



Engage and Recycle  
for a Better Planet



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## About the author

Andy Magrini is the founder of **RECYCLEVER**, the company with the mission of **accelerating the transition to a circular economy, by manufacturing reverse vending machines that are fun to use and cost effective to deploy**. He is managing director of CAEM Shelving Engineering UK and part of the family owning the CAEM Group.

Towards the end of his university studies in Business Management in Pisa, Italy, Andy moved to the UK to begin his working career within CAEM. He would regularly fly back to Pisa to complete his exams at the university.

In 2000, he was seriously injured in a car accident in Italy and after a yearlong recovery he decided to remain in Italy for good.

During his twenty years career within the CAEM Group he has created organisations, deployed multi millions investments in factories, manufacturing and automation, whilst engaging with clients across the world.

He believes in the motto 'if you never failed, you never tried it hard enough'. He insists on interpreting errors as costs for own training and remains aware of how many he made and how much they costed him... so to say he hopefully learnt a lot! Try hard, make mistakes, learn by them.

Andy believes in sustainability and that businesses can only exist if every stakeholder, directly or indirectly involved, is better off by such business growing. He is currently heavily focused on Recyclever while living in Cheshire, UK with his wife and three children.

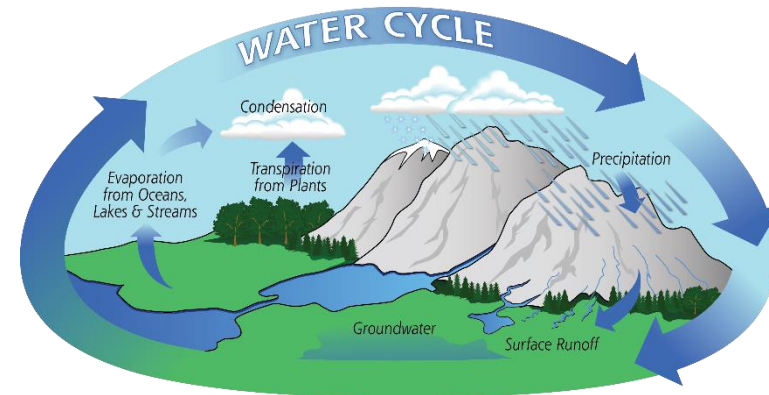


## Andy: Why the whitepaper 'Engage and Recycle for a Better Planet'?

The care of the environment is finally getting on the legislators and businesses agendas: the scope is extremely wide, ranging from CO2 emissions and its offsetting, from renewable energy sources to electric cars, from carbon credits to how the financial system should favour eco-friendly ventures, from waste management to recycling.

The economic activities over the century have utilised resources from the planet to build a flow of money that has created wealth. We often hear that mother Earth's resources are limited and businesses should convert into 'renewable' or 'sustainable' behaviours. What does it mean?

Let's see the example of water: it is a crucial element we are using from mother Earth, and it's sustainable to do so. Why? We all studied this at primary school: we collect water, it doesn't disappear, we feed it back into the system, it evaporates, it rains and we collect it again.



We had to improve things to make the cycle working: after using water in our toilets we needed to process it before inputting it again into the system.

It could be argued that processing water requires energy and this touches other points of the green economy like the production of energy from renewable sources: be them the energy of water falling down from a mountain or the one of wind blowing continuously in the open seas.

The example of water has hopefully helped understanding what the word “**circular economy**” means. This word has become extremely popular over the recent years as Google searches show:



The concept of circular economy is extended to every aspect of our lives so we would stop consuming what mother Earth makes available. Oil is a typical example: when we use it, we transform it into heat, energy and gas emissions and there is no way to regenerate oil again.

This whitepaper will focus on beverage containers. The amount of bottles and cans consumed yearly has reached unbelievable levels but unfortunately the containers themselves are made with mostly ‘new materials’.

Not enough containers are captured in the recycling collection system, they end up in landfill, curb sides, rivers and oceans, generating pollution. What does it mean? That on average, when we buy a PET bottle off a shelf, when it will be replaced by a new one, more than half of that plastic will be made new, using ingredients from mother earth.

I prepared this whitepaper since not enough has been done for the sustainability of our economic model so far and to describe one solution which is likely to happen. Legislators are doing their part but unless businesses and consumers engage with responsible habits, things won’t turn for the better fast enough. However, things are starting to look positive!

## Are we recycling enough?



Recycling and the circular economy span many different sectors: here we will focus on consumer goods and more specifically beverage containers.

Unfortunately the numbers are not encouraging, meaning that **for every drink we buy, too many “new resources” are taken from the planet** to replace it.

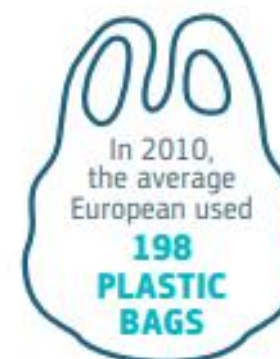
The horrific side effect is how many of these containers end up disorderly scattered in our planet: on fields, on rivers, on the oceans.

Here are some infographics shared by the European Union:



## Plastic leakage

Plastics are very durable, so they accumulate in nature, damaging ecosystems we rely on. In the oceans they break down into tiny fragments, which enter the food chain. The microplastics are eaten by plankton, which are eaten by fish, which are eaten by... us.



Source: IP-13-1017



Many of these items are packaging for food and drink and most were designed to be used only once ("single-use plastics"). That's a waste of valuable resources.



## EUROPE PRODUCES A HUGE AMOUNT OF PLASTIC: 58 MILLION TONNES EVERY YEAR



Most of the raw material is fossil fuel based. Thus, if the current production trends continue, **by 2050** plastics could account for 20% of oil consumption, 15% of greenhouse gas emissions, and **there could be more plastics than fish in the sea.**

Source: PlasticsEurope

## EUROPE PRODUCES 25 MILLION TONNES OF PLASTIC WASTE



Source: PlasticsEurope, 2014

EU initiatives like higher recycling targets and more effective legislation for drinking water (cutting the need for bottled water) are improving the situation, but stronger action is needed.

More than 60% of plastic waste still comes from packaging, but only 40% of that packaging is recycled.

