to pay the tax retroactively starting from the suspension date up to the day the vehicle is stopped[43].

- Payment of vehicle ownership taxes: if the taxes are not paid, vehicle owners risk incurring penalties from fines to imprisonment. For example, if an owner does not pay his insurance and does not take his vehicle for the roadworthiness test and yet the vehicle is not suspended from the road, he is fined up to 400 euros. As the

[43] However, the limitations of fines should be noted: while they exist, they are not always enforced.

RDW monitors compliance with obligations, the fine process is very efficient thanks to automated sharing of information between all entities.

- Forged certificates: thanks to RDW licences, only authorised companies, randomly audited, can provide a certificate of destruction, sale or export.

- Unauthorised ELV centres: illegal ELV processing operators may be subject to sanctions from 10,000 euros to imprisonment.

Controls are also carried out:

- When an entity licensed by the RDW is suspected of engaging in falsified vehicle exports, it is audited. The tax authorities look at the number of vehicles that the company has exported since it has been in operation and if the company has paid all of its income tax. If this is not the case, the company must pay the difference.

- In 2018, the ARN suspected five ELV centres of illegally operating based on a GoogleMap study. The eco-organisation informed the Environmental Protection Agency about the entities and contacted the RDW for an audit. The investigation's assessment is that the problem of illegal ELV processing is *a priori* minimal in the Netherlands as only one out of the five entities audited broke the law.

5.2.3.4 Social acceptance of the scheme

Vehicle owners, who are used to paying these types of taxes and to EPR on other products (refrigerator, washing machine, etc.), understand the usefulness of the recycling premium and are not opposed to it. They even support the system since it enables better vehicle traceability. When someone purchases a used vehicle, he can find out about all of its specific characteristics (garage repairs, mileage, etc.) thanks to public information available through the RDW vehicle registration and monitoring system that records any changes made on a vehicle. Only collectors, whose hobby is to take apart cars, object to the current system since they are not authorised to dismantle and assemble vehicles.

Vehicle importers have also accepted the incentive measure in the Netherlands as they enjoy support from the ARN concerning enforcement of the European directive on ELVs. However, since the vehicles have a positive residual value, vehicle importers nevertheless want to reduce the amount of the eco-contribution per vehicle.

Insurance companies also strongly support the obligations and the system which reduces the number of stolen vehicles. This is because the VIN of an ELV may not be reused. As explained above, the only illegal operation possible with stolen vehicles is resale of spare parts.

5.2.3.5 Scheme evolution perspectives

As mentioned previously, the main limitations of the system concern the exporting and importing of vehicles that cannot be traced.

As far as exports are concerned, nothing is planned. The ARN vehicle registration and monitoring system is very effective when it comes to monitoring Dutch vehicles throughout their lifetime. The best solution to remedy this problem would be an inter-connected system between countries.

The only potential evolution concerns vehicle imports which could be subject to verification.

5.2.4 Analysis of transposing the scheme to France

5.2.4.1 A comparable information system

The Dutch scheme, which is based on strong incentives owing to the three taxes associated with vehicle ownership, is relatively simple and hence easily replicable.

Its success is based in particular on a centralised, updated single registration information system (where each vehicle has a lifelong registration number), enabling automotive sector organisations to communicate with each other and to provide information relative to the vehicles concerning them. France already has a vehicle registration and monitoring system such as the one managed by the RDW. Its name is le Système d'Immatriculation des Véhicules or the Vehicle Registration System (SIV). If the system is transposed, France would have to improve it by sharing SIV data with operators who need it in order to audit vehicle owners who do not comply with the car ownership obligations.

However, setting up this scheme in France would mean changing the existing SIV, and mobilising additional financial, human, and technical resources. Effective implementation of a new system would also highlight the problems associated with the French system (such as vehicles in the SIV while they are not in use) and these problems would then have to be resolved. Furthermore, enforcing all related sanctions would require a considerable administrative investment to encourage vehicle owners to pay for their insurance and to ensure that they actually do it. However, a system as the one deployed in the Netherlands is economically beneficial for the country, since having all vehicles insured with a valid roadworthiness inspection means that only safe vehicles are in use.

Furthermore, to implement an efficient scheme accepted by automotive sector actors, all stakeholders (private and public bodies) need to be involved and to cooperate. All entities would have to communicate with each other about this public interest issue. In fact, data sharing, enabled by the RDW, is a key factor in the Dutch scheme's success. Yet, sharing information appears to be more complicated in France than in the Netherlands. The lack of cooperation between all entities could impede the successful implementation of this type of scheme in France.

5.2.4.2 Structural differences between the Netherlands and France

The main difference between the Netherlands and France lies in the size of each country. The difference in scale between the two countries impacts the organisation of legal and illegal channels. In fact, France is around 16 times larger than the Netherlands. Consequently, illegal activities are more easily hidden in the French countryside than in the Netherlands, where the country's population density is much higher and illegal activities are much more visible.

5.2.4.3 Issues with scheme acceptance

Perhaps the greatest challenge in terms of transposing the Dutch scheme in France is the difficulty of convincing the population to accept an additional tax (the road tax). In fact, imposing a tax directly on French vehicle owners seems to be especially difficult to enforce given the current French situation that has come out of the "Gilets Jaunes" or Yellow Jacket movement.

In the Netherlands, vehicle owners understand the recycling premium's usefulness and therefore accept it. Given that drivers mainly finance the scheme, it is very important to educate consumers about the benefits of proper ELV processing through awareness campaigns to foster acceptance. If vehicle owners understand the usefulness of the recycling premium, it will make it much easier to implement the measure. Hence, the scheme has to be presented in a very educational way. The problems that it aims to solve (abandoned vehicles, environmental consequences, pressure on legal ELV operators, etc.), as well as the consequences of the scheme for vehicle owners (responsibilities, fines for not complying with requirements, etc.) must all be explained.

5.2.4.4 Specific characteristics of the scheme

It would not be necessary to create an eco-organisation like ARN. In the Netherlands, the ARN system and the recycling premium were set up in 1995 to help ELV centres improve their environmental performances. The value of ELVs was minimal and the ELV market was not competitive. Today, ELVs have a positive economic value and ELV centres can cover their decontamination and processing costs through earnings from parts for reuse or materials removed. An eco-organisation would not necessarily be needed to transpose the scheme to France.

5.2.4.5 The issue of open borders

Setting up a scheme such as the one in the Netherlands would not enable to monitor vehicles declared as exported or vehicles imported which do not enter the registration system. To remedy the lack of verification of exported and imported vehicles, there should be a connected European vehicle monitoring system to enable data sharing at the European level. In fact, such a scheme would enable monitoring of all vehicles without losing information, and consequently to monitor when a vehicle leaves the country.

5.3 The indirect scheme in Spain

5.3.1 General background

5.3.1.1 Overall ELV situation in the country

The Spanish ELV sector is organised in a similar way as that of France. The number two European car producer, Spain has levied a tax since 1966 on all owners of vehicles in use. This indirect incentive scheme enables to bring ELVs through authorised centres.

Population	46.54 million inhabitants
Area	504,782 km²
Population density	91.06 inhabitants/km²
Demographic growth	+ 0.19%
GDP[44]	1,166.3 Billion euros
GDP per capita	24,100 euros/inhabitant
Hourly labour cost	21.2 €/h

Table6: Geographic, demographic and economic data for Spain (2017)[45]

Fleet of vehicles in use	32,929,004[46] (including 23.5 million cars and 2.3 million utility vehicles)
Number of new number plates	1,674,4783 (including 1.28 million cars and 109,793 utility vehicles)
Import/export of new vehicles	1,295,106 imported vehicles 2,318,217 exported vehicles
Number of permanent deregistrations	878,248 (including 698,284 cars)

[44] https://datosmacro.expansion.com/pib/espana?anio=2017
[45] https://www.diplomatie.gouv.fr/fr/dossiers-pays/espagne/presentation-de-l-espagne/
[46] All types of vehicles included (Source: Direccion General de Trafico).

Number of temporary deregistrations	805,419 (including 593,974 cars) in total including 119,987 for personal reasons and 40,524 for theft[47] The remaining corresponds to vehicle sale requests
Number of ELVs processed by authorised processing centres (CAT)	620,055 ELVs[48] Including 560,494 individual vehicles and 59,561 utility vehicles
Number of authorised ELV centres	1,300[44]
Number of shredder/post-shredder companies	26 (including 10 post-shredders)
Average age of ELV	18.05 years[44]
Estimation of the illegal ELV processing channel	50[44]
Estimation of the illegal ELV processing channel	35,000[44]
ELVs processed/Fleet of vehicles in use	2.4%[49]
Rate of reuse and recycling of ELVs (2016)	85.4%
Rate of reuse and recovery (2016)	93.4%

Table7: Global status of the ELV and automobile sector in Spain (2017 data)

Appendix 3 presents this data for all countries studied as well as for France.

5.3.1.2 Legislative and regulatory framework for the ELV sector

Transposition in Spanish law of the directive 2000/53/CE of the European Parliament and of the Council of 18 September, 2000 pertaining to End of Life Vehicles (referred to as the ELV directive) resulted in the royal decree ("Real Decreto") 1383/2002 of 20, December 2002[50]. In effect as of 2003, this decree establishes measures to prevent production of ELVs, regulate ELV collection, decontamination, and processing to improve the efficiency of environmental protection throughout the lifetime of vehicles. Among others, the decree requires vehicle manufacturers to implement preventive measures in the manufacturing process, such as limiting use of hazardous substances, design and manufacturing of vehicles to facilitate dismantling, decontamination and recovery or inclusion of recycled materials in vehicle manufacturing.

The royal decree, in effect for 14 years, was repealed on January 23, 2017 by royal decree 20/2017 of 20 January[51]. The latter maintains and adapts the existing measures in accordance with directive 2000/53/CE on End of Life vehicles and with the law 22/2011[52] on waste and contaminated soil. The decree provides improvements:

- -By clarifying the scope of the regulations;
- -By regulating the operations carried out by authorised ELV processing centres in greater detail (Authorised Processing Centres, named CAT);
- -By adopting measures to prevent double financing of management of vehicles or their components[53];
- -By expanding the obligations of producers and other economic actors, and by specifying the penalties applicable.

[47] Source: Direccion General de Trafico
[48] Estimation of SIGRAUTO.
[49] Considering all types of vehicles Source: Direccion General de Trafico).
[50] https://www.boe.es/buscar/pdf/2003/BOE-A-2003-92-consolidado.pdf
[51] https://www.boe.es/buscar/pdf/2017/BOE-A-2017-656-consolidado.pdf
[52] https://www.boe.es/buscar/pdf/2011/BOE-A-2011-13046-consolidado.pdf

[53] For example, vehicle components, such as electrical and electronic equipment, batteries or tyres are accounted for uniquely within the scope of ELV management and not within the scope of WEEE, batteries and accumulators or waste tyres.

The main circumstances that led to revising the regulations were, in addition to ratification of the experience acquired since the last decree, the approval of the law 22/2011 on waste and contaminated soil as well as the need to homogenise the data that each member Country sends to assess reuse, recycling and recovery targets.

Major new developments include:

- To comply with the waste hierarchy principle, approved centres must separate parts and components that can be prepared for reuse and sale. Then they must bring all waste from decontamination to an authorised operator and send the rest of the vehicle to an authorised shredder for fragmentation.
- only an authorised processing centre may remove parts and components for the purposes of preparation for reuse and sale. The parts must come from vehicles which have already undergone final deregistration with the DGT as well as decontamination.
- The legal status applicable to vehicles and to some of their components subject to other extended producer responsibility measures (tyres, batteries, etc.) has been clarified. ELV materials and components are not subject to other EPR so as to prevent double regulation and financing.
- The reference to penalty systems provided for by other regulations is included.
- The decree reiterates the targets set by the European directive: a minimum reuse and recycling rate of 85% of the average weight of vehicles and a minimum reuse and recovery rate of 95% of the average weight.
- The CATs must also achieve the following targets:

    - As of 1 February 2017, a rate of recovery of parts and components of vehicles in order to prepare them for reuse of a minimum of 5% of the total weight of the vehicles that they process annually.
    - As of 1 January 2021, the rate of recovery of parts and components of vehicles for the purposes of preparation for reuse of a minimum of 10% of the total weight of the vehicles that they process annually.
    - As of 1 January 2026, the recovery rate of parts and components of vehicles for the purposes of preparation for reuse of a minimum of 15% of the total weight of the vehicles that they process annually.

The technical requirements that must be complied with by facilities for reception, disposal, and processing of ELVs are listed in appendix II of the royal decree of 2017. For environmental purposes, CAT facilities must be divided into separate zones for reception, decontamination, and storage of decontaminated vehicles.

Furthermore, in compliance with article 11 of the royal decree 20/2017 and in agreement with article 41 of the law 22/2011, authorised processing centres must present an annual report on the waste that they manage before the 1st of April of each year. This report must describe their activity during the preceding year, including documentation proving that they have achieved the formerly described targets.

5.3.1.3 Organisation of the sector

The legal ELV sector in Spain is organised much like that in France. This is shown in the following diagram. Potential leaks of ELVs to the illegal channel are also presented.

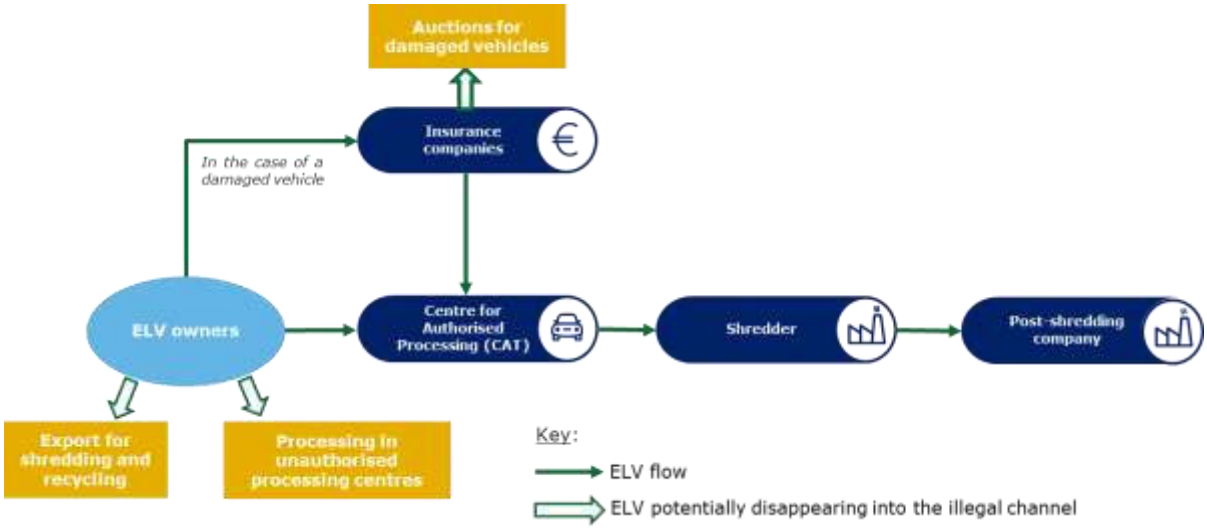

Figure 20: Main physical ELV streams between the different sector actors (Source: Deloitte)

5.3.1.3.1 Car manufacturers

According to the definition of article 3 of the royal decree of 20/2017, vehicle producers include both national producers and importers or buyers of these vehicles in other European Union member States.

