



Deliverable D2.4

Final feedback and recommendation report for the implementation of the project pilots



06.12.2024



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ABBREVIATIONS

Abbreviation	Definition
B2B	Business-to-business
B2C	Business-to-consumer
DRS	Deposit return systems
EC	European Commission
EPR	Extended producer responsibility
EU	European Union
KPIs	Key performance indicators
MS	Member state
NGO	Non governmental organisation
PROs	Producer responsibility organisation
UEEE	Used electric and electronic equipment
UNITAR	United Nations Institute for Training and Research
WEEE	Waste electric and electronic equipment
WP	Work package

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1. About the project

Enhancing Collection Of Small W/EEE and batteries

ECOSWEEE is a project co-funded by the European Union, under the LIFE Project Grants with the aim of practically testing several methods and incentives to increase the collection rate of small WEEE and portable batteries. Every product that is not collected for reuse or de-polluted and recycled represents a wasted opportunity in terms of loss of natural resources and energy, a decreasing supply of (critical and/or valuable) materials to feed into manufacturing, which in turn puts the sector's resilience, the EU economy's autonomy and jobs in jeopardy. Since after twenty years of WEEE rules, Member States (MS) are falling short of reaching the EU minimum collection rate of 65%. The EU is committed to improving the small WEEE collection rate in the frameworks of the European Green Deal.

The project proposes to design and implement 10 new pilots in 8 Member States to test the practicability, achievability, usefulness, and viability of different collection strategies and incentives. Strategies to be tested include deposit return, buyback, and other reward schemes, e.g. donation, postal services, other collection routes, involvement of online retail, financial aspects, and improvement of the collection network. Another 11 ongoing or planned initiatives carried out by producer responsibility organisations (PROs) will also provide direct input to the project. Results of the pilot implementation will be analysed on the basis of pre-established criteria and indicators to measure the impacts and effectiveness (success) of the actions implemented, define potential areas of improvement, and provide recommendations to policymakers at Member States and EU levels.

The primary target users of the project are PROs and other stakeholders involved in the collection of small WEEE and batteries across the MS, which will have access to the mapping of incentive-driven collection schemes, the good practices identified, and the recommendations developed by the project. Second, the project results will be targeted at the European Commission and the co-legislators and will contribute to the consultation process on the revision of WEEE legislation and the Batteries Regulation that entered into force in August 2023. Finally, EU consumers, who will be directly involved in consultations as well as active participants in the piloting of different take-back solutions, will benefit from the project results by testing the collection strategies developed in the project and acquiring additional knowledge on the small WEEE and portable battery collection.

2. Partners

WEEE FORUM	WASTE OF ELECTRICAL AND ELECTRONIC EQUIPMENT FORUM AISBL - WEEE Forum (Belgium)
UNITAR	UNITED NATIONS INSTITUTE FOR TRAINING AND RESEARCH (Switzerland)
SPI	SOCIEDADE PORTUGUESA DE INOVACAO CONSULTADORIA EMPRESARIAL E FOMENTO DA INOVACAO SA (Portugal)
RAMBOLL	RAMBOLL DEUTSCHLAND GMBH (Deutschland)
ECO	ERION COMPLIANCE ORGANIZATION SCARL (Italy)
ECYCLE	APPLIANCES RECYCLING S.A. (Greece)
ECOTIC	ASOCIAȚIA ECOTIC (Romania)
ELECTRÃO	ELECTRÃO – ASSOCIAÇÃO DE GESTÃO DE RESÍDUOS (Portugal)
GRS Batterien	STIFTUNG GEMEINSAMES RUCKNAHMESYSTEM BATTERIEN (Deutschland)
Stichting OPEN	STICHTING ORGANISATIE PRODUCENTENVERANTWOORDELIJKHEID E-WASTE NEDERLAND (Netherlands)
ZEOS DOO	ZEOS RAVNANJE Z ELEKTRICNO IN ELEKTRONSKO OPREMO DOO (Slovenia)
WEEE Ireland	WASTE ELECTRICAL AND ELECTRONIC EQUIPMANT IRELAND (Ireland)
Ecologic	ECOLOGIC (France)
ecosystem	ECOSYSTEM (France)
Recupel	RECUPEL AISBL (Belgium)
RENAS AS	RENAS AS (Norway)
SENS eRecycling	SENS Foundation (Switzerland)



Chapter 3

Executive summary

3. Executive Summary

Deliverable 2.4 provides recommendations for the design and implementation of the (project) pilots based on an assessment of several initiatives implemented by European PROs and one EEE producer and consumer consultations in various European countries, supplemented by a desk review.

The efficiency and effectiveness of EPR schemes relies on a combination of elements and actions, including a clear definition of the main objectives; the involvement of key stakeholders and partners; the choice of appropriate incentives, proper performance measuring, through the introduction of specific KPIs, and a careful planning of the possible replicability and scalability of the scheme.

In terms of the target of the incentives, consumers and retailers are among the primary possible target groups, but incentives can be targeted effectively also to other actors who can act as partners in the pilot, such as municipalities, companies/offices, schools, postal services, and charities. For each incentive, specific recommendations are offered to ensure maximum efficacy.

As regards to the definition of the incentives, different approaches can be adopted, including: (i) reward incentives, as direct payment or deposit returns; (ii) convenience, aiming at raising the collection, such as pick up and postal services etc, as well as (iii) other incentives, such as charities, visible fee and contests or raffles. All approaches, individually or in combination, can offer some valid options, depending on the specific context and objectives.

Finally, a successful take-back scheme should consider the replicability and scalability of the action, which should involve a detailed methodology, and transparency in the execution of the action. Also, the involvement of different people in the assessment of the possible replicability and scalability would ensure the taking into account different viewpoints and mitigating risks of bias.

Deliverable 2.4 provides recommendations for each of the above-mentioned elements.



Chapter 4

Introduction

4. Introduction

4.1 Background of the Work Package (WP) 2

In the European Union (EU), the WEEE Directive¹ and Battery legislation² have laid down ambitious collection and recovery targets. Yet, after twenty years from the enactment of the WEEE rules, the current official statistics show that, despite having some of the highest WEEE collection rates in the world, EU Member States are falling short of reaching the EU minimum collection rate of 65%. An overall WEEE collection rate of 48.5%³ is reported, of which small WEEE register the lowest figure of 15%⁴. Likewise, the new Battery Regulation, which entered into force in August 2023, introduces more ambitious collection targets which will require further efforts from MS to be achieved.

A study by UNITAR and the WEEE Forum⁵ looking at the WEEE generation in the EU, Norway, United Kingdom, Switzerland, and Iceland, concludes that considerable amounts of WEEE are diverted to other undocumented flows, including:

- Collected with metal scrap, in which case they are recycled but not with the same environmental and material efficiency standards as WEEE formally managed would be;
- Disposed of with mixed residual waste and ending up in incinerators and landfills;
- Illegally exported outside the EU and exported for reuse.

