

**FINANCIAL INCENTIVES,
RESPONSIBILITY & INVOLVEMENT FOR BEHAVIOUR CHANGE
REGARDING WASTES MANAGEMENT**

Synthesis of a literature review

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FOREWORD

This document presents content, scientific experiments and facts that may disturb or confuse the reader. Each theory, statement or practice presented here does not necessarily reflect the views of Ecologic or its employees, nor those of Dr. Dimitri Naczaj, principal author.

The aim of this synthesis of a literature review is to provide a broad and comprehensive view of current multidisciplinary knowledge on the use of economic and psychological levers to change behaviour, with a particular focus on financial incentive, sense of responsibility and involvement. As a synthesis of a larger and broader document, this one does not provide scientific references nor bibliography. Those references are available in the complete version of the literature review. **If you are interested in reading the full literature review, please contact Robin Ronceray (rronceray@ecologic-france.com).**

Due to the imperfection of the scientific publication system, it is necessary to remain critical toward the studies here mentioned and to take into account the publication bias. Publication bias is the result of an over-representation in the scientific literature of studies that yield significant, positive results and validate the research hypotheses. Consequently, studies that do not provide significant results (on which one cannot reasonably conclude on the presence or absence of an effect of the variables tested) tend to be less published and are therefore under-represented in the scientific literature, artificially inflating the validity of the studied theories.

However, the author of this document developed it with these shortcomings in mind. Only studies that meet the standards of the scientific method (including the number of study participants, significance level, statistical power, and explanation of inclusion criteria in meta-analyses) were considered, and we ensured that none of our conclusions excluded potential alternative hypotheses that have not yet been tested.

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This document is the synthesis of a full literature review about incentives, responsabilisation and implication for waste-related behaviour change. To consult the full literature review, please contact Robin Ronceray (rroinceray@ecologic-france.com).

QUESTIONS OF THE PROBLEMATIC & ANSWERS

The problematic articulates our two research topics: financial incentives and the feeling of responsibility and involvement. Overall, we want to know whether financial incentives or penalties can be an effective way of motivating consumers, or more broadly, citizens to sort their electronic waste (smartphones in particular) and whether they do so to the detriment of the feeling of responsibility and involvement or whether, on the contrary, these three variables can be used as complementary levers.

Can financial incentives or penalties be a viable incentive to motivate WEEE recycling, and to what extent?

Scientific research shows that, under certain conditions, a financial incentive can be a good way to change behaviour and habits. It depends on how the financial incentive is presented and how long the campaign lasts. It is possible to conceptualise the financial incentive in terms of how it is administered. It can be a 'stick and carrot' model or a 'help and penalty' model. The stick and carrot model, as the name suggests, involves designating a behavioural goal and rewarding or punishing for achieving that goal. The incentive may provide a reward for the behaviour (money, benefit or other valuable object), or it may be built on a reverse model and impose a punishment if the goal is not achieved (e.g., fine, restriction). This kind of incentive can work, especially for money-related behaviours, such as production or performance behaviours (for employees or for sportsmen). On the other hand, some studies show insignificant or sometimes negative results, suggesting that this type of incentive is counterproductive in encouraging the adoption of pro-social behaviours (i.e., not governed by a financial exchange). For this type of behaviour, it is preferable to conceptualise the financial incentive differently, no longer as a reward, but as a support system enabling access and maintenance of the targeted behaviour. Presented in this way, the financial incentive allows for the stabilisation of the behaviour, and in some cases, turns the behaviour into a habit. It also means that the behaviour can be maintained even after the financial incentive is no longer applied. Initially, individuals agree to change their behaviour with some help. The repetition of this behaviour makes it a habit; and the nature of a habit is that it continues even if the individual no longer receives a reward for it.

What are the psychological effects of these financial incentives/penalties?

The psychological effects of financial incentives or penalties depend on how they are introduced.

A "carrot" tends to simplify the desired behaviour to an objective to be achieved, which can have the effect of distorting its meaning. For example: waste sorting, a civic and pro-environmental act that reduces the impact of waste, will potentially be perceived as a simple means of obtaining a reward if it is the object of a financial reward.

