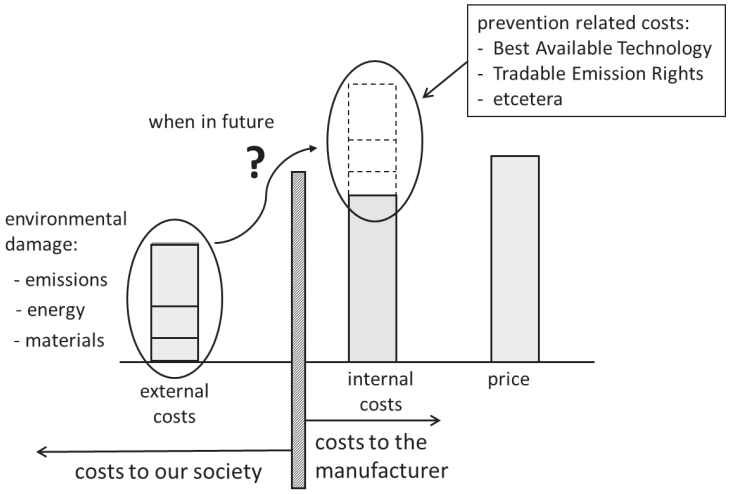
From: book Eco-effcicient Value Creation, Section 3:
"Eco-costs = the financial business risk of non-compliance with future regulations"

1.3 The Three Stakeholders Model and prevention costs

Companies are facing the slow but inevitable 'internalisation' of environmental costs. Internalisation means that the damage costs of pollution of products are to be transferred to the internal costs of the manufacturer. At this moment the manufacturing costs do not cover the environmental damage which is caused by the production, use and end-of-life of a product. This "pollution is for free" mentality of companies is less and less accepted by the society in general.
The trend of internalization is slow but relentless. It is depicted in Fig. 1.3

Figure 1.3

Environmental burden will gradually become internal costs as a consequence of governmental regulations; the question is not if but when



It is important to understand the main mechanism behind this trend towards a (more) sustainable society. What is the main driver behind the internalization of the external damage costs, and what are the strategic consequences for companies?
More in general: what mechanisms in society make that we have progress in the field of sustainability and what mechanisms seem to fail to have a major contribution so far?

The three stakeholders model [1, Appendix 8] has been developed to describe and understand the interaction between customers/citizens[1], governments and companies on the road towards sustainability. See Fig. 1.4.

[1] In the model of this book every individual has both sides: the behaviour as a consumer and the social responsibility as a citizen. Consumers tend to behave as individualists triggered by modern marketing, looking for the best quality/price ratio at the moment of a purchase in a shop. As citizens people have a more conscious and responsible attitude, and have a more long term view, thinking about the future. The EVR model is based on a combination of two paradigms of Appendix X: the individualistic paradigm and a democratic-hierarchical paradigm of sustainability.

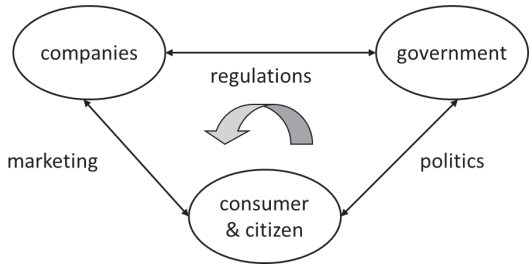


Figure 1.4

The three stakeholders model

In the transition towards sustainability, each of the three stakeholders has to play its own role:

- the people (as consumers and as citizens) have to shift their expenditures towards a lower eco-cost per euro spent money (a lower EVR), i.e. they should transform their consumption pattern towards 'green' products and services
- the companies have to create product-service combinations with a lower eco-burden and higher value, i.e. they should offer attractive 'green' solutions to the market
- the governments have to create regulations and new systems for tax, subsidies and Tradable Emission Rights, i.e. they should create a business environment which gives 'green' solutions a fair chance in competition with the current products and services ("level the playing field")

It is obvious that, when one of the stakeholders fails to play the right role, the transition towards sustainability will not happen. What triggers each of the stakeholders of the system to go in the right direction? Who triggers the transition process?