¹ As per the WEEE Directive, as of 2019, annual minimum collection rate is 65% of EEE put on the market or 85% of WEEE generated on the territory of that Member State. As of 2018, recovery targets of IT and telecommunications equipment is 80%. See: Directive 2012/19/EU of the European Parliament and of the Council of 4 July 2012 on waste electrical and electronic equipment (WEEE) (recast) Text with EEA relevance. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32012L0019>.

² As per the new Battery Regulation, Member States shall achieve the following minimum collection rates: a) 45% by 31 December 2023; b) 65% by 31 December 2025; and c) 70% by 31 December 2030. See: Regulation (EU) 2023/1542 of the European Parliament and of the Council of 12 July 2023 concerning batteries and waste batteries, amending Directive 2008/98/EC and Regulation (EU) 2019/1020 and repealing Directive 2006/66/EC. See: <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32023R1542>. The previous target set in the Battery Directive was 45% by 26 September 2016. See: Directive 2006/66/EC of the European Parliament and of the Council of 6 September 2006 on batteries and accumulators and waste batteries and accumulators and repealing Directive 91/157/EEC. <https://eur-lex.europa.eu/eli/dir/2006/66/oj>.

³ Eurostat, 2023. Waste statistics – electrical and electronic equipment. https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Waste_statistics_-_electrical_and_electronic_equipment#Electronic_equipment_.28EEE.29_put_on_the_market_and_WEEE_collected_by_country.

⁴ The highest collection rate for mobile phone alone in the EU is estimated at 15% of devices put on the market. See “Study on options for return schemes of mobile phones, tablets and other small electrical and electronic equipment in the EU” (European Union, 2022).

⁵ Baldé, C.P., Iattoni, G., Xu, C., Yamamoto, T., 2022. Update of WEEE Collection Rates, Targets, Flows, and Hoarding – 2021 in the EU-27, United Kingdom, Norway, Switzerland, and Iceland, 2022, SCYCLE Programme, United Nations Institute for Training and Research (UNITAR), Bonn, Germany. https://weee-forum.org/wp-content/uploads/2022/12/Update-of-WEEE-Collection_web_final_nov_29.pdf.

Moreover, a certain amount of EEE/WEEE is hoarded in households. The types of EEE/WEEE mostly hoarded are smaller items, such as small IT equipment and small equipment.

Likewise, batteries are partly disposed of with mixed municipal waste streams instead of being separately collected and treated, increasing the risk of fires at municipal treatment plants. Additionally, batteries are often part of electronic products and disposed of together with such at the end of life, without removing the batteries, which is also a risk for fires igniting in WEEE treatment plants⁶.

Acknowledging these issues, the European Commission (EC) commissioned a study aimed at identifying and conceptualizing EU-level policy measures to support take-back schemes for small WEEE and small UEEE to ensure higher collection rates and facilitate re-use, repair, refurbishment, and recovery of this equipment⁷. The study highlighted existing challenges related to the separate collection of small WEEE and small UEEE and furthermore proposed different policy measures which were identified to improve overall separate collection rates. Subsequently, in October 2023, the European Commission issued a Commission Recommendation: a set of policy recommendations⁸ aimed at Member States to improve and incentivise the return of used and waste mobile phones, tablets, laptops and their chargers. The recommendations include using financial incentives, increasing the use of postal services, establishing partnership between reuse organisations and operators of take-back schemes, and increasing awareness and improving the convenience and visibility of collection points where people can return small electronics.

4.2 Objective of the report

As a supplement to the EC policy recommendations, the ECOSWEEE project aims at practically testing several methods and incentives to increase the collection rate of small WEEE and portable batteries. In order to implement pilots with a higher potential of success, the project is also looking at past experiences to identify good practices and lessons learnt (task 2.1), as well as identifying the drivers and obstacles in the collection of small WEEE and portable batteries from consumers (task 2.2) across various European countries.

⁶ Further information on the status quo of small WEEE and portable waste battery collection in the EU, and the regulatory context in the EU, and previous work on the issue of small WEEE and battery collection is provided in deliverable 2.1.

⁷ European Commission, Directorate-General for Environment, Romagnoli, V., Bruijine, E., Drapeau, P., et al., Study on options for return schemes of mobile phones, tablets and other small electrical and electronic equipment in the EU, Publications Office of the European Union, 2022, <https://data.europa.eu/doi/10.2779/237189>

⁸ Commission recommendation of 6.10.2023 on improving the rate of return of used and waste mobile phones, tablets and laptops. C(2023) 6618 final. https://environment.ec.europa.eu/system/files/2023-10/C_2023_6618_1_EN_ACT_part1_v3.pdf

The current deliverable 2.4 (under task 2.3) aims at providing practical recommendations for the design and implementation of current and future take-back initiatives, identified from the research carried out in tasks 2.1 and 2.2.



Chapter 5

Methodology

5. Methodology

Task 2.3 “Final feedback and recommendation report for the implementation of the project pilots” (which includes D2.3 and D2.4) builds on task 2.1 “Mapping of collection practices” and task 2.2 “Identification of the drivers and obstacles in the collection of small WEEE, batteries and EEE for re-use at the EU level” (for specific methodologies of tasks 2.2 and 2.3, please refer to D2.2 and D2.3 respectively). Task 2.1 is mainly based on surveys and interviews with European PROs, while task 2.2 builds principally on consumer surveys in several European countries. See the respective deliverables 2.1 and 2.2 for further information on the methodology and results.

Task 2.3 gathers, reviews and analyses the main results emerging from both tasks and develops concrete feedback and recommendations aimed at informing the implementation of the project pilots in WP3. A first set of feedback and recommendations was presented in month 4 (July 2023) as part of deliverable 2.3, and a second set is now provided in month 7 (October 2023) as part of deliverable 2.4.

To complement the information provided in task 2.1 and 2.2, task 2.3 performed a desk review gathering relevant recommendations from other research and projects. Also, some inputs and feedback from the Pilot Committees organised in the framework of the project have been taken into account.

Due to time constraints and tasks’ overlapping inherent to the project, the feedback and recommendations presented in this report are not applicable to all project pilots, as some pilots were already on-going or finalized at the time this report was produced. However, to maximize the usefulness and impacts of the report, the authors have prepared this report in a way that it can serve and inform future pilots, also external to the ECOSWEEE project.

Caution: The current report does not intend to recommend the implementation of any particular incentive or scheme. Rather, it provides recommendations on how to improve their implementation in the event the decision is made to implement that incentive or scheme. Also, the below information and recommendations do not pretend to be exhaustive, rather they reflect the information gathered and analysed from the PROs, consumers surveys and targeted desk review.



Chapter 6

Recommendations for the implementation of small WEEE and battery take-back scheme initiatives

6. Recommendations for the implementation of small WEEE and battery take-back scheme initiatives

The efficiency and effectiveness of take-back schemes rely on a combination of elements and actions, including especially the definition of the main objectives, the involvement of key stakeholders and partners, the choice of incentives, but also ensuring proper performance measuring, and planning the replicability and scalability of the scheme, as detailed in the below figure.

