

The Business Case for True Pricing

Why you will benefit from measuring, monetizing and improving your impact.

A report drafted by True Price, Deloitte, EY and PwC

SECOND EDITION
Including new cases on monetization



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True Price is a social enterprise that aims to contribute to a circular and inclusive economy that creates value for all people by providing the information needed for such an economy. True Price helps organizations - multinationals, SMEs, NGOs, governments - quantify, value and improve their economic, environmental and social impacts. True Price works directly with organizations by providing research services. In addition, True Price enables organizations to measure their impact through a multi-stakeholder platform that develops open source methods for impact measurement that are relevant, sound and inclusive.

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Foreword

We are part of truly exciting, yet unsure times. Collective interests of the many stakeholders facing relentless environmental and social challenges make it inevitable that current externalities will ultimately be internalized by organizations and markets. Costs and benefits to society become costs and benefits of companies. Combined with increasing demands for transparency, this poses both risks and opportunities. Companies face a tipping point; they must invest in business models that foster integrated long term value creation, but their actions are still not trusted by stakeholders. This is why measuring, monetizing and managing externalities is becoming increasingly important. True pricing is a new business methodology that makes it possible to better measure and manage these externalities. Ultimately, it allows companies to restore trust and retain their licenses to operate.

True Pricing is a growing trend. Deloitte, EY, PwC and True Price have compiled this report on the business case for true pricing. You will read about the tremendous opportunities which monetizing externalities presents. The case studies illustrate how organisations can use monetization to step up their management of externalities. This report is a living document; as more and more organisations adopt true pricing, the business case expands. I look forward to your responses and invite you to become our partner for this inevitable business case.

Herman Mulder
Chairman True Price

About the report

This report is the result of a public consultation period. Experts and professionals have provided input on a consultation draft of the report, through interviews and an online consultation form. All input has been processed and the text was edited for a final version of the report. True Price, Deloitte, EY and PwC would like to thank Eva Zabey, Dorothy Maxwell, Holly Dublin, James Spurgeon, Lobke Vlaming, Han de Groot, Herman Wijffels and Alexander Rinnooy Kan for their expert input. Also, the authors would like to thank the following persons for their contribution to the case studies in the report: Reiner Grimbergen, DSM Leaders for Nature team (DSM), Kristina Ullrich (Hivos), Rashila Kerai (Holcim), Michael Beutler (Kering), Martijn van Noort (ProRail), Inge Dijkstra (Randstad HR Solutions), Michel Washer and Dominique Debecker (Solvay). We wish you a good read.

Feel free to share your ideas and join the conversation on true pricing at www.trueprice.org.

Executive summary: The business case for engaging in true pricing

Resource scarcity, population growth, economic development, lower transaction costs and more effective regulation: companies face a 'new normal'. Impacts upon society that arise outside of the market – externalities – are growing, and yet companies simultaneously face the prospects that they must internalize such externalities at higher rates than ever before. For example, the mining industry has increased spending on water by 250% from \$3,4bn in 2009 to \$12bn in 2013 (GWI, 2014) and the average annual increase in minimum wages in China in 2011-2015 is 13% (China Briefing, 2014). As a consequence, factors that previously were not priced, such as water or underpayment, are increasingly priced and impacting companies' bottom lines. Organisations can anticipate and stay ahead of this trend by engaging in *true pricing*. True pricing is the monetary valuation of social and environmental externalities. It is a new framework that leverages new technologies, which allows organisations to quantify their societal impacts. Such information and knowledge enhances decision-making (Chapter 3) throughout an organisation in areas of risk management (Chapter 4), innovation (Chapter 5), reputation (Chapter 6) and strategy (Chapter 7).

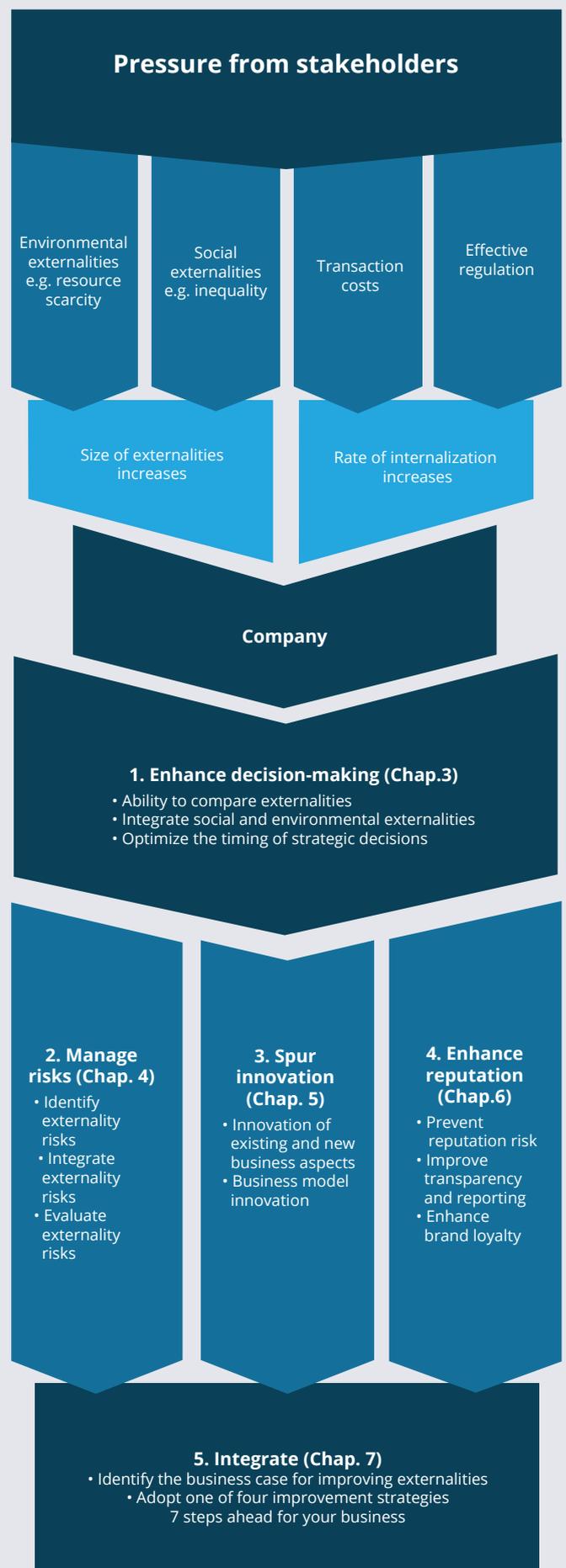


Figure 1 The business case for engaging in true pricing

Enhance decision-making in business

The monetization of social and environmental externalities leads to better decisions.

- **Quantify social and environmental externalities and integrate them into business decisions**

Monetizing helps companies to move from qualitative and subjective to quantitative and objective decisions. Monetizing helps companies weigh the effect of social and environmental externalities vis-à-vis other profit drivers, by (i) expressing these externalities in a single unit, (ii) using for this unit the currency of business (money) and (iii) integrating them in common metrics, e.g. prices, profits and returns.

- **Compare externalities**

Integrating social and environmental impact data in a single metric helps companies to compare and rank different sets of externalities.

- **Optimize the timing of decisions**

By measuring the effect of improving externalities on their future cost curves, companies can determine strategies they can best adopt to address externalities, increasing their abilities to reduce negative and enhance positive impacts.

Mitigate externality risks

Quantifying social and environmental externalities enables companies to better identify, integrate and evaluate risks.

- **Identify externality risks**

Some risks associated with social or environmental externalities are not yet apparent in the current business context. By evaluating externalities, companies can identify potential new or overlooked risks that are or will become relevant in the near future.

- **Integrate externality risks**

Monetizing can improve risk assessment because it allows companies to better classify and prioritize risks. They are expected to be in a better position to choose which risks to

mitigate and thereby likely to better anticipate potential externality risks.

- **Evaluate externality risks**

Current risk management frameworks often do not include externality risks. By attaching a financial value to the impact of externality risks, such risks can be integrated into decisions as to which risks to mitigate at what moment in time. This helps companies to address material risks in the most optimal manner.

Spur innovation

Monetizing social and environmental externalities can be a driver of, and opportunity for, innovation.

- **Innovation of existing and new business aspects**

Monetizing can help companies to focus innovation on business aspects that most benefit from improvements in social and environmental impacts. This can be innovation in existing or new products, services, technologies, processes and supply chains.

- **Business model innovation**

Monetization can be a driver for developing innovative business models that improve externalities.

Enhance Reputation

Better insight in the monetary value of societal impact can improve reputation.

- **Prevent reputation risk**

Measuring and monetizing material impacts quantitatively within a company enables companies to safely make partial or qualitative claims externally about their sustainable performance.

- **Improve transparency and reporting**

Monetizing has the potential to help consumers compare the social and environmental performance of brands based on standardized information. Monetized data can also serve as the basis for integrated reporting. This enhanced transparency should attract investors with longer-term horizons and in-

vestors interested in the societal impacts of their investments. In addition, companies can clearly communicate the effects of interventions to improve impacts, increasing stakeholder trust.

- **Enhance brand loyalty**

More objective information may lead stakeholders to perceive brands associated with improving societal impacts as more attractive than conventional brands. Companies that use true pricing could increase brand loyalty by showing stakeholders how they are addressing externalities over time.

Optimize Strategy

Monetizing impact helps to identify the business case to improve impact and optimize strategic timing.

- **Identify the business case**

After quantifying all impacts, companies can map investment opportunities that improve impacts and provide positive returns on impact.

- **Adopt an improvement strategy**

Once companies have evaluated the business case for improving externalities, they can adopt one of three improvement strategies depending on the internal and external context. Through monetization, companies can calculate the effect and timing of multiple actions upon their future cost curves and thus optimize strategic choices as to which impacts to improve, and when.

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Chapter 1

The 'new normal': Radical changes in what is priced

Commodity prices have more than doubled in the past decade¹, corporate investments in water are expected to rise by 60% in the coming five years², eight new carbon markets opened in 2013 and China announced a carbon trading scheme.³ BP almost went bankrupt due to the environmental fall out of its Gulf spill (see Box 1), the Bangladesh and Rana Plaza disaster has been costly to apparel brands⁴ and private sector wage growth in China was 14% in 2012⁵. At the same time, brands and products that are perceived to be responsible and sustainable are commanding higher premia than before.⁶ In the 'new normal', costs and benefits to society become costs and benefits to organisations. So-called externalities become internalized (see Box 2 for definitions). Costs and benefits that previously had no price are now getting priced. This chapter will elaborate on this dynamic and the factors related to it.

Box 1 BP's costs related to the oil spill in the Gulf of Mexico

In July 2013, BP revealed that the costs for the Gulf of Mexico disaster were set to rise well above \$42.4 billion. These costs included response and clean-up, criminal penalties, natural resources damages, Clean Water Act penalties, Gulf Coast Claims Facility and other actions. Repercussions include a fall in share price, suspension of dividend payments and demand from investors for extra yield to hold the company's bonds, which drives up borrowing costs. The BP oil spill also shows that investors should be concerned by the externality risk exposure of their investments. For instance, The Norwegian Government Pension Fund Global lost more than € 1 billion (US\$ 1,4 billion) on its 1,75% stake in BP.

References: MSCI Research Bulletin (2010); The Financial Times (2011); UNEP Finance Initiative (2011); The Guardian (2013).

Box 2 Definitions

Externality: a side effect of market behaviour on a person that was not agreed to by that person. This can be a problem, because the effect is of-

ten not reflected in market prices. For example: if an organisation extracts water from a local aquifer, that reduces the amount of water available to other business and the local population. If water is not priced, this can lead to the depletion of scarce resources and pollution, but also to many missed opportunities.

Internalization: the process by which the costs or benefits to society become a private cost or benefit to an organisation. Internalization can take the form of regulation, taxation, scarcity or consumer preferences. Note that internalization means that an organisation pays for the societal costs (in case of a negative externality), but not necessarily that the damage is repaired or that the injured party is compensated. For instance, a CO₂ tax does not mean that CO₂ is taken out of the air. Also, it does not mean that companies pay for the full externality of CO₂ emitted in the air now and in the past, for example current carbon taxes and cap-and-trade mechanisms do not capture the full internalisation of costs.

Monetization: attaching a financial value to social and environmental impacts. This goes a step further than quantifying impacts, because it translates impacts into currency, the common language used in business.

1.1 The internalization of externalities

There are two factors that cause an increase in externalities to be internalized. First, the size of externalities is growing due to resource scarcity and population growth. Second, the rate of internalization is increasing due to lower transaction costs⁷, consumer demand for sustainable products and more effective regulation. Figure 2 provides an overview of the factors that increase the amount of internalized externalities.