Sources: PlasticsEurope and Eurostat



## THE EU GENERATED **15.88 MILLION TONNES** OF PLASTIC PACKAGING WASTE IN 2015

Source: Eurobarometer



**31 kg/person**  
of plastic  
packaging waste  
was generated  
(2014)



**40%**  
of plastic packaging  
waste was recycled  
(2015)

## What are you doing about plastic waste?



EU average

Source:  
Eurobarometer



**65%**

separate waste  
for recycling



**34%**

avoid single-use goods  
like cutlery & cups



**24%**

avoid buying  
over-packaged products



**75%**

use fewer  
single-use plastic bags

## How would you tackle the plastic challenge?

Most Europeans back  
measures to cut plastic waste.

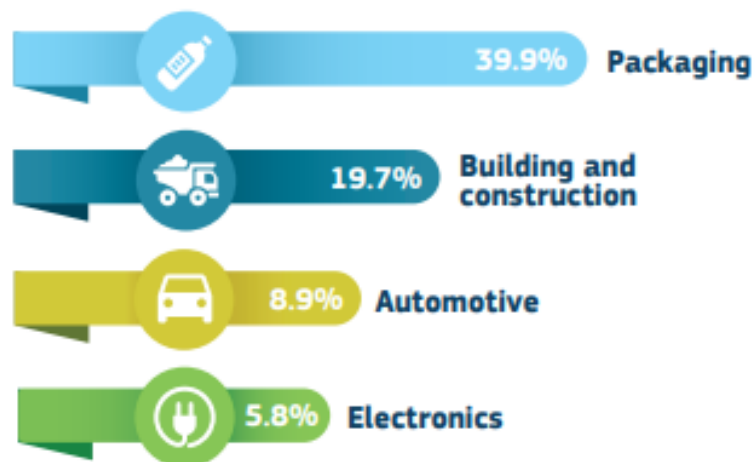
With 87 % of Europeans worried  
about the environmental impact  
of plastic, and 74 % worried  
about its impact on their health,  
people have the drive to tackle  
the plastic challenge, but what  
do they think should be done?

Source: Eurobarometer



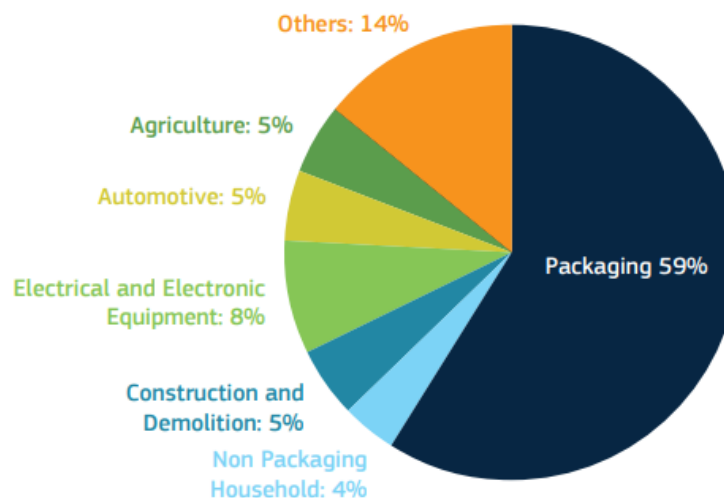
## EUROPEAN PLASTICS DEMAND IN 2015

**49 million tonnes**



EU-28, Norway and Switzerland – Source: Plastics Europe (2016)

## EU PLASTIC WASTE GENERATION IN 2015

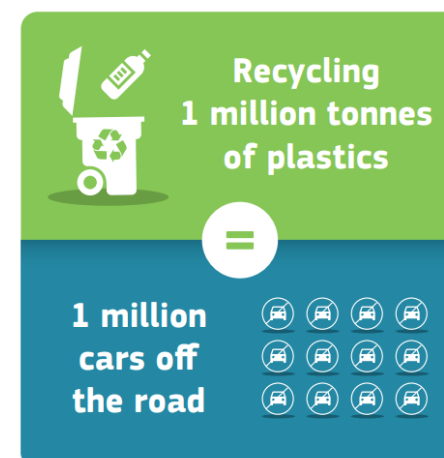


Source: Eunomia (2017)

**500,000 TONNES OF PLASTIC  
IN THE OCEANS**



## CO<sub>2</sub> BENEFITS OF PLASTICS RECYCLING



## EU LEADING GLOBAL ACTION TO PROTECT THE PLANET

Challenges linked to plastics are global but they may turn into opportunities. Plastics use is growing rapidly in emerging economies, particularly Asia. Plastic waste is transported across continents - **the EU sends about half of its collected plastic waste abroad**. Collection and recycling are needed in many parts of the world.

Up to **13 million tons of plastic waste end up in the world's oceans every year**. Plastic pollution devastates local economies, damages fishermen and destroys tourism potential. The **damage to marine environments** is estimated to at least **\$ 8 billion per year** globally.

To develop actions, standards and technology to tackle these problems will give the European Union a global lead and help achieve the objectives of the **Paris Agreement on climate** and the **2030 Sustainable Development Goals**.

*SDG 14: conservation and sustainable use of the oceans, seas and marine resources*

*SDG 12: ensuring sustainable consumption and production patterns*

## THE TOP-10 RIVERS FOR LAND-BASED CONTRIBUTION TO MARINE LITTER



Source of the data: Christian Schmidt, Tobias Krauth, Stephan Wagner. Export of Plastic Debris by Rivers into the Sea. Environmental Science & Technology, 2017; DOI: 10.1021/acs.est.7b02368. Source of the map: European Commission.

## What are legislators doing about it

Governments around the world are doing more and more to improve the situation. There is a growing movement about how financial institution's and investment funds should direct their cash to: **using the "green credentials" of an investment to determine where monies are going to be addressed, represent a dramatic potential.**

It is easy to understand that activities that "consume the planet" in a non-renewable way would ultimately decrease their impact if they didn't receive investments for their growth. On the other end, if funds were invested in activities that nurture sustainability at the core of their business model, they could grow and overall the planet will be better off.