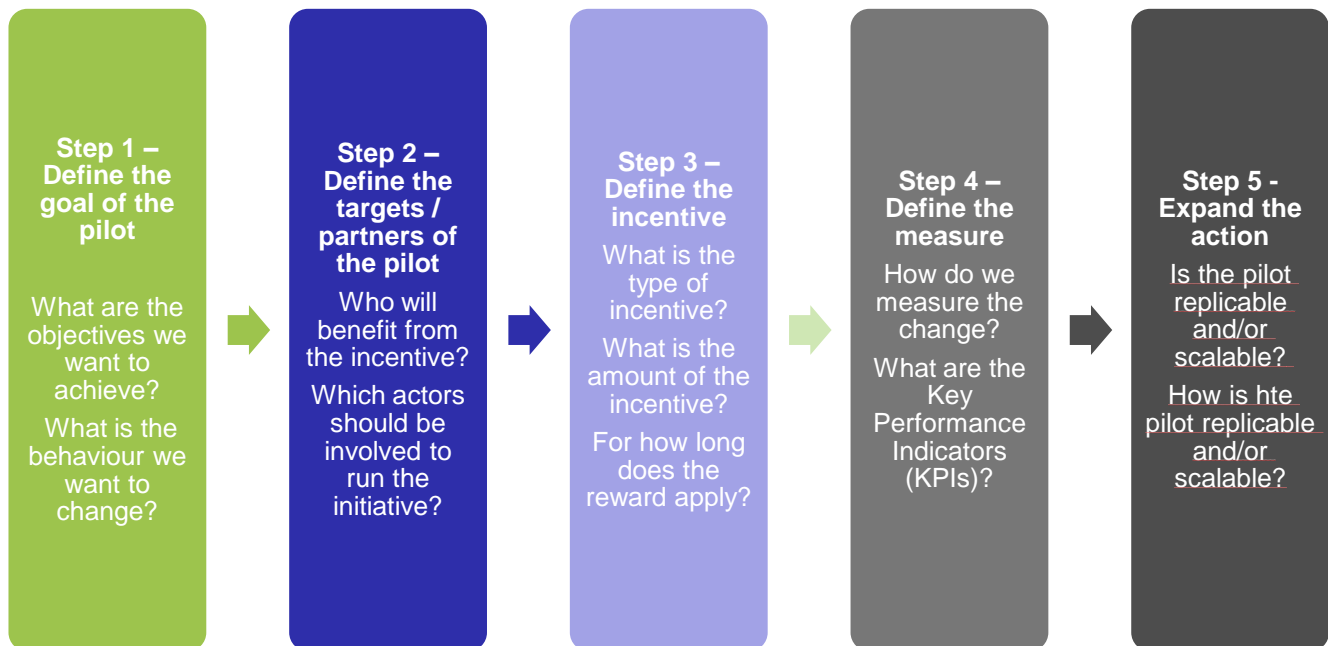


Figure 1 – Possible steps in the implementation of incentive schemes (UNITAR elaboration)

The current section presents recommendations based on: 1) successful collection experiences of European PROs and other relevant stakeholders involved in waste collection, 2) consumer survey carried out in several European countries, and 3) supplemented by a literature review.

6.1 Goal of the pilot

Key recommendations from task 2.1:

- ⇒ Define the overall goal/motivation for the pilot. The pilot can have general and/or more specific objectives. Examples include:
 - Increase collection rates in order to:
 - a) Reach collection targets.

- b) Increase valuable material flows. Increasing CRM recovery should be a priority in all initiatives to achieve the EC's goals.
 - c) Decrease illegal waste streams.
 - d) Extend product life when possible. Increase re-use/preparation for re-use for the collected W/EEE where possible. In such case, special attention should be paid to the handling of the items to make sure they are not damaged or broken before reaching the destination.
- Increase awareness in order to:
 - a) Increase collection rates.
 - b) Strengthen the relationship with end-consumers/increase visibility of PROs and visibility of disposal options.
 - c) Extend product life when viable.
 - Reduce administrative burden (e.g., for retailers), increase user convenience when disposing of e-waste and batteries.
 - Address on-going future challenges, e.g. e-cigarettes/vapes

6.2 Target audience and partners of the pilot

Consumers are usually the main target of the initiatives aimed at collecting small WEEE and portable batteries. However, incentives can also be targeted to other actors who can also act as partners in the pilot, such as retailers, municipalities, companies/offices, schools (dealt with in this section), postal services, and charity (dealt with in section 6.3.2).⁹ Communication must be tailored to the target group. Finally, other PROs and producers having implemented or willing to implement similar initiatives can also become supporting partners.

6.2.1 Consumer reach, awareness, and involvement

Small WEEE and batteries are often disposed of with mixed residual waste or hoarded in households by consumers. As per several country studies¹⁰, the reasons for hoarding broken or functioning items include notably the prospect of repair, the wish to keep a back-up, the possibility of reusing spare parts, the sentimental value/emotional attachment, but also the lack of information of where to recycle them or the lack of incentive. Consumer involvement is therefore a cornerstone of the small WEEE and waste portable battery collection, and entails both increasing consumer awareness and increasing “convenience”, by

⁹ Refurbishers, logistic partners, and treatment operators are also potential relevant partners of pilot but are not covered in this report.

¹⁰ Ipsos APEME, 2022. Project WEEE Flows Toolkits Portugal 2022. Quantitative report; GBD Research and Ecotic, 2022. Habits of Romanian population regarding small e-waste 2022.

offering consumers a range of options and extended collection networks. Several principles can positively stimulate the success and effectiveness of activities aimed at increasing consumer awareness and involvement in a take-back system.

Key recommendations from task 2.1:

- ⇒ Communicate in a simple and repeated way. Communication for a new initiative, but also for WEEE and battery collection in general, has to be easy and to be repeated again and again and not only be done as a one-time campaign. Yearly initiatives (e.g. school contest combined with charity donation) have proven successful in involving consumers and increasing collection.
- ⇒ Guarantee data protection and/or data erasure from IT and data storage equipment. Use secured boxes designed to be protected against theft. The boxes can be placed at point of sale or other closed sites to further limit the risk of theft. If the pilot aims for reuse of WEEE, guarantee correct and transparent data deletion and communicate it to the users.
- ⇒ Analyse the collection rate across your country to choose the regions with highest potential impact, in particular regions where the collection rate is currently comparatively low. Be aware that the settings for a pilot might be different for a city as opposed to a town in the countryside.

The Collaborating Centre on Sustainable Consumption and Production (CSCP 2022)¹¹ conducted a comprehensive desk research into the behaviour of end users, to understand why people do or do not return/recycle/repair old electronic devices.

Key recommendations from CSCP:

- ⇒ Bridge the knowledge gap about the possibility for equipment to be recycled, reused or repaired properly; consumers need to become aware of the opportunity associated with reuse, repair and recycling.
- ⇒ Provide easily accessible and understandable information.
- ⇒ Create trust and transparency measures.
- ⇒ Provide incentives that motivate to bring back the device.

¹¹ CSCP, 2022. Electronic club. Project final report. Consumer Insight Action Panel. https://www.cscp.org/wp-content/uploads/2022/06/CIAP_Electronics_final_report_electronics_club_2022.pdf.