The number eight vehicle producer in the world and number two at the European level (behind Germany), Spain has 17 manufacturing sites located in the country. Most of the major automotive groups are present in Spain, including RENAULT, PSA, VOLKSWAGEN, SEAT, NISSAN, OPEL, MERCEDES, FORD and IVECO. In 2017, Spain produced 2,848,335 vehicles covering 44 different makes (including 605,115 industrial type vehicles). Most of these vehicles were exported (over 90%). At the same time, vehicle imports account for nearly 90% of the new vehicles registered in Spain in 2017 (including 72% from the European Union and 16% from outside the EU)[54].

The following associations respectively represent Spanish car manufacturers, producers and importers:

- La « Asociación Española de Fabricantes de Automóviles y Camiones » (ANFAC), representing all vehicle producers in Spain;
- La « Asociación Nacional de Importadores de Automóviles, Camiones, Autobuses y Motocicletas » (ANIACAM) which represents all vehicle importers.

Producers as defined within the scope of the royal decree, are responsible for the first launch on the market and must comply with Producer Extended Responsibility obligations. Under article 32.1 of the law of 22/2011, producers are required to set up individual or collective systems for which they must have the corresponding authorisation issued by the autonomous community. They can sign agreements with other economic actors or integrate them into the existing systems. The individual and collective systems implemented by producers must produce an annual report on their activity.

[54] According to the ANFAC (Spanish Association of car and lorry manufacturers).

5.3.1.3.2 Owners

When the owner of a vehicle decides to get rid of it, he is required to ensure, either directly or via a third party (a dealer for example), that the vehicle is removed and destroyed by bringing it to an authorised processing centre which carries out decontamination and processing operations. The owner must also attest that the vehicle has been through an authorised processing centre and he must provide proof of the end of life of the vehicle (no longer in use) through the destruction certificate in compliance with ordinance INT/624/2008 of 26 February 2008.

Owners can be private individuals, insurance companies (which own cars that have been involved in accidents), garages and dealers (intermediaries between private individuals who want to get rid of their vehicle and authorised processing centres) or municipal authorities (who recover vehicles abandoned on public roads).

5.3.1.3.3 ELV processing actors

ELVs which come directly from private individuals, or from municipal authorities, garages and dealers, are processed by two types of entities: authorised processing centres and shredding and post-shredding companies.

Authorised Processing Centres (« Centros Autorizados de Tratamiento » - CAT)

Authorised Processing Centres (CAT) are private facilities authorised to perform ELV decontamination and processing. The ELVs received by the CATs undergo different processing operations: removal of liquids and dangerous waste (decontamination phase), removal of parts suitable for reuse and recycling (dismantling) and compacting of vehicle remains. Then ELV car bodies are sent to shredders (« fragmentadoras »).

Today, there are nearly 1,300 authorised centres in Spain processing 650,000 vehicles per year (average over the last four years). Authorised processing centres are shown in lists established per province (the equivalent of a département in France). These lists are updated by the Traffic Department: http://www.dgt.es/es/seguridad-vial/centros-colaboradores/centros-tratamiento-vehiculos/.

Certification requirements

To operate, CATs must obtain an authorisation from their autonomous community (Spanish regional subdivision). Consequently, they must enforce the regulatory technical requirements specified in appendix II of the royal decree 20/2017. The conditions to obtain the authorisation may vary slightly from one autonomous community to another with additional requirements.

Certificate of destruction

The authorised processing centre that decontaminates and processes an ELV delivers a certificate of destruction to the vehicle owner (or intermediary). This certificate proves the permanent withdrawal of the vehicle from use and hence the vehicle's final deregistration with the Traffic Department (presented below). Issuance of this certificate requires the owner to ensure that his vehicle is decontaminated within a maximum of thirty days (starting from the day that the destruction certificate is issued to the vehicle owner). Then a copy of the certificate must be sent to the corresponding autonomous community.

Shredding and post-shredding companies (« fragmentadoras » and « post-fragmentadoras »)

Once decontaminated, the ELV is handled by a shredder that crushes the vehicle and sorts its components, using vacuum techniques for light residues and magnetic sorting techniques for ferrous metals. A post-shredding company is in charge of separating the non-ferrous metals from non-metallic materials.

Like the CAT, shredding and post-shredding companies must obtain an authorisation from their autonomous community to deal with non-dangerous waste.

Today, in Spain, there are 26 shredders and 10 post-shredding companies.

SIGRAUTO

SIGRAUTO is a Spanish organisation for the environmental ELV processing in Spain. The product of an agreement between the associations representing the main actors involved in ELV processing, it includes:

- La "Asociación Española del Desguace y Reciclaje del Automóvil" (AEDRA) including around 600 CAT;
- La « Asociación Española de Fabricantes de Automóviles y Camiones » (ANFAC), representing all vehicle producers in Spain;
- La « Asociación Nacional de Importadores de Automóviles, Camiones, Autobuses y Motocicletas (ANIACAM), which represents all vehicle importers;
- La Federación Española de la Recuperación (FER) which includes all shredding and post-shredding companies.

The role of SIGRAUTO[55] is to coordinate the sector's activities, to represent and defend the interests of member associations relative to the public authorities. Entirely financed by members, it orders many studies and analyses to increase the rate of reuse and recycling/recovery of ELVs. In this way it greatly contributes to achieving the sector's performance targets.

In addition, through the intermediary of SIGRAUTO, a network of authorised processing centres and affiliated shredders (« La red de centros autorizados de tratamiento (CAT) y fragmentadores concertados») was implemented with the signing of a framework agreement at the end of 2003. Today, this network includes some 523 authorised processing centres, 26 shredders and 10 post-shredder companies. It represents all the producers and importers based in Spain and plays a coordinating role[56]. Thanks to this network, automobile manufacturers and importers in Spain comply with one of the main obligations required by the royal decree of 20/2017 on ELVs, which is to ensure the proper collection and processing of the ELVs of their brands, as well as to ensure the availability of collection facilities all over Spain. The expanded producer responsibility is implemented in Spain via this network managed by SIGRAUTO.

Furthermore, CATs whether they are affiliated or not with the network are required to take back ELVs at no cost regardless of their commercial value, as long as the main components of the vehicle are still present. If the value is negative, the CATs belonging to the network may, in accordance with theroyal decree, opt to have an evaluation of the processing costs performed by an independent entity in order to receive compensation[57].

[55] The association has two employees.
[56] All car brands (importers and producers) have a contract with centres that are affiliated with the network via SIGRAUTO which has the power of attorney to sign for each brand.
[57] This compensation scheme is provided for under the decree but has never been enforced. This case has never occurred.

5.3.1.3.4 Actors monitoring and controlling the sector

The autonomous communities

Through qualified environmental organisations (Seprona), the autonomous communities are responsible for issuing administrative authorisations to CATs and shredders. In addition, the autonomous communities verify that facilities comply with regulatory measures and in particular with the measures provided for in appendix II and appendix III of the royal decree 20/2017. Audits of ELV centres and shredders carried out by the public authorities may result in sanctions ranging from a simple fine (for administrative non-compliance) to imprisonment (environmental damage)[58].

The Traffic Department (« La Dirección General de Trafico » - DGT)

Created under the law 47/59 of July 30, 1959, the Traffic Department (DGT) is an autonomous organisation, affiliated with the Spanish Ministry of the Interior, in charge of carrying out the motorways policy. The aims of the department are to ensure road security and the fluidity of vehicle traffic (by monitoring and controlling traffic), to develop actions aimed at improving road user behaviour and awareness, as well as to provide citizens with all administrative services (issuance of the driving permit, managing registrations, etc.)

The territorial administrative entity includes:

- 50 offices/provincial traffic centres (called « Jefaturas provinciales »), or one per province (Spanish departmental subdivision),
- 8 traffic management centres[59] ;
- An automated complaint-processing centre.

The provincial offices oversee all vehicle-related processes: new registration, renewal of vehicle registration permit, change of owner, household, withdrawal of vehicle from automobile fleet (permanent deregistration), temporary deregistration, etc. These offices also issue penalties for driving violations in partnership with the police.

The Ministry of the Environment

All activity reports of entities involved in the ELV processing channel are sent to the Ministry of the Environment, through the autonomous communities. The reports are then completed with statistical analyses and rate calculations. The Ministry compiles the information and presents it to the European Commission. The Ministry of the Environment then cross-references this information with analyses compiled by SIGRAUTO.

5.3.1.3.5 Other related actors: insurance companies

Insurance companies play an important role in the ELV sector in terms of the ELV flows that they recover and process, including all vehicles involved in an accident and sometimes stolen vehicles which are then recovered in bad condition. In Spain, Insurance companies are represented by UNESPA (« Union Espanola de Entidades Aseguradoras y Reaseguradoras »). Founded in 1977, it represents over 200 insurance companies covering 96% of the insurance market in Spain.

In 1996, a public file on information about insured vehicles (called FIVA) was set up. Managed by the Consortium de Compensation des Assurances, the file was created to:

[58] However, the limitations of fines should be noted: while they exist, they are not always enforced.
[59] Located in Madrid, Valencia, Malaga, Sevilla, Saragossa, Valladolid, La Corogne and the Balearic islands, each of which manages a specific zone.

- Provide the information needed to help people involved in road accidents to quickly find the insurance company that covers the civil liability of each of the vehicles involved in the accident;
- Make it easy to verify that each vehicle owner living in Spain takes out and maintains an insurance policy that covers the driver's liability, within the limits set by mandatory basic coverage. This verification is carried out in collaboration with the Consortium of Insurance Compensation and the Traffic Department, through the mutual sharing of data contained in each of the entities' automated files.

The list of vehicles declared as « totally damaged » in the VIVA is regularly sent to the Traffic Department to be integrated into the vehicle registry, enabling other actors who have access to the registry (police, CAT) to identify the vehicle status.

5.3.1.3.6 Focus on the illegal channel and sector irregularities

According to the actors interviewed, the illegal ELV processing channel is limited in Spain. There are around fifty processing centres which do not have an authorisation from the autonomous community and which illegally process around 35,000 vehicles [60] (or 5.6% of the total number of vehicles processed). Furthermore, the number of unauthorised processing centres denounced by SIGRAUTO to the authorities is around 3-4 per year.

The two "leak points" for vehicles into the illegal channel are:

- Temporary deregistration. Sometimes private individuals who wish to have their vehicle destroyed are taken in by illegal processing centres which offer to purchase the vehicle whatever the condition, and to handle the deregistration request with only a telephone number. Owners entrust their vehicle to an entity for destruction, under the illusion that it is operating legally. In this case, the illegal centre makes a temporary vehicle deregistration request on behalf of the owner instead of a permanent deregistration. From the perspective of the vehicle registry overseen by the Traffic department, the private individual in question is still the owner of the vehicle. As the temporary deregistration leads to termination of payment of the IVTM tax without having to provide any documentary proof, the private individual concerned does not immediately realise that his vehicle has not gone through the authorised sector.
- Sales of vehicles declared « totally » damaged [61] by insurance companies. These vehicles are often sold at online auctions and purchased by CATs for processing, but also by unauthorised processing centres or private individuals normally with the aim of repairing or reselling them at a later time. Some organised groups have already been arrested for acquiring vehicles through this channel in order to recover the vehicle papers and then to attribute them to other similar stolen vehicles.

Regarding the case of illegal ELV exports, there may be leaks to the illegal channel but, according to SIGRAUTO, this is not of prime importance in Spain in comparison with the two abovementioned leak points.

[60] Estimation made by SIGRAUTO

[61] A vehicle is considered to be « totally damaged » when there is a significant and/or disproportionate difference between the cost of the repair and the current value of the vehicle, Source: Dirección General de Seguros (criterio SOVM nº 6 "siniestro total y valor venal en la cobertura de daños a terceros"), confirmed by jurisprudence (Sentencia del Tribunal Supremo nº 101/2010, de 1 de julio de 2010)

CATs must thoroughly examine vehicles and, for example, must inform the appropriate authorities if they detect any signs of former tampering or removal of parts, indicating the possibility of illegal sale of used parts[62].

5.3.2 Functioning of the incentive scheme

5.3.2.1 Description of the scheme

5.3.2.1.1 General principle

All vehicle[63] owners are required topay a direct tax every year called « Impuesto sobre Vehículos de Tracción Mecánica ». A municipal tax, it records ownership of motor vehicles in for use whatever the vehicle class or category. All vehicle owners registered in the Traffic Department log are consequently required to pay this tax until their vehicles are deregistered[64]. The only exceptions are:

- Vehicles eliminated from the logs owing to the age of the make, even if they are still authorised for use on an exceptional basis for exhibitions, contests or races dedicated to this type of vehicle.
- Trailers or semi-trailers with a loading weight under 750 kg.

In addition, the following vehicles are exempted:

- Ambulances and other vehicles directly used for healthcare purposes;
- Vehicles for physically challenged people (on request);
- Vehicles registered in the name of a physically challenged person (issued on request under certain conditions) ;
- Tractors, trailers, semi-trailers or machines equipped with an agricultural inspection certificate (on request).

These exemptions, all of which are required, are enforced in all municipalities.

5.3.2.1.2 Rates applicable

Applicable rates are defined by the law on local authorities of March 2004 (« Ley de Haciendas Locales 03/2004 del 9 de marzo ») according to the fiscal power/engine rating (« potencia fiscal »). This parameter is defined by the Ministry of the Economy for each vehicle depending on its make, power, etc. The basic fees approved in 2004 are as follows:

[62] In principle, CATs must indicate on the destruction certificate if the vehicle arrives at the centre partially dismantled. It is also recommended to include in the file photos of the vehicle in question and to specify the missing parts.
[63] Any natural or legal person with his name mentioned on the vehicle road certificate.
[64] Whether permanently or temporarily

Potencia y clase de vehículo	Cuota – Euros
A) Turismos:	
De menos de ocho caballos fiscales	12,62
De 8 hasta 11,99 caballos fiscales	34,08
De 12 hasta 15,99 caballos fiscales	71,94
De 16 hasta 19,99 caballos fiscales	89,61
De 20 caballos fiscales en adelante	112,00
B) Autobuses:	
De menos de 21 plazas	83,30
De 21 a 50 plazas	118,64
De más de 50 plazas	148,30
C) Camiones:	
De menos de 1.000 kilogramos de carga útil	42,28
De 1.000 a 2.999 kilogramos de carga útil	83,30
De más de 2.999 a 9.999 kilogramos de carga útil	118,64
De más de 9.999 kilogramos de carga útil	148,30
D) Tractores:	
De menos de 16 caballos fiscales	17,67
De 16 a 25 caballos fiscales	27,77
De más de 25 caballos fiscales	83,30
E) Remolques y semirremolques arrastrados por vehículos de tracción mecánica:	
De menos de 1.000 y más de 750 kilogramos de carga útil	17,67
De 1.000 a 2.999 kilogramos de carga útil	27,77
De más de 2.999 kilogramos de carga útil	83,30
F) Vehículos:	
Ciclomotores	4,42
Motocicletas hasta 125 centímetros cúbicos	4,42
Motocicletas de más de 125 hasta 250 centímetros cúbicos	7,57
Motocicletas de más de 250 hasta 500 centímetros cúbicos	15,15
Motocicletas de más de 500 hasta 1.000 centímetros cúbicos	30,29
Motocicletas de más de 1.000 centímetros cúbicos	60,58

Table 8: Basic fees for the IVTM tax depending on the fiscal power approved in 2004[65]

The « fiscal power» calculation is specified in appendix V of the general vehicle regulation, approved by royal decree 2822/1988. The basic rates may be modified in the law on the general budget. The municipalities, through their tax ordinance, may apply a coefficient of from one to two.