This is often referred to as **'The Green Economy'** albeit it is often associated to political movements: the intention of this whitepaper is completely non-political, like the growing sentiment of being better for the planet.

Legislators are acting at different levels: from sustainability to renewable energy, from reforestation to clean air, from carbon credits to the circular economy, from the design of products to waste collection.

### It's time to rethink plastics

**It's time to change the way we design, produce, use and dispose of them.** Let's reinvent plastics!

**The EU has a new strategy to address the whole life-cycle of plastics.** The aim is to make them:



We also need to stop using plastic where there are better alternatives available, and ensure that the plastics we use keep their economic value for as long as possible, and don't end up in landfills.

**By 2030, all plastic packaging placed on the EU market should be reusable or recyclable.** As well as cutting the industry's carbon footprint, this will reduce plastic waste and marine litter, and slow the proliferation of microplastics.





## EU IS LEADING BY EXAMPLE ADOPTING MEASURES TO REDUCE DISCHARGE OF WASTE AT SEA

- Between **20-40%** of marine litter originates from sea-based sources (Eunomia, 2016). In its 2017 report on the 10 environmental priorities of ports, the European Sea Ports Organisation includes garbage waste from ships.
- To reduce this litter, adequate waste reception facilities should be available in ports and ships should deliver their waste to those facilities.
- The proposed incentive and enforcement measures may result to the **reduction of up to 300.000 tonnes of garbage discharged annually**, as well as significant reductions of sewage and oily waste discharges.
- An effective EU regime, based on international norms (MARPOL), should result in a reduction of the administrative costs for ports, ships and competent authorities of approximately **7 million euro** per annum.

proposed measures may result in a  
reduction of all garbage discharges

=

**300.000 TONNES**  
LESS GARBAGE ANNUALLY



measures can save up to

**€7 million**  
per year of administrative  
costs

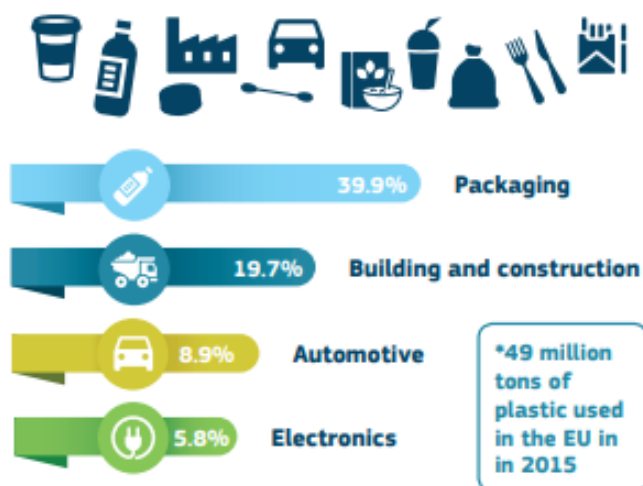


## ACTION BY THE COMMISSION

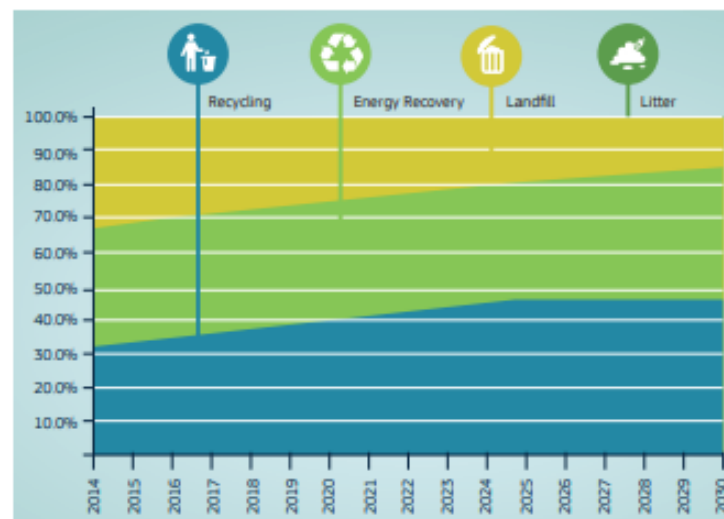
### The Commission will:

- pursue **dedicated action** to prevent plastic waste and marine litter:  
in **East and South-East Asia**  
in the **Mediterranean region**, in support of the Barcelona Convention  
in major world river basins
- support **multilateral initiatives on plastics**:  
renewed EU engagement on plastics and marine litter in fora such as the UN, the G7, the G20 , and regional sea conventions
- promote the objectives of the Strategy in **non-EU countries** through:  
policy dialogues and economic diplomacy  
bilateral, regional and thematic funding, including the External Investment Plan and dedicated instruments (e.g. 'Switch to Green')
- work towards international standards on sorted plastic waste and recycled plastics
- step up **enforcement of the EU Waste Shipment Regulation** to ensure that exported plastic waste is adequately treated.
- provide through the new **Directive on Port Reception Facilities** a mix of economic incentives and enforcement measures to ensure that operators deliver their waste on land to adequate port reception facilities rather than discharging the waste at sea.

## WHAT DO WE USE PLASTICS FOR IN EUROPE?\*



## WHERE DOES PLASTIC WASTE GO?



## IMPROVING PRODUCT DESIGN

It all starts with design. About 80% of all environmental impacts are determined in this phase. Design has a direct impact on the recyclability of plastics and affects the possibility for products and waste materials to find their way back to the market.

With the Plastics Strategy, the Commission aims to encourage and support product design choices which take into account the entire life cycle of plastics and plastic products, making them more durable, reusable and easily recyclable.

As packaging is one of the main uses of plastics, **by 2030 all plastic packaging should be recyclable.**

## BETTER PRODUCT DESIGN MAKES PLASTICS RECYCLING EASIER



**Saving 77-120 EUR  
for each tonne  
of plastic waste collected**

Source: Ellen MacArthur Foundation (2016)

## USING MORE RECYCLED MATERIALS

The quality of recycled plastics is increasing. But the overall uptake of recycled plastics remains low.