1.1.1 The size of externalities is increasing

The size of externalities is driven by both environmental and social externalities. One of the

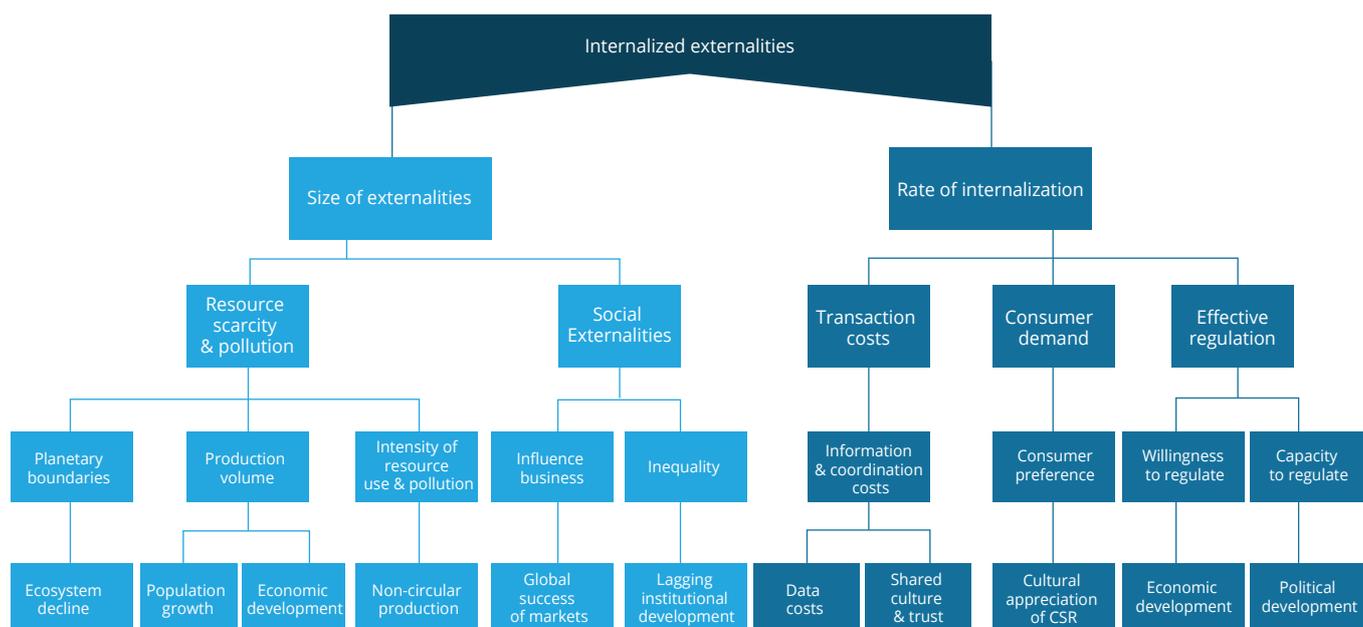


Figure 2 Factors behind the increase of internalized externalities

key factors behind increasing environmental externalities is planetary boundaries. Humanity has already passed three out of the nine boundaries beyond safe thresholds: climate change, the rate of biodiversity loss, and the rate of interference with the nitrogen cycle.⁸ These dynamics will require human intervention to return to a level at which they are self-regulating. The impacts are well-known, including rising sea levels and more extreme weather patterns such as storms and droughts.⁹ In 2013 global food prices spiked after droughts in the USA.¹⁰ Since the Western world depends heavily on relatively few foreign suppliers for a large number of metallic minerals used in the energy and high-tech sectors¹¹, this resource scarcity will also increase the volatility of food and energy prices¹². As a result international investors are purchasing land in order to secure supplies of food and raw materials. Another key driver is population growth, which increases demand for goods and services. Together with economic development and the new middle class in emerging economies, production volumes will continue to increase. A third factor that increases the size of environmental externalities is the intensity of resource depletion and pollution, which highly depends on the degree to which production is still linear

instead of circular. This factor is not necessarily increasing as more opportunities for circular production are being developed all the time. In turn, social externalities are influenced by the growing influence of business as opposed to governments. This often means that in the current world whether or not a country is lifted out of poverty depends on decisions by businesses rather than policy makers. Business largely influences the global success of markets, which determines the access people have to goods. At the same time, lagging institutional development, for example in human rights protection, leads to inequality. Inequality in turn affects people's abilities to purchase goods and their health and well-being through poor working conditions.

1.1.2. The rate of internalization is speeding up

As externalities are growing, rates of internalization are also increasing, as shown in the right-hand side of Figure 2. The main reason is that transaction costs, the main barrier to internalization, are rapidly decreasing.¹³ Firstly, because the cost of information is declining, due to progress in information technology and science:

environmental and social disasters make it to news sites in seconds. Developments in satellite imaging, social media and data management promise a further decline in costs. Secondly, the cost of coordination and reaching agreements has decreased. Institutional agreements between governments, civil society and private sector actors have increased. See Figure 3 for the relation between governmental initiatives and overall societal costs. Agreements that internalize externalities include: REACH, the Waste Electrical and Electronic Equipment Directive, the Dodd-Frank Act, Global Reporting Initiative, OECD guidelines, Ruggie Framework and several ISO norms. More recently, the Accord on Fire and Building Safety in Bangladesh – a legally binding agreement between international trade unions, NGOs and companies – proves that sectors are also regulating themselves voluntarily. As shown, legislation can increase the internalization of societal costs. Depending on

whether a company has already internalized (part of its) externalities, such legislation will have a varying effect on its internal costs. Finally, these days consumers can sidestep institutional agreements and coordinate actions via social media in order to reward or punish companies. Transaction costs are then often negligible.

Consumer demand also speeds up internalization. As middle-class income levels increase, consumers have more income to spend on quality aspects of products such as societal impacts. A last driver which increases the rate of internalization is effective regulation. It is affected by governments' willingness to regulate. As a consequence of economic development, governments can become more responsive to pressure to raise minimum environmental and social standards, as for instance shown by the rise in minimum wages in China.¹⁵ A second factor, governments' capacity to regulate, which is

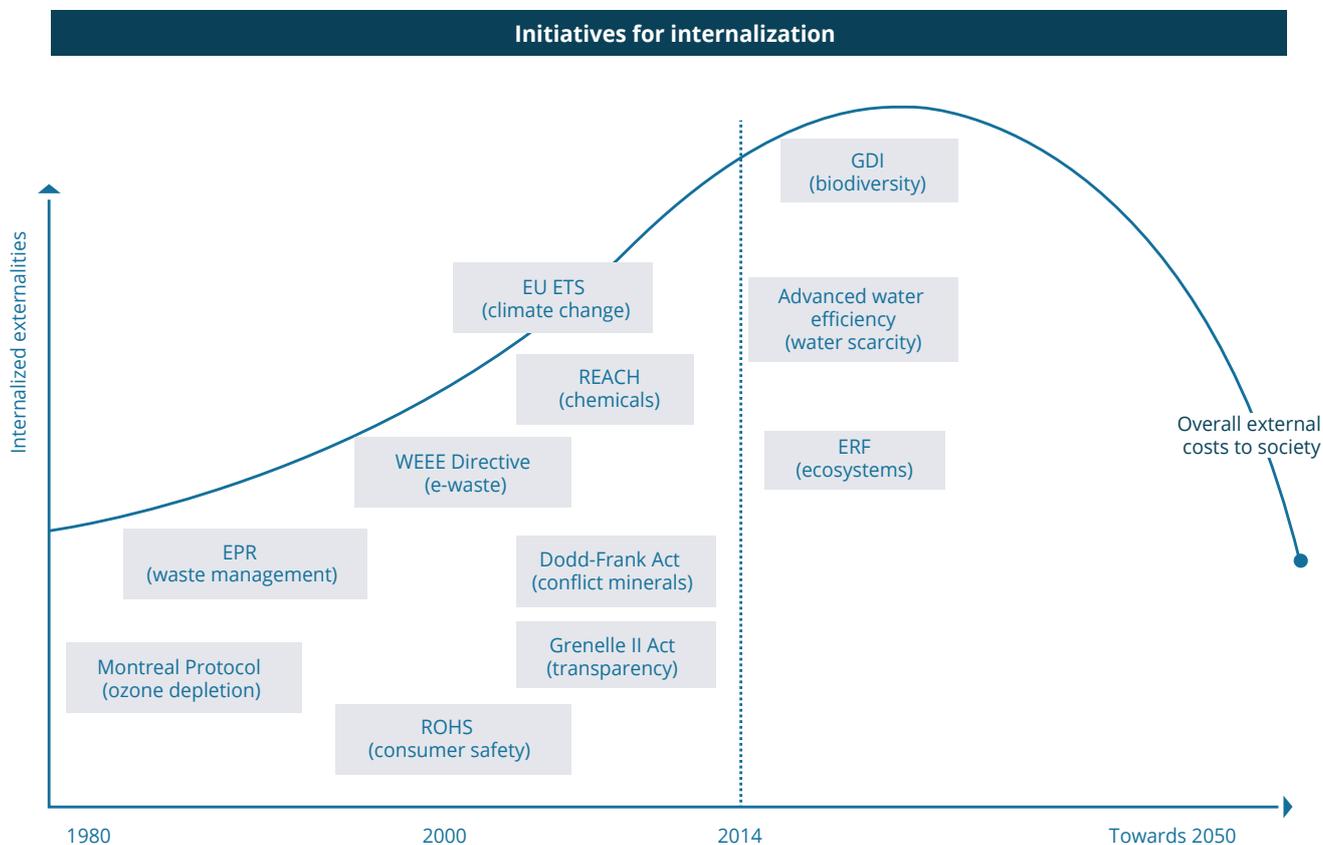


Figure 3 Governmental initiatives to internalize externalities¹⁴

affected by political development, makes it easier to track whether companies are internalizing their externalities.

It should be noted that the increase in size of externalities and the rate of internalization of externalities are not happening at the same time and place. For example the rate of internalization due to effective regulation is higher in the 'Western' world, where there is a long trend of social and environmental legislation and compliance. Whilst the increase in the size of externalities often takes place at a different pace and in different parts of the world. At the same time, countries such as China, where many externalities are growing, are increasing efforts to internalize externalities. In 2013, China launched six carbon markets and it now owns the second largest carbon market in the world, with 1,115 million tons of carbon dioxide.¹⁶

1.1.3. Limiting factors to the internalization of externalities

There are several factors that limit the internalization of externalities. One factor is for example the lack of incentives to drive internalization. Although various initiatives are being taken to promote the internalization of externalities, there are opportunities to speed up the process. For example, research indicates that corrective taxes on fuel can help to avoid 63% of pollution-related deaths from fossil fuel combustion.¹⁷ Another way would be for example by having a global market for environmental externalities. Such a system could enhance the competitive position of companies that have internalized environmental externalities and trigger companies which have not yet taken action to follow suit. Another limiting factor is resistance against the internalization of externalities. Some sectors, such as governments, consumers or agribusiness, show great progress in terms of initiatives to internalize externalities. However, there are still numerous sectors that actively lobby against legislation aimed at internalizing social and environmental externalities. For ex-

ample, the steel industry, which is highly energy intensive, actively lobbied against the EU's Emissions Trading Scheme (ETS).¹⁸ Given this volatile and uncertain business context, the question arises: how can companies best adapt? •

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1 McKinsey (2013). Resource Revolution: Tracking Global Commodity Markets.

2 Global Water Intelligence (2013). Profile of the Global Water Market.

3 World Bank Group (2014). State and Trends of Carbon Pricing.

4 The Atlantic (2013). "Better Safety in Bangladesh Could Raise Clothing Prices by About 25 Cents".

5 The Wall Street Journal (2013). "Rising Wages Pose Dilemma for China".

6 Tully, S.M. and Winer, R.S. (2013). Are People Willing to Pay More for Socially Responsible Products: A Meta-Analysis.

7 Transaction costs are the costs of providing for some good or service through the market rather than having it provided from within the firm.

8 Rockström et al. (2009). Planetary Boundaries: Exploring the Safe Operating Space for Humanity.

9 Drought is among the most devastating of natural hazards (food production losses, depleting pastures etc.) and there is a medium confidence that droughts will intensify in the 21st century in some seasons and areas (IPCC, 2012). This applies to regions including southern Europe and the Mediterranean region, central Europe, central North America, Central America and Mexico, northeast Brazil, and southern Africa.

10 World Bank (2012). Severe Droughts Drive Food Prices Higher, Threatening the Poor.

11 European Commission (2010). Europe 2020: A strategy for smart, sustainable and inclusive growth.

12 KPMG (2012). Expect the Unexpected: Building business value in a changing world.

13 From an economic point of view, interventions to internalize externalities can be found that are mutually beneficial. Finding and implementing these interventions, however, have costs called transaction costs. If these transaction costs are sufficiently low, then naturally the involved stakeholders will find and implement a solution to internalize externalities in a free market. If transaction costs are sufficiently high, however, then stakeholders will not find or implement a solution in a free market (Coase, 1960).

14 Based on an analysis by the True Price Business Case Report project team. See the appendix for abbreviations.

15 Bloomberg news (2014). "China Wages Seen Jumping in 2014 Amid Shift to Services".

16 World Bank Group (2014). State & Trends Report Charts Global Growth of Carbon Pricing.

17 IMF (2014). Getting Energy Prices Right: From Principle to Practice. Chapter 1. Summary for Policymakers.

18 Bloomberg news (2014). "Steel Industry Urges Overhaul of EU Carbon-Trading System".

Chapter 2

How best to adapt to the 'new normal'?



In the 'new normal', the interests of society and business move towards alignment through internalization, which, from a societal perspective, is highly desirable.¹⁹ For companies that do not change their way of working it poses serious costs in the short run and creates existential threats in the long run.²⁰ At the same time, laggards will miss out on opportunities to increase revenues. In highly competitive international markets such failures may have significant negative impacts upon businesses. So the question is: How can companies best adapt to the new normal? As will be argued in this chapter, they can do so by improving externalities, minimizing negative and promoting positive externalities. True pricing is an enabler of the process of adaptation, as elaborated in Chapters 4-7.

2.1 True Pricing

True pricing is a new monetization framework. It leverages new technologies that companies can use to understand and improve their impacts on society. Measuring and monetizing externalities is an idea that has been around for many years already. Yet quantitatively robust true pricing is now possible due to innovations in technology (measurement, information technology, data management) and science (life cycle analyses (LCA), social life cycle analyses (sLCA), environmentally extended input-output analysis, environmental economics). There are various methods and tools for valuation, such as TIMM, ExternE, EPS, the Trucost Database, the social hotspots database and the EP&L (Environmental Profit & Loss account). For an overview please refer to BSR's *Measuring and Managing Corporate Performance in an Era of Expanded Disclosure* (2013)²¹, WBCSD Guide to Corporate Ecosystem Valuation (2011)²², WBCSD's *Measuring socio-economic impact – A WBCSD guide for business* (2013)²³ or WBCSD's *Eco4Biz* (2013)²⁴.

True pricing integrates the external costs and benefits to society into financial metrics in four steps:

1. Measure the externalities that cause societal costs and benefits;
2. Monetize the externalities so that one can express societal costs and benefits in financial terms;
3. Integrate the monetized externalities in key metrics consumers, business leaders and investors use to make decisions such as prices, profits and returns, so that it becomes transparent what prices, profits and returns would be if externalities would be fully internalized;
4. Improve impacts by identifying and taking actions that improve the true prices, profits and returns as well as the actual prices, profits and returns.