⇒ Provide infrastructures that make it easy for the consumers to bring back their devices.

A 2023 project by the BCRC Slovakia¹² gathered and analysed successful awareness raising campaigns carried out in several countries (in Europe and worldwide) to increase the collection of waste computing equipment, waste mobile phones and other WEEE, highlighting various examples of incentives for better involvement of the public and other actors.

Key recommendations from BCRC Slovakia, 2023:

- ⇒ Envisage a prize, reward or some kind of bonus and ensure the publicity of the initiative's results on-line, to enhance the competitiveness of the schools or individuals involved (see also sections [6.3.1](#) on reward incentives and [6.3.3.3](#) on contest and raffles).
- ⇒ Making use of visual tools, such as display of dismantled appliances and their components, can represent an attractive approach particularly for the pupils and students.
- ⇒ Produce an on-line map of all collection points available nationally to facilitate the correct information on the existing possibilities to hand over the WEEE through the network.
- ⇒ Educate about the process which the handed over devices and appliances undergo after their collection to increase the transparency and attract the interest of more people. Such options may include for example:
 - Possibility of choosing the recipient of the donation for each given device (where applicable);
 - Possibility to track the destiny of the WEEE handed over (or at least an information provided to the involved consumers);
 - Regularly provide updated information on the amounts of WEEE already collected by the activity;
 - Information on the means of secure removal of all residual data, particularly from the devices such as mobile phones.

¹² The Basel Convention Regional Centre for Training and Technology Transfer for Central Europe, Slovakia (BCRC Slovakia) implemented the pilot project "Improving of Environmentally Sound Management of computing equipment and mobile phones in Moldova and Belarus" as part of the programme Follow-up Partnership to the Partnership for Action on Computing Equipment (PACE) established on a decision of the Parties at the fourteenth meeting of the Conference of the Parties to the Basel Convention (Decision BC-14/19).

6.2.2 Retailers and municipalities

Collaboration with partners is essential for the success of the initiatives. Retailers and municipalities (collection points and services) are important partners for WEEE and battery collection, as they allow to reach a large number and type of consumers.

Retailers' obligations in the WEEE Directive and Battery Regulation

The WEEE Directive¹³ establishes obligations for retailers to support the WEEE collection as follows:

- 1x1 obligation: when supplying a new product, distributors are responsible for ensuring that such waste can be returned to the distributor at least free of charge on a one-to-one basis, as long as the equipment is of equivalent type and has fulfilled the same functions as the supplied equipment. Member States may derogate from this provision if they ensure that returning the WEEE is not thereby made more difficult for the final holder and that it remains free of charge. Member States making use of this derogation shall inform the Commission thereof;
- 1x0 obligation: distributors provide for the collection, at retail shops with sales areas relating to EEE of at least 400 m², or in their immediate proximity, of very small WEEE (no external dimension more than 25 cm) free of charge to end-users and with no obligation to buy EEE of an equivalent type, unless an assessment shows that alternative existing collection schemes are likely to be at least as effective. Such assessments shall be available to the public.

In addition, the recently approved Regulation on batteries and waste batteries¹⁴ states that:

- Distributors shall take back waste batteries from the end-user free of charge and without imposing an obligation on the end-user to buy or to have bought a new battery, regardless of their chemical composition, brand or origin as follows (...) for waste portable batteries, at or in the immediate vicinity of the distributor's retail outlet;
- Distributors that supply batteries by means of distance contracts to end-users (i.e. on-line distributors) shall provide for a sufficient number of collection points covering the whole territory of a Member State and taking into account population size and density, expected volume of

¹³ Directive 2012/19/EU of the European Parliament and of the Council of 4 July 2012 on waste electrical and electronic equipment (WEEE) (recast) Text with EEA relevance. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32012L0019>.

¹⁴ Regulation (EU) 2023/1542 of the European Parliament and of the Council of 12 July 2023 concerning batteries and waste batteries, amending Directive 2008/98/EC and Regulation (EU) 2019/1020 and repealing Directive 2006/66/EC. <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32023R1542>.

waste portable batteries, waste LMT batteries, waste SLI batteries, waste industrial batteries and waste electric vehicle batteries respectively, and accessibility for and proximity to end-users, allowing end-users to return batteries.

- In the case of sales with delivery, distributors shall offer to take back waste portable batteries, waste LMT batteries, waste industrial batteries, waste SLI batteries and waste electric vehicle batteries free of charge at the point of delivery to the end-user or at a local collection point. The end-user shall be informed when ordering a battery of the take back arrangements for a waste battery.

Table 1 - Retailers' obligations in the WEEE Directive and Battery Regulation

Key recommendations from task 2.1:

- ⇒ Increase retailers' and municipalities' awareness about the issues of small WEEE and portable battery collection and their legal obligations.
- ⇒ Involve producers that are also playing the role of distributors to participate in such campaigns.
- ⇒ Support retailers and municipalities in achieving their legal obligations, for example:
 - Offer rewards to retailers and collection points. Supporting retailers and collection point in covering their costs for collection strongly increases their goodwill and engagement and the number of available collection points and improves the service for customers.
 - Reduce the administrative burden for retailers for operating a collection point. For instance, help retailers reporting and monitoring the volumes collected.
 - Provide retailers with containers/infrastructures for small WEEE and battery collection (see section [6.3.2](#) for further information).
 - Provide retailers and municipalities with accompanying communication material about the initiative to be displayed in the store.
 - Encourage retailers to provide information to consumers about waste collection options for different types of WEEE and batteries through their networks.
- ⇒ Assess the economic and environmental viability of collection using the retail collection network. For instance, expanding the collection network through small local retailers may increase

convenience for users, but result in less economic and environmentally efficient logistics. In such case, pilots should assess the use of alternative logistics that will compensate the economic and environmental effects of having more pick-ups of small waste volumes.

6.2.3 Companies, schools

Free collection from certain sources such as companies and schools has been proven successful by various PROs in several countries. The collection service can be permanent, made available on special days, or requested through an app or the website of the initiative. Such initiative is often considered an occasion to increase awareness and education on the issue of WEEE and battery collection rather than the main lever to increase collection volumes directly.

A potential added value of such source of WEEE is that the appliances collected are generally more homogenous and in better quality than WEEE collected from municipal and retail collection and thus better suited for preparing for reuse activities.

Key recommendations from task 2.1:

- ⇒ Cluster collection regionally and offer it in denser regions to improve the economic viability of collection.
- ⇒ Provide suitable containers for different types of small WEEE and batteries to increase the efficiency and acceptance of the service (see section [6.3.2.1](#) for further information).
- ⇒ Consider incentivising not only students but also teachers as in some countries teachers need to prove social/environmental engagement (e.g. providing teachers a certificate to add to their professional portfolio).
- ⇒ Involve schools in annually campaigns in order to develop gradually a strong environmental awareness.