An aid will have less of a psychological effect and more of a mechanical action in facilitating behaviour. The motivation to obtain a reward is no longer the main driver if the incentive is not conditioned to any result or score, but presented as an enabler or a simple accompaniment to behavioural change.

What is the influence of a sense of responsibility for behaviour change in relation to WEEE recycling?

Sense of responsibility, along with involvement or feeling of involvement, is one of the most important variables defining behavioural change. There are only a small number of studies that have specifically looked at the influence of a sense of responsibility on attitude, behavioural intention and WEEE sorting behaviours (see Naczaj, 2018), but their results are conclusive. An individual having a strong sense of responsibility for their own e-waste, who knows its impact on the environment and why we need to collectively sort more, will have a stronger and more favourable attitude and behavioural intention towards e-waste sorting. Some papers suggest that this strong link still persists three months after the measurement of the sense of responsibility.

How do we create this feeling of responsibility or involvement?

There is no method for artificially increasing the feeling of responsibility or involvement. However, commitment paradigms, which are effective for behavioural change, are a good way forward. For some authors, the decision taken by freely committed individuals creates or reinforces their feeling of involvement in the cause being defended, and activates a sense of social responsibility. Individuals can also be involved by planning their behaviour. When they define the situation in which they plan to carry out the behaviour, they define all the variables they can control and, in so doing, become involved by committing themselves to carrying it out. Based on the same principles as commitment, the publication of behaviour planning confers a sense of responsibility on the individual.

Is it appropriate to contrast the concept of financial incentive/penalty with that of a sense of responsibility? If not, is it possible to establish a desirable balance between these two concepts?

To this day (2020), there is no scientific study testing the concept of financial incentive versus that of a feeling of responsibility or involvement. It would be possible to test the opposition of these three concepts, with financial incentive on the one hand and responsibility and involvement on the other. It seems realistic to think that setting a behavioural objective on which to base a financial reward would reduce the feeling of responsibility towards the problem, in that the notion of competition introduced would erase the ultimate aim of the behaviour. In other words, a financial incentive based on the number of electronic waste items returned could reduce the feeling of responsibility for the impact of e-waste on the environment, because the target would be set on the result and no longer on the environmental aspect of the behaviour. However, this is only a hypothesis.

Under certain conditions, it also seems possible to combine these three concepts in a same behavioural change campaign, via a paradigm of commitment and support through financial reward. Commitment would enable people to take responsibility and become involved, and support through financial rewards could act as a complementary incentive facilitating access to the behaviour.

PART 1 - FINANCIAL INCENTIVES

1. Understand financial incentives

a. Theoretical basis

The theoretical origins of financial incentives to change behaviour are based on the economic concept of decisional balance. For each situation, individuals would weigh up the pros and cons, enabling them to decide which behaviour to adopt. In a somewhat mechanical way, if outcome A brings more advantages than outcome B, then the individual is supposed to choose the former to the detriment of the latter. Based on this concept, inserting a financial variable weighing on one side of the scale would tip the balance in its favour, as long as the value offered in return is sufficient.

To understand the impact of a financial incentive campaign, it is also important to master some of the cognitive biases that guide the way we perceive things. Cognitive biases are errors of judgement that result from automatic processes that simplify information. Instead of processing all the information we perceive at any time, we have learned to develop heuristics, shortcuts that enable us to make decisions more quickly. A first bias at play in the reception of a financial incentive campaign is the anchoring effect, or the tendency to take the first available information (the "anchor point") as a reference point for judging subsequent information. The new price of the object to be recycled can create an anchor point from which the individual estimates the value of the proposed incentive. If it's a smartphone, which can initially cost more than a thousand euros, there's a good chance that the incentive will be perceived as too low. Other biases correspond to the feeling of ownership, such as loss aversion (given equal probabilities, we prefer to avoid the risk of losing what we own rather than having a chance of acquiring a second object of equivalent value) or the endowment effect (as soon as we own something, we overestimate its value). These two biases explain why it is sometimes difficult for certain individuals to part with objects that belong to them, even if it's a rubbish or unused item. Other biases play a more secondary but nonetheless important role, such as the effect of information framing or the reactive devaluation bias, both of which are related to the source of the information or the way in which it is presented. These cognitive biases are inevitably present, so they need to be taken into account when constructing financial incentive campaigns to try to circumvent them.

b. The different types of financial incentives

There are many ways of providing financial incentives for behavioural change. There are so many that we can create several categorisations.