Only **6%** of new plastic materials come from recycling



**95%** of the potential economic value in plastic packaging currently goes to waste



Failure to recycle costs the European economy **€105 billion each year.**

To boost the use of recycled plastics, the Commission is launching a pledging exercise for EU industries. The target is to ensure that by 2025, 10 million tonnes of recycled plastics find their way into new products on the EU market.

### ACTION BY THE COMMISSION

- Support design and production of recyclable plastics and products;
- Invest in collection, sorting and recycling infrastructure;
- Improve the traceability of materials and substances to boost recycling rates and ensure clean, safe material cycles;
- Develop quality standards for sorted plastic waste and recycled plastics;
- Develop Green Public Procurement criteria on integrating recycled content;
- Financially support research and development of innovative projects to help businesses in their efforts to increase recycling.



## A PLASTICS STRATEGY TO PROTECT EUROPE'S CITIZENS AND THE ENVIRONMENT

Littering and leakage of plastic waste harm the environment, cause economic damage, and may affect human health through the food chain and air. If the situation does not change, we could end up having more plastic than fish in our ocean by 2050; and 99% of seabirds will have eaten plastic.

This phenomenon is made worse by the increasing amount of **plastic waste generated each year; 25.8 million tonnes** in Europe alone (Source: Plastics Europe). This is also fuelled by the growing consumption of 'single-use' plastics - that are thrown away after one brief use, are rarely recycled and are prone to being littered.

### ITEMS FOUND ON EU BEACHES



Source: Joint Research Centre, European Commission (2017)

## EUROPEAN CITIZENS ARE WORRIED, AND WANT US TO TAKE ACTION:

An overwhelming majority say they are worried about the impact on their health (74%) and on the environment (87%) of everyday products made of plastics

Please tell me to what extent you agree or disagree with each of the following statements. (%-EU)



**74%**  
agree

**23%**  
disagree

You are worried about the impact on your health  
of everyday products made of plastics



**87%**  
agree

**11%**  
disagree

You are worried about the impact on the environment  
of everyday products made of plastics

Source: Eurobarometer

## ACTION BY THE COMMISSION

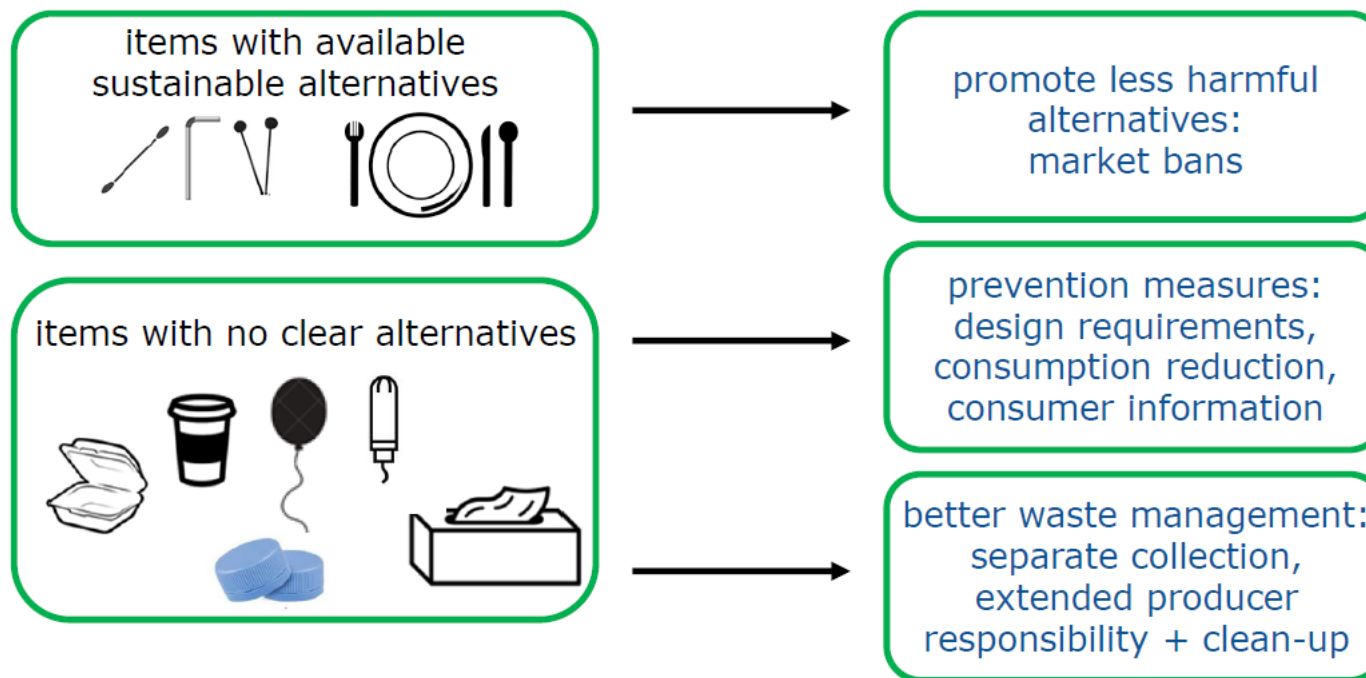
### The Commission will:

- tackle the growing amount of plastic waste and stem the tide of marine litter in our oceans with measures to prevent littering, and by making the plastics economy circular.
- gather evidence to determine the scope of a legislative initiative on single use plastics and fishing gear at EU level.
- tackle sea-based sources of marine litter, and ensure we better understand and monitor marine litter.
- act on compostable and biodegradable plastics to make sure consumers have reliable information on their use.
- restrict microplastics intentionally added in products.
- continue to work with Member States to cut consumption of plastic bags, under the Plastic Bags Directive.
- use EU funding to understand and combat the rise of marine litter.
- make sure that EU rules support higher recycling rates and better waste collection systems.
- promote access to tap water for EU citizens, reducing packaging for bottled water.