Key recommendation from BCRC Slovakia, 2023:

- ⇒ Involve students in collecting WEEE and spreading the word among the school population, to leverage on the positive drive this activity can generate in this target group and on their enthusiasm. Consider rewarding their engagement with some kind of prize or gifts. Such group can very positively influence other students and create a competitive environment in the whole school.

6.2.4 PROs/producers

PROs and producers involved in similar take-back scheme can also be potential partners or examples to follow.

Key recommendations from task 2.1:

- ⇒ Encourage PROs to share learnings about initiatives. It should be considered that an initiative may be effective in one country but not in another.
- ⇒ Encourage PROs in the same country to assess potential cooperation (if possible in a competitive system).
- ⇒ Get in touch with all relevant actors and define clear roles about each one of them when involved in a collection initiative.

6.3 Incentives definition

In simple words, an incentive is something that encourages a person to do something (Cambridge Dictionary). As previously mentioned, small WEEE and portable batteries are often not properly disposed of, or are kept at home for various reasons. Providing incentives, whether financial or otherwise, can help to change these behaviours. For the purpose of the project, incentives were divided in 3 main categories and 9 sub-categories (see deliverable 2.1 for further information):

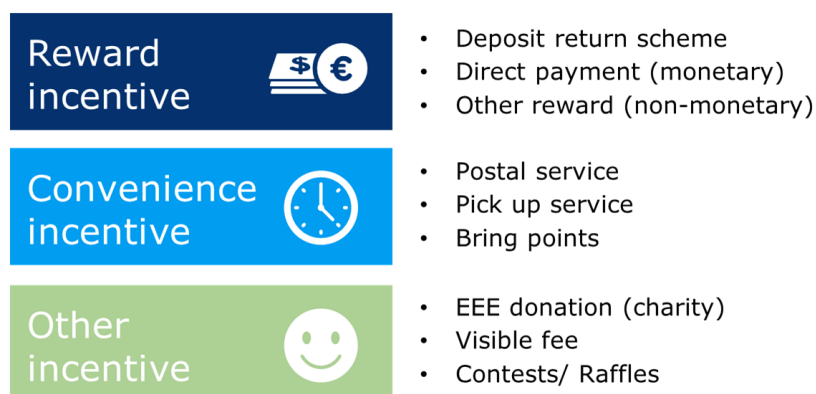


Figure 2 - Incentive categories and sub-categories

Key recommendations from task 2.1:

- ⇒ Consider combining different incentives. In one pilot, the combination of information and collection point together with a monetary price which can be won (by citizens, schools, municipalities) increased collection rates significantly. Other examples include combination of charity donation and (school) contest, and combination of monetary/non-monetary rewards and (school) contest. In addition, most pilots combine one of the covered incentives with awareness raising and education. However, it should be noted that such approach makes it difficult to assess the effectiveness of a specific incentive.

Naczaj (2020)¹⁵ synthesized literature review about incentives, responsabilisation and implication for waste-related behaviour change.

General recommendations from Naczaj:

- ⇒ Evaluate the acceptability of a (financial) incentive. For a new behaviour to be adopted and become a habit, it is advised to conceive the incentive as assistance over a sufficiently long period, and not as a simple reward.
- ⇒ Question the moral and ethical aspects of the incentive. This includes for instance an equitable distribution of the incentive, making sure the public will stay autonomous and will not only rely on the incentive to continue the behaviour, avoiding any risk of “marketisation” of social norms (this is particularly true for financial incentives).

6.3.1 Reward incentives

Collection systems based on reward incentives offer an economic benefit or gain to the user in return for small EEE/WEEE and batteries handed in. Such benefits or gains are not limited to monetary compensation but can also include coupons, reductions, refunds etc.

6.3.1.1 Direct payment

Direct payment consists in a monetary benefit offered to encourage behaviour or actions which otherwise would not take place. It is to be noted that direct payment to consumers seems less common among the initiatives reviewed in task 2.1.

Key recommendations from task 2.1:

¹⁵ Naczaj, D. (2020). Financial incentives, responsibility and involvement for behaviour change regarding wastes management. Synthesis of the literature review in behavioural sciences.

- ⇒ Consider giving a fixed price per volume of collected small WEEE/battery from consumers instead of giving a price per device.
- ⇒ Modulate the incentive, for example higher price per ton, to stimulate the collection of higher volumes of small WEEE and battery, separated and returned by dismantlers and other professional waste collectors. For example, the involvement of WEEE dismantlers in the collection of batteries could be improved by providing them with a fee per kg of batteries handed over, resulted in high business-to-business (B2B) battery collection rates (making up 20% of portable battery collection in one of the pilot reviewed).

Key recommendations from Naczaj, 2020:

- ⇒ Avoid using the incentive on its own. Instead, implement it into a large-scale campaign with persuasion and behavioural levers.
- ⇒ Emphasise consistency and coherence between the behaviour to be adopted and the incentive.
- ⇒ Separate the amount of the incentive from the original price of the item.
- ⇒ Experiment the incentive with different amounts.
- ⇒ Use levers that rely on intrinsic motivation (e.g. “I sort my waste because that’s who I am” instead of “I sort my waste because I earn money with it”), such as:
 - Descriptive norms: what the majority does.
 - Injunctive norms: what the majority thinks everyone should do.
 - Normative feedback: appreciate our past behaviour and compare it to the others.
 - Engagement: obtain smaller preparatory acts in the direction of the targeted behaviour.

6.3.1.2 Deposit return systems

Deposit return systems (DRS) consist in giving an economic value to an item, by requiring consumers to pay a deposit at the point of sale, which will be refunded when the item is returned. The deposit system is well known for packaging.

Within the research conducted in task 2.1, only one DRS initiative implemented by an EEE producer was analysed.

Key recommendations from task 2.1:

- ⇒ Offer additional services to customer. Setting a deposit return fee together with a circular approach and services for the customer can incentivize the return even for appliances initially purchased at a higher price, such as the mobile phones.

Note from task 2.1: none of the interviewed PROs has tested deposit return schemes for WEEE and batteries. Many of them are against it due to several reasons, such as the organizational burden and associated cost in setting up such a scheme, the issue of money accumulation due to the long lifetime of WEEE and batteries, the risk of deposit tourism among countries in case of price variation and the different dynamics of WEEE and batteries compared to other types of waste like packaging, where DRS have been tested (e.g. users do not tend to hoard packaging, packaging disposal areas are implemented for longer and wider than WEEE and battery collection areas). The different types and characteristics of WEEE would require different DRS financial business models with different money flows. If a DRS is proven successful, for a certain type of WEEE (e.g. high value devices such as mobile phones), this does not mean that the same results should be expected for other types of WEEE (e.g. lower value device that live longer lives).

As per the consumer consultation performed in task 2.2, deposit return schemes are less appreciated by due to challenging implementation, and the perceived long life of products may deter consumers.

A European benchmark ran by the French Agency for Ecological Transition (ADEME) (2023)¹⁶ for deposit systems for reuse and/or recycling of packaging in Europe shows that, in some countries, national recycling deposit systems can achieve or even exceed a 90% return rate for returnable packaging under certain conditions. The products in question are different from the scope of the project (household packaging vs EEE/WEEE/batteries), however, some general recommendations applicable to any type of product can be extracted.