Depending on the direction of the incentive

The primary variable of an incentive is its direction : the type of pressure it generates and the gain or loss it creates. There are three possible directions that an incentive can take: rewarding, penalising, or both. Reward can be based on the performance of an act or behaviour, but also on obtaining a score or achieving a goal. Penalties, in the form of fines, taxes or restrictions on privileges, are imposed in re-

turn for refusing to adopt the behaviour or for failing to achieve the goal set. Finally, there are also incentive systems that reward when the behaviour is adopted (or the score or goal achieved) and penalise if it is not.

Depending on the timing of the payment or penalty

In the case of financial rewards, the behaviour can be encouraged before it is carried out (when the reward is made to help the behaviour, for example), or once it has been carried out (when individuals are paid after taking part in a certain number of meetings in a rehabilitation programme, for example). In the case of financial penalties, the temporality is restricted: the penalty is applied once the behaviour has been measured; the same applies to mixed cases.

Depending on the object on which the incentive is based

Behaviour can first be encouraged by focusing the individual on their expected behaviour. In this case, achieving the targeted behaviour triggers the reward. In some situations, it is easier to index the reward to a behavioural proxy, an action that can lead to the desired behaviour. This is the case when rewards are offered to people suffering from addiction: they are encouraged to attend several meetings of the support programme, in the knowledge that attending these meetings increases the likelihood of their remission. The reward can also be indexed to a result following adoption of the behaviour. This is what we find in incentive pricing policies for household waste collection: it is not sorting behaviour that is at the forefront, but the weight of residual waste, based on the assumption that the more people sort, the lighter their household waste bins will be.

c. Two approaches to financial incentives

Depending on the timing of the payment and the purpose, the financial incentive will not be perceived in the same way and will not have the same psychological effects.

The stick and the carrot

When the financial incentive sets a goal to reach or transforms the behaviour into a rewarding challenge, we can easily talk about a carrot. Most of the studies carried out on this type of incentive suggest that they are not conducive to inter-individual cohesion and that the reward/punishment system tends to reward individuals who already have certain advantages over those who are punished, thus maintaining pre-existing inequalities. Studies in professional situations also show that financial incentives are correlated with the amount of work done, but not with its quality. This suggests that the 'carrot' motivates people to put in more effort until it is obtained, which is not conducive to long-term behavioural change, especially if the targeted behaviour is not performance-related. The same conclusions apply to the 'stick', which imposes a penalty if the target is not achieved.

Aid and penalties

A financial incentive can also be a means of helping to adopt the behaviour, or of facilitating it. Several experiments present financial incentives as an opportunity to change habits. One study in particular reports interesting results from young mothers exposed to an incentive campaign to buy and eat

more fruit and vegetables. The incentive was presented as an aid to consumption and not as a reward for a change in consumption. This configuration made it possible to anchor the behaviour in consumption habits, as the experimenters measured this behaviour even once the financial incentive had been stopped.

Other studies suggest that if the behaviour is to be sustained, the financial incentive should be designed to facilitate the adoption of the behaviour, while at the same time demonstrating the importance of the behaviour required, this importance being a persuasive element in motivating individuals to maintain it once the reward programme has ended.

2. The targeted behaviours

a. Market-norm behaviour

Behaviour governed by market norms is generally carried out in return for something (e.g., a salary, a reward, an exchange). Financial incentives to change this type of behaviour therefore seem appropriate, since they involve remunerating or penalising behaviour that is already subject to this type of exchange.