The key to the solution of the problem is to realize (and accept) that the instinct of the vast majority of consumers is individualistic, reacting instantly and in the short term to offerings on the market. In a shop, the vast majority of consumers is not prepared to pay more for the fact that a product is sustainable, because of two reasons:

- they tend to think only about short term benefits at the moment of the purchase; a long term, complex, and 'far-away' issue like sustainability is not part of the rather impulsive and intuitive buying process
- even when they think about sustainability, most people are not altruistic: they are not prepared to pay extra when other people don't

However, each consumer is a citizen as well. The citizen realises at home that sustainability is a long term issue. Most people have the opinion that Mother Nature must be preserved for our children and grandchildren. Since this is considered as a long term, global issue, citizens think that they should act together in a well-coordinated way.

This leads to a **counter clockwise** direction of interactions in the triangle of Fig. 1.4:

- the citizens are interacting with their governments via politics: citizens want to have a sustainable future; they are aware of the fact that the required transition can only succeed when we put our shoulders under it together, and therefore ask the government to take action
- the government is interacting with the companies: governments take actions via regulations, taxes, subsidies, agreements with business sectors (Dutch: convenant), etc., and force companies to react; companies accept governmental measures, as long as there is a 'level playing field ' (= all companies have the same restrictions)
- companies are interacting with consumers: companies try to offer consumers 'best quality for money' and gain market share by satisfying the (short term) customer (individual) needs

In this way, the customer can buy what is on the shelf. There is no need to bother at that moment about sustainability. The consumer knows also that there are no 'free riders'. In the last two decennia, the main environmental progress has been made by this mechanism: only when governments do something, companies do act[2].
In some business areas, industry is acting pro-actively (instead of reactively), for instance in the automotive industry. In those areas, one is trying to gain a competitive edge by being the first to meet future governmental standards.

A consequence of the described 'counter clockwise' mechanism of Fig. 1.4 is that the 'external environmental damage' in Fig. 1.3 will be transferred to the companies in an *indirect* way. It is not expected that companies will have to pay for the damage caused by their products, but it is expected that they are forced to comply with stricter regulations (e.g. applying the Best Available Technology, BATNEC) or are forced to reduce emissions in an indirect way (e.g. by a system of Tradable Emission Rights, TAR). **So the external damage costs are 'internalized' by adding prevention costs on top of the existing, internal, costs of the manufacturer.**
When the total emissions of the society become below the no-effect-level[3] by prevention measures, the mechanism of internalization will stop. The 'eco-costs' are the marginal prevention costs of the most expensive measures to achieve this no-effect-level in the most efficient way. These eco-costs are currently for the manufacturer the 'costs of future non-compliance with sustainability' (future BATNEC and/or TAR costs). Eco-costs can be considered as 'hidden obligations' to our society: when all companies take preventive measures up to the level of the eco-costs, the pollution problem is expected to be solved. For a further description of eco-costs (as a single

[2] Apart from sustainable market niche players, and apart from the results of Total Quality Management type projects where reduction of cost goes often hand-in-hand with reduction of eco-costs. Both, however, have a quite limited contribution to the big transition which is required.

[3] The no-effect-level of CO_2 emissions is the level where the emissions and the natural absorption of the earth are in equilibrium again at a maximum temperature rise of 2 ^{0}C. The no-effect-level of a toxic emission is the level where the concentration in nature is below the toxicity threshold (most natural toxic substances have a toxicity threshold, below which they might even have a beneficial effect), or below the natural background level. For Human toxicity the no-observable-adverse-effect-level is used.

indicator for Life Cycle Assessment, LCA), and the way the eco-costs are calculated from the prevention costs curves, see Appendix I.

The strategic relevance of the aforementioned mechanism is that products with a high eco-burden will have the risk, in future, that the total costs are getting higher than the price. The profit margin will vanish then, and such a product will disappear from the market, see Fig. 1.3.
When a company reduces the eco-burden of its products pro-actively, it will reduce its eco-costs. Such a company has a better competitive position in future.