Key recommendations from ADEME, 2023:

- ⇒ Apply a deposit that is sufficiently attractive.
- ⇒ Put in place an effective take-back system.
- ⇒ The coverage should be adapted to population density and optimised logistically.
- ⇒ Use an easy-to-understand labelling system.

¹⁶ ADEME, 2023. Réduction, réemploi et recyclage des emballages ménagers. Dossier de presse du 29 juin 2023. 8 nouvelles études de l'ADEME. <https://presse.ademe.fr/wp-content/uploads/2023/06/ADEME-DP-Reduction-reemploi-et-recyclage-des-emballages-menagers.pdf>.

- ⇒ Ensure appropriate and sustained communication – for any new system, the public needs to be educated and get used to it until it becomes a common practice; communication is key to ensure involvement of consumers and ease the hesitations. In terms of deposit system for WEEE collection, consumers are mainly concerned about the amount of the deposit, and practical obstacles (transport and storage of packaging, time required, etc.), thus communication could focus on those aspects.
- ⇒ Remember that the full functioning of a deposit system will take time – there is minimum a time needed between the legislative adoption of a deposit system and its operational deployment and an additional time needed to reach target performance levels.

6.3.1.3 Other rewards (non-monetary)

Non-monetary rewards include a number of options, such as providing vouchers, toys, or new electronics in exchange of used EEE, WEEE or batteries (this is often coupled with contest/raffles). Other non-monetary incentives like donations to charity are explored further down in the document. Examples of campaigns may include competitions between schools, where the school collecting more waste is rewarded with equipment for the school, books, etc. Raffles where all users buying a new product can participate and win a discount voucher etc.

Key recommendations from task 2.1:

- ⇒ Involve school/kindergarten in collection challenges. Some PROs have made good experience with raffles and school/kindergarten challenges to collect small WEEE or batteries once in a certain time period. The winning party receives non-financial rewards like new electronic devices, vouchers for books, toys, investment in a playground etc. Such activities require local coordinators on place and cooperation with or incentivisation of teachers. However, other PROs see an ethical conflict in always giving out new devices/stuff to consumers.
- ⇒ Consider running the campaign at a specific timing that coincide, for example with school period, spring cleaning, or Christmas season, to increase potential success. These campaigns are time-limited, but may have recurrent annual editions.

6.3.2 Convenience (improving collection network)

Collection systems based on convenience incentives contain elements that aim to make the handing in of small EEE/WEEE and batteries practically easier or less time-consuming, i.e. convenient for individuals or organisations, and thus more attractive. Examples are pick-up services, drop-off points, hand-over location search engines (online), etc. The consumer consultation performed under task 2.2 concluded that the increase in collection points is the most appreciated convenience incentive by consumer, while the introduction of new methods such as postal services and the use of parcel lockers is less favoured.

6.3.2.1 Bring points

According to task 2.1, bring points is a major activity by PROs to increase collection, especially for batteries. However, setting up a collection point is still related to administrative burden, hence retailers and municipalities may be reluctant to set up collection points. Support from PROs can increase their engagement.

Key recommendations from task 2.1:

- ⇒ Provide containers suited for different types of small WEEE and batteries and the expected volumes (e.g. trolley, depot container, bin, box) and suited to the logistics need of the space they are located in. Container should be large enough to avoid having to collect them too often, which would increase the cost, strong enough to prevent breakage and easy to move.
- ⇒ Make sure the containers are safe against fire hazards (especially when collecting batteries).
- ⇒ Make sure that (open/unsecured) collection points are not subject to theft and that bags are not misused (e.g., filled with residual waste). For this it is important to assess the location of the bring point and to use appropriate design/visuals informing the public about the type of waste to be disposed.
- ⇒ Position the container to ensure visibility to the consumer. For instance, outdoors, the WEEE and battery containers can be placed close to other type of waste containers (e.g., waste textiles); indoors, they can be placed nearby the checkout.

Key recommendations from the Irish EPA:

- ⇒ Make collection points more visible within larger retailers to help normalise the practice.

- ⇒ Establish more collection options, for example bring banks in frequently visited locations such as shopping centres, organise more frequent special collection events within the community to promote compliant recycling.

6.3.2.2 *Pick-up service*

Pick-up service consists in collecting the waste directly at the location of the waste generator. Pick-up service may allow to collect appliance of better quality, which are handled better than appliances from municipal waste yards and retail, thus increasing their potential for reuse.

Key recommendations from task 2.1

- ⇒ Focus on B2B channels. Providing pick-up service to companies, administration, schools, retirement homes, but also retailers can help collecting larger volumes and appliances of better quality. As B2B channels usually entail higher amounts of waste, it is recommended to have a controlled communication campaign in order to avoid any peaks in collection requests that would be more difficult to manage.
- ⇒ Focus on denser areas. Pick-up service may be more successful and economically feasible in bigger cities with higher density of commercial actors, offices, and schools. Geographic bundling of volumes is important to make the collection and recycling efficient.
- ⇒ Provide access to reuse/prepare for reuse organizations to collected waste in order to maximise reuse efficiency.
- ⇒ Facilitate the pick-up request. For example, putting in place a user-friendly online platform, where limited information is required (volume and type of waste, and if possible, pictures of the waste to be picked up). If some stakeholders are reluctant to use the App, offer alternatives (call center, emails).
- ⇒ Offer to take care of the handling and packaging. In one pilot, the logistic contractor/transporter was provided with appropriate containers by the PRO and was taking care of the handling and packaging of WEEE during the pick-up on-site. This facilitated the system for companies and ensured a safe handling and packaging of the WEEE, thus increasing the potential for reuse. However, remind that such service will lead to hire price paid to logistic contractor/transporter.

Key recommendations from the Irish EPA:

- ⇒ Incorporate small WEEE collections in the delivery of new appliances to make compliant recycling convenient for consumers.

6.3.2.3 Postal service

This point refers to collection of small WEEE and waste portable batteries using the national post service or private parcel services.

Key recommendations from task 2.1:

- ⇒ Review the applicable waste legislation in your country to ensure using postal service for the collection of WEEE and batteries is allowed. WEEE and batteries may be considered hazardous waste subject to specific hazardous waste legislation requirements which may prohibit postal consignment. Additionally, the presence of potentially damaged lithium batteries (prone to explosion) in the postal stream can also be considered a risk. Main prerequisite for a postal service pilot is a good partnership with a postal service company and a possibility for them to earn money and reduce risks associated to hazardous waste handling.
- ⇒ Make sure to use suitable containers (e.g. reusable bags were tried out for a 'Business-to-consumer' (B2C) postal services, but they turned out to become unsightly and unusable too quickly).
- ⇒ Inform consumers and postal service about the possible risks and mitigating actions (e.g. battery removal). Information and education of involved actors and identification of possible dangers help to minimize risks for the management of lithium batteries containing appliances when shipped by post.
- ⇒ Offer a choice to consumer between recycling and re-use. In one pilot, the group that was given the choice gave back 30% more phones than the control group that was not given this choice.
- ⇒ Assess, if possible, whether the targeted population is eager to use postal service. Results from the WP2 consumer survey (D2.2) highlighted that, currently, the introduction of new incentives such as using the postal service is not particularly working as an incentive.