## EUROPEAN CITIZENS SAID THEY HAVE TAKEN ACTION



## ***Directive EU 2019/904 on the reduction of the impact of certain plastic products on the environment***





## Beverage containers & bottles:

- product design requirements (art. 6)
- Extended producer responsibility (art. 8)
- Separate collection objective (art. 9) (**only applicable to beverage bottles**)
- Awareness raising measures (art. 10)

## Cups for beverages:

- consumption reduction (art. 4)
- Market restriction for EPS cups (art. 5)
- Marking requirement (art. 7)
- Extended producer responsibility (art. 8)
- Awareness raising measures (art. 10)

Specifically this whitepaper will substantiate on the separate collection of beverage bottles.

## Separate collection (Article 9)



### Separate collection target for plastic beverage bottles

→ by 2025 – 77%

→ by 2029 – 90%

- Support high quality recyclates and uptake of secondary raw materials



- Support plastic packaging recycling target of 55% by 2030

These are very ambitious targets from the EU, but absolutely achievable. Two main legislative elements will dramatically near us toward such achievements: the Extended Producers' Responsibility and Deposit Return Schemes.

## Extended Producer's responsibility



This scheme is being introduced in many country and is a big step ahead:

<https://www.gov.uk/government/consultations/packaging-waste-changing-the-uk-producer-responsibility-system-for-packaging-waste>

The consultation ran from February to May 2019:

<https://www.gov.uk/government/publications/draft-environment-principles-and-governance-bill-2018/environment-bill-summer-policy-statement-july-2019#a-new-direction-for-resources-and-waste-management>

The UK government, as an example, stated:

“We will ensure those who place packaging on the market take more responsibility for the costs any waste of that packaging imposes; according to the ‘polluter pays’ principle. The UK government will take powers to introduce Extended Producer Responsibility schemes. For packaging, we will ensure producers pay the full net cost of dealing with their packaging waste to incentivise recyclability in its design. At the moment, producers currently only pay about 10% of these costs. **We will make them responsible for 100%.**

We will also legislate to modernise the government’s powers to set producer responsibility obligations, extending them to prevention and redistribution of waste, so that we can tackle the moral scandal that is food waste.

Where waste cannot be avoided, **we will make it simpler for everyone to recycle.** We intend to implement a simplified approach to recycling across local authorities, making it simpler for the public to recycle. A consistent set of materials will need to

be collected from all households and businesses in England, with clearer labelling on packaging so we all know what we can recycle.



Making it easier for people to make the right choice when they come to dispose of products is a key component of our approach, and our proposals for a deposit return scheme received high levels of public support, with over 200,000 campaign responses. **The Environment Bill will introduce powers that will enable us to implement deposit return schemes.** These policies will help us to tackle the urgent issue of plastic pollution, but we must do more. That's why, building on the success of the carrier bag charge, we are seeking a power to be able to introduce charges for specified single use plastic items."

The overall timetable for changes are set out in the Resources and Waste Strategy published at the end of 2018 – **this identifies 2023 for a new packaging EPR regime to become operational.** Dates for review of other EPR regulations are included – WEEE in 2019, batteries in 2020, packaging essential requirements by the end of 2020 and end of life vehicles in 2021. However, in light of the pressures of dealing with the covid-19 pandemic it seems likely that **some of these target dates will change.**



## Deposit Return Schemes

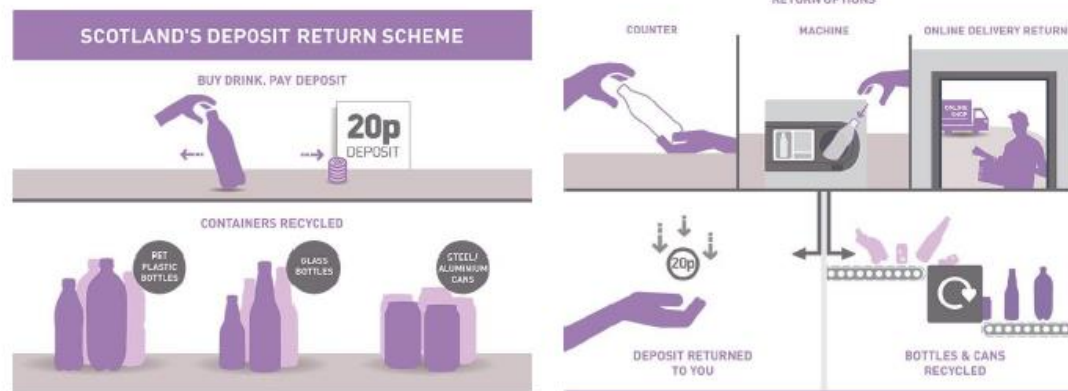
A Deposit Return Scheme imposes consumers to pay a deposit upon purchase of drinks: the deposit is returned to the consumer upon return of the container.

The immediate impact of a DRS is dramatic: empty containers are not 'rubbish' anymore, they are worth cash. Much more than the intrinsic value of its raw material. Therefore the consumers' behaviour improves towards responsible disposal.

It is true that recycling rates are high thanks to a quite efficient home waste collection, but the consumption on the go is huge and typically escapes home waste collection.

### How does it work?

Deposit return is a crucial part of the strategy planned by the Scottish Government to tackle climate change and the problems created by single-use items. It will help us all to change our throwaway culture.



In countries where a DRS is in place, cities automatically 'clean themselves up', with an interest of youngsters to collect any container scattered around, because it is worth money.

A DRS system is quite simple on its own concept, but extremely complex to implement and operate. There are so many parties involved that needs coordinating for the most effective scheme to be functional:

- The Legislator
- The Scheme Operator
- The Beverage industry
- The Retailers (incl. Hospitality)
- Consumers
- Waste Collectors
- Recycling plants

Operating a DRS involves heavy capital expenditure investments and daily costs. The more a framework has allowed for a "win" for each category, the more likely it will work, and sooner.

Let's work out some numbers, yearly:

- On a 65M people country, **28bn beverages** are sold
- If the deposit on a container is 0.20, the total money inputted into the DRS system is **6bn**
- If containers require a week to be returned, there's always **100M** sitting on the deposits account

But, there's more

- When DRS schemes are implemented, recycling rates increase gradually over the years. Let's assume before DRS it was 50%
- In Year 1, **recycling is 70%**, therefore 30% of deposits will not be redeemed: **2bn!**
- In Year 2, **recycling is 80%**, therefore 20% of deposits will not be redeemed: **1.2bn!**
- In Year 3, **recycling is 90%**, therefore 10% of deposits will not be redeemed: **600M!**

The numbers are intentionally approximate because the scope of this whitepaper is not to specifically explain all the financial and operational aspects of a DRS. But the concept is explained.