Overall, financial incentives can influence behaviour in the workplace, but they have little impact on performance. They can be effective in changing behaviour subject to market norms when they are indexed to the effort that enables performance to be increased. As far as the amount of the incentive or penalty is concerned, there is no need to think big: it seems that the incentive itself has the greatest influence, and not its sum nor its value. Finally, financial incentives can also have a negative impact on performance and behaviour when they create or accentuate a harmful pressure that can be detrimental to performance, or when, on the contrary, they lead individuals to overestimate their abilities.

b. Social-norm behaviour

These behaviours are governed by pro-social norms or strong values such as love, friendship, generosity, a sense of devotion or duty. Concern for the environment may also be one of these values. There are a multitude of studies on behaviours related to education (motivating learning, reading, writing), health (diet, addictions, medical recommendations) or the environment (preserving natural resources, saving energy and sorting waste). All these studies have produced widely divergent results, with no real regularity that would allow researchers to draw up the outlines of a solid theory. Financial incentives to motivate learning seem to work only if they reward the most concrete actions possible that lead to learning or reading more. For health-related behaviours, financial incentives can improve the adoption of new behaviours, but taxes on products which consumption we want to reduce (e.g. alcohol, tobacco, very fatty, sugary or salty foods) are what work best, their impact being more economic than psychological. Finally, for behaviour related to the environment, there are not enough studies to conclude that financial incentives are systematically effective, which seems to depend as much on the variables in the campaign as on the type of incentive or the object on which it is indexed.

3. Incentives and waste management

a. Incentive-based taxation & waste sorting

Incentive-based household waste collection taxes are systems of financial incentives partly indexed to the volume or weight of household waste, either sorted material or residual waste. In this last case, the objective measured (the weight of waste) differs from the stated behavioural objective, which is to encourage environmentally-friendly behaviour, so this is a specific type of incentive that makes it possible to overcome the difficulty of measuring the desired behaviour. Incentive pricing seems to work in France, as in other countries where this system exists. However, this success does come with some secondary behavioural effects inherent of the objective to be achieved. Since the bins have to weigh as little as possible, some people burn their rubbish, throw their bags in one neighbour's bin, or carry them along to work. These adaptive behaviours are frequent and logical when the incentive is indexed to a behavioural substitute.

b. WEEE sorting

As far as we know (2020), there are no field studies to conclude favourably on the actual effectiveness of financial incentives in changing behaviour relating to the sorting of WEEE. All the articles on the subject come to conclusions based on the study of declarative measures: intention to change behaviour or intention to act in response to a financial incentive. If we stick to these measures, incentives do motivate individuals to declare that they would sort and recycle more of their electronic waste if they were ever led to participate in such a system. Some researchers are proposing the idea of adapting a points system in exchange for collecting electronic waste. These points could then be used as purchase vouchers for new or reconditioned electronic products, so as to create a consumption cycle in which the recycling behaviour of electronic waste facilitates its renewal. However, the authors proposing this system have not tested it, and it comes from a programme adapted to waste sorting in Asia, which offers food discounts in exchange for these said points.

4. Conclusions on the theory

All the articles consulted (up to 2020) suggest that providing incentives through taxation or financial rewards could be effective in improving waste sorting and recycling, particularly that of WEEE. However, it should be borne in mind that, to date (2020), no article has provided results on behavioural measures relating to the sorting of WEEE; we have no scientific proof of actual effectiveness of such a process on behaviour. To conclude, we need to set up – and then reproduce – an experimental financial incentive campaign in order to eventually obtain stable and generalizable results.

Here is some information, coherent with studies on incentives:

- It would seem preferable to focus the financial incentive campaign on sorting behaviour, which requires reward rather than taxation.

- The campaign should not be limited to financial incentives, but should be accompanied by other psychological levers such as social norms, proposing arguments that can use or respond to environmental concerns, creating a habit through the repetition of sorting behaviour, and facilitating the act of sorting.
- It also seems more effective to use financial incentives in such a way that obtaining a reward is not the main aim driving behavioural change, but rather that the reward is an aid to change. If it is an aid to trigger change and allow the habit to take hold, it is likely that the behaviour will persist once the incentive system has been stopped.

5. To prepare an incentive campaign

a. Defining the main variables

Behaviour, type of incentive and target public

First, we need to study the current behaviour we want to change and then define the target behaviour. This stage enables us to understand the situation by establishing a fairly broad overview of the target population, its habits and the variables affected by the two behaviours under study.