True pricing is unique in that it integrates existing models of impact assessment. Instead of reinventing the wheel, it builds upon already existing knowledge and constantly pushes the envelope further. True pricing translates results into (financial) business cases for improving externalities, which can substantiate existing business cases for sustainability. It provides a more integrated financial picture of the impacts of specific actions on the complete business model and profitability of a company. Thus, true pricing can function as a tool to measure progress towards integrated sustainability, by capturing the effect of social and environmental interventions on the bottom line over time. Moreover, it allows for more accurate projections of future costs and benefits to society that companies will (need to) internalize in the future.

True pricing is part of a bigger global trend towards mapping natural and social impacts, and monetizing these impacts. Interestingly, businesses and business-oriented organisations are taking the lead. A selection of organisations (small and large) active in this space are: the Natural Capital Coalition (NCC), WBCSD, the Prince's Accounting for Sustainability, the B Team and UNEP.²⁵

True pricing can be assessed at several levels. First, at product level, the true price consists of the retail price plus the net environmental and

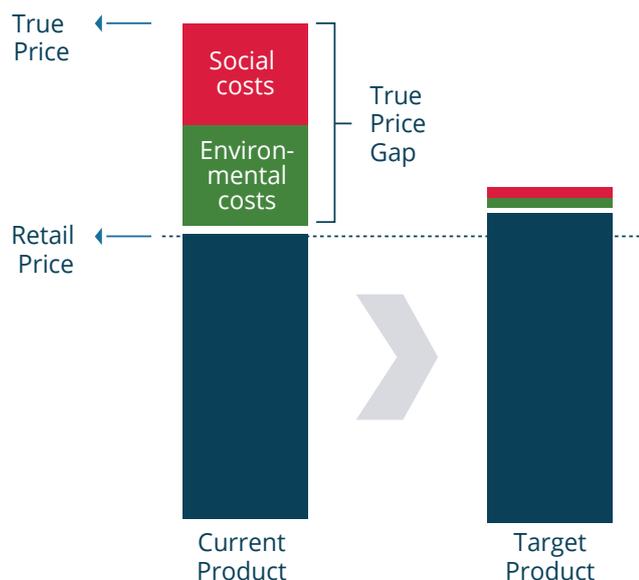


Figure 4 True pricing at product level

social costs. Second, at company level, true value is the financial Profit & Loss (P&L) plus the Environmental P&L and Social P&L. At investment level, the true return of an investment is the quoted return plus the environmental return and the social return. The most tangible way of thinking about true pricing is at the product level, where the purpose is not to charge a true price and thereby make products more expensive. The aim is to create transparency about the true costs of a product, and use this information to drive the true price down to the retail price, see Figure 4.

This conceptual model of a true price will differ within and between sectors, for example the increase in retail price and overall true price may be different for a variety of reasons. This can for example be illustrated by comparing the true price of the coffee sector with the flower sector. A study that looked at smallholder coffee from Zona da Mata in Brazil, found that the retail price of Fair Trade Organic coffee (\$4,10) is higher than the sector benchmark (\$3,50). Whilst the true price is lower (\$5,90 vs. \$6,70). An explanation for this may be that the retail price of Fair Trade Organic coffee includes a premium to invest in sustainable production by farmers. Thereby, it already internalizes part of the social and environmental costs associated

with coffee production, so that its true price is lower. By comparing the true price of the sector benchmark to that of the Fair Trade Organic coffee, organisations can identify which costs may become part of the retail price in the near future as well. At the same time, the true price gap of Fair Trade Organic coffee shows which impacts require improvement in addition to the premium investments in sustainable production.

Another study looked into the true price of the flower sector. Results indicate that the retail price is almost the same for the sector benchmark and the sustainably produced rose (€0,70), whilst the true price is lower for the sustainably produced rose (€0,74) compared to the sector benchmark (€0,92) (see Case 9 for more detail). In conclusion, the composition of the true price is different for the coffee and the flower sectors.

2.2 The True Pricing Roadmap

The crucial question is when to internalize what externality and how to set up a roadmap with

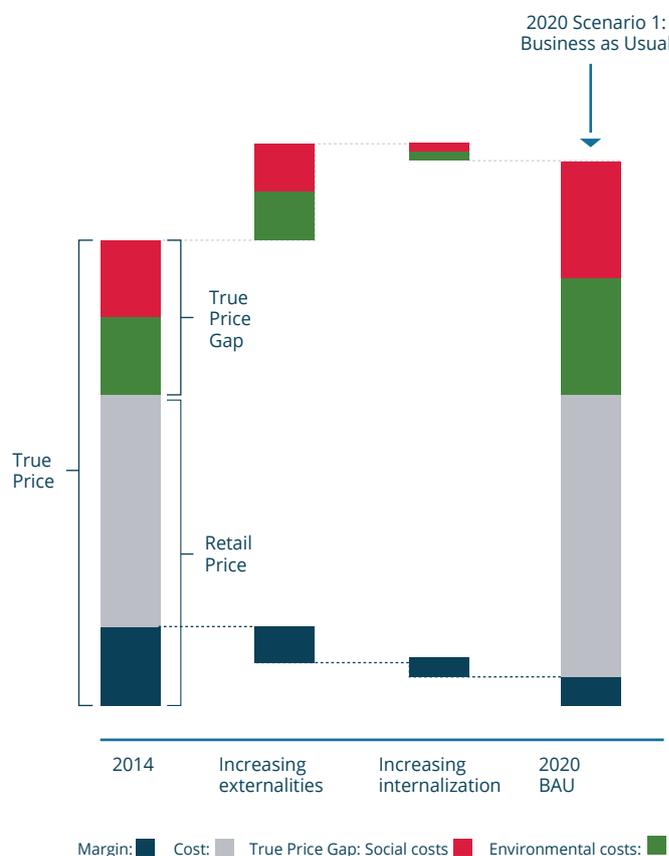


Figure 5 Scenario 1: The True Pricing Roadmap under Business as Usual (BAU)

an optimal timeline. Societies will not be able to maintain their current levels of mineral, fossil and water dependencies through 2040. However, it could be unwise, or terminal, for an organisation to eliminate all of its negative externalities by 2015. By mapping and monetizing externalities, an organisation can set up a True Pricing Roadmap to improve its true prices and set a clear target (reduce the gap between the true price and the retail price). The next two figures will illustrate how 1) the changing business environment and 2) companies that improve externalities, affect the true price of a product with a horizon until 2020. For the sake of comparison retail prices are kept at the same level over time.

Figure 5 shows the possible effect of the factors that drive the 'new normal', on the true price of a product. As of now, externalities will increase, which widens the true price gap and squeezes profit margins. This is mainly due to the fact that parts of externalities are internalized, which leads to higher costs. At the same time, the rate of internalization will increase. One effect of internalization is that it reduces the true price gap, as a part of the costs that used to be borne by society are now borne by companies. Another effect of internalization is a further decrease in margins for the same reason. In sum, under business as usual (BAU), the overall effect on the true price of a product is that profit margins will reduce and the true price gap will increase.

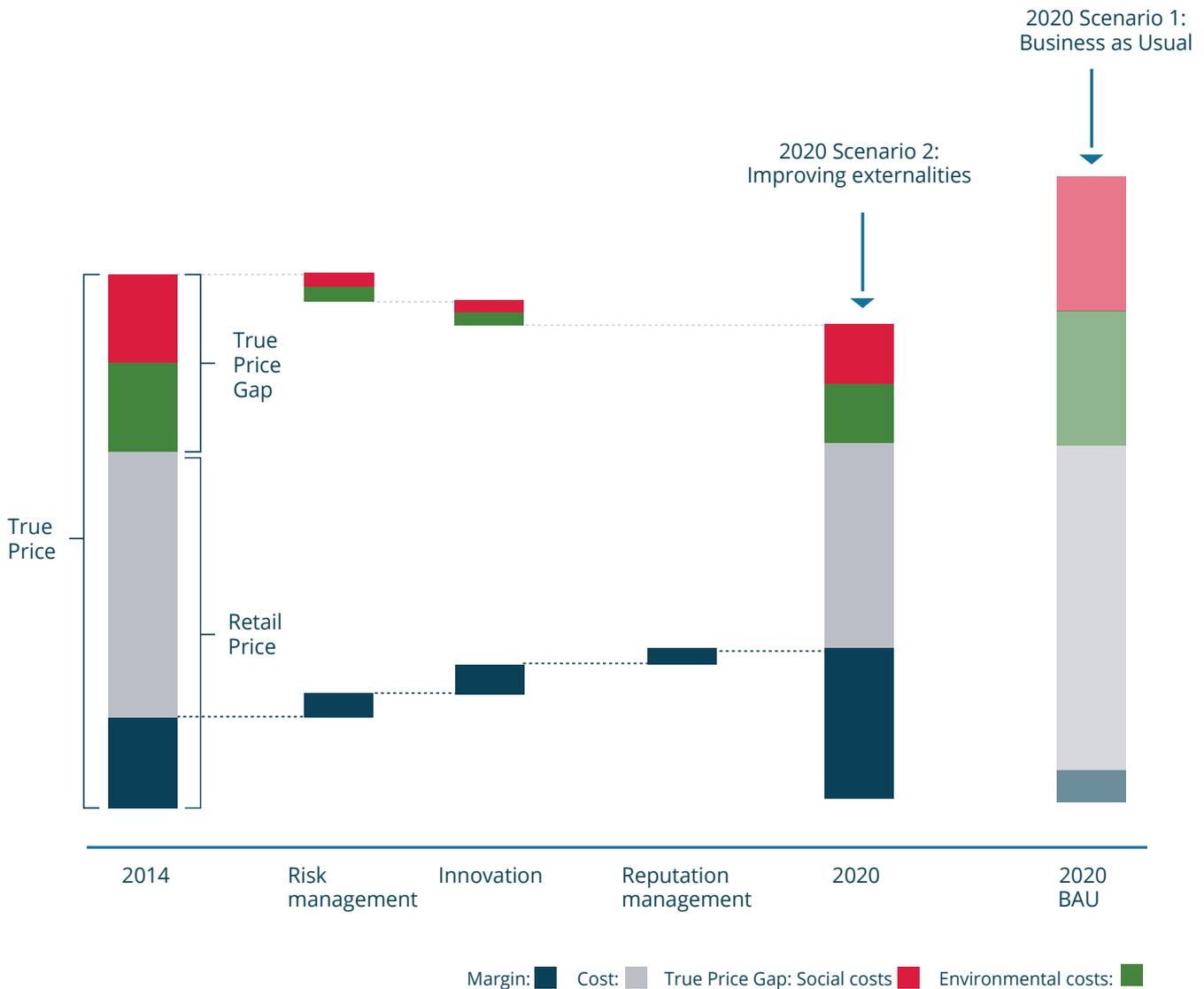


Figure 6 Scenario 2: The True Pricing Roadmap by improving externalities

Figure 6 illustrates the three key steps a company can simultaneously take to reduce its true price, improve its impact, reduce costs and maintain or even improve profit margins. The first is risk management: remove the highest hotspots from the supply chain based on an integrated risk model and improved operational efficiency, by for example reducing reliance upon scarce resources. The second step is innovation, through which companies produce better products, processes and technologies at lower costs, operate more efficient and sustainable supply chains and develop new business models. The third step is reputation management, which allows companies to increase their sales volume when communicating their improved impacts credibly and accessibly to consumers. The expected effect of these interventions is a lower true price, due to a smaller true price gap, and improved profit margins.

Comparing Figure 5 and Figure 6 shows that when companies continue to operate in business as usual mode, the true price of their products is expected to increase over time. Whilst if they take measures to improve externalities, their roadmap is likely to result in a lower true price. It is important to note that companies have different capacities regarding their readiness to tackle externalities, which the True Pricing Roadmap should match. Some companies are ready to create a True P&L and publish it with a commitment to have a positive Environmental P&L and Social P&L by 2020. Most companies, however, are not that advanced. Many are ready to use true pricing internally in risk management or to foster innovations, whilst many also could communicate publicly about the true prices of selected products. Some are well-advised to start mapping and measuring their impacts. The next chapter zooms in on the reason why companies can benefit from starting the True Price roadmap journey. ●

18 Meyer, C. & Kirby, J. (2010). The Big Idea: Leadership in the Age of Transparency. Harvard Business Review.

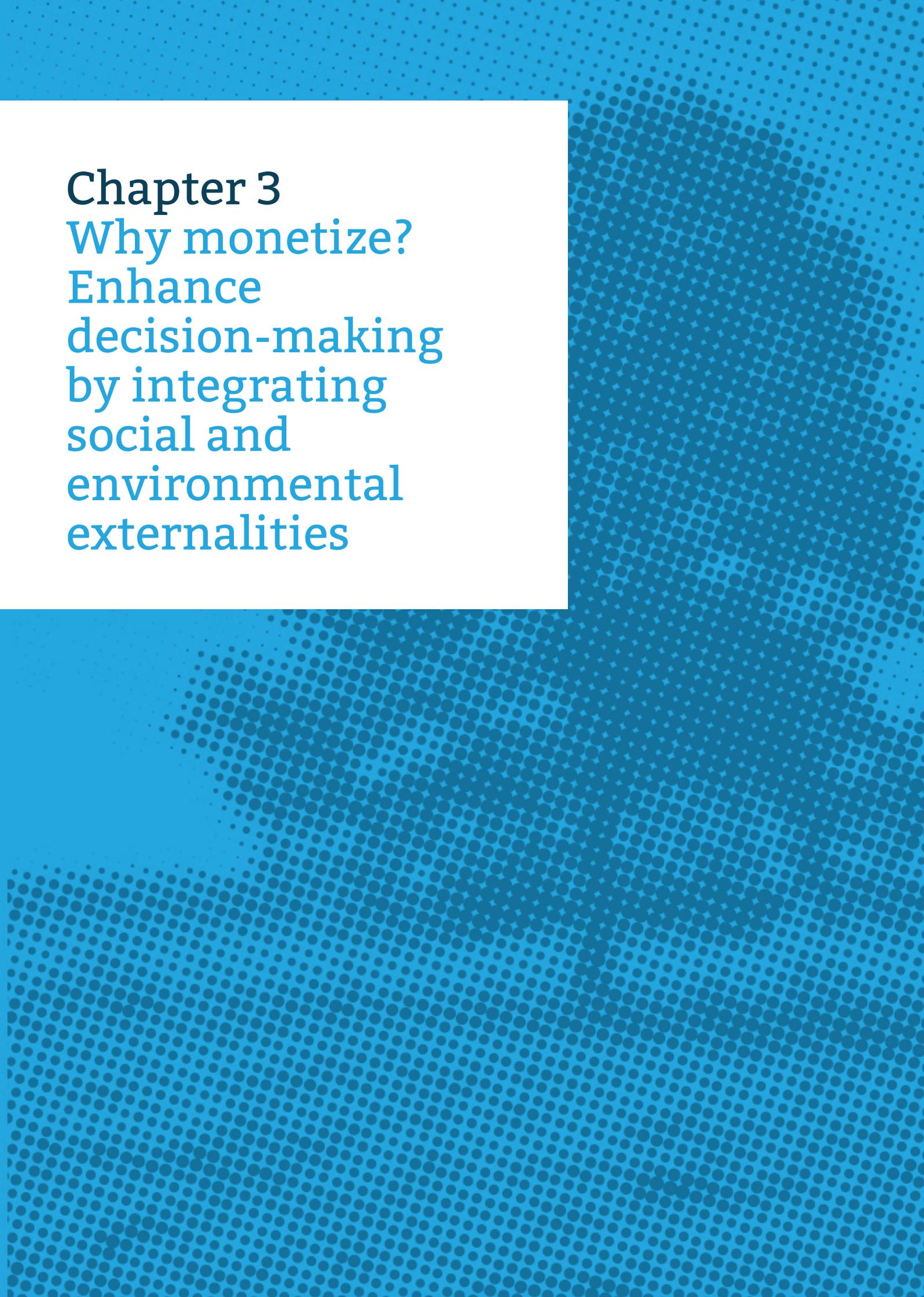
19 Refer to Figure 19 for the relation between the approach to improving externalities and the effect on the cost curve