Furthermore, each municipality has the option of applying tax deductions. It may define and adjust the characteristics of these deductions at its own discretion, in accordance with its fiscal policy (for example: 100% bonus for vehicles classified as historic, bonus depending on the type of motor or the fuel used by the vehicle and its environmental impact). For example, the Mayor's office of Madrid offers a deduction for the least polluting vehicles. All of these deductions provided for by the law are optional.

Consequently, the amount of the tax varies from one autonomous community to another. It ranges from 20 to 300 euros per year, depending on the taxable horsepower, the coefficient and the deductions taken into account by the municipality.

5.3.2.1.3 Taxation period and those liable

The vehicle owner as of the 1st of January of the current fiscal period is liable for the tax. This is the person whose name is listed in the vehicle registry at that time. The taxable period coincides with the calendar year, except in the following situations for which the tax is calculated au prorata of the number of trimesters for which the vehicle is registered:

- If it is a first purchase;
- If the vehicle is permanently or temporarily deregistered owing to theft. In this case, while the full amount of the tax is paid initially, the taxpayer is entitled to a reimbursement, once proof of the theft is provided.

[65] Source: Royal decree 2/2004 on local administrations, of March 5.

Otherwise, the tax is paid annually within a voluntary payment period, which varies depending on the city hall (example: the payment period in Madrid is from the 1st of April to the 31st of May every year). After this period, the tax increases if the owner does not pay on time. Generally, over 80% of taxpayers pay their tax within the voluntary period.

5.3.2.1.4 Administrator of the tax and destination of tax revenues

According to the law on local public authorities, the municipalities are responsible for overseeing this tax. Consequently, the municipalities receive tax revenues paid by all taxpayers residing in their town. The vehicle address is determined on the basis of the address indicated on the registration certificate.

For this purpose, the city halls send a letter to all taxpayers registered in the vehicle registry and residing in their city to inform them that they are required to pay the IVTM tax (usually via automatic withdrawal).

Once this period is expired, the city halls send a list of taxpayers who have or have not paid the tax to the DGT. They send a reminder to those who have not paid and the fee is increased. If the taxpayer does not pay, the municipality informs the DGT, which then may inform the tax authorities in order to penalise the taxpayer. The tax authorities may directly withdraw the tax from the taxpayer's account.

According to the Association for the defense of drivers, « Automobilistas Europeos Asociados » (AEA), the tax generates annual revenues for all Spanish municipalities of nearly 2,200 million euros[66]. For example, Madrid city hall collected around 150 million euros in tax revenues for some 1,750,000 vehicles, which represents 6% of total revenues collected through direct taxes. In third position in terms of municipal taxes, the IVTM tax represents a significant share of revenues. The city halls are free to use the revenues collected from this tax. There is no obligation regarding this subject.

5.3.2.1.5 Suspension of IVTM tax payment

Vehicle owners stop paying the IVTM tax under the following two conditions:

- Permanent deregistration;
- Temporary deregistration.

Deregistration conditions are different depending on the type of vehicle. In any event, a request is made to the corresponding provincial traffic centre (affiliated with the DGT) to ensure it withdraws the vehicle from the vehicle log. The vehicles in question are considered to be no longer in use (definitively or temporarily).

For this type of request, the following documentation is provided to the provincial traffic centres:

- Official request document, provided by the DGT or by authorised processing centres (CAT).
- The owner's identification papers (identity papers and proof of residence for private individuals; tax number, power of attorney (if need be) and identity of the signee for the legal person);
- Registration certificate
- Vehicle technical inspection Card (Inspeccion Tecnica de Vehiculos – ITV)[67].

[66] Source: Background note of the AEA association on the municipal fiscality of the vehicle, 2009.
[67] The vehicle's MOT card is issued by the Ministry of Industry in Spain and is regulated by the royal decree 2140/1985.

- Certificate of destruction, sale, export or sworn statement (depending on the situation).

Procedures may be carried out by a representative. Furthermore, if the vehicle is seized, the procedure for requesting temporary or permanent deregistration is not completed.

Permanent deregistration

Permanent deregistration is requested when the vehicle is permanently no longer in use, in other words when the vehicle is destroyed or exported. In this case, the vehicle is permanently deregistered from the vehicle log.

Destruction of the vehicle

The vehicle owner or an intermediary (dealer or municipality) brings the vehicle to be destroyed to a CAT (authorised vehicle processing centre). The CAT, which decontaminates and processes the vehicle, issues a destruction certificate to the owner. The certificate attests to the permanent deregistration of the vehicle (which is no longer in use) with regard to the DGT. To this end, the CAT makes an electronic deregistration request in compliance with ordinance INT/642/2008, which regulates the electronic deregistration of ELVs. Provision of this certificate requires that the vehicle is decontaminated within[68] 30 days and a copy of the certificate is sent to the corresponding autonomous community.

The procedure[69] is as follows:

1. The CAT issues the vehicle destruction certificate.
2. The CAT gives the original copy of the certificate to the vehicle owner and keeps a copy.
3. The CAT is required to have an electronic identification certificate that complies with information in the fifth section of the ordinance INT/624/2008, which will be requested from the traffic centre where the CAT is located. The CAT telematically consults the administrative situation of the vehicle in the traffic department's vehicle log. If there is no reason not to do so, the CAT, using the same procedure, informs the provincial traffic centre where it is located, of the vehicle deregistration request. The DGT (central traffic department) registers the permanent withdrawal and issues a certificate to prove it, which is then electronically sent to the provincial centre to be given to the vehicle owner.
4. The annotated date of the permanent withdrawal of the vehicle from circulation (deregistration) coincides with the date at which the destruction certificate is issued.
5. If withdrawal is not possible, the provincial traffic centre automatically issues an electronic document confirming the problem to be corrected, which the CAT immediately sends to the vehicle owner so that it may be resolved.

Furthermore, if the destruction request is made by a third party on behalf of the vehicle owner, he must ask him for proof that clearly indicates that it is a permanent deregistration and the latter must specify the vehicle data and the CAT that has processed it.

The obligation to provide a destruction certificate, attesting to the permanent deregistration of a vehicle, only concerns private vehicles, utility vehicles up to 3.5 tonnes and three symmetrical wheeled mopeds with a cylinder capacity exceeding 50 cm^3. In fact, for other types of vehicles, the royal decree 20/2017 of January 20th does

[68] A 30 day period starting from the date on which the destruction certificate was issued to the last owner.
[69] http://www.dgt.es/Galerias/seguridad-vial/normativa-legislacion/otras-normas/modificaciones/2017/Instruccion-V-122-Baja-electronica-de-los-vehiculos-al-final-de- su-vida-util.pdf

not apply; the CAT must nevertheless provide a certificate of environmental processing to the DGT or to the provincial traffic centre.

In any event, the CAT sends an electronic message to the DGT confirming the permanent withdrawal of the vehicle from the vehicle log. This receipt serves as proof for any administrative authority.

If a vehicle is transferred abroad

When the vehicle is exported (in the event of a move or sale of the vehicle abroad), the vehicle owner must permanently deregister the vehicle in order to withdraw it from the vehicle registration log. The vehicle then loses its authorisation for use. When the deregistration request is made, the owner must fill out a sworn statement attesting that the vehicle is not waste[70], in addition to the documentation required for all requests.

If the vehicle is exported to a country outside the European Union, the owner must carry out steps with regard to the DGT as well as for customs (declaration, presentation of fiscal documentary proof…).

Furthermore, thanks to the provisions of the treaty of Prum, which calls for cross-border cooperation in police matters, including the exchange of data among police entities, Spain regularly receives (every two months) the list of new vehicles registered in France and coming from Spain. This information is crosschecked with the database of the vehicle registry in order to verify the vehicles deregistered in Spain for export reasons. Nevertheless verifications are not systematic and are only performed within the framework of a customs investigation.

Temporary deregistration

At any time, the owner of a vehicle may request temporary deregistration of his vehicle, if the vehicle is sold or stolen or simply for personal reasons[71]. In any event, the vehicle is no longer authorised to be in use.

Change in vehicle owner (purchase and sale of the vehicle)

If the vehicle is sold, the owner and the new buyer request a change in vehicle owner from the Traffic department registry. For this purpose, a sales contract is drawn up and must be signed by both parties. The buyer has 15 days to make the change in ownership with the DGT departments. Once the change is made in the vehicle registry, he must pay the ownership transfer tax to the public treasury of his autonomous community by providing all sales receipts, and then he must make an appointment at the provincial traffic centre to pay the change fees. If the seller is not in good standing regarding payment of the IVTM tax, the DGT does not authorise him to sell his vehicle. The change in owner is only possible once the debt is paid.

Vehicle theft

If the vehicle is stolen, the documentation to provide for the vehicle deregistration must be accompanied by a police declaration of the theft as documentary proof. However, the police automatically send all temporary deregistrations for theft to the traffic department.

Except in the case of theft, the owner (or third party) who is requesting a temporary deregistration pays a tax (corresponding to deregistration fees) amounting to 8.50 €.

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[70] https://sede.dgt.gob.es/Galerias/tramites-y-multas/tu-coche/modelos-e-impresos/anexo_baja_traslado_pais.pdf

[71] If the owner wishes to withdraw his vehicle from the road while keeping it at home, for example.

Otherwise, the IVTM is paid proportionally up to the term during which the theft was declared.

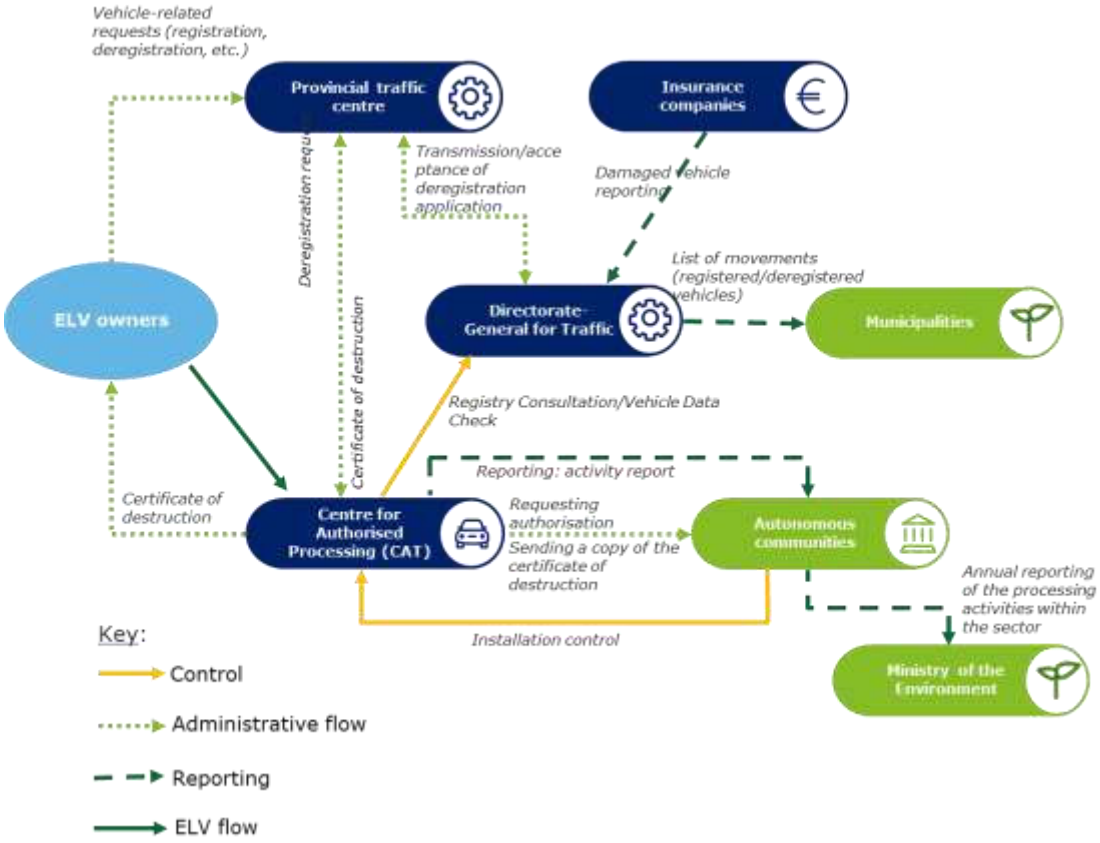

Figure 21: Main streams relative to the scheme

To simplify the diagram, shredders are not shown. However, shredders are subject to authorisation and are required to provide a report annually to their autonomous community, in the same manner as authorised processing centres (CAT).

5.3.2.2 Targets for this scheme

The scheme's first objective was not to limit processing of ELVs by illegal ELV processing operators but to provide the municipalities with additional revenues. However, the scheme enables to better understand and oversee the fleet of vehicles in use, and above all to orient ELVs to the legal channel. This is achieved by requiring owners to provide a certificate of destruction issued by an authorised centre. It seems that for most sector actors interviewed[72] it is an efficient means to fight against the illegal channel.

5.3.2.3 Implementation of the scheme

5.3.2.3.1 Key phases

For the first time, in 1966, a municipal road tax (« Impuesto municipal de circulacion ») for motorised vehicles in use on public roads was created. Governed by article 4 of the Spanish law 48/1966 of 23 June 1966, this tax came into effect and was enforced in all municipalities as of 1 January 1967[73]. A sticker was affixed to the vehicle as proof of payment of the tax. At the end of the eighties, the sticker was phased out with

[72] SIGRAUTO, DGT and the Spanish Ministry of the Environment
[73] Ordinance of the 8th of October, 1966

the change in the tax. In 1988, the tax became the tax on motorised vehicles (« Impuesto sobre Véhiculos de Traccion Mecanica - IVTM », as it is entitled today under the law regulating local authorities ("Ley de Haciendas locales 39/1988 » of 28 December 1988).

Furthermore, the registration system is governed by the decree INT/624/2008 of the 26 February 2008 concerning the electronic cancellation of registration of ELVs. It governs deregistration of ELVs, and embodies the telematic vehicle deregistration procedure. ELVs are considered to be waste from the moment that they are brought to authorised processing centres (CAT). The latter are responsible for sending the corresponding certificate of destruction that attests to the vehicle's end of life to the former owner. The certificate enables its withdrawal from use and its permanent deregistration in the DGT vehicle registry.

The public vehicle registry was created in 1976 by royal decree 3250/1976 pursuant to the law on the foundations of the local regime status (« Ley 41/1975 »).

5.3.2.3.2 Means implemented

The main technical means implemented to ensure the scheme functions properly is the vehicle registry. Each vehicle is listed and its file provides all information pertaining to the life of the vehicle, such as the identity of the current and former owners, roadworthiness inspections passed/validated (ITV), repairs and any recorded maintenance operations, insurance, the registration status (permanent or temporary deregistration), documentary proof (certificate of destruction, declaration of theft, etc.). This system is crucial to ensure and facilitate communicate between all the actors involved, including: the DGT, provincial traffic centres, municipalities, insurance companies, etc.