The unredeemed deposit represent a strong financial support toward the capital investment and the operating costs of a DRS. But there are a lot of arguments for which:

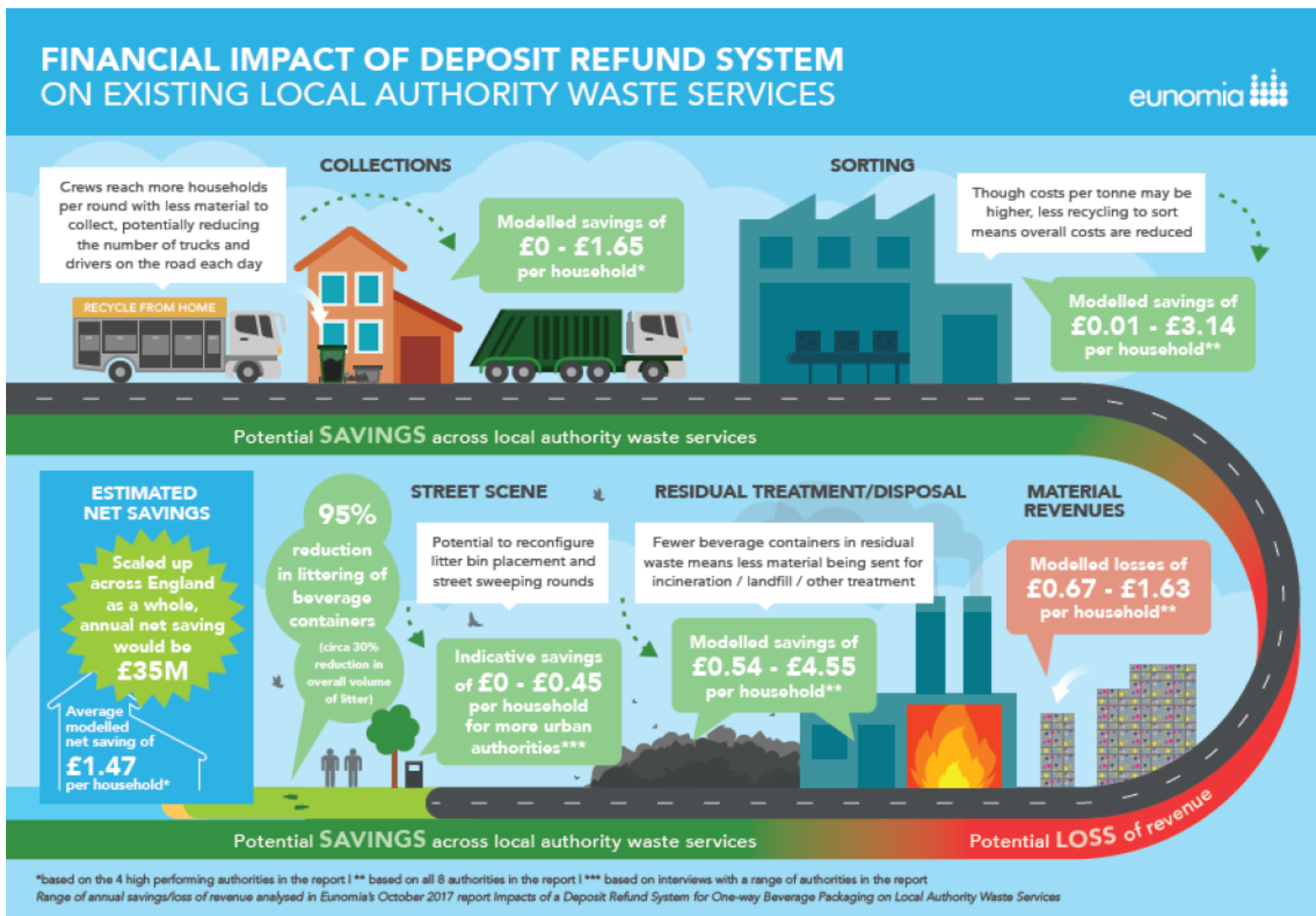
- The capital investment represents a huge cash layout that the parties involved could not afford
- The operating costs may exceed the value of unredeemed deposits, especially as the recycling rate increases: there are paradoxically opposite interests in this!

We have seen above that Deposit Return Scheme's move huge amount of monies and citizens should expect **transparent, fair and competitive** ways for them to be set up and run.

Without further comments, it may be relevant to share how dominant positions could be abused by some actors which would ultimately run against the goal of recycling:

[https://ec.europa.eu/competition/elojade/isef/case\\_details.cfm?proc\\_code=1\\_38113](https://ec.europa.eu/competition/elojade/isef/case_details.cfm?proc_code=1_38113)

This is an interesting infographic prepared by Eunomia about cost implications of a DRS:



## Reverse Vending Machines

With a Deposit Return Scheme **all drinks containers**, including those consumed at home and those consumed on the go, **will have to be returned to any of the points where they are sold so to redeem the deposit.**

An average convenience store shall expect around 500 to 1000 bottles and cans a day. A busier supermarket would be in the region of 2000. Hyperstores will easily exceed 3000.

‘All-in’ deposit return schemes will require to include in the system every material: PET bottles, aluminium cans, glass bottles. Also, the general rule of thumb is: if you sell it, you have to take it back.

If the return process is visualised: bottles may not be capped (even if a cap will still be connected to the bottle due to coming in laws, it may not be closed), cans will be open... It is normally assumed that even for a small store, handling these empty leaking containers **will be a time costly, dirty, and volume eating operation.**

This is where Reverse Vending Machines come to help.

An RVM is a machine that selectively accepts returned containers and allows the consumer to redeem the paid deposit they are worth. It compacts PET and aluminium. It stores crushed empties and glass bottles until bins are full.

Why ‘selectively’? Because the RVM must make certain the returned containers are worth the deposit. Typically they integrate an array of technologies: barcode scanners, special DRS logo scanners, weight checks, shape checks.