Next, we need to define the measures to gauge the adoption of the new behaviour, to know what direction to give to the financial incentive. The incentive can be indexed and measured on an act (e.g., recycling an object), on a result (e.g., the tonnage recycled in a certain period of time) or on a substitute for the behaviour (e.g., a certain number of vouchers issued for each recycling of an object, or the weight of household waste). Once these basic parameters have been established, it is necessary to define the population that will benefit from the reward or be targeted by the penalty; it is not necessarily the population that is subject to the change in behaviour. For example, it is possible to donate something to charity for someone else's electronic disposal.

Financial variables

First of all, we need to decide the direction of the financial incentive: is it a reward, a penalty, or both? As a general rule, it is the behaviour and the possibilities of measurement that define the direction of the incentive. Secondly, the value of the incentive: do we prefer to reward a sum of money or something else? If it's a sum of money, how much? No study draws definitive conclusions about the amount: the safest thing to do is to experiment with different sums depending on the resources available and measures of acceptance in the field, and then carry out pre-tests.

If we want the new behaviour to be adopted and become a habit, it is advised to conceive of the incentive as assistance over a sufficiently long period for a habit to form, and not as a simple reward. A reward that enables access to the behaviour, or accompanies it, seems to be effective on the long run. If the incentive is based on a penalty system, it is first necessary to estimate a reasonable level of taxation which is acceptable to the target audience, with the primary aim of not generating reactance (a defense mechanism used to maintain freedom of action). To do this, we also need to measure the ac-

ceptability of such a penalty or tax, then test it in the field, while producing the necessary communication to ensure that it is understood by everyone.

b. Measuring the acceptability of financial incentives

Once the main variables have been defined, the acceptability of the financial incentive to the general public, and not just to the individuals concerned, should be tested, specifically for major campaigns, those that produce a change in rules, or legislation. This measure of acceptability should reflect the overall attitude towards the incentive campaign, the target audience, the direction and terms of the incentive, the behavioural objective, the scale of the campaign and the source of the funds.

c. Build the campaign

If it turns out that the incentive is acceptable to a large population, the next step is to build the communication campaign that will promote the incentive.

At the same time, it is essential to question the ethical and moral aspects of the incentive campaign. Particularly with regard to the fairness of the rewards or penalties: aren't we penalising people who are already more penalised because of their economic or social situation? What image are we sending out by proposing to reward or tax in order to change behaviour? We also need to question the notion of the autonomy of populations that could become dependent on incentives payments and the responsibility of having to abolish the payment when the campaign comes to an end. This notion of dependence necessarily implies a notion of extortion of the target behaviour and the commodification of behaviour that may initially be governed by social norms and therefore not subject to exchange in return for payment. Will the campaign change these conceptions?

Once the ethical issues have been validated and the measures of acceptability seem positive, the incentive campaign can then be launched.

PART 2 - SENSE OF RESPONSIBILITY & INVOLVEMENT

1. Understanding responsibility and involvement

a. Definitions

Responsibility: psychological state reflecting an individual's real or imagined proximity to an issue or its consequences; this state testifies to the importance of the issue and the individual's obligations towards it.

Implication: personal coherence, meaning or the consequences that an individual feels for an issue.

b. Theoretical models

Two theoretical models incorporate the notions of a feeling of responsibility and involvement, which lead us to understand them through field analysis. The first is ELM and the second is social judgement theory.

Elaboration Likelihood Model

The elaboration likelihood model is a schematisation of the process of analysing any persuasive message. Based on cognitive and other situation-dependent components, the model determines the impact of a persuasive message on attitude change according to whether the message is processed in depth (called "central route") or superficially (called "peripheral route"). Situational components include distraction (the more people are distracted by their environment, the less they pay attention to the core arguments of the message), message comprehension and message clarity (the easier, the more closely it will be analysed). The cognitive components include, among others, the need for cognition (characterised by the pleasure of engaging in complex activities), the personal relevance of the message and the feeling of responsibility for the subject. The model suggests that the stronger these components, the more likely the individual will take a central route to read the message and its arguments. As a general rule, the central route, consisting of analysing "central" elements (mainly the arguments) leads to a stable and lasting reinforcement or change in attitude. Conversely, undertaking the peripheral route, consisting of analysing so-called "peripheral" elements (such as the apparent length of the message, the source or number of arguments, etc.), can lead to a temporary and low-intensity change in attitude, or no change at all.