20 BSR (2013). Measuring and Managing Corporate Performance in an Era of Expanded Disclosure.

21 WBCSD (2011). Guide to Corporate Ecosystem Valuation.

22 WBCSD (2013). Measuring socio-economic impact – A WBCSD guide for business. 23 WBCSD (2013). Eco4Biz: Ecosystem services and biodiversity tools to support business decision-making.

24 For more organisations please visit: www.naturalcapitalcoalition.org or www.wbcds.org.



Chapter 3
Why monetize?
Enhance
decision-making
by integrating
social and
environmental
externalities

In a world with many internalized externalities, companies that provide affordable products with a positive impact on nature and society will thrive. This requires them to measure, manage and communicate their externalities. Companies can measure and improve their impact without monetizing externalities and integrating them in financial metrics. They have been doing this for a long time. So, why monetize? In essence, companies are driven by financial metrics: profit, price and return. If an organisation seriously wants to address an issue, the issue should be reflected in these metrics, making it easier to compare externalities and integrate them into decisions.

3.1 From qualitative to quantitative decisions

Decision makers face the challenge of weighing different externalities against each other and against other profit drivers. As a result, many decisions that involve externalities are based on heuristics and thus are prone to decision bias. Unfortunately, this is expected to lead to suboptimal decisions within an organisation. Whether, when and to what extent a company addresses an externality will very much depend on accidental factors and the people involved. In addition, it is expected that the contribution of externalities to profit will be undervalued vis-à-vis other drivers that are expressed in financial terms. Heuristic approaches lead to suboptimal decisions by an organisation's stakeholders, such as investors, regulators and consumers. Typically, these parties have even less expertise in externalities, which exacerbates the communication problem.

3.2 From multidimensional to single dimensional

Any decision made by an organisation has various impacts on society and inherently involves trade-offs. It is difficult to integrate social and environmental externalities in strategic decisions, because the issues are multidimensional, have different units of measure and lack self-

evident values. For example: How to take CO₂ into account in long-term projects? How to compare multidimensional risks of many suppliers with each other? How to communicate the value of programs related to biodiversity, resource dependence or good wages to investors? How to optimize a portfolio in terms of risk and return whilst taking externalities into account? How to convince consumers that your product really has a better impact on society than alternatives, especially when consumers cannot compare the impacts?

3.3 From non-financial to financial

Traditionally, companies base strategic decisions on the optimization of a single measurable one-dimensional metric everybody understands: financial value. Monetizing externalities allows companies to express all externalities in one unit, which reduces the multidimensional effect of alternatives and makes them easier to compare to each other. As illustrated by Figure 7 monetization offers advantages over current practices of impact measurement and assessment. When externalities are expressed in the same unit as applied for standard costs and benefits, they are also easier to compare with standard profit drivers. In addition, including externalities in existing frames used by decision makers (true profits), consumers (true prices) and investors (true returns), provides a common language for integrated thinking and communication. Another advantage is that companies are in a better position to steer lobbying strategies for sustainable policies targeted at internalizing externalities.

3.4 Challenges in monetizing

Despite the added value of monetizing to companies and society in general, there are several challenges related to monetizing externalities. The first is that time and effort is needed to come to a (globally) accepted standard, which is necessary if all companies are to report their externalities systematically. Numerous organ-

isations (ISO, UNEP and WBCSD) are working on environmental valuation standards, however, despite significant progress in the field in the past years, it remains difficult to formulate

the externalities with an ethical dimension – such as child labour or worker safety – cannot be given a monetary value.²⁶ Although these are valid points, considering the need and impor-

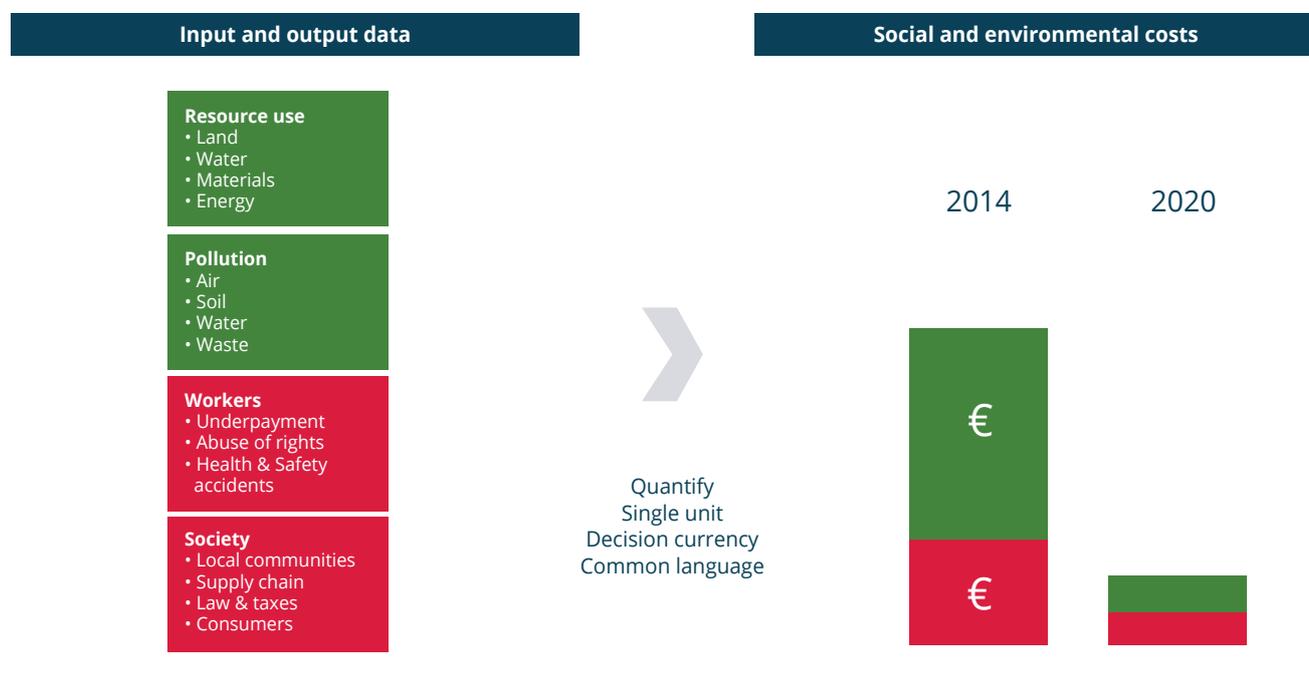


Figure 7 Monetizing: integrating complex data in a single metric

a globally accepted method of analysing and measuring environmental impacts, such as Life Cycle Analysis (LCA). Looking at social valuation there is also a need for more appropriate tools, methods and data sources to assess the quantitative dimension of social impact. Through investments in time and coordination, however, it is possible to develop guidelines for monetizing and develop standards. Multi-stakeholder platforms that bring together experts on valuation and monetization, like the Natural Capital Coalition, are a welcome approach to ensure common grounds for monetization and accelerate the development and sharing of knowledge in this field.

Another challenge in monetization concerns the tension between the goal to quantify and the reality of qualitative observations. Some parties suggest a possible lack of credibility to express social and environmental externalities in financial values. Others argue that some of

tance to integrate social and environmental externalities in decisions, it is likely that attaching a financial value to these indicators will make decision-making more effective compared to current decision-making processes. Naturally, monetization should acknowledge possible limitations with respect to specific externalities and should not be treated as a one-off guidance for making decisions. That is, it may be controversial whether one should attach a value to a person's life and then implicitly rank this value against other impacts. When assessing impacts it is always advisable to combine qualitative and quantitative information. Parties should also clearly state the assumptions they have made in order to allow comparison between studies.

A final challenge to highlight is that some argue that it is not yet possible to give a financial value to specific impacts due to a lack of primary data. Poor data can make it difficult to provide explicit and detailed claims about the true price

of a product. As explained in Table 1, however, monetization can be applied for different purposes, each requiring different levels of data robustness. Naturally, for each level it is recommendable to have primary data. However, if this is not available, for certain purposes such as internal decision making, secondary sources can also provide a reliable approximation of the value of specific impacts. Once companies want to use monetization to communicate externally, it is essential to apply sufficient controls and sensitivity analyses to ensure that data reflects the insights communicated. This can, for example, take the form of external verification of data and methods used to calculate true prices. Such diligence enhances trust in the reliability and validity of the data and information that are published. After explaining why companies can benefit from starting the True Price roadmap

Type of use of monetizing	Level of robustness of data
Internal decision making	Medium: primary or secondary data for all impacts with high robustness for the most material impacts
Strategic decision making	Medium: primary or secondary data for all impacts with high robustness for the most material impacts
External communication and reporting	High: primary data for all impacts and sensitivity analysis to check for possible variance in data
Third-party verification	Very high: robust data for all impacts and sensitivity analysis to check for possible variance in data and raw data verification

Table 1 Types of use of monetization and data robustness

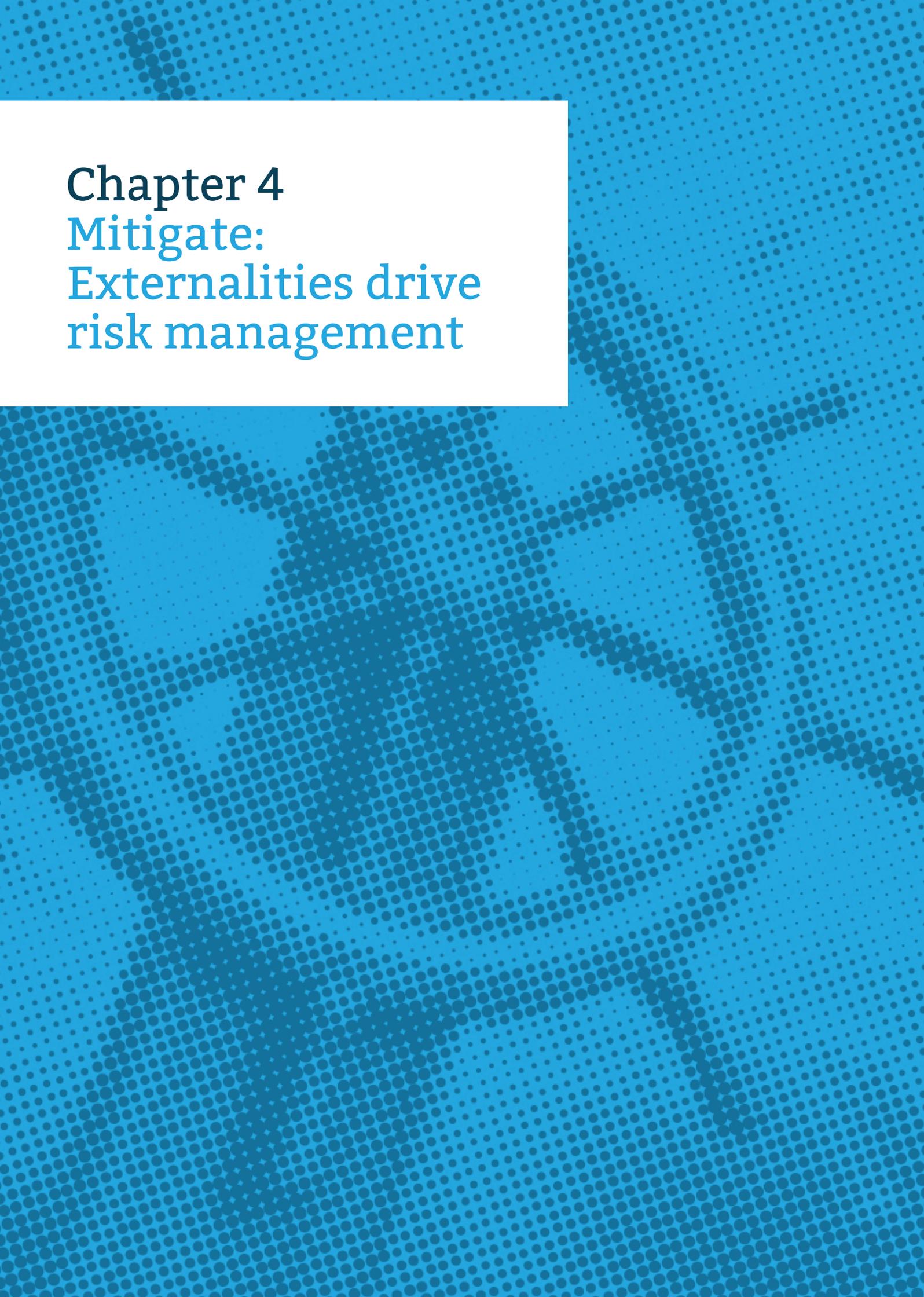
journey. The next chapters dive into using true pricing for several business aspects, starting off with risk management.