6.3.3 Other incentives

Collection systems based on other incentives are either connected to charity, other good causes or contests, which may bring individuals or organisations to hand-in their small EEE/WEEE and batteries. This may also include additional raised awareness for end-of-life costs expressed to the consumer through a visible fee.

6.3.3.1 Charity

Used EEE, WEEE, and batteries can also be donated to social/charity organisations dealing with second hand trade and re-use or repair. According to task 2.1, the additional dimension of the social aid is an incentive for users disposing of waste. Also, there seems to be an added value for retailers' corporate image to participate in such initiatives.

Key recommendations from task 2.1:

- ⇒ Collaborate with social organisations/charity to introduce mechanisms that the collected waste contributes to a donation fund. Good experience was made with a QR code that can be scanned by customers when dropping of their small WEEE and batteries into containers at retailers and selecting which charity goal they want to donate to.
- ⇒ Promote the donation of EEE for a good cause. During COVID confinement, a good number of initiatives promoting donation of IT equipment to breach the digital gap and facilitate home-schooling proved to be successful.
- ⇒ Combine charity/donation with other types of collection strategies and incentives as it can be very well accepted by the public. One initiative combining battery collection school contest with charity donation revealed very successful over years.

Key recommendation from the Irish EPA:

- ⇒ Provide alternative options, such as “preparation for reuse” and altruistic donation schemes to consumers - such options can help to overcome the tendency to resist the recycling of items that are still functional, and registered charity shops in conjunction with “approved preparation for reuse of WEEE organisations” could play a role in these collections. Regardless as to whether the bulk of items end up being reused, it provides a channel for items to enter the formal WEEE system via organisations approved to prepare WEEE for reuse.

6.3.3.2 Visible fee

The concept of visible fee requires producers, distributors and retailers of EEE/battery to display the costs for take-back and recycling of the item in a separate line (based on units or per kilogram), either at the point of sale and/or on the invoice. According to task 2.1, visible fees for waste management at the point of purchase and at retailers have been identified to improve awareness amongst customers, and at the same time to increase the engagement of retailers in the topic of WEEE management in combination with shared contributions to such retailers from the schemes. Visible fees were said to be well accepted by customers and not perceived as additional costs. However, according to the consumer consultation performed in task 2.2, the perception of the visible fee by consumer differs per country. In some of the reviewed countries (Portugal, Slovenia, Malta) it is seen as a useful tool that would motivate consumers to better dispose of their items, while it is considered not so important in other countries (Greece and Italy).

Currently, the visible fee is allowed or partially used in countries such as Belgium, Switzerland, Cyprus, Czech Republic, France, Ireland, Italy, Luxembourg, Netherlands, Portugal, Romania and Slovenia.

The visible is often recommended at the first stages of implementing the extended producer responsibility (EPR).

Key recommendation from BCRC Slovakia, 2023:

- ⇒ Ensure transparent and visible fees paid by producers to cover the costs of the extended producer responsibility (EPR) scheme under collective producer responsibility. This may help the customers to realize the cost of collection and disposal of the product when it becomes waste and can represent a good tool to create public awareness already at the point of sale.

6.3.3.3 Contest/raffle

According to task 2.1, the use of gamification of waste collection through contests and raffles has proven successful in increasing awareness and collection rate (for a limited time) amongst kindergarten children, and school children, but also in competitions between municipalities.

Key recommendations from task 2.1:

- ⇒ Combine the contests with non-monetary rewards for the winner(s) and/or the involved actors (such as teachers).

- ⇒ Consider hiring local coordinators in charge of organizing and following-up on the ground, to ensure the collaboration and active involvement of responsible local actors at kindergartens, schools, and municipalities.

6.4 Measuring performance: KPI definition

Key performance indicators (KPIs) are an essential tool for companies in the waste management sector. These metrics provide valuable information on companies' performance, enabling managers and decision-makers to identify areas for improvement, monitor progress, and make informed decisions.¹⁷

General principles for selecting key performance indicators¹⁸

- **Independent:** The KPIs should be independent or almost-orthogonal (i.e., avoiding overlaps) and changes to an indicator should not impact other indicators.
- **Reliable:** The concept of each indicator should be clear, simple and easy to understand (i.e. widely-accepted definition not subject to different interpretations) and the calculation of the associated data should be intuitive and simple.
- **Measurable:** The KPIs value shall be measurable and comparable scientifically (objectivity) between different phases of development (i.e. over time and space). The historic and current data should be either available or easy to collect.
- **Achievable:** The goal of the KPIs should be achievable and the set of indicators should cover relevant aspects of the initiative. It should also be possible to extend and amend the set of KPIs according to the actual stage of development.
- **Relevant:** The KPIs should provide insight into the progress of the initiative in obtaining goals and executing its strategy. The indicators for evaluation should be aligned to the measured subject. The index system should reflect the level of general development for a particular aspect.

¹⁷ Spider strategies. Waste Management and Remediation Services KPIs.

<https://www.spiderstrategies.com/kpi/industry/administrative-and-support-waste-management-and-remediation-services/>

¹⁸ ITU, 2022. Recommendation Y.4903 Key performance indicators for smart sustainable cities to assess the achievement of sustainable development goals. <https://www.itu.int/rec/T-REC-Y.4903-202203-l/en>.

- **Timely:** It is important to express the value of the KPI over time. Every KPI has a meaning only if the time dimension in which it is realized is known.

Table 2 - General principles for selecting key performance indicators

Key recommendations from task 2.1:

- ⇒ Get up to date on legislative requirements, both at national and EU level. Regulations in the waste industry evolve regularly at both national and EU levels and may set new collection targets, obligations, restrictions, etc. For example, the EU Battery regulation of 2023¹⁹ changes the definition of portable batteries from 1kg to 5kg which increases the volumes of batteries that need to be covered by the system and poses new requirements on the collection receptacles currently in use.
- ⇒ Define KPIs to measure the success of the initiative in line with the goals. Be aware that economic viability of the initiative strongly depends on factors such as the material value, the market competition, and the target sets (e.g. collection rate, consumers reached, etc.).
- ⇒ Track and monitor the devices collected within a pilot separately from the regular collection, to be able to assess the success of the pilot.
- ⇒ Use several KPIs to assess your initiative. Most initiatives reviewed in task 2.1 used the volume of small WEEE/portable battery collected and the consumer reached.²⁰ Other KPIs may include: number of incentives available/awarded/used by the receiving person, ration of repeat participant (i.e. participants that took part in the pilot 2 or more times), number of new collection point/bring point, number of retailers involved, quality of material collected, total costs of pilot, total cost of incentive, revenues from pilot. The KPIs will depend on the type of initiative/incentive applied and the objectives of the initiative.²¹

¹⁹ Regulation (EU) 2023/1542 of the European Parliament and of the Council of 12 July 2023 concerning batteries and waste batteries, amending Directive 2008/98/EC and Regulation (EU) 2019/1020 and repealing Directive 2006/66/EC [2023] OJ L 191/1 ("Batteries Regulation"), https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv%3AOJ.L_.2023.191.01.0001.01.ENG&toc=OJ%3AL%3A2023%3A191%3ATOC.