The tasks handled by the different actors are as follows:

- City halls: management of the database pertaining to their taxpayers, administrative tasks (sending informative mail and reminders to taxpayers), greeting taxpayers, assistance and management of claims relative to the tax, etc.
- The Traffic Department (DGT): management of the vehicle registration database, sending a monthly record to the city hall of all registration/deregistration changes concerning it (only twice a year for small cities), sending an annual summary (at the start of the year) to each city hall to enable the latter to request payment of the tax from all taxpayers. The file is sent in Excel® format by the DGT to be imported into municipal databases (a data recovery procedure is communicated at the same time as the import file). The DGT also verifies data base coherence.

It is difficult to evaluate the human and financial resources involved, given that the road tax is managed by general public entities which are not only dedicated to managing this tax but which also deal with other taxes. Consequently, the share specifically allotted to the IVTM tax is not known, especially given that it would require contacting all the municipalities involved in administrative management at the local level to make an accurate evaluation. However, for a general idea, Madrid city hall employs 20 administrative staff members to oversee taxes, plus two people for IT management (not exclusively for the IVTM tax). At the DGT, 20 to 30 people manage the vehicle registry.

Furthermore, communication measures are implemented by the different municipalities to inform taxpayers about the payment period and make them aware of their obligations. For example, every year, the Madrid city hall runs radio ads and bus stop poster campaigns to keep taxpayers informed.

5.3.3 Overview of the scheme

5.3.3.1 Scheme efficiency

The scheme's efficiency was not quantitatively evaluated. No quantitative indicator was monitored. However, the people involved who were interviewed agreed that the scheme is an efficient way of orienting ELVs to the legal processing channel, in order to reduce the number of abandoned vehicles (which from a visual perspective seem to have decreased). In addition, it is estimated that there are few illegal operators in Spain (around 50 out of 1300 CAT). These entities illegally process around 35,000 vehicles (5.6% of the total of vehicles processed)[74].

Furthermore, the number of temporary deregistrations requested in 2017 for personal reasons is nearly 120,000. Considering that these requests are the main potential leak point into the illegal channel, it is estimated that the share of illegally processed vehicles is a maximum of 16%[75]. However, a more accurate evaluation of temporary deregistrations linked to fraudulent activity is needed to more accurately assess the scheme's efficiency. Furthermore, the number of fines issued for vehicles in use that have been temporarily deregistered from the vehicle registry is not known.

5.3.3.2 Limitations of the scheme

The main limitation of the scheme is the possibility, for any vehicle owner, to request temporary deregistration of his vehicle without providing any documentary proof. As mentioned above, it is a leak point for ELVs to the illegal channel (see paragraph on the illegal channel).

The other limitation is that the reliability of the vehicle registry database needs to be improved. According to estimates of the AEA drivers' association, around 3.5 million vehicles are declared as registered with the DGT vehicle registry while they have not been in use for years. Most of the time, this concerns vehicles over fifteen years old, registered without insurance for a long time, damaged, stolen or sold but for which the change in status has not been declared in the vehicle registry by the owner, through poor knowledge of the procedures. The taxpayers in question consequently have no means of proving that they are entitled not to pay the IVTM tax.

In 2013, the DGT launched an awareness campaign to target drivers with vehicles over ten years old. The campaign focused on the characteristics and administrative situation of their vehicles in order to identify non-existent vehicles to be permanently deregistered, with the aim of updating the registry database in the future. Currently the registry is not yet updated.

Furthermore, beyond verifications to check the coherence of the registry database, no systematic crosschecking of the registry database with other existing databases (FIVA insurers' database, customs data…) is provided for so as to identify potential fraudsters. This crosschecking is only performed within the scope of police investigations or specific verification campaigns.

The police force can immobilise a vehicle if the owner is not authorised to drive it, in particular if he has no valid insurance. However, if they stop a taxpayer who has not paid their IVTM tax, they have no authority to penalise them for non-payment. At best, if they verify the information in the registry, they can warn the driver that he or she has not fulfilled the requirements.

[74] Source: SIGRAUTO

[75] Calculated percentage dividing the number of temporary deregistrations for personal reasons (some 120,000) by the total number of ELV processed, including the hypothetical maximum number of ELVs illegally processed (620,000+120,000).

5.3.3.3 Safeguards implemented to avoid the limits of the scheme

When the taxpayer does not pay the tax on the vehicle (IVTM), the tax increases, and then if the taxpayer still does not pay the tax, the city hall concerned files a claim with the fiscal services concerned in order for them to investigate the issue. They then directly withdraw the amount owed from the taxpayer's account if needs be.

Furthermore, the law does not allow an owner to sell his vehicle if he has not paid his IVTM tax. If he wishes to conclude the sale, he must first pay all his late fees (even covering many years).

A final safeguard is voluntary sharing of data contained in the vehicle registry managed by the DGT and the FIVA file held by the UNESPA. Filled out by all insurance companies, the FIVA file identifies the losses, thefts and fires experienced by the insured vehicles enabling to identify fraudulent cases on damaged vehicles entering the illegal processing channel.

5.3.3.4 Social acceptance of the scheme

Taxpayers are generally not in favour of paying a tax. However, the IVTM tax, which has existed for over 50 years, is now a well-established practice among drivers. According to the people interviewed, there are few complaints about payment, with the exception of taxpayers concerned by vehicles which have been inexistent for a long time (discussed in paragraph 5.3.3.2). As the fee is not very high, the IVTM tax is fairly well accepted by the population.

The scale of the tax varies from one city hall to another. Also, the driver advocacy organisation (Automobilistas Europeos Asociados – AEA) has warned about fiscal inequalities pertaining to this tax, and consequently the abuses generated: price inequality between citizens and abusive registrations in certain cities (particularly by car hiring companies).

Authorised processing facilities are strongly in favour of the scheme since it ensures that ELVs are oriented to their processing facilities rather than to illegal entities.

5.3.3.5 Scheme evolution perspectives

In the coming years, the scheme should evolve considerably, in particular:

- Limitation of the temporary vehicle deregistration period: discussions about this issue are underway between the DGT and SIGRAUTO which wants the deregistration request to be limited to one year. SIGRAUTO also wants the owner to be required to request a renewal every year with a minimum paid contribution (instead of a single payment made at the time of the request). The additional rules would help minimise situations where some ELVs end up in illegal centres: mislead taxpayers, who think that they have handled their vehicle in compliance with the regulations would be alerted to the swindle when the minimum tax fee is paid. To do this, changes in the law on local authorities are needed.
- Transitioning to a single tax: today, vehicles are taxed twice. through the registration tax (when the vehicle is registered, paid only once) and an annual tax on the vehicle (IVTM). There are rumours that the registration tax might be eliminated. This evolution would mean less management by the State and would enable better integration of environmental criteria into the tax scale. According to the DGT, this single tax could take effect within two to three years.
- Within the scope of limiting the number of damaged vehicles that end up in the illegal channel, SIGRAUTO would like to see additional requirements implemented to prevent the sale or export of a damaged vehicle, unless the latter has been certified as apt to be repaired via a prior roadworthiness inspection. Discussions about the issue are currently under way.
- The final likely evolution in the scheme is the cleaning and updating of the DGT vehicle registry database, with the elimination (including the permanent

deregulation) of all non-existent vehicles (see paragraph 5.3.3.2). Discussions between the AEA and the DGT about this issue began four years ago.

5.3.4 Analysis of transposing the scheme to France

5.3.4.1 A comparable information system and human resources

Transposing the vehicle taxation scheme implemented in Spain hinges on a key factor, namely a centralised, updated single registration information system (where each vehicle has a lifelong registration number), enabling the entities involved to communicate with each other and to provide information in real-time about the vehicles concerning them. To this end, managing the database as well as verifying the quality and reliability of the information must be handled by an organisation that centralises the information.

Spain does have these resources with the national vehicle registry overseen by the Traffic Department (DGT) although it needs to engage cleanup measures to remove non-existent vehicles. Thanks to the registry, the DGT easily communicates data pertaining to vehicles to the provincial traffic centres, the authorised processing centres (CAT), the municipalities, the insurance companies, etc.

Similarly, in France a comparable information system, the Vehicle Registration System (SIV) was created in 2005. The SIV centralises all operations pertaining to vehicles registered in France (registration requests, change in owner, destruction of vehicles, etc.). Overseen by a National Credential Verification Agency (ANTS), the SIV is accessible to most actors in the automotive sector (experts, ELV centres, etc.) For example, if a vehicle is destroyed, it is used by ELV centres (only if they are authorised) to withdraw the vehicle from the system in real time, and to issue and deliver a receipt to the former owner as documentary proof.
To transpose the Spanish scheme to France, the scheme would probably have to be adapted. However, the main technical resources (SIV) and human resources (people managing the SIV or those responsible for overseeing taxpayer data in town halls) already seem to exist in France, whether at the level of the ANTS which manages the SIV data base or the municipalities which manage other taxes. In addition, it appears that few additional human and financial resources would be needed to enforce a new tax, the burden of which would be shared by all French municipalities. However, to transpose the scheme to France, a more accurate study is needed to assess these resources.

5.3.4.2 The specific characteristics of the scheme and safeguards needed

The Spanish scheme is based on a strong interaction between the DGT and the municipal services dedicated to taxes. Every month the DGT sends a list of movements related to vehicles residing in its territory to each city hall (new registrations, permanent and temporary deregistration, changes in owners, etc.). For their part, the municipalities inform the DGT about any cases of non-payment of the tax to record the information in the vehicle registry. Hence, the DGT is aware of the vehicles for which there are debts in order to block any vehicle sale requests. The information also enables to initiate, if needs be, claims processes with the fiscal authorities, in collaboration with the DGT.

Transposing the system in France would mean setting up regular communication between the ANTS, which oversees the SIV, and the municipalities. Today this interaction does not exist in France. This would mean adapting the organisation of the French administration and providing for additional human and technical resources for specific tasks related to the tax such as in Spain. These include preparation and sending of vehicle data files to municipalities, implementing data into the SIV, potentially assisting the municipalities, etc.

Furthermore, to remedy the previously identified limitation of the Spanish scheme and to transpose it to France, namely the fact temporary deregistration is possible without providing a specific reason and without a time limit (possible in France), additional measures would need to be implemented. In fact, changes in the wording of laws to establish time limits for

temporary deregistration, the payment of an annual minimum tax, as recommended by the Spanish actors involved, as well as a plan for verification and effective penalisation and follow-up would be needed for the scheme to be fully efficient.

Implementing additional resources such as those discussed are potentially a blocking factor. It nevertheless also depends on strong political engagement and budgets being allocated to monitor enforcement of any measures.

5.3.4.3 The challenge of getting the population to accept the system

The greatest challenge in terms of transposing the Spanish scheme in France is the difficulty of the population to accept paying a new tax. While the fee paid per year by most Spanish taxpayers liable for the tax (IVTM) is minimal, a tax levied directly on French drivers seems especially difficult to implement given the current French situation and the « Gilets jaunes » movement.

Yet the tax is well accepted by the Spanish population, but largely because it has existed for over 50 years.

However, if this tax were deployed in France, the Spanish actors interviewed within the scope of the study recommend that the fee scale be identical throughout the country to ensure fiscal equality for the entire population. They also recommend that the revenues collected by the municipalities be obligatorily used for specific actions in coherence with the objective of the tax to be implemented[76]

To conclude, it is important to educate people about the scheme to foster its acceptance.

5.4 The indirect scheme in the Czech Republic

5.4.1 General background

5.4.1.1 Overall ELV situation in the country

The Czech ELV sector is relatively well controlled. In 2005, the country implemented an indirect incentive scheme. All vehicle owners are required to pay their insurance as long as they have not provided a certificate of sale, export, theft or destruction of the vehicle.

Population	10.58 million
Area	78,866 km2
Population density	134.1 inhabitants/km^2
Demographic growth	0.2%
GDP	192.01 Billion €
GDP per capita	18,100 €
Hourly labour cost	11.3 €/h

Table 9: Geographic, demographic, and economic data for the Czech Republic (2017)

Fleet of vehicles in use	6,032,825 (2016)
Number of new registered per year	278,932 (2016)

[76] This could also raise issues in terms of budgetary law (the principle of not assigning a revenue to an expenditure).

Number of ELVs processed per year	171,618 (2018)
Average age of ELV	From 19.6 to 20.2 years
Number of authorised ELV centres	600 authorised ELV centres but not all are in operation
Number of shredders	5
ELV processed/ Fleet of vehicles in use	2.8%
Estimation of the illegal ELV processing channel	From 5 to 20%[77]
Reuse and recycling rate(2016)	90.3%
Rate of reuse and recovery (2016)	95.4%

Table 10: Global status of the automobile sector and ELV in the Czech Republic

The appendix 3 Indicator table presents this data for all the countries studied as well as for France.

5.4.1.2 Legislative and regulatory framework for the ELV sector

The European directive 2000/53/CE of September 18 2000 pertaining to ELV processing has been transposed into Czech law since 2001 with the law 185/2001 Coll[78] on waste: section 37 (paragraph 7b) stipulates the obligation to comply with the directive targets and that on average 95% of the weight of ELVs must be reused or recovered.

Decree 352/2008 Coll., for its part, enables the ELV centre to enforce the law 185/2001 Coll. on waste. In fact, the decree describes all the requirements and objectives for processing of ELVs to help ELVs operate, namely:

- Dismantling techniques for the different components before sending ELVs to shredders;
- The method of keeping the registries;
- The way the annual report is filled in;
- Information on the MA ISOH system[79];
- The operational rules for managing an ELV centre (the equipment needed to decontaminate ELVs, the environmental rules, safety rules, etc.);
- An example of a required annual report;
- An example of a destruction certificate[80].