After explaining why companies can benefit from starting the True Price roadmap journey. The next chapters dive into using true pricing for several business aspects, starting off with risk management. ●

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25 For more organisations please visit: www.naturalcapitalcoalition.org or www.wbcsd.org.

26 Accounting for Sustainability (2012). Future proofed decision making Integrating environmental and social factors into strategy, finance and operations.

“True Pricing
allows companies
to measure and
manage externalities
by expressing
them in one
financial metric”



Chapter 4

Mitigate: Externalities drive risk management

Companies are increasingly vulnerable to environmental and social externalities throughout their value chains. The extent of impacts and likelihood of risks associated with these externalities are changing in time, see Box 1. Given their size and the current rates of internalization, these externalities need to be taken into account in decisions on risk management. Monetization allows companies to identify externality risks and integrate them in current risk management frameworks. Consequently, risk managers can better classify, prioritize and evaluate risks.

Box 1 Externalities and associated risks

Water scarcity

Water scarcity can be a major risk to organizations that depend on freshwater supply. They may face water shortages, declines in water quality and water price volatility, partially caused by climate change. Projections predict that in 2030 freshwater availability bears potential for crisis and conflict. Additionally, the 2030 Water Resources Group (2010) estimates that global demand for freshwater will exceed supply by 40 percent in that same year. Water scarcity imposes a business continuity, financial and reputational risk.

References: World Economic Forum (2013);

2030 Water Resources Group (2010).

Child labour

Currently, the number of children engaged in child labour is estimated at 168 million, which is almost 11 percent of the total child population. Half of these children are engaged in hazardous work that directly endangers their health, safety and moral development. From 2000 – 2012 the number of children in child labour reduced with almost one-third. This was mainly due to government commitments, sound policy choices and increased implementation of ILO conventions. Recent child labour-related incidents with retailers and electronic equipment manufacturers show that it may impose a reputational risk.

Reference: International Labour Office (2013).

Biodiversity loss

The rate of biodiversity loss has passed the point at which nature can self-regulate and will require human intervention. Primary industries such as extractives, forestry, farming and fishing are mostly affected. Risks include reduced productivity (as a consequence of land degradation), restricted access to land, reduced quotas (e.g. in the fishing industry), and reputational risk (due to operations with adverse impacts on ecosystems).

Reference: Rockström et al. (2009).

Labour safety

Occupational accidents or work-related diseases result in 2.3 million deaths per year. From 1998 - 2008 both the fatal and non-fatal accident incident rate declined. New risks emerge, for example health and safety risks related to nanotechnology or exposure to non-ionizing radiation, or age and gender-related risks. The overall costs of accidents and diseases are often much greater than immediately perceived. Investing in labour safety reduces absenteeism and improves worker morale, performance and productivity.

Reference: International Labour Office (2011).

Climate change

The world faces a long-term global temperature rise of 3,5°C, which could cause irreversible impacts, such as deglaciation, contamination of groundwater supplies, water shortages, lower agricultural yields, more infectious diseases, and increasingly severe floods, droughts and storms. It is predicted that “80 percent of the cumulative CO2 emitted worldwide between 2009 and 2035 is already ‘locked-in’ by capital stock that either exists now or is under construction and will still be operational by 2035”. Climate change poses an operational and financial risk.

References: IPCC (2007); International Energy Agency (2011).

4.1 Identify externality risks: The Externality Risk Universe

Externalities represent a set of risks and opportunities that traditional risk management systems may not yet fully identify or effectively manage. The risks associated with externalities will persist in the long run beyond normal business planning timescales. Successful management of these risks requires companies to integrate them into existing risk management frameworks.

Enterprise Risk Management²⁷ (ERM) is a crucial process to guarantee the viability of any corporate strategy and objectives. The ERM Framework established by the COSO (Committee of Sponsoring Organizations of the Treadway Commission) is widely used. It enables companies to relate key risks across the organisation and provides guidance on how to identify, address and monitor them.

Many companies operate a sustainability risk management process linked to, but sepa-

rate from, their risk management framework. However, as the COSO also proposes, a more systematic integration of sustainability in general into the framework can provide additional strategic and operational leverage for companies.²⁸ Figure 8 presents the Externality Risk Universe where global macro-economic developments (left side) are linked to the management of the ten most relevant social and environmental risk categories (inner circle) and the outcomes (right side).

Composing the Externality Risk Universe helps to identify current and future risks throughout the overall value chain that are material to the company and stakeholder expectations. This stimulates companies to identify risks stemming from social and environmental externalities, which they previously may not have taken into account. In addition, an Externality Risk Universe helps managers to link social and environmental externalities to risks that may already be included within their ERM Framework, for example risks associated with oil price increases. In that way, companies are expected

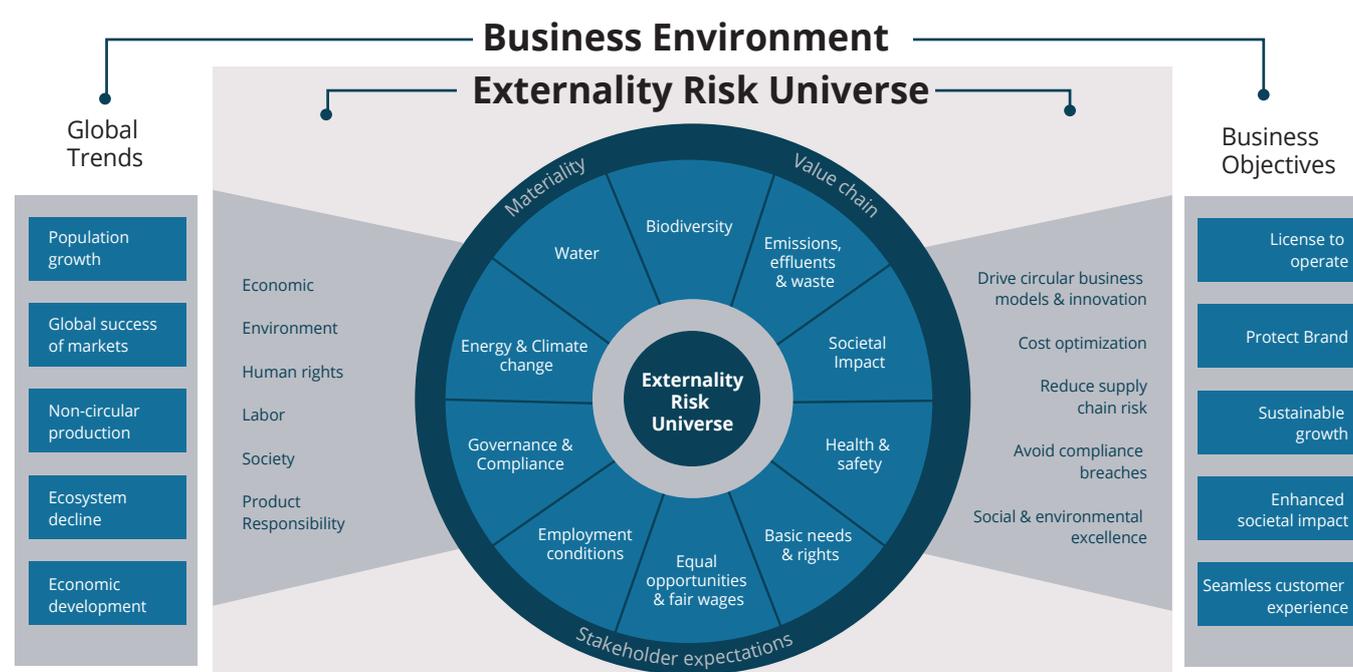


Figure 8 Externality Risk Universe

to get better estimates of the size and likelihood of relevant risks.

4.2 Integrate externality risks: The Externality Risk Universe

Monetizing enables companies to classify risks related to social and environmental externalities in the same monetary terms as any other risks they might face. In this way, the emerging categories of risks and opportunities can easi-

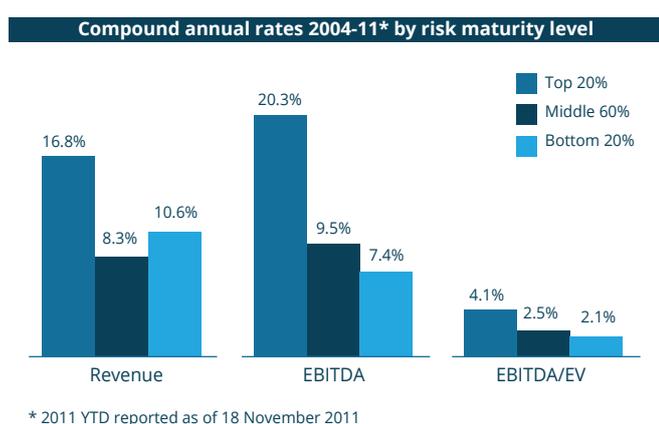


Figure 9 Compound annual growth rates 2004-2011 by risk maturity level. Adopted from EY (2013). Turning Risk into Results

ly be included in the holistic process of ERM. This resonates with ‘integrated thinking’ which, according to the IIRC, leads to integrated decision-making and actions that foster creation of value over the short, medium and long term.²⁹ Monetizing can thus be a complementary framework in integrated reporting and transparent performance measurement.

Although empirical studies show that companies with quality risk management practices outperform their peers financially, significant research has not yet been undertaken regarding the effect of integrating sustainability risks for financial performance. In a recent report, a positive relationship was found between risk management maturity and financial performance (in terms of growth in revenue, EBITDA (Earnings Before Interest, Taxes, Depreciation and Amortization) and EBITDA/EV (Enterprise Value)). Companies in the top 20% of risk matu-

rity generated three times the level of EBITDA compared to those in the bottom 20% (see Figure 9).³⁰ This implies that companies that integrate externalities into their risk management frameworks and therefore have a higher level of externality risk maturity, may perform better than companies with a lower externality risk management maturity.

4.3 Evaluate externality risks

The monetization of social and environmental externalities can improve risk assessments. Often companies classify risks in terms of impact and likelihood based on opinions. Monetized risks (monetization is only applicable for impact) support companies to take more ‘fact-based’ decisions as to which risks to mitigate. By considering rates of internalization of externalities, their potential effect on the company and possible returns on mitigation efforts, it helps them to better classify and prioritize material risks. Interpretations of specific risk categories, differ strongly per sector, organisation and environment. The Externality Risk Universe can help to ensure that material social and environmental risks are identified and appropriate internal controls are embedded in companies. Such controls may include supplier screening to prevent poor working conditions (see Box 2) or the assessment of raw material use in the credit management process of a bank (see Box 3).

Box 2 The cost of having safer working conditions in Bangladesh after Rana Plaza

In April 2013, more than 1.130 people died when the Rana Plaza building near Bangladesh’s capital, Dhaka, collapsed. The building housed mostly textile manufacturers with approximately 5.000 employees in total. The general cost estimation for the renovations, upgrades and retrofitting of buildings needed across the industry in Bangladesh to make the factories safe is \$3 billion. That translates into about 8 cents per garment at factory prices. The impact on retailers’ profits, would be minimal; for a major

retailer, with 5 percent of its production in Bangladesh, the increased cost would be about four one-thousandths of a percent of total corporate revenue.

Reference: The Atlantic (2013).

Box 3 Integrating externality risks in the credit management process

About 25 years ago, financial institutions have started to integrate environmental risks into their credit risk management procedures. The United Nations Environment Programme Finance Initiative (UNEP FI) commits its participants within the financial service sector to do so as well. Monetizing and integrating environmental risks, such as resource shortages, reputational risks, contaminated sites and regulatory risks, into the credit risk management process is critical. Financial institutions will suffer less credit defaults and as concluded before, a mature risk management system can result in higher financial returns. Research shows that, in general, banks take environmental aspects into consideration, especially in the first phase of credit management; the rating phase. Approximately, 1 out of 4 banks quantify the expected losses associated with environmental risks, measured in EUR / USD. However, only a few banks integrate sustainability in all phases of the credit management process.

Reference: Weber et al. (2005); UNEP FI (2013).

As the Rana Plaza incident illustrates, including externalities in risk management allows companies to forego current or future costs related to supply chain activities. For example, an S/EP&L identifies long-term externality risks that are most material, allowing for more effective management,, enhanced abilities to anticipate potential externality risks and opportunities, and higher financial returns.

Next to addressing the right risks ('doing the right things'), monetization at operational level may enable companies to address risks in the right way ('doing things right'). ProRail uses mon-

etization to include social benefits and costs in decisions on infrastructure projects (Case 1). Solvay uses monetization to reduce its environmental footprint and identify market opportunities that best address customers' demands for more environmentally friendly solutions (Case 2). Ultimately, monetization of externality risks can serve as a driver for innovation, as further explored in Chapter 5.

Case 1: Life Cycle Management at ProRail

ProRail is a semi-public organisation working for the Dutch government that handles maintenance and extensions of the national railway network infrastructure, and allocates rail capacity and traffic control. The Dutch railway sector is heavily scrutinized; potential railway issues are widely covered by media, politics and the public. Partly because of this, ProRail is vulnerable to reputational risk damage due to potential delays for rail passengers, but also health and safety risks. Therefore, ProRail includes these issues into its decision-making processes by integrating social costs and benefits in its Life Cycle Management (LCM) analyses.

ProRail analyses decisions related to maintenance, renewal and construction of railway infrastructure based on LCM. LCM within ProRail entails that projects are evaluated based upon their impacts on total costs and benefits during the full life cycle. Three types of projects are distinguished to which the LCM method is applied: 1. decisions about investments in (new) infra layout, 2. decisions about maintenance vs. replacement and 3. decisions about combining/ clustering certain project activities in time, in order to minimize the nuisance for rail passengers. The LCM method initially contained only economic costs, but has developed further in recent years to include social costs and benefits as well. This is done by applying the valuation method used in societal cost-benefit analysis (SCBA's). Social costs and benefits (availability,

capacity, travel time, safety, etc.) are calculated in terms of money, which makes them comparable with economic costs and benefits.