So the three stakeholder model has a high relevance in relation to the design of products, and business strategies. It explains the meaning of eco-costs in terms of practical consequences for business people.

The **clockwise** direction in the three stakeholder model of Fig. 1.4 (changing the consumer - business relationship) is the dream of most environmentalists. However, the required shift of buying behaviour didn't seem to happen for the majority of consumers so far for the aforementioned reasons (the short term benefit buying behaviour, and the lack of altruism).
So the impact of the clockwise direction on the progress of a transition to a sustainable society tends to remain quite limited:

- Willingness to Pay.
  Only a small market niche of people (3%-6%), buys a 'green' product at a more than 10% higher price. It seems extremely difficult to convince more people that they should buy 'green' even when the price is higher.
- Boycotting.
  In some exceptional situations, pressure groups have been able to trigger consumer boycotting actions, which forced companies to shift their environmental policy (e.g. Shell in the case of the Brent Spar; some products of Sainsbury). This can happen only under special conditions [4, page 133, footnote 42], and therefore cannot be regarded as the standard road towards sustainability.
- Reputational Risk.
  An important mechanism, which will probably gain more importance in the near future, is related to the powerful communication opportunities of internet (Twitter, YouTube, etc.). Companies are aware of the impact which social media can have on their image. They are aware of the risk of damage to their brand names if their behaviour is unsustainable. The fear for that risk is driving many big companies to more environmental care.
  Note: There is a difference between boycotting and the mechanism of reputation damage. In the case of boycotting, buyers are asked to change their buying behaviour. In the case of the mechanism of reputation risk, companies are asked to change their unsustainable behaviour.

- Green Labelling and brand image.
  Green labelling is an attempt to influence the green buying behaviour of the customer. It should work in situations where the price of the standard and the green product is the same. This situation is described by the 'double filter model' (see Section 8.1): when the customer cannot decide on basis of quality/price ratio, the sustainability issue will help to make the final choice. In the current practice, however, green labelling is not very successful yet. The reason is threefold:
  - market players seem to be unwilling to agree on standards for green labelling, which results in a wide variety of labels
  - consumers distrust labels since they think that green labels are used by companies for 'green-washing' of their products[4]
  - consumers distrust the quality of the product when a green product has the same price as the standard products ("the extra costs to make a product green must have been compensated by less quality")[4]

  Enhancing the corporate image or sector wide brand reputation[5] with regard to sustainability seems to be a more promising strategy to promote green market segments, than labelling of individual products.

The conclusion is that there seems to be no simple solution for a quick jump into sustainable product markets just by introducing 'green value'. The road towards a sustainable future seems to be more complex.

The transition towards a circular economy will certainly help to resolve the problem of materials scarcity as well as environmental pollution. The issue, however, is not that such a transition can resolve the problem, the issue is how to accomplish such a transition. The issue is not that we need new, innovative, products and business models (everybody will agree on that), but the issue is how to design and implement them.
The model of the Eco-costs/Value Ratio tries to unravel the complex relationships between eco-costs and value, and tries to provide solutions for the design and marketing of products. This book provides many practical examples, starting with relative simple design cases, and ending with complex strategic issues.

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[4] Two quick-and-dirty enquiries under approximate 300 bachelor students (by raising hands in a lecture on sustainability) indicated the following:
At the question "suppose you see two identical Diesel trousers in a shop, the same price, who takes the product with the green label", only 50% would take the trouser with the green label, 25% don't do that because they distrust labels (and therefor boycott it), and 25% don't do that because they don't trust the quality of green products.
When the above question is changed by adding "……. and assume that you are sure that the quality is the same, and you trust the sustainability claim", nearly 100% respondents take the product with the green label. At a 5% higher price, only 50% will still buy the green product. At 10% higher price less than 4 % buyers are left.

[5] Examples of successful brand labelling are FSC wood, MSC fish, and UTZ coffee. The key to success seems to be a sector wide approach, where several leading companies in the product chain and NGOs work together to create a credible solution