[77] Source: Centre VHU Kovosrot Group
[78] https://www.mzp.cz/C125750E003B698B/en/legislation_waste/$FILE/OODP-Act_on_Waste_185_2001_EN-20132603.pdf
[79] Module of the waste management system of the Ministry of the Environment dedicated to ELVs
[80] Appendix 3 of the Decree 352/2008 Coll. (example of a destruction certificate): https://www.mzp.cz/C125750E003B698B/en/legislation_waste/$FILE/OODP-CoD-20130326.bmp

Division 7
End-of-life Vehicles

Section 37
Obligations Pertaining to the Management of end-of-life vehicles

(7) Persons authorised for the collection, purchase, treatment, recovery and disposal of scrap cars shall be obliged to

a) implement a system for the collection of selected scrap cars and their parts with an adequate density of collection sites,

b) manage selected scrap cars and their parts in such a way as to achieve the following
1. at the latest from 1 January 2006, the proportion of scrap cars that are reused and used shall represent at least 85% of the average weight of all selected vehicles received in one calendar year and the proportion of reuse and material recovery shall be at least 80% of the average weight of all selected vehicles received in one calendar year, with the exception of selected vehicles manufactured prior to 1 January 1980, for which the level of reuse and use is set at 75% and the level of reuse and material recovery at 70%,
2. at the latest by 1 January 2015, the proportion of scrap cars that are reused and used shall represent at least 95% of the average weight of all selected vehicles received in one calendar year and the proportion of reuse and material recovery shall be at least 85% of the average weight of all selected vehicles received in one calendar year,

Figure 22: Extract law 185/2001 Coll. on waste, section 37, paragraph 7 b)

5.4.1.3 Organisation of the ELV processing channel

5.4.1.3.1 The actors involved in ELV processing: ELV centres, shredders and post-shredder factory

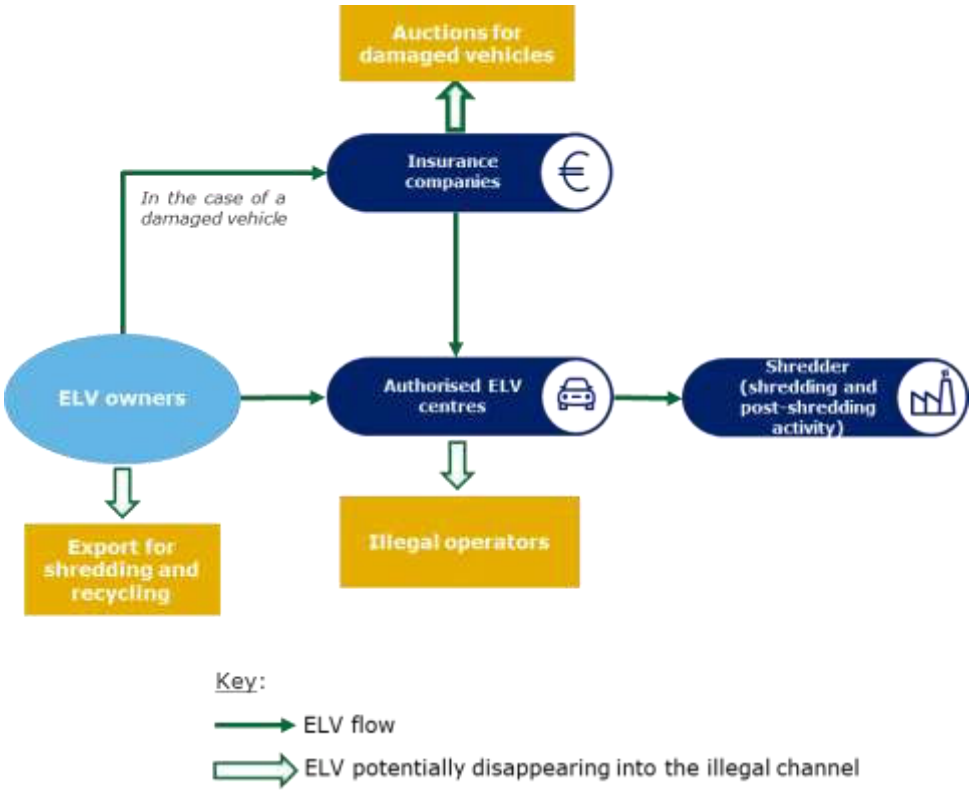

Figure 23: Main physical ELV streams between the different actors from the sector (Source: Deloitte)

Activities of ELV processing actors

Some 200,000 ELVs are processed and dismantled every year in the Czech Republic in 600 ELV centres authorised by the regional authorities[81]. To obtain the permit (authorisation) allowing them to operate a processing business, ELV centres must, on the one hand, comply with certain environmental and safety rules mentioned in the decree 352/2008 Coll. and, on the other, provide a detailed description of the operational rules of the facility. This permit, which costs around 20 euros, is valid 4 or 5 years. By obtaining it, ELV operators agree to send an activity report to the regional authorities once a year (in February n+1 for the year n). In particular, the report presents the number of ELVs processed and recovered, the way that they are decontaminated and the operators who take back waste and materials resulting from vehicle processing.

Authorised processing centres purchase ELVs from their owner for an average price of 40 euros. When the ELV is turned in, the vehicle owner must provide his ID papers and the vehicle papers. If it is not the last owner who brings the vehicle to the ELV centre, the third party must provide a proxy document.

When the ELV is handled, the ELV centre enters the vehicle information into the waste management system of the Ministry of the Environment (ISOH[82]), namely: the VIN, the number plate information, the personal details of the last owner, the initial

[81] The Czech Republic is divided into 14 regions. There are 14 entities which can give permits.
[82] ISOH is the information system which serves as a basis for making decisions about waste management and its control in the Czech Republic. The system also enables to meet the country's requirements in terms of statistics. It serves as a database compiling information on waste and makes the latter available to the general public.

weight (at its sale), the current weight, the missing parts and photos of the VIN, the inside and outside of the vehicle. The ISOH module dedicated to ELVs (named MA ISOH), which has existed as January 1 2009, enables enforcement of the decree 352/2008 Coll. on ELV management[83]. It also enables the Government to have access to all information about all ELVs processed in the Czech Republic and to publish the statistics (number of ELVs processed per year, number of active ELV centres, etc.).

When all this information is entered into the system, a certificate of destruction is issued. The latter has a unique code which enables the last owner to withdraw the vehicle from the registration system of the Ministry of Transportation. When the destruction certificate is issued, the last owner turns in the vehicle's number plate to the ELV centre[84].

ELV centres are required to decontaminate vehicles before starting processing. Then Car bodies are sent to shredders (of which there are five in the Czech Republic).

Specific cases

When an ELV centre receives a vehicle, if its weight is 60% less than its original weight or if an important part of it is missing (the motor for example), the ELV centre does not issue a destruction certificate since the vehicle is not considered to be an ELV. While it is dismantled then destroyed by ELV centres and shredders, the vehicle is not accounted for in the reuse, recycling and recovery rate calculations.

If the missing parts represent only a small part of the vehicle, the ELV is accounted for in the calculation of the rates. The missing parts are by the ELV centre to be 100% reused in order to be able to evaluate the ELV recycling and reuse rates. In the hierarchy of waste processing methods, waste prevention is preferable to recycling. Consequently, if parts are missing, it is assumed that they have been reused. This is often true for batteries.

If the vehicle is processed abroad (if an accident took place abroad for example), two cases are identified:

- If the vehicle is dismantled in a European Union member country, the transport department of the municipality of the country in question must send a copy of the destruction certificate to the Ministry of the Environment. The Ministry verifies that the facility which has issued the certificate is on the list of authorised ELV centres of the member country. If this is the case, the vehicle information (VIN, number plate, type of vehicle, etc.) and information pertaining to the last owner (name, date of birth, address, etc.) are entered into the MA ISOH system so that the Ministry of Transportation can deregister the vehicle from their system. On the other hand, if the facility where the vehicle has been dismantled is not an authorised centre, the last owner risks being fined up to 20,000 CZK, or 800 euros (on average, the charge is around 2 000 CZK or 80 euros)[85];

[83] Link to the ELV management system (MA ISOH) managed by CENIA, the Czech agency for information about the environment: https://autovraky.mzp.cz/autovrak/
[84] This measure is regulatory in nature.
[85] However, the limitations of fines should be noted: while they exist, they are not always enforced.

- If the vehicle is dismantled outside the European Union, it is the role of the Ministry of Transportation to decide if the vehicle must be withdrawn from the vehicle registration system or not. These situations are difficult owing to the lack of a list of authorised ELV centres and the difference in rules for ELV processing in countries that do not belong to the European Union[86].

5.4.1.3.2 Actors monitoring and controlling the ELV sector

CIZP (« České inspekce životního prostředí »)

ELV centres undergo environmental inspections on a regular basis. The entity responsible for Czech environmental inspection (CIZP) performs on average 90 inspections per year of authorised ELVs and illegal operators. Illegal processing operators are not randomly selected. Generally, they are facilities that have generated complaints from authorised ELV centres or citizens who suspect these operators of engaging in illegal practices.

During inspections, the following issues are inspected:

- The proper enforcement of decontamination and dismantling requirements.
- The balance between the incoming material stream (number of ELVs processed) and outgoing stream;
- Site safety;
- Administrative documents;
- The purchasers of waste, parts and materials issued from ELV processing.

CENIA

CENIA, the Czech environmental information agency, is subsidised by the Ministry of the Environment of the Czech Republic. The main role of the CENIA is to collect, assess, analyse and share the country's environmental data to help the government make decisions. It is also the Czech contact point for the European Environment Agency. Regarding ELV management, as previously mentioned, in 2009 CENIA developed a module dedicated to its waste management information system in order to obtain accurate information about the number of ELVs and to improve the Government's control of the ELV sector.

5.4.1.3.3 Other actors of the ELV sector: insurance companies

Insurance companies are also important actors in the ELV sector since they play a key role in the functioning of the indirect incentive scheme. In fact, insurance companies have the legal power to require vehicle owners to pay their insurance. Vehicle owners who do not pay the insurance risk being fined an amount equal to the average cost of basic coverage plus a penalty of 2 euros per day[87]. This daily penalty took effect at the start of 2018.

If there should be an accident, insurers also play an important role. While the damaged vehicle (whether it is assessed as technically or economically unrepairable) still belongs to the vehicle owner, insurers offer their insurees an online auction service to enable them to get the best price for their vehicle and so that the insurance payment will be as low as possible. Access to the sale is open to anyone and functions on the basis of an anonymous sale, with the highest bidder getting the vehicle. Even if other actors besides ELV centres can access the system and buy damaged vehicles (i.e. individual for repair), the transfer of ownership and hence the

[86] These cases, which are relatively rare, are handled by someone from the Ministry of the Environment.
[87] The limitations of fines should be noted: in spite of their deployment, they are not always enforced.

change in insuree, operates the day of the sale, not leaving the door open to illegal ELV processing centres. The purchaser is effectively linked to the vehicle that he buys via the Transportation Ministry system and must pay the insurance.

5.4.2 Functioning of the incentive scheme

5.4.2.1 Description of the scheme

As of 2005 in the Czech Republic, all owners of vehicles registered in the registration system of the transportation ministry are required to at least pay for third party car insurance covering the damages caused by another person in the event of an accident. The annual insurance premium depends on the value of the vehicle, its weight, the residence of the owner, the type of insurance (third party or comprehensive), the driver's accident history, the number of seats in the vehicle and the type of owner (company or natural person). The third party insurance starts at around 40 euros and comprehensive insurance can cost up to several thousand euros.

Payment of the insurance is not automatically linked to the Ministry of Transportation's registration system. Hence, it is the responsibility of the vehicle owner to cancel his insurance policy when he deregisters his vehicle from the system.

The Ministry of Transportation's registration system functions as follows:

- Registration of a vehicle purchased or imported in the Czech Republic is done with the department of transportation of a municipality[88] and costs 32 euros. If a used vehicle is imported, the owner must show the vehicle's VIN and must provide proof that the roadworthiness test was completed to register the vehicle.
- When it is registered in the Ministry of Transportation's system, the vehicle VIN and the number plate are linked to the owner.
- To withdraw the vehicle from the registration system and stop paying the insurance, the last vehicle owner must go to his municipality and provide the department of transportation with a certificate of destruction, sale, theft or export[89]. In the Czech Republic, no changes in the vehicle status in the system may be made online. Vehicle owners are required to go in person to the premises of regional authorities.
  - If the vehicle has been processed, regional authorities first verify that the vehicle has been through an authorised ELV centre by entering the unique code on the destruction certificate into the Environment Ministry's system (MA ISOH). It is only once this verification is completed that the vehicle can be deregistered from the Ministry of Transportation's system.
  - In the event of sale, in addition to the presence of the buyer and seller (or a proxy), the sales contract and the new vehicle insurance certificate must be presented to the regional authorities so that they can take care of the ownership transfer. This change in the system costs the vehicle owner 32 euros. Before 2016, 10 days were required to prove the beginning of the new insurance, today it is immediate.
  - In the event of export, if a roadworthiness test certificate dated of under 30 days is presented, the owner may request a special number plate from his municipality's department of transportation. This number plate, valid for three months, will then be put on the vehicle before it is able to be registered as exported in the vehicle monitoring and registration system. In principle, this vehicle must be re-registered in the registration system of the country where it was exported.
  - In the event of theft, if the vehicle was not found after six weeks, the police search is shut down and the vehicle may be declared as stolen. In this case,

[88] In the Czech Republic, there are 14 regions and 206 municipalities.
[89] He must provide the original or the copy.

the owner of the stolen vehicle is reimbursed of the amount of his insurance policy at the time of the theft.

The Czech system does not authorise the sale or export of a vehicle without a roadworthiness inspection certificate. The certificate is valid one month while the roadworthiness certificate is valid four years for new vehicles and two years for other vehicles. The police can easily verify compliance with the obligation since a sticker with the date of the roadworthiness test is placed on the number plate of each vehicle. In the event of non-renewal of the roadworthiness test, the vehicle is no longer insured.

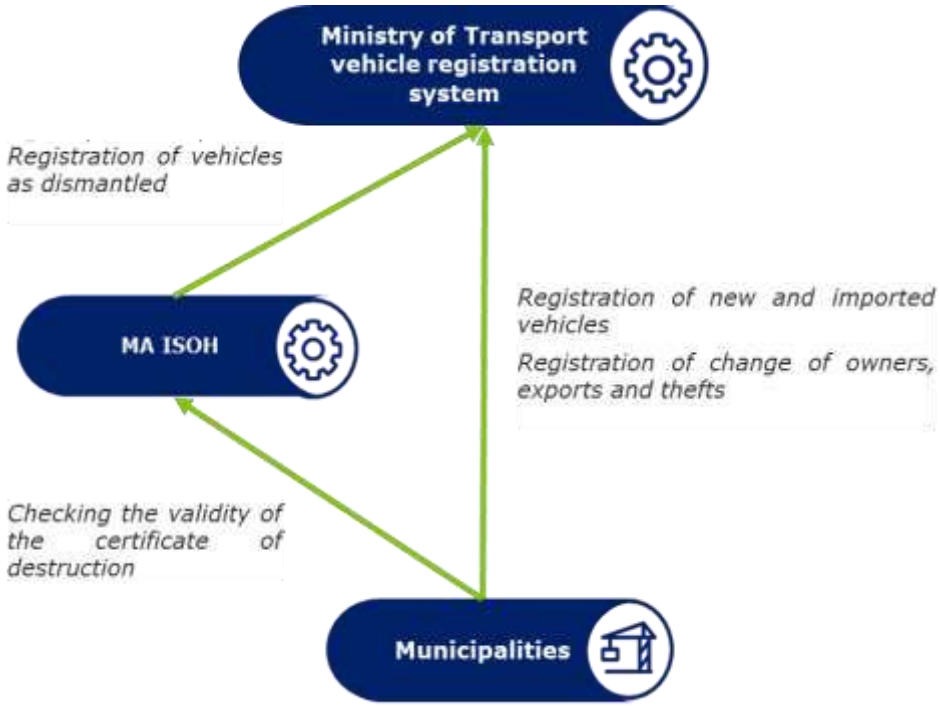

Figure 24: Functioning of the vehicle monitoring and registration system of the Ministry of Transportation

Certain vehicles are exempted from the insurance requirement: vehicles owned by companies with a collective insurance and vehicles with suspended registrations (in case of a temporary move abroad for example).

Vehicle owners (individuals or companies) can temporarily suspend the registration of their vehicles for a one year renewable period[90]. To do so, they must turn in the number plate and vehicle registration certificate (document gathering information about the vehicle) to the municipal authorities. They must also indicate the location of the vehicle so that the regional authorities can verify if the vehicle is effectively immobilised at that place. There is a fee for suspension renewal (administrative fee of 8 euros) and proof must be provided. If a vehicle circulates while its owner has suspended its registration, the owner can be fined up to 10,000 CZK, or approximately 400 euros[91].

[90] In this case, vehicle owners do not have to pay any insurance, even a minimum charge.
[91] However, the limitations of fines should be noted: while they exist, they are not always enforced.