The outcome of a fully integrated LCM with SCBA is a financial comparison of the current situation with the potential new situation once a project would be implemented, in terms of:

1. Life Cycle Costs (LCC) for ProRail - “hard” costs for construction, renewal and exploitation (maintenance)
2. Social costs / benefits because of unavailability of infrastructure - “soft” costs regarding e.g. alternative transport and value of time of passengers, because of planned and unplanned disruptions
3. Other social cost / benefits - “soft” costs regarding e.g. safety, health, environment (SHE) and comfort

While calculating social costs and benefits, all stakeholders are taken into account: passengers, government, transport companies and the environment. However, benefits for passengers are the most relevant social aspect of LCM. To give an example, one of the most essential functionalities is time lost due to scheduling, delays and technical failures. This is the reason why the LCM method expresses the value of time (VoT) for an average passenger for planned disruptions at approx. €8,00 per hour. This is the price passengers are willing to pay for arriving one hour later. For unplanned disruptions, the value of time is multiplied by a factor of 2,4.

ProRail applies the VoT cost-benefit analyses to decisions regarding whether to invest in new train signals. On the one hand new signals require investment and maintenance costs. On the other hand, 1,26 trains/day with 159 passengers can arrive one minute earlier at the station. ProRail then calculates this benefit of arriving earlier, by multiplying the value with the above-mentioned VoT and the factor 2,4. Consequently, the organization can decide whether it is profitable to invest in the new signals or whether it is better to look into alternative investment options.

Until recently, most cost-benefit analyses included the value of time based only on the valuation of changes in the average travel time. In 2013, however, the Dutch Knowledge Institute for Mobility Policy (Kennisinstituut Mobiliteitsbeleid) released indicators of the value of time that also include the reliability of travel time, or the variation in average travel time. Interestingly, the indicator for the VoT for travelling by train has increased by 22% to €9,25 per hour (from €7,58 per hour calculated by the previous method, which did not take into account the reliability of travel time).³¹ Including these new indicators in societal cost and benefit analyses, such as in the above example, could enhance decisions on infrastructural projects.

Within ProRail, LCM is used by multi-disciplinary teams as input for the initial business case of a project as well as for each phase transition of the project. LCM is strongly related to the ProRail Risk Matrix, specifically for the SHE aspects. The risk matrix serves as input for the LCM method. And when risks are valued in a LCM and effectively mitigated through the completion of a project, this serves as input for the risk matrix as well.

LCM is a method with which ProRail can proactively state (both internally and externally) that the interests of passengers are explicitly considered in investment decisions and that in some cases economic costs are outweighed by these interests. Moreover, making social costs and benefits visible shows that public money is well spent.

Case 2: How Solvay uses monetization for investment decisions

Solvay is an international chemical company that pro-



vides sustainable and innovative products for industry. The company is active in markets such as energy and environment, automotive and

aeronautics, and electricity and electronics. It's goal is to improve the performance of clients and peoples' quality of life. Sustainability is an integral part of the company's strategy and decision-making processes.

Especially in the chemical industry, where investment decisions usually cover periods over ten years, companies need to weigh long-term trends, risks and returns in the context of sustainability. In order to be able to decide whether to build a new facility or invest in a production process, Solvay uses Sustainable Portfolio Management (SPM). This allows the company to assess the sustainability of its business portfolio and balance it along two axes:

1. Operations Vulnerability (X-axis in Figure 11): the financial risks and opportunities linked to the environmental footprint of manufacturing activities, such as energy consumption and associated greenhouse gases emissions.
2. Market alignment with sustainability trends (Y-axis in Figure 11): opportunities and risks arising from the degree to which the product aligns with the trends in the market in terms of sustainability.

In order to calculate the Operations Vulnerability for Product A three steps need to be taken.

1. Calculate the 'ecoprofile' through a standardized evaluation of the physical impact of the manufacturing process of a given product (including raw materials) on the surrounding ecosystems. In accordance with ISO standards and EcoInvent guidelines.
2. Monetize the ecoprofile data with a specific cost (shadow cost) associated with each mid-point of the ecoprofile (e.g global warming) with the potential market price of CO₂. Similarly Human Toxicity is evaluated at the typical cost to avoid human exposure to toxic substances.
3. Divide the sum of monetized data by the market price of the product. The lower the ratio, the higher the resilience of the product to financial risk arising with sustainability megatrends.

The resulting information as shown in Figure 10, allows Solvay to focus on the most important risks identified, so energy ($\pm 26\%$) and global warming ($\pm 11\%$). It is important to note that the Operations Vulnerability does not aim to anticipate the environmental costs, but rather to assess the resilience of a specific product related to its environmental footprint. Moving on to the second step of SPM, Solvay can qualitatively assess the degree to which the product aligns with customers' wishes to reduce their own environmental footprints, for example to limit the continuously increasing CO₂ taxes and energy bills. Then the product is classified in terms of its use in a specific application as perceived by the consumer. Figure 11 illustrates such classification in an SPM map for various chemicals, based on which Solvay assesses strategic options. For each chemical the size of the circle indicates the actual turnover Solvay can achieve. Whereby products that score relatively high on operations vulnerability and fall in the 'aligned' or 'star' class of market alignment are the most attractive

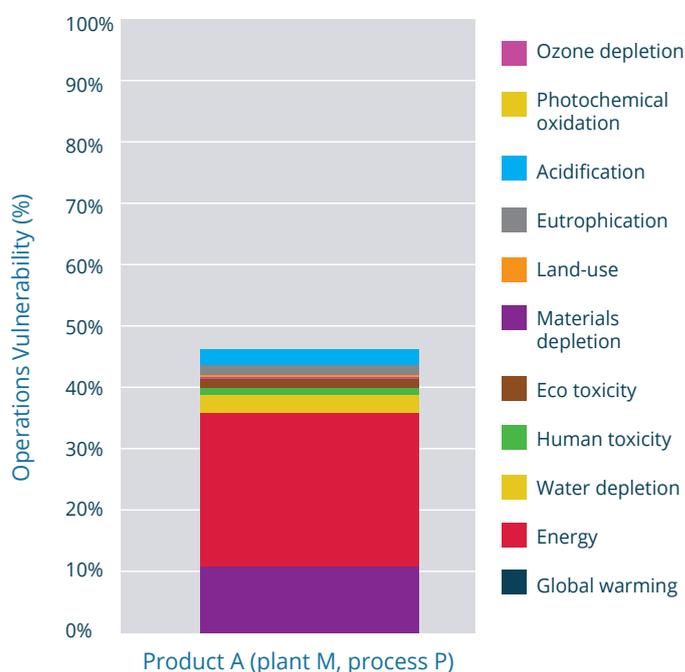


Figure 10 Operations Vulnerability of Product A

strategic options. In this case the map suggests that investing in non-hazardous chemicals used in water conveying pipes should result in the highest turnover. ●

Illustrative Revenue 2013 SPM 2.0 -2013, December 25th

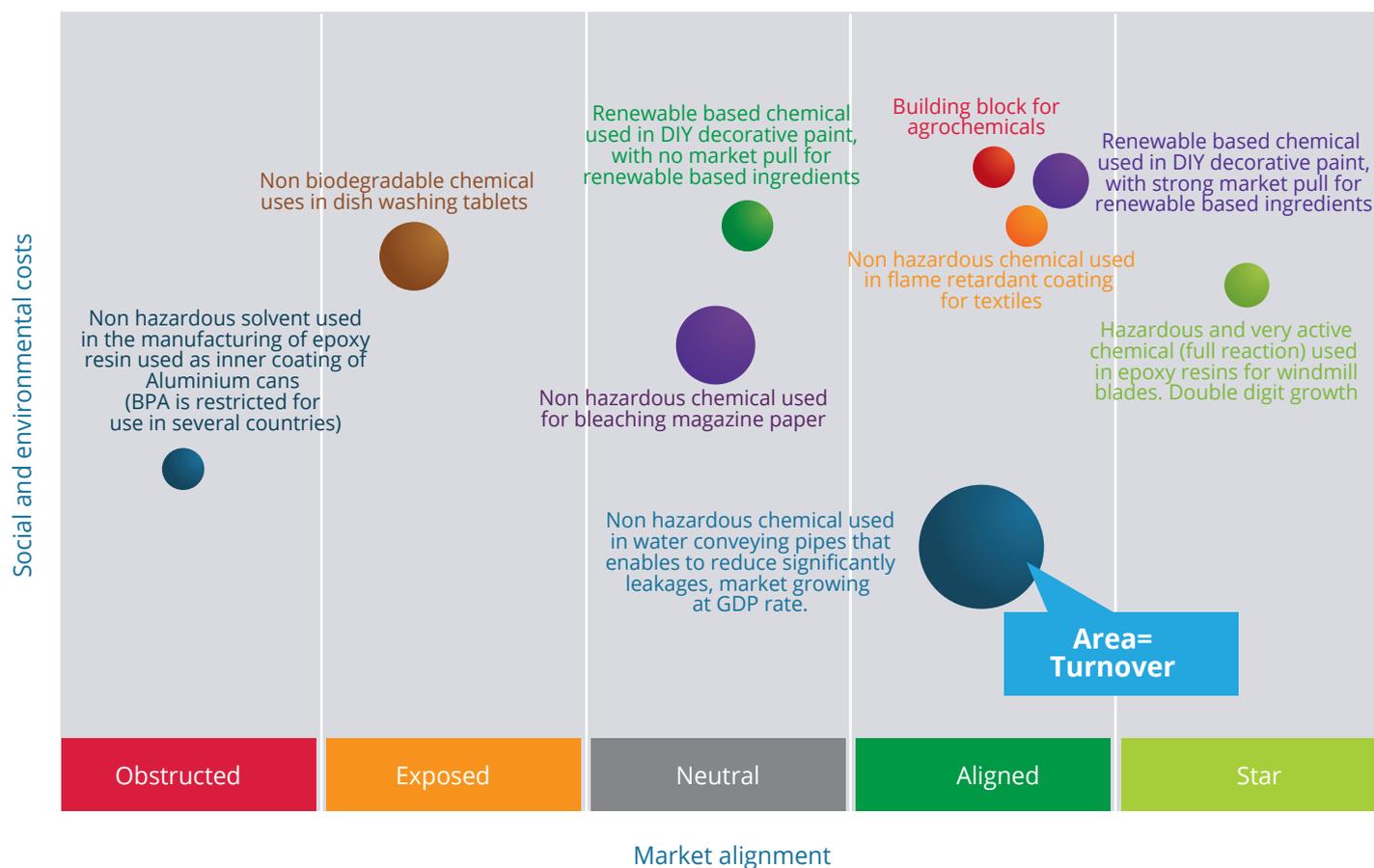


Figure 11 SPM map of various chemicals

27 When addressing 'risk management' in this paper, we refer to the enterprise-wide, integrated cycle of risk and performance management.

28 EY & COSO (2013). Demystifying sustainability risk - Integrating the triple bottom line into an enterprise risk management program.

29 The International Integrated Reporting Council (2013). The international IR framework.

30 EY (2013) Turning Risk into Results.

31 Kennisinstituut Mobiliteitsbeleid (2013). De maatschappelijke waarde van kortere en betrouwbaardere reistijden.



Chapter 5

Innovation: Identifying opportunities through true pricing

A second business aspect within the True Price roadmap is innovation. Companies can use true pricing to identify new business opportunities that avoid negative and promote positive externalities. In this report, innovation refers to 'sustainable innovation'. There are three levels of innovation, which, when combined, can have the largest impact on an organisation's financial performance. Monetizing can help companies to focus innovation, because it provides tangible information on which social and environmental externalities are best improved by innovation in specific business areas. It allows companies to identify business opportunities for innovative existing and new products, processes and business models. In addition, monetizing helps to measure the effect of specific innovations on the bottom-line and can strengthen the business case for innovation to address externalities.

5.1 Focus innovation

Innovation can be incremental, leading to a license to operate, consist of mid-term continuous improvements, or it can be a disruptive change for the long term. It is driven by both internal factors: cost management, risk management or finding growth in existing and new markets, and external factors: resource scarcity, growing transparency and demand for sustainable products. Many companies already use sustainability to rethink business models, products and processes.³² The increasing number of internalized externalities provides a great business opportunity for companies to use innovation to improve externalities, or reduce negative and promote positive externalities. Monetizing externalities has the potential to drive, focus and measure the impact of three types of innovation:

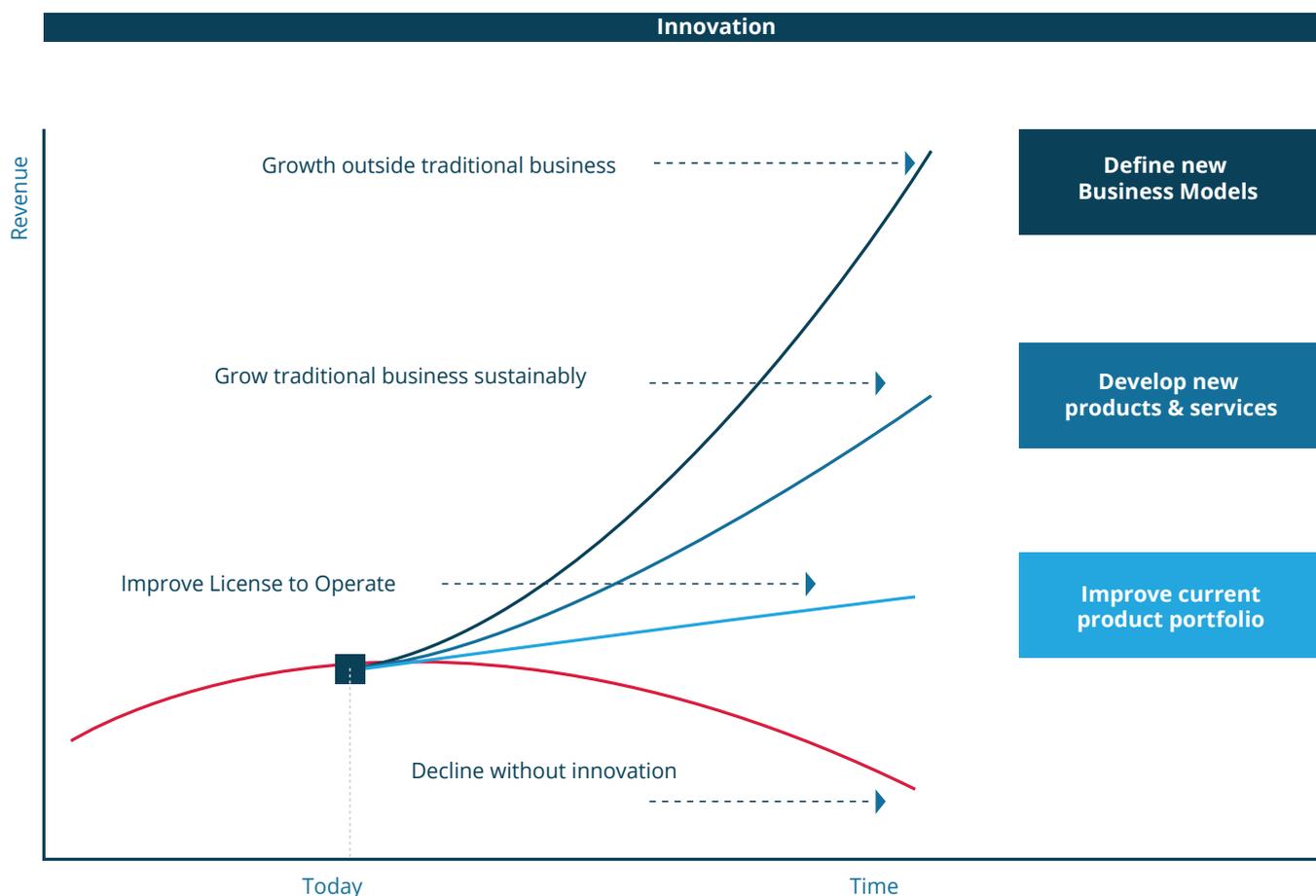


Figure 12 Innovation model (adopted from Deloitte Sustainable Innovation)

1. Improve the current product portfolio to realize efficiency;
2. Develop new products and services to develop new markets;
3. Define new business models.

Companies can create maximum value if they embrace all three types of innovation, so for the short-, mid- and long-term. Figure 12 shows the different types of innovation to improve externalities and expected revenues over time, ranging from relatively low extra revenues when improving a current product portfolio to higher revenue streams when developing new business models.

5.1.1 Improve current business aspects

Improving existing business aspects, such as a portfolio of products and services, technologies, processes and supply chain is the easiest and fastest way to innovate, as it can be realized within a relatively short timeframe. The main objective is to improve externalities in business aspects through modifications or additions. The criterion to improve externalities is added to the innovation process.

An example of this level of innovation is the introduction of the Unox Free Range Sausage (scharrelrookworst) by Unilever. This sausage is produced under more animal-friendly conditions and its environmental impact is 20% less than an average smoked sausage. This had a positive effect on sales, improved the lives of 500.000 animals and consumers are very positive about the new product. The new Free Range Sausage was recognized as the Best Buy Sausage in 2013, according to the Nature and Environment (Natuur en Milieu) foundation. Making this typical Dutch sausage more sustainable also led to a positive marketing effect for Unilever, winning a marketing award with the product (Bronze Effie Award 2012).

As the example shows, innovations at this level will rather quickly create financial ben-

efits, consumer awareness and improve the environmental impact of the company. In doing so, companies keep up with customer expectations and maintain or enhance their license to operate.

5.1.2 Develop new products and services to develop new markets

Developing new services or products for existing or new markets is a type of innovation that can be realized in one or two years. It is mainly driven by increasing demand of consumers for sustainable products and services. For example, 30% of Dutch consumers take sustainability information into account in their purchasing behaviour.³³ In order to identify innovation priorities, companies must gather consumer information and create new competencies and tools. They can do so by starting alliances with business partners. DSM and BAM use monetizing to identify opportunities to develop new products (Case 3 and Case 4).

Case 3: How DSM is exploring the use of product EP&L to identify innovations

As part of its 2010-2015 strategy DSM in motion, DSM is tak-



ing sustainability to the next level. In addition to fulfilling its own responsibilities toward society, DSM is developing sustainability as a strategic growth driver. The company has two programs focused on product development and improvement. ECO+ is DSM's program for the development of innovative products and solutions with a better environmental impact compared to competing mainstream solutions that fulfil the same function. In People+ DSM develops solutions that measurably improve the lives of consumers, workers and communities across the value chains.

When considered over their entire life cycle, ECO+ solutions offer superior performance and

a lower eco-footprint. The ecological benefits can be created at any stage of the product life cycle, from raw materials to manufacturing, potential re-use and end-of-life disposal. DSM uses comparative life cycle assessments to determine whether a solution should be considered ECO+. An example of an ECO+ product is DSM's engineering plastics, which enables customers to produce lower-drag, lighter-weight and therefore more fuel-efficient cars. A life-science example is Brewers Clarex™, which enables brewers to prevent chill haze without having to cool their beers to sub-zero temperatures. Other ECO+ benefits are the minimization of the use of natural resources such as water or minerals (including metals), or the reduction of waste.

In a pilot project, DSM went a step further and conducted a preliminary product EP&L of different types of coating resins applied on a substrate, based on existing life cycle assessments. The objective was to convert the environmental process footprint from these existing LCA analyses into a value that expressed the amount of money needed to prevent, offset or compensate the negative impacts imposed on the environment. The damage costs estimated took into account three environmental themes – air, soil and water. Damage costs were calculated per m² coated substrate based on the damage costs per pollutant data provided by CE Delft. The final results of the damage costs corresponded with the size of the carbon and ecological footprint. Although the results are preliminary and based on assumptions and an incomplete dataset, Figure 13 shows the potential true price of ready-to-use coatings. Overall, the project showed that true pricing can be used to map risks and opportunities associated with the coating resins product portfolio. Opportunities to use true pricing for internal and external communications are also being explored.

It is DSM's ambition that by 2015 at least 80 percent of its innovation pipeline stems from ECO+ products or solutions, and that they account for approximately 50 percent of total net sales. According to Reinier Grimbergen, Director Science



Figure 13 Preliminary results monetizing coating resins

to Innovate at DSM, looking to the mid- and long-term future, DSM considers monetization of environmental and social value chain impacts as a promising next step to understand and steer Triple P (People, Planet, Profit) value creation.³⁴

Case 4 : How BAM uses true pricing for identifying product innovations

International contractor Royal BAM Group's road construction activities specialize in the production, placement and end-of-life treatment of asphalt. As a construction company, BAM strives to achieve circular mobility by focusing its innovations on achieving lower CO₂ emissions and more efficient use of energy and materials. One of the key goals of BAM is to reduce its CO₂ emissions by 15% in 2015 compared to 2009.

In 1998, BAM started with the development of LEAB (Low Energy Asphalt Beton) an innovative type of asphalt that uses less energy, less scarce natural resources and has lower CO₂ emissions than conventional asphalt. In order to investigate the potential of this new type of asphalt to create value for society, BAM commissioned a true price study. The study indicated that placing LEAB instead of conventional STAB (Rubble Asphalt Beton) creates a positive impact of

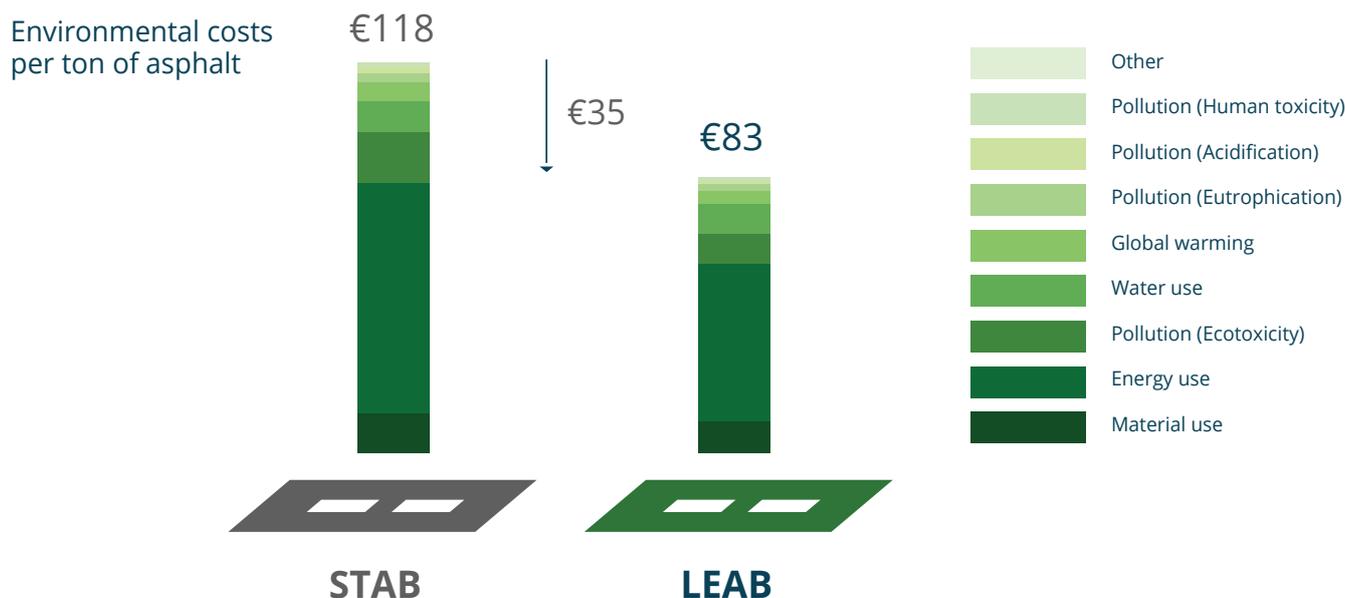


Figure 14 True Price of LEAB compared to STAB

€257.000 on the environment per kilometer of highway. This equals the environmental cost of energy use of about 120 Dutch households per year. To calculate the true price, the main environmental impacts of asphalt production were measured and translated into societal costs. The results show that the production, use and end-of-life treatment of LEAB asphalt is associated with 30% lower environmental costs than conventional asphalt. Coincidentally this equals the reduction in energy and CO2 reduction, but is buildup of other factors. This makes LEAB an undeniable proposition for amongst others government procurers, since it has the same quality, an equal or lower market price and a better environmental performance than conventional asphalt.

The study provided BAM insight into the size of environmental impacts occurring in the asphalt production chain, and made those impacts comparable. As shown in Figure 14, energy use, material use and ecotoxicity are the largest remaining environmental externalities for LEAB. The results help BAM to steer future innovations in the areas where they are most needed and prove that sustainable innovations, such as LEAB, can create value to society without causing extra financial costs.

5.1.3 Define new business models

The third type of innovation companies can use to improve externalities are new business models. Successful business models include novel ways of capturing revenues and delivering services in tandem with other companies.³⁵ A new business model can be created by thinking differently and investing in future changes together with strategic partners. This can be done by setting up partnerships with companies outside the sector or Public-Private-Partnerships (PPP) with governmental organizations, which can facilitate sustainable business operations.³⁶ Business model innovation can have a profound impact on the future of organisations, as research by BCG shows: nearly 50% of companies have changed their business models as a result of sustainability opportunities. A growing number of companies reports that they profit from sustainability.³⁷

The following case highlights the societal value that can be created through business model innovations that improve externalities. Randstad set up a Public-Private-Partnership with the Dutch government and other companies to improve the social externality of unemployment (Case 5).

Case 5: Randstad Project Baanbrekend

Randstad is the world's second-largest HR service provider, founded in the Netherlands and operating in around 40 countries. Randstad developed an innovation with Project Baanbrekend. Baanbrekend is a Public Private Partnership between municipalities and Rand-



stad with the aim to help people on welfare to work. With this project Randstad was able to establish a value (price) for the social impact of the project by calculating the cost savings of a person having a job compared to being on welfare; this is the true cost of unemployment. The project is a perfect example of a PPP, creating a new business model by setting up a strategic partnership with Dutch municipalities, organizations hiring the jobseekers, and also with 'competitors' of Randstad.

months and 78% retained jobs after 6 months, which makes the impact of the project very sustainable. Randstad has a positive societal impact by lowering true unemployment costs and adding value for all the six stakeholders (Figure 15) involved in the project. Inge Dijkstra, Operational Director Randstad HR Solutions, describes the value per stakeholder of Project Baanbrekend.³⁸ Value for Randstad itself is created in different ways. Randstad earns a fee for every employee placed at a new

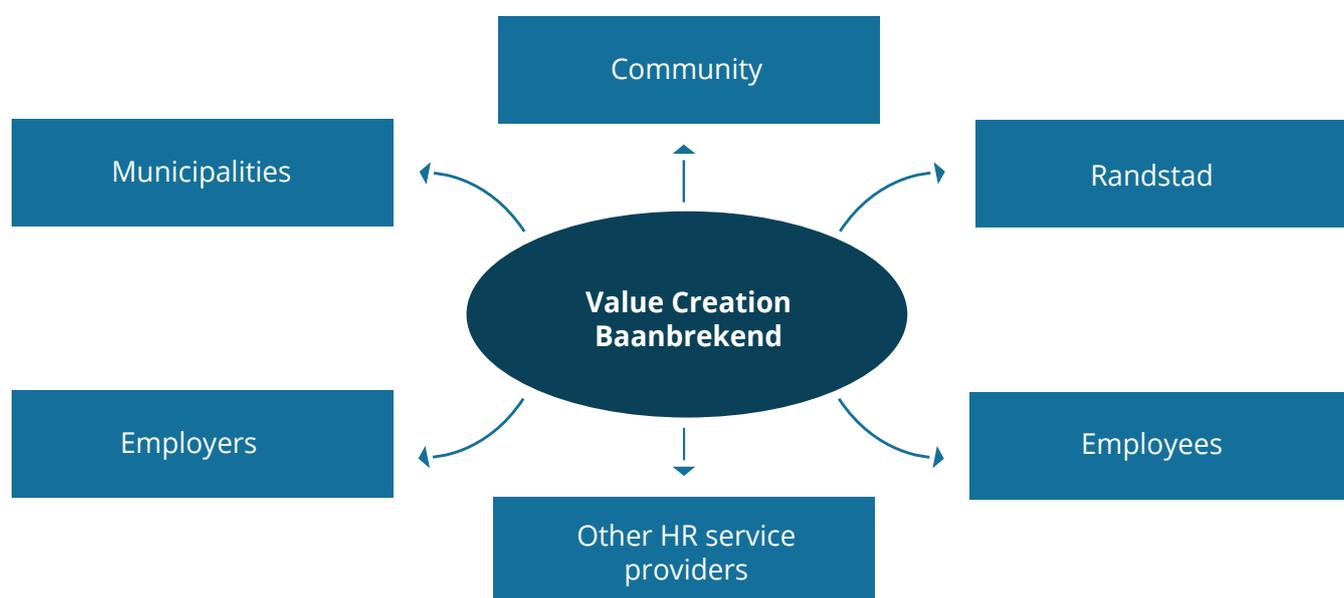


Figure 15 Stakeholders Randstad Project Baanbrekend

stad with the aim to help people on welfare to work. With this project Randstad was able to establish a value (price) for the social impact of the project by calculating the cost savings of a person having a job compared to being on welfare; this is the true cost of unemployment. The project is a perfect example of a PPP, creating a new business model by setting up a strategic partnership with Dutch municipalities, organizations hiring the jobseekers, and also with 'competitors' of Randstad.