Due to the high volume and value involved in returning containers, these functions are integrated with the overall DRS system so to avoid fraud. A photocopy of a pop drink barcode stuck on a toilet paper roll won't trigger the machine to award the deposit back. Also, walking in the shop, taking a new bottle off the shelf and put it into the machine, should not trigger any action: the bottle wasn't purchased in the first place!

Interacting with Reverse vending machines becomes a regular habit for consumers in countries with Deposit Return Scheme's. RVM's are an integral part of the deployment of a DRS so to facilitate empties separate collection in cost effective and safe manners.



## Increasing Beverage Containers' Recycling without a DRS

Consumers do want to recycle more. They can be further incentivised to do so, despite the lack of a government scheme.

To understand your position and understand your investment, **consider the development of a 'value cycle'**. This will include the costs and savings that can be made through the implementation of a RVM solution, this should include items such as:

- The value generated by **streaming ads** on a big screen onboard the machine.
- **Less** curb side **collection** savings.
- **Lower cost** of waste management.
- **Safer** environments within factories.
- Build greater consumer **engagement**.
- Whether you can involve a beverage company to **sponsor** your machine.
- Improve the view of your company from a **corporate social responsibility (CSR)** perspective.

Then you will have to plan how you'll deploy, where, when and stages..

**If a DRS is known to be coming in your country**, worry not! Whilst the precise rules of the to-be-appointed scheme operator can't be known in advance, **investing in RVMs can be future proofed** to a good extent.

## Retailers



The Government throughout the UK are considering implementing a Deposit Return Scheme (DRS) to help address the adverse environmental impact of waste containers on our planet. Retailers are already starting to understand the issue of single use plastic and trying to improve their packaging methods to help address this and now have an ideal opportunity to take the lead in the war on single use plastics. Investing in recyclever® reverse vending machines can help support the cause and make the world a better place for everyone.

### WITH a Government Deposit Return Scheme (DRS) in place

In a deposit return scheme, all consumers pay a small deposit on a container, which is added to the price of the beverage in store and refunded when the bottle is returned to a reverse vending machine. The retailer **MUST HAVE** a machine in place otherwise shoppers loyalty will transfer to an outlet where they can return. Existing deposit markets have seen an almost immediate change in behaviour with up to 98% of drinks containers being returned.

### WITHOUT a Government Deposit Return Scheme

Encourages loyalty by converting clients from your competitors (i.e. they purchase a drink at B&M, but they will go to Home Bargains as they give you a reward or voucher to

return the bottle. Home Bargains can then use marketing on the recyclever® machine to encourage them to shop there instead and ultimately sell more, resulting in a new loyal customer.



## Benefits to The Retailer

- **Increases Customer Footfall**  
Reverse vending provides a stand-alone reason for people to visit a Supermarket, DIY Store or other Retail Outlet. Increasingly people will be looking for specific plastic and aluminium recycling services, as the adverse damage to our environment becomes more evident.
- **Encourages Customer Loyalty**  
The discount vouchers paid out in return for recycling your plastic drinks bottles and aluminium cans will encourage customers to return to the same retailer to redeem their vouchers.
- **Supports Retailer Commitment to a Circular Economy**  
Helps build and reinforce a retailers' green credentials in the eyes of customers and investors. Shows a continuation in the trend to reduce the use of plastic carrier bags and single use plastics.
- **Promotion and Advertising Opportunities**  
The large format integral screen provides a very visible advertising opportunity for the retailer to promote its own special offers and deals. Retailers could also sell the advertising space to their suppliers or high-profile brands, generating a further source of income.

- **Environmental Sustainability**  
Retailers then have the opportunity to sell the plastic bottles and aluminium cans to specialist recycling companies creating another revenue stream and the knowledge that all the waste is being recycled professionally and not being sent to landfill.
- **Improved Efficiency**  
Less waste at their site. Reduced cleaning costs as there are fewer bins to maintain and as recyclever® can compact the containers, they take up much less space.

### Benefits to the Consumer

- **Gain Rewards for Recycling**
- **Quick, Easy and Convenient**  
The machines will take around 40 bottles per minute, are located at easily accessible retail locations, where they are likely to be visiting anyway, so no special journeys required.
- **Supporting a Sustainable Future**  
People are becoming more aware of the need to do something to minimise plastic waste and increasingly want to get involved. Media coverage is growing and this is being positioned as a global crisis putting pressure on everyone to find solutions like Reverse Vending.



## Corporate Companies



With high profile Corporate Social Responsibility (CSR), many companies are becoming more aware of the importance of minimising their negative impact on the environment. recyclever® offers corporate businesses the opportunity to support environmental sustainability by offering a responsible way to return empty plastic and aluminium drinks containers for them to be recycled effectively.

### Benefits to Corporate Customers

- Improved Health and Safety  
Cleanness of a site is a crucial factor for health and safety. However it is a well-known fact that plastic bottles and aluminium drinks cans can be found discarded on the floor, inside storage racking and other various hidden areas. Adopting a collecting machine will guarantee containers are all in one place and crushed to maximise space.
- Clean shop floor  
Discarded bottles and cans will never be the best way for maximum efficiency, a RVM will allow a central location for returning empty containers and maintaining a clean working environment.
- Lower operational costs, less bins  
How quickly do your bins fill up and what's the cost of emptying them?  
It is time consuming and expensive to dispose of refuse and often containers are

piled up near bins. recyclever® reverse vending machines come with a compactor that optimises the volume, so less time spent disposing of full bins.



- Sell more bottles from internal vending machines  
Our reverse vending machines have a barcode recognition system and can be programmed to collect only containers which have been sold by the installed vending machines. Loyalty vouchers can then be issued to create your own internal deposit return scheme.

## Schools and Universities



Education plays a very important part in raising awareness of the environmental issues impacting the future of our planet.

From teachers imparting knowledge to students learning about waste management and recycling, Schools and Universities can support environmental concerns and help increase recycling and reusing waste products.