Enforcement by the insurance police of the payment obligation

Insurers and the regional authorities play a major role in enforcing the vehicle ownership obligations:

- The regional authorities can levy a fine of up to 2,000 euros;
- The bureau of insurers can, for its part, fine the owner two euros a day for a vehicle which is not insured.

To enable the municipal authorities and the bureau of insurers to enforce the law and control vehicle owners who are liable for payment, each entity's data is shared on a monthly basis:

- Insurers send the data concerning the vehicles they insure to the insurers' association and the latter informs the Ministry of Transportation about any insurance changes.

- The Ministry of Transportation sends data from the vehicle monitoring and registration system (new registrations, processing, exports, thefts and owner changes) to the bureau of insurers.

5.4.2.2 Targets for this scheme

The first objective of the scheme on ownership obligations and insurance payment was neither to resolve the problem of illegal ELV processing facilities nor to reduce or prevent the risks of environmental pollution. Furthermore, the insurance charge is naturally not meant to develop the ELV processing channel.

The obligation of paying a minimum insurance charge was introduced on December 31st, 1932, in response to lobbying by insurance companies. There were many accidents at the time, which created major problems for uninsured vehicle owners who could not pay for the damages.

5.4.2.3 Implementation of the scheme

In the Czech Republic, two relatively simple systems oversee the management of the ELV sector.

- MA ISOH, the ELV information management system of the Ministry of the Environment. The ELV waste management system interface was implemented in 2009, in only six months, and was financed by the Ministry of the Environment. Management of this part of the system is overseen by four people from the Czech Agency for environmental information management (CENIA). If there is a technical problem, the proper functioning of MA ISOH is covered by its provider (Inisoft s.r.o[92]). It is difficult to know how many people work to administer this system within Inisoft but CENIA employees communicate with three different contact people.

  Operators which have access to this system are the Ministry of the Environment, the Ministry of Transportation, the Czech environmental inspection agency as well as the police to look for stolen vehicles and the municipal authorities to verify if the given ELV dismantling centre is authorised and if a destruction certificate has been issued. ELV processing centres, for their part, must buy the software enabling them to send the data on ELVs that they process and to be able to register the vehicles as processed. The MA ISOH interface is also accessible to the general public who can find information about existing ELV centres and statistics about the

[92] https://www.inisoft.cz/

ELV processing channel (number of active ELV centres, number of ELVs processed, number of ELV centres per region, etc.). ELV owners who have handed in their vehicle to an ELV centre can also, thanks to their number plate and their VIN, find the information that the ELV centre entered about their vehicle.

- The vehicle registration system of the Ministry of Transportation. In the past, this system was administered by the police (under the Ministry of the Interior).
  Data from the vehicle registration system is exchanged on a regular basis with the Bureau of Insurers to identify vehicle owners who do not pay their insurance. The administration of these systems and data sharing are simple and do not require specific human resources. In fact, the vehicle data shared includes the VIN and the number plate identification, identical in both systems.

5.4.2.4 Scheme advantages

The Transportation Ministry's system has many advantages:

- Traceability: the unique connection which exists between a vehicle (VIN) and its number plate (which does not change throughout its lifetime) in the system enables total traceability of the vehicle and its owners throughout its lifetime since it is impossible to have a vehicle without a number plate or a vehicle without an owner.

- Lack of forged destruction certificates: the registration of a vehicle as processed in the Transportation Ministry System is only possible if the code present on the destruction certificate is valid. Thanks to the MA-ISOH waste management system of the Ministry of the Environment the municipalities are able to check whether an authorised ELV centre has issued the certificate. This prevents the problem of false destruction certificates.

- The owner's responsibility relative to his vehicle: as insurance is directly associated with the vehicle and hence its owner, it is an incentive for the owner of an ELV to have his vehicle processed in an authorised ELV centre or to be withdrawn from the registration system through an official process. In addition, the temporary suspension of a vehicle from the registration system is possible but there is a charge and it must be justified. In addition, if there is a breach, the vehicle owner must pay a fine. The system in the Czech Republic makes it difficult for the last owner to get rid of his vehicle without providing proof that he is no longer the (last) owner of the vehicle.

- Data sharing: the sharing of data between the Bureau of insurers and the Ministry of Transportation enables insurance companies and the regional authorities to enforce the current regulation in the Czech Republic.

5.4.3 Overview of the scheme

5.4.3.1 Scheme efficiency

The efficiency of the Czech scheme was not quantitatively evaluated. No specific indicator was defined when the system was set up. However, all the actors interviewed agree that the system is relatively resilient and effective to control the ELV processing channel. In fact, the owner, linked to his vehicle in the vehicle registration system of the Ministry of Transportation, is required to pay for his insurance as long as he is registered in the system. Enforcement of the regulation is very effective since it is overseen by the Ministry of Transportation and the Bureau of Insurance Companies. Controlling illegal operators is even more efficient given that the validity of the destruction certificate is verified via the MA ISOH system before the vehicle is withdrawn from the system, dissuading unauthorised ELV centres from processing ELVs.

5.4.3.2 Limitations of the scheme

As mentioned, while the Czech Republic has an effective registration system, it does have certain limitations:

- Cooperation between legal and illegal ELV processing actors: authorised ELV centres issue destruction certificates and illegal operators dismantle the vehicles. This cooperation is advantageous for both parties since illegal operators, which are not under the same economic constraints as legal actors, give a share of their revenues to authorised ELV centres.

  The purpose of environmental inspections is to prevent this type of illegal cooperation. Identifying authorised ELV centres that collaborate with illegal operators is relatively simple. When the environmental inspection agency identifies and controls an illegal ELV processing facility, it identifies all the VIN numbers of vehicles on the site. Then, it enters these numbers into the MA ISOH to see which ELV centre has issued destruction certificates.

  However, it is more and more difficult to identify the operators who collaborate since illegal operators destroy the VINs of vehicles so that they can no longer be linked to legal facilities. Furthermore, these facilities often process different types of waste (washing machines, etc.) making it easy to falsify their data.

  If the authorities identify this type of collaboration, the operators must pay a fine of up to 4,000 euros.

- Exported and imported vehicles: once a vehicle is declared as exported in the vehicle monitoring and registration system, there is no longer any control possible by the authorities. While a roadworthiness test certificate dated less than 30 days is required and the system keeps a record of the export, there is no information about the vehicle owner. Consequently, if the vehicle is illegally dismantled in another country, the system cannot know about it.

  As far as imports are concerned, owing to the opening of the borders, many vehicles are imported from neighbouring countries to be destroyed. These non-visible vehicles (not registered in the system of the Ministry of Transportation) are easily illegally dismantled in a country. Furthermore, the experts interviewed agree that most ELVs processed by illegal operators in the Czech Republic come from neighbouring countries and in particular from Poland and Slovakia. In fact, even if an inspection is carried out by customs it is impossible to differentiate an ELV from a used vehicle.

- Enforcement of the law depends on private operators: this creates a major paradox since insurance companies can refuse to insure a driver with a poor driving record while vehicle owners are required to take out a minimum of third party insurance.

- The lack of controls by regional authorities: owing to the lack of staff at the authorities, very few controls are performed. Consequently, it is possible to suspend the registration of a vehicle for an undefined period. This is even more the case given that the annual suspension fee of eight euros is not an incentive to stop the suspension.

- ELVs with missing parts: in principle, if an important part of an ELV is missing, the ELV centre accepts to process the vehicle but does not issue a destruction certificate. Hence, the vehicle cannot be withdrawn from the registration system of the Ministry of Transportation. However, in practice, the ELV owner can go to the environmental department of the municipal authorities and say for example that in

trying to repair his vehicle the motor fell. If need be, he pays a fine[93] ranging from 30 to 60 euros enabling him to deregister his vehicle and stop paying his insurance. This raises environmental problems since the missing parts of an ELV are not processed in authorised ELV centres and are not necessarily decontaminated.

- Missing certificates: in principle, if a vehicle owner cannot provide a certificate of sale, export, destruction or theft, he must pay a fine[94] of around 800 euros to be able to be withdrawn from the registration system of the Ministry of Transportation. In practice, the fine varies from 30 to 60 euros. This is not an incentive for the owner to comply with the law. In spite of this, the problem is minor since if a facility pays the fine on a recurrent basis to deregister a vehicle, the regional authorities will control him to be sure that it is not an illegal ELV processing centre.

- False proof of sale: certain people make fake sales documents to destroy a vehicle that does not belong to them. However, this type of case is very rare.

- Processing of vehicles with an illegible VIN: when the VIN of a vehicle is illegible, it can be easily illegally dismantled since it cannot be recovered by the authorities[94].

- Abandoned vehicles: it also happens that vehicles declared as processed by authorised ELV centres are found abandoned on roads. When this happens, the police find the ELV centre that delivered the destruction certificate and audits it. In the event of an offence, the ELV centre must pay a fine of up to 2 million euros. However, the fine generally enforced for a wreck recovered outside of the authorised facility is from 500 to 2000 euros. The certification can be withdrawn definitively[95] in the event of a repeated violation.

- The destruction certificate code is sufficient to go to a municipality and deregister your vehicle from the Ministry of Transportation's registration system.

5.4.3.3 Safeguards implemented to avoid the limits of the scheme

The efficiency of the indirect incentive scheme developed in the Czech Republic depends on many safeguards implemented to prevent fraud concerning:

- Traceability: in the past, it was simpler to illegally process ELVs as vehicle owners sold them without verifying whether the information on the change in owner was registered in the Ministry of Transportation's system (the initial owner remained the owner). Today, this is no longer the case given that anyone who has a vehicle registered in the system must pay for insurance, the owner change is made systematically.

- Temporary suspension: vehicle owners who are temporarily deregistered must inform the municipal authorities every year about the vehicle's location. In addition, there is a charge for suspension.

- Stolen vehicles: the police who have access to the MA ISOH platform can indicate in the system when a vehicle is stolen. Consequently, when the ELV centre enters the vehicle's VIN number and its number plate into the MA ISOH system it will receive the alert, « Stolen vehicle ».

- The sale of spare parts: in the Czech Republic, the sale of spare parts is prohibited by individuals who run the risk of having to pay a 40,000 euro fine (ACT no.

[93] However, the limitations of fines should be noted: while they exist, they are not always enforced.
[94] However, it should be noted that there are several places where the VIN is registered on vehicles and motor references also facilitate their identification in connection with manufacturers.
[95] The legislation does not allow for temporary withdrawal of the certificate.

185/2001 Coll, sec. 11 § 18 and § 25, which lists what can and cannot be sold and decree n° 383/2001 Coll. sec. 5 specifying that ELV parts are prohibited). The Czech environmental authorities look for resellers of spare parts on online sales platforms[96]. It is likely that a maximal fine has never been levied, and the fine is generally much lower.

- Forged certificates of destruction: as the destruction certificate has its own unique code, there are no forged certificates of destruction in the Czech Republic.

- The sharing of data by the actors involved combined with the double incentive of insurance payment: in the Czech Republic, the bureau of insurers and the Ministry of Transportation share their data to enforce current regulations. Hence, the regional authorities can levy a fine of up to 2,000 euros while the bureau of insurers can levy a fine of two euros per day if the vehicle is not insured.

- The elimination of illegal actors: formerly, citizens who wanted to get rid of their metal objects (radiators, etc.) could, either give them to the municipalities, or sell them to scrap metal dealers in return for cash. This opportunity led to many thefts of metals (aluminium, copper, steel) since it was very easy to accumulate large sums of money by stealing property mainly made from metals. Consequently, the government prohibited payment in cash for the sale of this type of product, thereby eliminating a large number of illegal ELV processing facilities.

5.4.3.4 Social acceptance of the scheme

In spite of the fact that they incurred the risk of fines, vehicle owners did not object to this system.

Insurance companies are also very supportive of the insurance payment requirement since payment of this obligation logically generates additional revenues and enables all vehicles in use to be insured.

5.4.3.5 Scheme evolution perspectives

The Minister of the Environment would like to create access to an MA ISOH system for vehicle manufacturers. This could provide information relative to the construction of their new vehicles, dangerous substances present and other information required for dismantling of ELVs for ELV centres.

The Minister of the Environment would also like to make the requirements for operating ELV centres more stringent and they would like to carry out more frequent controls.

5.4.4 Analysis of transposing the scheme to France

5.4.4.1 A comparable information system to be improved

The incentive scheme implemented in the Czech Republic (the insurance payment requirement for any owner of a vehicle registered in the Ministry of Transportation's registration system) seems relatively simple and transposable in France. In fact, the experts interviewed agree that the success of the scheme and control of the illegal ELV processing channel is based mainly on an effective vehicle registration and monitoring system. A similar vehicle registration and monitoring system already exists in France: the Vehicle Registration System (SIV). Implementing the type of scheme set up in the Czech Republic would therefore not require a major financial investment since the insurance payment requirement and the SIV already exist.

[96] In the past, the CEI has revealed certain cases of vehicle spare parts sales by companies or illegal facilities. The statement generally found on online platforms is « assortments of spare parts »

France would have to improve this system by reconciling the SIV files and insurers to control vehicle owners who do not comply with the insurance payment. In fact, in the Czech Republic, the municipal authorities as well as the bureau of insurers share their data on a monthly basis to be able to enforce the law and control vehicle owners liable for payment.

From a technical point of view, implementing this type of system would require updating and sharing insurer and SIV data. This point is a key factor in successfully transposing this scheme in France. Work is currently underway on the issue involving the French Insurance Federation (FFA) and the Ministry of the Interior (DSCR).

Furthermore, in order for the system to be sufficiently efficient (which incites vehicle owners to destroy their vehicles in authorised ELV centres), it would seem to be important that the certificate of destruction, sale, theft or export be required when the owner wishes to stop paying for insurance coverage.

To conclude, implementing such a scheme, with all of the associated penalties, would require developing new laws or regulations as well as calling for considerable human resources to enforce controls and penalisation of drivers trying to withdraw from the system. Deploying these resources would require strong political engagement.

5.4.4.2 Acceptability of the scheme

The Czech incentive scheme is based on a simple insurance payment requirement for vehicle owners, such as is already the case in France. Consequently, the French population would not object to this scheme since it does not involve paying an additional tax.

The only difference is that, unlike in France, Czech vehicle owners today have a much stronger incentive to pay their insurance since two entities are constantly controlling users who do not comply with the law, namely: the bureau of insurers and regional authorities.