Social Judgment Theory

Social judgement theory views the dynamics of persuasion in terms of the acceptability of arguments. This theory proposes three latitudes that define the extent to which we find arguments acceptable (plausible, realistic, effective) or unacceptable (implausible, extreme or impossible) or as lacking in interest, relevance or meaning. Involvement plays an important role here: it is one of the variables that modulate the size of these three latitudes. The greater the individual's involvement with the issue, the lower the latitude of acceptance, thus reducing the likelihood that they will accept the argu-

ment and allow themselves to be persuaded. Unlike ELM, social judgement theory defines involvement as a variable that reduces the likelihood of persuasion, unless the argument is very good, relevant and forceful.

c. Personal involvement

Personal involvement has been the subject of a great deal of scientific research. There are several dimensions, types or axes along which an individual can feel involved. When a situation changes, modifying the daily life, habits or life of individuals, they find themselves involved. This involvement is results-based. When a message highlights values that are specific to the individual (e.g., freedom, independence, respect for the environment), the latter will also feel involved, concerned by what the message is saying. This is another type of involvement, this time based on values. The last type of involvement concerns the social norm and the individual's attitude. If they are asked to give their opinion, there is a good chance that they will be judged against the norm, which will make them feel involved. This is an involvement based on impressions.

It is also possible to categorise involvement according to its psychological dynamics: it may be emotional or cognitive. We talk of emotional involvement when it is triggered by values or feelings. On the other hand, when driven by a practical or utilitarian notion, involvement is then cognitive.

Whatever the categorisation, the type of involvement or what it is based on, it is more important to study involvement regarding the situation and behavioural expectations, because, as a general rule, the involvement of individuals influences, sometimes greatly, the dynamics of change in attitude, behavioural intentions and behaviours. The adoption of the expected behaviour is very often linked, if not predicted, by the individual's feeling of involvement with the issue.

d. Sense of responsibility

A sense of responsibility is defined as a psychological construct reflecting the extent to which individuals feel able and obliged to take action to achieve a desired outcome. This definition implies three things. First, there is a sense of obligation to achieve a result that lays on the shoulders of the individual feeling responsible. Then, this notion of responsibility contains an expectation; it is forward-looking. It is not a question of blaming past behaviour, but rather making people feel the weight of responsibility for shaping future behaviour. Finally, such a definition assumes that the individual believes in the impact of his or her own behaviour on the problem. In other words, an individual will only feel a sense of responsibility towards waste recycling, for example, if they believe that their behaviour, possibly adopted by others, can have an impact on the environmental objective that encompasses the recycling issue.

There are few conclusive studies on the role of the feeling of responsibility in persuasive dynamics, but they seem unanimous: the more individuals perceive themselves as having a responsibility in the issue addressed, the more favourable their attitude is towards this issue. This persuasive dynamic even seems to be independent of the quality of the argumentation, which is new in this field of re-

search. Finally, this link between the feeling of responsibility and attitude seems stable, since it was observed more than three months after the first measurements.

2. How to influence the sense of responsibility and involvement

a. Commitment theory

Commitment consists of obtaining an initial behaviour from an individual that signals his or her approval or intention to adopt the targeted behaviour. Kiesler (1971) defined commitment as a psychological lever linking the individual to his actions. Joules and Beauvois (1998) have completed the theory with conditions for obtaining commitment: an act is committing if it comes from an individual's internal will, it must be public, explicit, repeated or irrevocable, and it must be carried out in a context of freedom. For some researchers, commitment necessarily creates involvement. Consequently, getting an individual to make a commitment by means of a commitment paradigm is likely to generate his or her commitment to what he or she has committed to. With regard to the link between responsibility and commitment, some researchers believe that it lies at the very heart of the theory, since the free-choice condition necessary for commitment guarantees the individual's responsibility when making decisions. Commitment increases the feeling of responsibility by creating an internal link between the individual and the act of committing oneself. This is the difference with incentives approaches which will enhance extrinsic (external) motivators, where commitment will generate intrinsic (internal) motivation, said to be more effective for lasting behaviour change.