### Benefits to Educational Facilities

- **Supports the Green Message**  
A better environmental education for a better future. Every school, academy and university should lead the way as far as recycling concerns. The overall 'education' will always revolve on the future, which is based on sustainability and recycling.
- **A Cleaner Environment**  
Students will use reverse vending machines to dispose of their drink containers, especially if a reward scheme or discount on future purchases are awarded for each deposit.
- **High Tech Image**  
Education and future go hand in hand with technology. Reverse vending machines are not a normal sight in the UK but they will become the norm and every educational body should embrace new technologies.

- **Encourage Healthy Competition**  
Students competitive challenges to establish who recycles more. All collections can be traced with a fob, a fingerprint and all data will be visible via an IP address. Resulting in higher levels of recycling.
- **Reduced cleaning costs**  
Undoubtedly, cleaning costs will reduce thanks to drinks containers not being discarded and not quickly filling up bins.

### **Benefits for Students**

- **Raising Awareness**  
Better and reliable education.
- **Prepare Future Generations to a World of Sustainability**  
Students and Graduates will bring this concept forward as it applies to everything. The concept is much wider than 'recycling sustainability' on its own, it is a way of life.

## Local Authorities



The UK local authorities are responsible for the provision of an extensive range of services such as education, strategic planning and waste management and therefore have a vested interest in improving recycling for everyone.

With the UK Government supporting return deposit schemes, recyclever® reverse vending machines offer the ideal solution.

### Benefits to Local Authorities

- Supporting Green Initiatives  
Clean council's environment
- Encourages responsible recycling  
Increases quantity of waste collected and sent to be reused
- Reduced operational costs  
Less litter to be cleared
- Incentivise residents to recycle  
Possible connection to refuse collection fee
- Partnership with local retailers  
Cross incentives for citizens, and integration with the sustainability cycle



## Transport Hubs

Train, bus and tram stations along with airports, ferry ports and rapid transit stations see hundreds of people pass through them every day. This large volume of commuters leads to hundreds of single use plastic bottles and aluminium cans disposed of at these transport hubs.

An ideal opportunity to reduce waste and retain a tidy environment is by installing reverse vending machines, allowing everyone the opportunity to deposit their empty containers responsibly even when they're on the move.

### Benefits to Transport Hubs

- Retaining high-level of cleanliness  
Large volume of commuters creating lots of drinks containers
- Lower maintenance costs  
Compacting waste products and less litter to collect and dispose of
- Improve Health & Safety  
Less litter to cause potential health and safety issues
- Corporate Social Responsibility  
Transport companies are constantly reviewing their environmental impact. Reverse vending machines fulfil the requirement of their corporate social responsibility, delivering a positive message to their customer.

## Venues, Events and Attractions



Large events, venues and attractions all involve large numbers of people attending, all of which are hungry and thirsty customers.

Some organisers are now trying to turn to alternative methods of packaging visitors drinks, but wouldn't it be easier to just use reverse vending machines to recycle the waste into something new and useful?

### Benefits to Venues, Events & Attractions

- Green Credentials  
Gain and maintain a green image and comply to Corporate Social Responsibility policies of the organisation and its sponsors.
- Innovation  
Impress sponsors with an innovative approach and green planet credentials.
- Lower Clean-up Costs  
Less litter and reduced clearing up costs.
- Improve Health & Safety  
Less chance of health and safety issues arising from waste products littering the environment.
- Deliver a better consumer experience  
A nice, tidy, clean environment for everyone.

- Revenue Generating  
Charge a deposit on drinks containers and improve revenue from those who don't return their empty containers.
- Provide a Positive Message  
Sporting competition, health and well being with outdoor and leisure activities whilst maintaining an environmentally friendly image.
- Building and Maintaining Loyalty  
Offer a return reward and sell more from your own shops

# Facilities Management Companies



As the profession that encompasses multiple disciplines to ensure functionality, comfort, safety and efficiency of the built environment by integrating people, place, process and technology, Facility Management Teams are keen to embrace new innovative methods to deliver positive environmental results.

## Benefits to Facility Management Teams

- **Improved Health and Safety**  
Cleanness of a site is a crucial factor for health and safety. Drinks bottles and cans can become a hazard when they are left on the floor or discarded in racking or various other hidden places. Adopting reverse vending machines will help guarantee containers are all collected and compacted in a safe and clean location.
- **Clean Shop Floor**  
Waste plastic bottles and aluminium drinks cans disposed of responsibly will lead the way to maximum efficiency.
- **Lower Operational Costs & Less Bins**  
How quickly do your bins fill up and what's the cost of emptying them? It is time consuming and expensive to dispose of refuse and often containers are piled up near bins. recyclever® reverse vending machines come with a compactor that optimises the volume, so less time spent disposing of full bins.

- Sell more bottles from internal vending machines.  
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## New Technologies That Could Help Behavioural Change



Recycling levels are low therefore our individual behaviour must change – without or without a DRS.

In our every day's life we should often ask ourselves: “is this that I am doing sustainable? Could it be repeated without consuming the planet?”

The commuters of tomorrow that will consume drinks on the go are sitting at school today: that is where it should all begin.

We spend a large part of our life at work: employers should insist and train on responsible behaviour.

And what about our social experiences, with friends and families, during days out or at large events?

**Our behaviour will have to change, and will change.**

**How could this be facilitated? Make it fun, simple, engaging.**

Technology could certainly play a part. And there's plenty of ideas out there to build engagement when returning empty beverage containers:

- **Apps.** Reverse vending machines will manage large amount of data during their functioning and it could be quite easy to build an App-based consumer interaction. An APP could be issued by a scheme administrator, by a recycling company, by a beverage brand or by other independent business. The technology is ready to manage the flow of information's. Let's imagine:
  - Approach a Reverse vending machine
  - Just near your phone: the NFC sensor will dialogue instantly with the machine

- “Hello Jennifer” the machine will say
  - “You have bottles today? – Do you know Drink-X is 10% discounted today?”
  - Jennifer insert bottles
  - At the end “Thanks Jennifer for 3 cans and 7 bottles, you are credited 2.00 and you are eligible for an extra discount on Product-Y”
- **Loyalty Cards.** A similar journey to the above can be built, with an extra intersection to the material handling of the card in front of the machine and also at the till of the same store.

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