6 Comparison of schemes studied

Country	Denmark	The Netherlands	Spain	The Czech Republic
Type of scheme	Direct	Indirect	Indirect	Indirect
Name and principle	- A return premium of around 300 euros paid to the last owner of an ELV when the ELV is handed in to an authorised ELV centre - Premium financed by a parafiscal tax of around 11 euros on the car insurance premium, paid annually by drivers.	Obligation to pay three vehicle ownership taxes: - Road tax (overseen by the Finance Ministry) - Insurance (managed by insurers) - The roadworthiness test (overseen by the RDW)	Municipal tax on vehicles levied on all owners of vehicles apt to be on the road and declared as registered in the Registry	Insurance payment obligation
Date implemented	1st July, 2000	1994	1966 (Road tax) 1988 (tax on motorised vehicles ("Impuesto sobre Véhiculos de Traccion Mecanica"-IVTM)	2005
Objective	To prevent dumping of vehicles outside	To prevent dumping of vehicles outside	A source of revenue for the local authorities (law on local authorities)	Not aimed at reducing the illegal channel, or reducing and preventing the risks of environmental pollution but rather a scheme brought into effect through lobbying by insurance companies

Country	Denmark	The Netherlands	Spain	The Czech Republic
Operation	The premium concerns the following vehicles: - light and light utility vehicles (< 3,5 t) - registered in Denmark after the 1st of July, 2000 - brought back to an authorised ELV centre for dismantling and decontamination The premium is given to the last registered owner of the ELV (a set of specific cases are however defined under the law). Actors involved: insurers, the Environment Agency, administrative manager of the DPA-System premium, ELV centres, etc.	- RDW: weekly verification of compliance with insurance obligations and roadworthiness test - Ministry of Justice: enforcement of the law in the event of failure to pay for insurance and failure to take the vehicle for a roadworthiness test - Fiscal administration: implementation of the road tax (penalty up to immobilisation of the vehicle) The only way to stop paying this obligation is to provide a certificate of sale, export, theft or destruction of the vehicle.	- Tax from 20 € to 300 €/year depending on the fiscal power, the coefficient and deductions applicable - Paid annually by all vehicle owners declared as registered as of January 1st - Overseen and collected by each municipality for vehicles domiciled in its city Suspension of payment of the tax in the event of: - Permanent deregistration: in the event of destruction or exporting of the vehicle - Temporary deregistration in the event of a sale or for personal reasons Documentary proof depending on the situation: certificate of destruction, sworn statement in the event of exporting, request for change in owner, theft report.	- Any vehicle owner registered in the system must pay third party car insurance - Depending on the value of the vehicle, its weight, the residence of the owner, the type of insurance, the driver's accident history, the number of seats in the vehicle and the type of owner - The responsibility of the owner to cancel his insurance policy - Insurers have the legal power to require vehicle owners to pay their insurance (penalties of from 2 to 4 euros/day) - The regional authorities can levy a fine of up to 2,000 euros. The only way to suspend payment of this obligation is to provide a certificate of sale, export, theft, or destruction of the vehicle.
Scheme efficiency	- The scheme is efficient in terms of preventing dumping of ELVs - Inefficient when it comes to illegal exports - Difficulty of quantitatively assessing its efficiency	- Difficulty of quantitative assessment - Scheme is a priori efficient when it comes to preventing dumping of ELVs	- Efficient to reduce abandoned vehicles - Difficulty of quantitatively assessing incidence of fraud *Estimations: 50 illegal processing operators, 35,000 ELVs processed and 3-4 processing operators denounced every year.*	- Difficulty of quantitative assessment - Scheme a priori efficient in terms of controlling the ELV processing channel

Country	Denmark	The Netherlands	Spain	The Czech Republic
Scheme strengths	- Scheme self-financed by users (except for the launching of funds) - Managing the scheme requires little human resources - Scheme helps improve monitoring performance of the legal channel	- Lack of forged documents - Deregistration of a vehicle in the RDW system may only be done by entities licensed by the RDW - Responsibility of the owner with regards to the purchase of his vehicle - Good traceability of vehicles and their owners - Efficient sharing of data among actors involved	- Efficient information system enabling actors to communicate with each other and to provide information in real time about vehicles (good traceability) - Good acceptance of the scheme by the population - Vehicles exempted from the certificate of destruction obligation (example: lorries): certificate of environmental processing required by the DGT (agreement with the public authorities) - Data sharing between insurers (FIVA) and the DGT (Registry) to prevent fraud with damaged vehicles - Involvement of the fiscal authorities in the event of non-payment	- Good traceability of vehicles and their owners - Lack of forged certificates of destruction thanks to the MA-ISOH management system of the ministry - Making vehicle owners responsible - Data sharing between the bureau of insurers and the Ministry of Transportation enabling effective enforcement of regulations
Limitations of the scheme	- Many possibilities of fraud owing to a paper format resulting in additional heavy administrative management - Misappropriation of the premium from its first use, serving in part to finance decontamination operations (in violation of current European regulations) - An economic advance required by the Government to initiate financing funds - Inefficient scheme in terms of preventing illegal exports of ELVs	- No monitoring of exported vehicles and their outcome - Problem of imported vehicles that are not registered in the system - Not enough human resources to enact environmental inspections	- Temporary deregistration for personal reasons (without providing any proof) is a leak point for ELVs into the illegal processing channel - Cross-referencing of data is not systematic between existing data bases (customs, FIVA, exported vehicles): only for investigation or verification of damaged vehicles - Reliability of the registry for some of the vehicles: 3.5 million non-existent old vehicles are registered - The amount of the tax is not harmonised throughout the country (inequalities)	- Cooperation between some legal and illegal actors - Control of imported and exported vehicles - Enforcement of the law dependent on private operators - Lack of control by regional authorities

Country	Denmark	The Netherlands	Spain	The Czech Republic
Safeguards	- Verifications of requests to obtain the premium - Verifications of the coherence of annual declarations of the number of ELVs handled by ELV centres, tonnage of materials removed and number of return premiums activated	- Suspension of vehicle registration on a fee-basis and needs to be renewed - Penalties in the event of non-compliance with payment of vehicle ownership taxes - Penalties levied on illegal ELV centres (from 10,000 euros to imprisonment) - Verifications (false exports, illegal activities)	- Involvement of fiscal services (mark-up and direct debit) - Prohibited from selling a vehicle unless all late payments have been paid	- Obligation to change the vehicle's status in the Ministry of Transportation system - Suspension of renewable vehicle registration - Police access to the MA-ISOH system - Prohibition for individuals to sell spare parts (with the risk of a 40,000 euro fine) - Unique code indicated on the certificate of destruction - Penalties in the event of non-payment of the insurance
Acceptability	- No known opposition from drivers (owing to the small annual amount paid) - Positive feedback from the sector which fully accepts its role	Well accepted by drivers (already used to paying this type of obligation), vehicle importers (enjoying support from the ARN) and insurers (as the system limits the number of stolen vehicles)	- Well accepted by the population: tax is a well-established practice and is a small amount - Authorised processing centres very supportive - Drivers' Association: criticises fiscal inequalities for this tax (the amounts to pay can vary enormously from one city to another)	Well accepted by drivers and insurers who collect additional revenues through this obligation.
Outlook	- Digitalisation of the process underway for requesting a return premium to limit the possibilities of fraud - Reduction of administrative complications (and staff), - Reduction of the role of ELV centres (making it impossible to earn the premium in cash)	Controlling vehicle imports	- Temporary deregistration limited to one year: discussion between the DGT and SIGRAUTO - A single tax instead of the two current ones: registration tax (paid once) and vehicle tax (annual) - Damaged vehicles: obligation to pass a roadworthiness test before the sale of the vehicle and/or its export - Cleaning the database of the DGT registry: permanent deregistration of identified nonexistent vehicles	No outlook for evolution at this time

Country	Denmark	The Netherlands	Spain	The Czech Republic
Analysis of transposability to France	**Favourable factors:** - Network of already existing actors (insurers, ELV centres, ADEME, manufacturers) organised more or less in the same manner as in France - French insurers already playing the role of tax collector for many funds, thereby making it easier a priori to implement collection of the tax - Similar system of registration and deregistration and accessible to ELVC in France - Possible digitalisation of the scheme to make it more resilient and limit fraud - Possibility of combining the scheme with environmental incentive measures **Limiting factors:** - Relatively large initial financing of the scheme - Balance of financing funds difficult to adjust within the scope of a large vehicle pool such as in France - Additional taxation affecting all households difficult to justify in the current French context	**Favourable factors:** - Vehicle Registration System (SIV) already exists in France - Possibility of the RDW to self-finance and creation of an eco-organisation not necessarily needed - Few human resources needed for information sharing **Limiting factors:** - Communication between the French actors needs to be optimised - The need for extensive control - Financial resources needed to set up the scheme - Human resources to incite vehicle owners to pay their insurance - Perception/mentality: additional taxation difficult to justify in the current French context	**Favourable factors:** - The existence of a national vehicle registration and traceability system (SIV) in France - Existing organisation between actors (administrations and ELV centres in particular) with regards to vehicle-related procedures - Few additional (human and financial) resources to be provided for (already set up) **Limiting factors:** - Difficulty of the population to accept an additional tax - Organisation/communication to set up between the ANTS and the municipalities to activate payment of the tax - Need for important control of temporary deregistrations and exports (leak sources)	**Favourable factors:** - Vehicle Registration System (SIV) already exists in France - Few financial resources required to set up the scheme - Few human resources required to share information - Insurance already required in France **Limiting factors:** - Sharing of information among French actors needs to be improved - Need for extensive control - Resources required to encourage vehicle owners to pay their insurance

7 Conclusion

Like in most European Union member countries, the ELV collection and processing channel in France suffers from a large, ongoing illegal channel, and this in spite of the extensive means implemented by the public authorities to control illegal operators and the communication provisions implemented by automotive sector actors. Today, it is estimated that the illegal channel accounts for 30-40% of ELVs produced in France.

In a context where the European Commission has made it a priority to fight against illegal channels, the ADEME decided to produce an overview of the incentive schemes aimed at bringing ELVs through authorised processing channels. The aims of the study were to identify and characterise at the global scale incentive schemes specifically designed to encourage bringing ELVs through the authorised sector (phase 1), then to select several of these for an in-depth study, including an analysis of the possibilities and conditions for transposing the system to France (phase 2). This report presents the results of the study.

In light of the results obtained in phase 1, the return premium direct incentive scheme in Denmark and the three indirect schemes implemented in the Netherlands (the obligation to pay three taxes including a road tax), Spain (a tax on vehicles), and the Czech Republic (the obligation to have and pay for insurance) were selected and studied. For each scheme, the main actors involved were interviewed: environmental ministries, environmental agencies, ELV processing actors or representatives, municipalities, national traffic authorities, insurance companies and/or insurance company representatives, as well as, depending on the country, any administrative managers (DPA System in Denmark), or an eco-organisation (the ARN in the Netherlands for example).

Four specific schemes: all based on traceability and sharing of information among actors in the sector.

The comparative assessment of the four schemes examined is summarised in the preceding table (see chapter **6-Comparison of schemes studied**).

Except for the Spanish scheme, which is over 50 years old, the schemes were implemented from the nineties to 2000. For Denmark and the Netherlands, the first aim was to prevent dumping of ELVs in the countryside unlike in Spain where the goal was to provide additional revenues to the municipalities. Finally, the Czech Republic launched its scheme in response to lobbying on behalf of insurance companies, which saw in it a means to require vehicle owners to pay for insurance.

While most actors interviewed agree that the schemes are efficient to fight against ELV illegal processing operations, it is difficult to assess **their efficiency in quantitative terms**. This is due to the difficulty of monitoring illegal channels and the few statistics available (such as the evolution in cases of fraud and the evolution in the number of penalties/fines enforced). Nevertheless, at the very least the schemes enable to reduce the number of vehicles illegally abandoned in the countryside.

The **common strength** of most countries is their information system enabling efficient traceability of vehicles and owners, thereby facilitating sharing of data among the different actors concerned. However, the Danish scheme is not efficient in this area as requests for the return premium are still managed in paper format. This leads to administrative complications and leaves the door open to many possibilities for fraud. Digitalisation of requests is nevertheless underway. In addition, the information system of the Netherlands seems to be the most developed in terms of sharing. Another strong point in the schemes is that they are generally well accepted.

The **main limitations** observed in the schemes are, first of all, the lack of systematic control over exported vehicles (possible in particular by cross referencing data with data from customs and those from data bases of other Member countries), and on the other hand, the weak control and associated penalties of other authorities, due generally to a lack of resources. More specifically, in Spain, the limitations of temporary deregistrations for personal reasons (without providing any justification) are a main leak point for ELVs to the illegal ELV processing channel. Another problem highlighted in the case of the Czech Republic is the fact that certain actors from the legal and illegal processing channel cooperate.

Even if sometimes there were not enough **resources**, penalties for non-payment of taxes and for illegal processing activities are implemented by different countries to encourage proper enforcement of schemes. The other **safeguards** observed are mainly controls to ensure coherence of information (between ELV centre declarations and many of the premiums paid for example by Denmark) and the obligation of renewing the temporary deregistration of vehicles (already the case in the Netherlands and the Czech Republic, evolution to come in Spain).

Schemes transposable in France on the condition that financial and human resources are mobilised, and combined with increased data sharing as well as a deliberate control and penalisation policy

The different schemes are all technically adaptable in France. However, the human and financial resources that they require for implementation do not appear to be all of the same order of magnitude. With this in mind, a specific economic assessment should be completed before considering adapting the French scheme.

The investment required to transpose the Danish scheme in France would *a priori* be greater. On the one hand, for the relatively important initial financing of the scheme and on the other to ensure the balance of financing funds considering the large size of the French vehicle fleet, which is 15 times larger than that of **Denmark**.

To transpose the **Spanish** scheme to France, the organisation of the French administration would have to be adapted by establishing communication and sharing of data between the ANTS and the municipalities, which is currently not the case in France. This would also require additional technical and human resources. In addition, temporary deregistrations for personal reasons (also possible in France) would need to be limited in terms of duration and would have to be controlled to prevent the possibility of leaks towards the illegal channel.

The system in the **Netherlands** seems to be more complex given that it involves implementing three obligations. However, it offers a strong economic advantage by requiring all vehicles to be insured and to have a valid roadworthiness test certificate. Furthermore, it is a strong incentive to only have verified cars on the roads.

In terms of acceptability, the scheme in the **Czech Republic** with an insurance obligation that already exists in France seems to be the simplest one to transpose. In fact, an additional tax such as the fiscal tax in Denmark, the vehicle tax in Spain, or the road tax in the Netherlands, would be difficult for drivers to accept in France and would require extensive awareness-raising and educational measures.

In all transposition cases, it appears crucial to combine incentive schemes (whatever they may be) with:

- a system of centralised registration **and proper sharing of information relating to vehicles by the actors involved.** France already has this type of information system (the SIV managed by the ANTS) but it would require more extensive and better sharing of data to ensure more effective traceability. Crossreferencing with other schemes such as a file of insured vehicles would therefore be needed;
- **policy to control and enforce penalties to efficiently fight** against illegal actors (including illegal export) and limit the violations of authorised facilities.