b. The theory of planned behaviour

Like commitment paradigms, the theory of planned behaviour incorporates involvement and a sense of responsibility as intrinsic variables. When individuals plan their behaviour, they become involved and take responsibility for their future actions and the circumstances in which they undertake to carry out the behaviour. According to the theory, getting an individual to plan a behaviour should be enough to arouse a sense of responsibility and involvement.

c. The dilution of responsibility in group

In some situations, the feeling of responsibility already exists and its reduction must be limited. The phenomenon of a dilution of responsibility occurs within groups in which individuality is submerged behind the collective. While this can have good consequences, there is a more negative one: some individuals can lose some sense of responsibility and thus rely on others to make the efforts expected of them. If we extrapolate this principle, individuals who feel part of a group could see their sense of responsibility towards a norm diminish and thus reduce pro-social behaviour, such as sorting waste, for example.

Various studies suggest that the feeling of responsibility can be diluted if the consequences of an individual's behaviour blend into the mass of other people's behaviour. To avoid this phenomenon, we need to limit situations of "social loafing", of blame sharing and of de-individualisation, or we would

have to find a way to maintain the weight of responsibility on each individual, either by showing them the impact of their own behaviour, or by holding them accountable individually.

GLOSSARY

Anchoring: cognitive bias reflecting our tendency to use the first available information to judge all subsequent information. To estimate the value of an electric bike, assuming we have no knowledge of the subject, we will tend to rely on the price of a friend's bike, the first piece of information available, to judge the other information. We might judge all the cheaper bikes as being of poorer quality, and the more expensive bikes as being better.

Loss aversion: given equal likelihood, we prefer to avoid the risk of losing what we own rather than having the chance to acquire something of equivalent value. Loss aversion is an important cognitive bias when it comes to understanding the mechanisms involved in collecting wastes that still hold value in the owner's eyes.

Cognitive bias: errors of judgement resulting from an attempt to simplify information. Instead of processing all the information we receive at any given moment (everything we see, hear, touch, etc.), we have learned to simplify it all and base our decisions on heuristics and shortcuts. While this works most of the time, certain types of shortcut sometimes lead us to make poor decisions and bad judgements, as per economical standards. These are known as thinking biases or cognitive biases.

Decision-making balance: metaphor for the internal decision-making system used by individuals to set an opinion, an intention or a behaviour in relation to the situation being analysed. This balance is used to weigh up the pressures that encourage and inhibit behaviour, commonly referred to as the pros and cons.

Secondary behavioural effects: unexpected but logical behaviours carried out as a result of a financial incentive or other behavioural change paradigm. If you offer children something in return for them reading more, say a free pizza for every ten books they read, chances are it will work, but it will generate secondary behavioural effects. Children could, for example, try to read the same books several times, or very simple books, or ask their parents to read the books to them. In that way, they can achieve the ten-book target, albeit with a little cheating. Reading would then be no more than a means of obtaining the reward.

Commitment: free and voluntary decision-making. In social psychology, the commitment paradigm consists of getting an individual to perform an initial engaging act, which should increase the likelihood that the inherent behaviour will subsequently be adopted. It's a kind of first step towards adopting a new behaviour or decision, involving the individuals as actors of the process of behaviour change, instead of having them being mere recipient of the communication.

Involvement: a personal coherence, a meaning or the consequences that an individual feels about something. It is a form of attachment to events linked to a theme, or an attachment to the theme itself.

Motivation: this is a reason that drives an individual to make a decision or perform a behaviour. In social psychology, motivation refers to the determinants, either internal or external to the individual, that drive the adoption of behaviours and any related cognitive activity.

Sense of responsibility: a psychological state reflecting an individual's real or imagined proximity to a problem or its consequences; this state reflects the importance of the problem and the individual's obligations towards it.