²⁰ It is to be noted that these 2 KPIs may not fully represent the success of the pilot considering that those initiatives are often only complementing regular collection methods.

²¹ For example, the volume collected, or the cost of the project/incentive may not fully represent the success of the initiative if the principal aim is to cover waste streams which are otherwise not effectively collected by regular collection methods. These initiatives will generally be more cost-intensive and result in lower volume collected but they complement the regular collection methods by enabling the collection of equipment that would otherwise be kept in households.

Key recommendations from desk review:

- ⇒ Take stock of the waste situation in the pilot area and collect baseline metrics (= metrics before the pilot)
- ⇒ Remember that KPIs are not necessarily comparable among different areas, city, regions, countries and even not comparable from one year to the next in the same area, as many factors may influence waste collection performance.

6.5 Expanding the action: Replicability and scalability

The success of a take-back scheme should also take into account the replicability and scalability of the action. In simple words, scalability is the ability of a system to grow larger, while replicability is the ability of system to be duplicated at another location or time.²²

As per task 2.1, the scalability and replicability of initiatives vary, depending on factors such as EPR market design, fee design, roles of actors, geography, population density, and public awareness.

Key recommendations from task 2.1:

- ⇒ Test your hypotheses (i.e. pilot a campaign) before scaling up and perform small-scale test before large-scale tests. In some cases, a pilot is an investment and does not necessarily bring the expected results.
- ⇒ Make sure the pilot is economically viable before scaling it up. In most cases, a pilot is an investment and does not necessarily pay off.
- ⇒ Estimate the cost difference between the pilot and ‘real’ scale campaign before scaling up the campaign. Pilot costs are not always comparable or aligned with costs associated to a ‘real life’ scaled up campaign.
- ⇒ Assess the scalability/replicability potential. Take into account the intra-national and national differences, for instance:
 - EPR market design: competitive PRO systems vs. non-competitive;

²² Rodriguez-Calvo, Cossent and Frías., 2018. Scalability and replicability analysis of large-scale smart grid implementations: Approaches and proposals in Europe. Renewable and Sustainable Energy Reviews, Volume 93, 2018, Pages 1-15, ISSN 1364-0321, <https://doi.org/10.1016/j.rser.2018.03.041>.

- EPR fee design: eco-modulated fee vs. no eco-modulated fees;
- Role of actors: collection obligation on municipalities vs. on retail and producers alone;
- Geography and population density: island states vs. main land;
- Awareness and habits of households: high awareness vs. low awareness;

Key recommendations from BCRC Slovakia, 2023:

- ⇒ Support replicability of the approaches through various activities when possible. Relevant stakeholders (e.g. schools, NGOs, PROs) should get acquainted about the initiatives implemented by others to understand how they managed to successfully involve the consumers in the collection, what were the drivers and the results of different means of communication and efforts.

Key recommendations from desk review:

- ⇒ Detail your methodology – it is essential that key players willing to replicate the action understand the details of the action as fully as possible. On the other hand, the player replicating the action should follow the methodology as closely as possible and document all steps of the replication process.
- ⇒ Ensure transparency and complete reporting of your action – it is essential that key players willing to replicate the action are fully informed about all the aspects (timelines, duration, budget, practical challenges, etc.) that may prevent or hinder the successful implementation of the project. Using objective and quantitative data can help achieving replicability.
- ⇒ Get more people involved in developing or reviewing your project. Getting a diverse team involved in a study helps mitigate the risk of bias because you are incorporating different viewpoints into setting up your question and evaluating your data.



Chapter 7

Conclusions

7. Conclusions

Task 2.3 and Deliverable 2.4 provides recommendations for the design and implementation of the (project) pilots based on a review of several initiatives implemented by European PROs and one EEE producer and consumer consultations in various European countries, supplemented by a desk review. It is to be noted that this report does not intend to recommend the implementation of any particular incentive or scheme. Rather, it provides recommendations on how to improve their implementation in the event the decision is made to implement that incentive or scheme. Assessing the efficiency of specific incentives will be performed under WP4 and WP5.

The current deliverable provided more than 75 recommendations for the definition and implementation of pilots and incentives aimed at improving small WEEE and portable batteries collection rates. From these, the following main conclusions can be drawn:

- **Awareness raising appears as a game changer.** Awareness raising must be targeted especially at consumers and retailers with the aim to inform people about the risks and challenges of improper WEEE and portable batteries management, the overall management process, the proper disposal routes (in the case of consumers), the existence and mechanism of the incentives, and the benefits for them and more generally for the society (e.g. contribute to environmental sound management of waste, contribute to a social cause in the case of charity donation, data safety/secured data removal in the case of consumers, reduced administrative burden and fulfilment of legal obligation in the case of retailers, etc.). Also, information must be communicated repeatedly and in a clear manner. However, the results of the consumers survey (D2.2) highlight that currently, less than half of the surveyed consumers feel well informed, especially with regard to ways in which and channels through which they can dispose of their WEEE and batteries.
- **Consumers can be active actors.** Consumers can become even more committed when they play an active role (for example by choosing the charity receiving a donation, deciding if their device will go for recycling or reuse), and are actively informed (for example on the destiny of the device they handed over, the amount of small WEEE/portable battery collected).
- **Combining different incentives helps increasing collection rates.** Especially, school contest with monetary/non-monetary reward or charity donation were used in several countries and proved successful. In addition, and to confirm the previous point, the use of incentives should be coupled with awareness raising and education.
- **Diverse environments require diverse strategies.** Differences among countries may limit the replicability of an initiative (e.g. EPR market design, fee design, roles of actors, geography,

population density, and public awareness/behaviours), and the difference within a country (e.g. city vs. countryside) may limit the replicability and scalability of an initiative. It is therefore necessary to assess the environment and implement diverse strategies taking into account the identified specificities. To help stakeholders learn from previous initiatives, the ECOSWEEE Project has published a booklet describing selected best practice initiatives for the collection of small WEEE and portable batteries implemented within Europe.²³

- **Different products require different approaches.** Awareness raising activities and incentives mechanisms should be also tailored to the types of products. Results from the consumer survey (D2.2) highlighted different attitudes and knowledge from the consumers side, depending on the types of items: electronic components, for example, are not always recognized as WEEE and thus not correctly disposed of; while small hi-tech are still predominantly kept in citizens' homes, mainly due to their value and fear of personal data leakage.

Work packages 3 and 4 will build from WP2's findings, conclusions and recommendations to further refine the design of the pilots and ultimately assess the effectiveness of the tested strategies.

²³ https://www.ecosweee-life.eu/wp-content/uploads/2023/11/D2.1-Best-practice-collection-initiatives_Report-and-Booklet.pdf, p.119.