APPENDIXES

1. List of people interviewed in phase 1

1.1 List of people interviewed in France

Individual	Organisation
Bruno MIRAVAL **Maxence TERNOY**	Ministère de la transition écologique et solidaire (the French Ministry of Environment)
Caroline HENRY	DREAL PACA
Dorothée GIFFARD-DECROP	CNPA
Eric CONSIGNY	PSA
François RUELLE	Renault
Gaultier MASSIP	CCFA
Noémie LAURENT **Olivier FERT** **Olivier GAUDEAU**	FEDEREC
Olivier FRANCOIS	GALLOO
Philippe RENAUD	CARECO

1.2 List of people interviewed abroad

Zone	Country	Individual	Organisation
America	Canada	Steve FLETCHER et Sandy BLALOCK	Automotive Recycling Association
America	United States	John QUINN et Joseph HOLSTEN	LKQ Corporation
America	Brazil	Arthur RUFINO	JR Diesel
Europe	Austria	Christian HOLZER	Ministry of Sustainability and Tourism
Europe	Belgium	Catherine LENAERTS	FEBELAUTO
Europe	The Czech Republic	Jaromir MANHART	Ministry of Environment of the Slovak Republic
Europe	Denmark	Mathias NYLANDSTED BENEDIKTSON	Danish Environmental Protection Agency
Europe	Denmark	Stig THORLAK	Dansk Producentansvars System
Europe	Denmark	Andreas KRYGER JENSEN	Deloitte
Europe	Finland	Kai LINDELL	Suomen Autopurkamoliitto r.y.
Europe	Finland	Sivula MERVI	ELY Centre for Pirkanmaa
Europe	Germany	Peter DIHLMANN	Ministère de l'environnement
Europe	Germany	Regina KOHLMEYER	German Federal Environment Agency
Europe	Ireland	Jonathan CULLEN	Department of Communications, Climate Action and Environment
Europe	Norway	Siri SVEINSVOLL	Knoks Bildeler A.S
Europe	Norway	Ole Thomas THOMMESEN	Norwegian Environment Agency
Europe	Portugal	Ricardo FURTADO et Pedro PINTO	Valorcar
Europe	Spain	Manuel KINDELAN	Sigrauto
Europe	Sweden	Eva LJUNGDAHL	Swedish Environmental Protection Agency
Europe	Sweden	Mattias PETTERSSON	LKQ Scandinavia
Europe	Swiss	Daniel CHRISTEN	Fondation Autorecycling
Europe	The Netherlands	Achterberg CEES	RDW
Europe	The Netherlands	Henk JAN NIX	EGARA
Europe	United Kingdom	Paul HALLETT	Department for Environment, Food & Rural Affairs
Europe	United Kingdom	Richard CLOKE et Tania TUCKER	Environment Agency
Europe	Greece	Dimitrios PODIOTIS	Hellenic Recycling Agency (EOAN)

Europe	Greece	Thomas PAPAGEORGIOU	EURIC
Europe	Slovakia	Ondrej SURINA	Ministry of Environment of the Slovak Republic
Europe	European Union	Artemis HATZI-HULL	European Commission
Europe	European Union	Jens WARSEN	European Automotive Manufacturers Association
Europe	European Union	Emmanuel KATRAKIS et Peter CECH	EURIC
Oceania	Australia	David NOLAN	Auto Recyclers Association of Australia
Asia	Japan	Kazunori KITAGAWA	Japan Productivity Center
Asia	Taiwan	Peng CHI LIAO	Foundation of Taiwan Industry Service

2. List of people met in phase 2 (by country)

2.1 Denmark

Individual	Organisation
Mathias NYLANDSTED BENEDIKTSON Peter RAMBUSCH JAKOBSEN	Environmental Protection Agency (EPA)
Stig THORLAK	DPA-System
Pernille KIILSHOLM CHRISTENSEN Maj-Britt VESTER Marianne SNEHØJ WENG ØSTERGAARD Martin THOMSEN	Municipal authority of Odense
Gunni MIKELSEN	Danske Bilimportører (importers association)
Børge MADSEN	Dansk Autogenbrug (ELV centres association)
Anders ANDERSEN Ole ANDERSEN	Ørbæk Autogenbrug (ELV centre)
Kasper SKOU MADSEN	Stena Recycling (shredder)
Trine ANDERSEN	H.J.Hansen Genvindingsindustri (shredder)

2.2 The Netherlands

Individual	Organisation
Janet KES	ARN
Henk JAN NIX Marc VAN DEN BRAND	EGARA (European Group of Automotive Recycling Associations)
Carsten WENTINK	Ministry of infrastructure and water management
Cees ARCHTERBERG	RDW
Wouter VERKERK	VBV

2.3 Spain

Individual	Organisation
Santiago DAVILA SENA	Ministry of Environment (Spain)
Manuel KINDELAN	SIGRAUTO
Luis Fernando VELASCO	Dirección General de Tráfico (DGT)
Antonio GUARDIOLA MARTÍNEZ Alicia IBÁÑEZ SÁNCHEZ	UNESPA
Mario ARNALDO FERNANDEZ	Automovilistas Europeos Asociados (AEA)
Isabel BUENDÍA MORENO	Municipality of Madrid

2.4 The Czech Republic

Individual	Organisation
Jaromir MANHART	Ministry of Environment (The Czech Republic)
Jiri VALTA	CENIA
Lukas KUS	Czech Environmental Inspection (CIZP)
Petr MUSIL	Ministry of Transport (The Czech Republic)
Hynek KOMENDA	Insurer Marsh
Frantisek ONDREJ	Municipal authority of Ceska Lipa
Petr MILAN	Head of association of ELVs processors
Tomas DUFEK	ELVs centre and shredder

3. Indicator table

Indicators	Denmark	The Netherlands	Spain	The Czech Republic	France
Population	5.77 M	17.08 M	46.54 M	10.58 M	67.2 M
Area	42,924 km² (excluding Groenland)	33,670 km²	504,782 km²	78,866 km²	551,695 km² (excluding DROM-COM)
Population density	136 inhabitants per km² (excluding Groenland)	507 inhabitants/km²	91.06 inhabitants/km²	134.1 inhabitants/km²	122 inhabitants/km²
Demographic growth	0.70%	0.6% (2017)	0.19%	0.20%	0.30%
GDP	288 Billion €	737 Billion €	1,166 Billion €	192 Billion €	2 583 Billion $
GDP par habitant	49,913 € per capita	48,223 € per capita	24,100 € per capita	18,100 € per capita	29,900 € per capita
Hourly labour cost (INSEE)	42.5 €/h	34.8 €/h	21.2 €/h	11.3 €/h	36 €/h
Fleet of vehicles in use	2.9 millions	9.3 million of which approximately 8.4 million cars and 0,9 million lorries (2016)	32.9 million (including 23.5 million cars)	6 millions	42.7 millions
Number of new registrations per year	287,000 (2016)	Appr. 650,000: 450,000 new vehicles and 200,000 imported second hand vehicles	1,674,478 (including 1.28 million cars and 109,793 utility vehicles)	278,932 (2016)	2,110,748 (source: CCFA)
Import/export of new vehicles	–	200,000 imported vehicles	1,295,106 imported vehicles 2,318,217 exported vehicles	–	–
Number of deregistrations per year	170,000	Approximately 470,000: 220,000 ELVs and 250,000 exported second hand vehicles (with an average age of 12.3 years old)	805,419 (including 593,974 cars) in total Including 119,987 for personal reasons and 40,524 for theft. The remaining	Not available	Minimum 1,138,742 ELVs

Indicators	Denmark	The Netherlands	Spain	The Czech Republic	France
			corresponds to vehicle sale requests		
Number of ELVs processed in 2017	117,124 (of which 108 730, i.e. 92,8 %, have benefited from the scrapping premium)	220,000	650,055 (average of the last 4 years)	171,618 (in 2018)	1,138,742
Number of authorised ELV centres	198	450 of which 225 are part of the ARN network	1,300	600 but not all are in operation	1,706
Number of shredders	2	14	26	5	57
Average age of ELV	–	18.1 years	18.05 years	20 years	20 years
Estimation of the illegal ELV centres	Not available	Not available	Approximately 50	Not available	Not available
Estimated number of illegal ELV processing	Estimated at 20 to 35,000 per year (15 to 23% of all the vehicles processed in 2018).	Not available	35,000	From 5 to 20%	Approximately 30%
ELV processed/Fleet of vehicles in use	4.1 %	2.3%	2.4%	2.8%	2.7%
Reuse and recycling rate in 2016	88.8% (22.2% only in ELV centres)	87.1%	85.4%	90.3%	89.6%
Reuse and recovery rate in 2016	97.1 %	98.6%	93.4%	95.4%	94.8%

4. Bibliographic sources

Zone	Country	Title	Author	Date
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Europe	Europe	Circular Economy - Requirements from an Automotive Perspective	Jens WARSEN	2018
Europe	Europe	ELV recycling now, and in 2020	EGARA	2010
Europe	Europe	Etude de la gestion de la filière de collecte et de valorisation des VHU dans certains pays de l'UE	ADEME (BIO Intelligence Service)	2010
Europe	Denmark	Improving ELV collection rates in Denmark - a story about a changed market	Ministry of Environment and Food of Denmark	2016
Europe	Denmark	Hot topics in the Danish Dismantling Industry	Stig THORLAK	2017
Europe	Germany	Development of proposals, including legal instruments, to improve the data situation on the whereabouts of ELV	Knut SANDER, Lukas WAGNER	2017
Europe	Ireland	ELVES and ELV recycling in Ireland	ELVES	2017
Europe	Italy	ELV management in Italy	Gruppo Fiori, Alma Master studiorium, politecnico di torino	2013
Europe	Portugal	Valorcar presentation	Valorcar	2016
Europe	Norway	A brief description of the norweigian ELV system	Norges Biloppsamleres Forening	2018
Europe	Belgium	ENabling TRAceability of VEhicles (ENTRAVE)	FEBELAUTO	2017
Europe	France	Lutter contre les pratiques illégales dans les filières de recyclage	Comité d'orientation stratégique des Eco-industries	2012
Europe	France	Circulaire VHU (modalités d'application de la nomenclature des installations classées du secteur de la gestion des déchets)	Ministère de l'environnement, de l'énergie et de la mer	2017
Asia	Japan	Designing of financing system for implementation of ELV management	Kazunori KITAGAWA	2011
Asia	Japan	Jara News	Japan Automotive Recyclers Alliance	2018

Asia	Japan	Comparison between Europe and Japan concerning with ELV system	Kazunori KITAGAWA	2018
Asia	Japan	The barriers for moving forward to circular economy in Japan	Kazunori KITAGAWA	2018
Asia	Japan	Toyota Tshusho's role in recycling and materials management	Toyota Tsusho corporation	2013
Asia	Japan	Construction of Japanese ELV resource Recycling System	Minoru GOKO	2018
Asia	Taiwan	Taiwan experience in the recycling of ELV	Chiipwu CHENG	2006
Asia	Korea	Hyundai and Kia recycling activity	John-Hee HONG	2006
Asia	Iran	The importance and benefits of ELV recycling	AmirReza RAJABI	

LIST OF ABBREVIATIONS AND ACRONYMS

AEA: Automobilistas Europeos Asociados / Drivers' Advocacy organisation (Spain)

AEDRA: Asociación Española del Desguace y Reciclaje del Automóvil / Association of car recyclers (Spain)

ANFAC: Asociación Española de Fabricantes de Automóviles y Camiones / Association of car manufacturers (Spain)

ANIACAM: Asociación Nacional de Importadores de Automóviles, Camiones, Autobuses y Motocicletas / Association of vehicle importers (Spain)

ANTS: The French National Agency for Secure Documents (France)

ARN: Automotive Recycling Netherlands / Eco-organisme assurant la collecte et le recyclage de déchets issus du secteur automobile (The Netherlands)

BOVAG: Association of car dealerships and garages (The Netherlands)

CAT: Centros Autorizados de Tratamiento / Authorised Processing Centres (Spain)

CCFA: Committee of French Car Makers

CENIA: Czech Agency of Environmental Information (The Czech Republic)

CIZP: České inspekce životního prostředí / Czech Environmental Inspection Agency (The Czech Republic)

CSIAM: Federation of car and motorcycle importers (France)

CVHU: ELV Processing Centre

CZK: Czech Krone

DAG: Dansk Autogenbrug / Association of ELV centres (Denmark)

De Danske Bilimportører: Association of car importers (Denmark)

DGT: Dirección General de Trafico / Traffic Department (Spain)

DKK: Danish Krone

DPA-System: administrative manager of the ELV sector (Denmark)

EGARA: European Group of Automotive Recycling Associations / Association of car recyclers in Europe

EPA: Environmental Protection Agency (Danmark)

ETP: Full-time equivalent

FER: Federación Española de la Recuperación / Federation of shredding and post-shredding companies (Spain)

FFA: French Insurance Federation

FIVA: Fichero Informativo de Vehiculos Asegurados / Information file on insured vehicles (Spain)

FOCWA: Association of car body repairers (The Netherlands)

ISOH: waste management system of the Ministry of the Environment (The Czech Republic)

ITV: Inspeccion Tecnica de Vehiculos / Vehicle roadworthiness test (Spain)

IVTM: Impuesto sobre Vehículos de Tracción Mecánica / Tax on mechanical traction vehicles (Spain)

MOB: Miljøordning for Biler / independent organisation handling management and administrative tasks associated with the Danish scrapping premium scheme

RAI: Association of vehicle importers (the Netherlands)

RBA: car shredding residues

RDW: Rijksdienst voor het Wegverkeer / National Authority of the Netherlands ensuring registration and deregistration of vehicles

REP: Extended Producer Responsibility

SIGRAUTO: Spanish association for environmental processing of ELVs in Spain

SIV: Vehicle Registration System (France)

STIBA: Association of car dismantling companies (The Netherlands)
UNESPA: Unión Española de Entidades Aseguradoras y Reaseguradoras / Spanish Union of Insurers
VHU: End of Life Vehicles
VIN: Vehicle Identification Number / Numéro d'identification du véhicule

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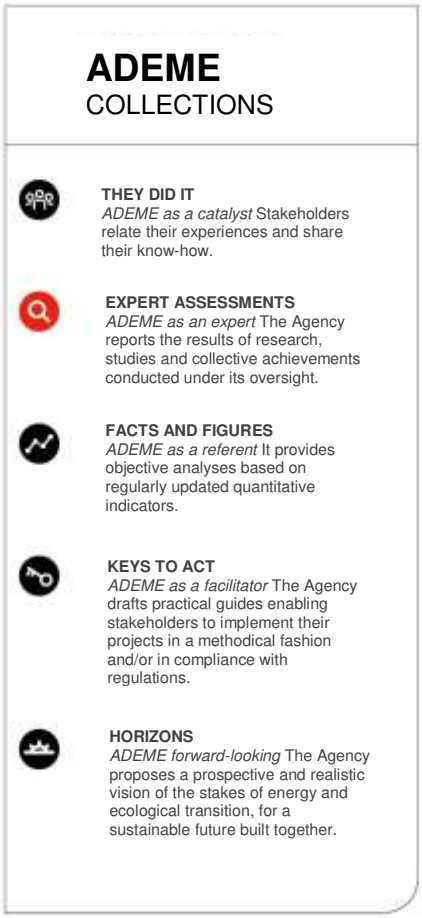

GLOBAL OVERVIEW OF INCENTIVE SCHEMES AIMING TO BRING ELVS (END-OF-LIFE VEHICLES) THROUGH AUTHORISED PROCESSING CHANNELS

Like in most European Union member countries, the ELV collection and processing channel in France suffers from a large, ongoing illegal channel.

In a context where the European Commission has made a priority of fighting against illegal channels, the ADEME has produced a global overview of incentive schemes aiming to bring ELVs through authorised ELV processing channels.

After identifying and characterising the existing incentive schemes at the global scale, four countries were selected for an in-depth study of their respective schemes: Denmark for its direct return premium scheme, the Netherlands which requires drivers to pay three taxes including a road tax, Spain which implemented a tax on mechanical traction vehicles, and the Czech Republic which has a scheme based on the obligation for drivers to pay for insurance.

For each country, the study reviews the background context of the ELV sector, describes the functioning of the scheme implemented, and provides an overview of the scheme (efficiency, limitations, social acceptance and outlook), before concluding with an analysis of the possibilities and conditions for transposing the respective schemes in France.

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