This project helped over 1900 people to find a new job in 2013, thereby meeting the target of placing about 60% of all the 'Job Ready' people on welfare in the participating municipalities. Approximately 82% were still working after 3

months and 78% retained jobs after 6 months, which makes the impact of the project very sustainable. Randstad has a positive societal impact by lowering true unemployment costs and adding value for all the six stakeholders (Figure 15) involved in the project. Inge Dijkstra, Operational Director Randstad HR Solutions, describes the value per stakeholder of Project Baanbrekend.³⁸ Value for Randstad itself is created in different ways. Randstad earns a fee for every employee placed at a new employer. There are 3 fees: one at the start of employment, one after 3 months of employment and again after an employee is working for over 6 months. The municipalities pay part of the costs of the Randstad team working for the municipality. Another way in which the Project creates value for Randstad, is through the positive impact it has on the brand image of Randstad. In 2013 many articles and advertisements were placed in the media about the Project, providing free publicity for Randstad, creating a significant amount in PR value. The municipalities obtain value by decreasing the amount of people on welfare. Randstad calculated this value to be approximately €7.000 per person who retained a job for at least 6 months. Value is created for people finding a new job by

increasing their income, happiness and health. According to several research studies, people who are working are generally happier, and have less health issues. For the employers value is created by sourcing employees for reduced costs. In addition, new employees contribute to their social context and Corporate Social Responsibility (CSR). Other HR service providers obtain value because Project Baanbrekend includes their vacancy databases in the efforts to match job seekers with vacancies, therefore these HR service providers place people at employers without conducting the search procedures themselves. In total society obtains value from happier and healthier inhabitants, lower costs for municipalities and lower care costs. The total social impact for Project Baanbrekend for municipalities in 2013 has been calculated to be about + €10 million.³⁹

5.2 The promise of monetization for innovation

There are several ways in which monetizing can enhance decision-making in innovation. For example, it can be used to focus innovation on those products in the current portfolio that provide the largest business opportunity to improve externalities. PUMA has applied monetizing to compare environmental externalities caused by a conventional and a sustainable shoe and T-shirt.

In 2012, PUMA extended its corporate EP&L to product levels. The company published a product EP&L, in which it compared a sustainable and a conventional version of a suede shoe and a cotton T-shirt. For the shoe, PUMA used a mix of organic cotton and linen instead of leather and for the T-shirt organic cotton instead of conventional cotton. The product EP&L covered four phases in the lifecycle: raw materials, production processes, consumer use and disposal. Both products have 31% less environmental impact. The environmental costs of the shoe decreased from €4,29 to €2,95 per shoe, for the T-shirt this was €3,42 to €2,36 respectively.⁴⁰ In conclusion, monetizing at product-level

provided PUMA with quantified insights about the effect of specific product innovations on the environmental impact of existing products. PUMA can use these insights in marketing and can continue to monetize externalities on other products as well.

To our knowledge, so far no organisation has used monetization to actually develop new products that improve externalities. Integrating the monetary value of externalities in the process of developing new products has the potential to help companies focus on innovations that deliver the highest values and positive societal impacts. Also, monetizing can be used for business model innovation, as it can help companies identify those externalities that provide the best promise for improvements not yet captured by current business models. For example, companies might identify that water scarcity provides a business opportunity, which they can best address by shifting to circular production processes. This might require new modes of collaboration with suppliers that currently consume and dispose of water. Moreover, monetizing can help to determine a price that incentivises water reuse; see Box 4 for an example as to how Hitachi used monetization to determine the societal costs of water use of two plants. •

Box 4 Hitachi: Corporate Ecosystem Valuation for water supply and treatment in the Maldives

Hitachi undertook a Corporate Ecosystem Valuation (CEV) study to better understand the potential applications and advantages of applying a CEV, and to enhance project sustainability by considering environmental impacts from a stakeholder value and monetary perspective at the planning stage. The aim of the study was to quantify and monetize the environmental impacts of a new water supply and water treatment plant using reverse osmosis technology and a new gas-fired power supply in Male, the Maldives, and its surrounding islands. Water was valued in terms of the financial value that

would be generated from supplying and selling water (i.e. based on market prices/tariffs). Other environmental impacts were monetized as societal values, based on benefit (value) transfers and replacement costs. For example, the societal benefits from reduced air emissions (NO_x, SO_x and particulate matter) and greenhouse gas emissions, were quantified on the basis of life cycle assessments to account for both construction and operational impacts. Also, the study included societal costs due to construction works damaging coral reefs. The results showed that the proposed scheme is viable from both a financial and societal perspective, with a 30-year economic benefit-to-cost ratio of 2:3 when societal impacts are included.

Reference: WBCSD (2012).

32 Harvard Business Review (2009). Why is sustainability now the key driver for innovation.

33 Dossier Duurzaam (2012). Resultaten Dossier Duurzaam.

34 Interview with Reinier Grimbergen, Director Science to Innovate at DSM (2014). January 27th.

35 Harvard Business Review (2009). Why is sustainability now the key driver for innovation.

36 Deloitte (2012). Sustainability 2.0: Using sustainability to drive business innovation and growth. Deloitte Business Review.

37 MIT Sloan management review & BCG (2013). The innovation bottom line.

38 Interview with Inge Dijkstra, Operational Director Randstad HR Solutions, on Project Baanbrekend, 15th January, 2014

39 Interview with Inge Dijkstra, Operational Director Randstad HR Solutions, on Project Baanbrekend, 15th January, 2014

40 PUMA (2012). New PUMA shoe and T-Shirt impact the environment by a third less than conventional products.

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Chapter 6

Enhance reputation: The true pricing potential in transparency and brand loyalty

The third business aspect for which companies can use true pricing is reputation management. Markets and prices are imperfect because of information asymmetry. Consumers do not have insight in the societal impacts of products and companies often do not take into account societal impacts in the prices that they charge. In an emerging era of limits, scarcities, negative impacts, interdependencies, information technology, and social media, the imperative of structured “transparency” of material facts and figures will become more prominent for good governance and good business. As investors, consumers and voting citizens increase pressure, better insight in the value of societal impact can improve corporate reputations. Monetizing facilitates communication, which is key to corporate transparency, reporting, and branding. Ultimately, these efforts can result in increases in sales, market shares and customer loyalty.

6.1 Prevent reputation risk

Demands for transparency put increasing pressure on companies. This makes them increasingly vulnerable, because if their performance is not in line with what they have communicated, they run the risk of losing the trust of their stakeholders. Measuring and monetizing their material impacts quantitatively – internally – allows companies to safely make partial or qualitative claims externally about their sustainability. In this way, companies can proactively prevent reputational risks.

6.2 Improve transparency and reporting

Consumers are becoming more aware of the social and environmental impact of products and services. Cone Communications Research (2012) reveals that 86% of consumers are more likely to trust an organisation that reports its CSR results; 82% are more likely to purchase a product that clearly demonstrates the results of the organisation’s CSR initiatives than one that does not; and 40% will not purchase an organisation’s

products or services if CSR results are not communicated.⁴¹ Also, consumers increasingly use certification schemes and labels in their buying behaviour, such as the Rainforest Alliance, UTZ certified, EKO and Fair Trade Original. These are highly trusted sources of information about the social and environmental performance of a product.⁴² The information provided to consumers should be credible, verifiable and standardized, otherwise brands run the risk of being accused of greenwashing.⁴³

An example of an organisation that uses certification to improve transparency is Unilever. The organisation committed to use tea from Rainforest Alliance Certified Farms in all Lipton Yellow Label tea bags sold in Western Europe by 2010. In 2008, Unilever ran a campaign on the certification of Lipton tea, which resulted in an increase in sales and market share. In Italy for example turnover increased by 10,5% and value share by 2,13 points.⁴⁴ Interestingly, although product features were not mentioned in the campaign, the perception on the Lipton brand as a quality tea has increased.⁴⁵

Next to labels, consumers can increasingly access information about a product’s social or environmental performance through apps or websites. Some of these are based on the inputs of companies, which can influence their scores by engaging with consumers and professional judges. Other apps let consumers make their own judgment, so when consumers have negative perceptions of a brand’s societal impact, they can give a low rating. Most apps score environmental impacts, whilst only a few also include social impacts, such as GoodGuide and Rank-a-Brand, see Figure 16.

Sustainability rankings or awards are additional sources of transparency, which consumers and investors are consulting. Some well-known sustainable awards or rankings are Katerva, DJSI, the Inrate Sustainability Guide and Best Global Green Brands. Many of these awards consult or analyse companies’ annual reports, which are another rich source of information for various



Figure 16 Apps on social and environmental impact

stakeholders. The recent momentum towards integrated reporting, shows that companies are becoming increasingly transparent regarding their social and environmental performance. Monetizing is an important step forward in the integrated reporting process. Examples of companies that have published an EP&L are NovoNordisk and PUMA. Recently, NS (Dutch Railways) has also published an assessment of its environmental impact and Kering is currently rolling out an EP&L at group level (Case 6). With regards to communicating on social externalities, Infosys is one of the few companies in the world that integrates human capital in the balance sheet (Case 7).

Case 6: How Kering uses EP&L to integrate environmental impact in strategic decision-making

Pioneered by Kering and its brand PUMA, an Environmental Profit and Loss Account (EP&L) is a natural capital accounting and reporting system that places a monetary



value on the environmental impacts that result from a business' activities not only within its own operations but along the entire supply chain through to the initial raw materials. An EP&L helps a company understand where impacts and risks are due to its reliance on natural capital, ultimately helping a company become more resilient to future developments and changes in business and the global marketplace.

Kering and its brand PUMA published the first-ever EP&L in 2011 for PUMA's 2010 accounting year, valuing PUMA's impacts resulting from GHG emissions, water consumption, land use, air pollution and waste at €145 million, whereby €8 million of the total was derived from PUMA's own operations. PUMA's supply chain was responsible for the remaining €137 million, and over half was associated with the production of raw materials in Tier 4 at €83 million. As this was the first such assessment of its kind, the methodology has evolved to include water pollution during the next phase of Kering's implementation of EP&L analyses across its 22 Luxury and Sport & Lifestyle brands, which will be consolidated into a Group EP&L and published by 2016.

The EP&L is a key element of the Group's sustainability and overall business strategy and is being implemented at the Group-level because Kering views that the lifecycle of its products from sourcing, through manufacturing and distribution needs to be addressed in order to become a truly sustainable company and achieve its business goals. In 2014 during the Group roll out, Kering was able to identify where the greatest impacts lie within the supply chain of 6 of the Group's brands covering over 80% of the Group's revenue. The initial analysis disclosed that the bulk of the environmental impacts from GHG emissions, water use, land use, air and water pollution and waste production reside in the Group's production and sourcing (Tier 1-4), equalling approximately 82% of the Group's total impact thus far. As an example, Tiers 1-4 of the Group's supply chain are responsible for 79% of water use, waste is 53% and GHG equalled 82%.

Kering can now compare impacts of materials on product categories, efficiency of processes and suppliers. This will allow Kering to better target project engagement with their brands' business units as well as their suppliers. If, for example, a brand requires an increase in capacity and needs to take on a new supplier, typically the decision is based around development and manufacturing performance, financial security, quality and cost. However, the EP&L can now enhance the depth of those decision elements adding the sustainability dimension in economic terms, of resource use and production. The outputs of the EP&L will also inform Kering and its brands as to which sourcing and manufacturing locations have the biggest environmental impacts and the most cost efficient ways to avoid or reduce potential impacts. Kering will be using the EP&L in the years to come to inform corporate strategy and operational decisions and to enable 'smarter' more 'integrated' thinking.

Case 7: Integrating Human Capital in Infosys' balance sheet

In the standard accounting discipline non-human capital is considered and reported within financial statements. From a value creation perspective, however, it is sensible for especially service-oriented organisations to also account for their human capital. One of the companies that has reported on its human capital value since 2008 is Infosys, a company specialized in IT consulting, technology and outsourcing.



Infosys developed a new model to quantify its value. The Infosys GIST-HCX Model is based on the Lev and Schwartz human capital accounting model. It consists of the present value calculation of the increase in future earnings of employees during their employment at Infosys.

What is different from other methods, is that the model accounts the value of the positive human capital externality generated by Infosys. Human capital externality refers to the benefit derived by society when employees, who enhance their human capital value due to training and development at Infosys, leave the company. The model discounts future earnings at an appropriate discount rate, and uses a long run inflation rate consistent with the Reserve Bank of India's target for inflation expectations.

Table 2, adopted from Infosys' Annual Report 2012-2013, shows that its human capital value creation for 2013 amounted to 1,45,490 crores (1,32,548 crores in 2012). In the model, employee compensation includes all direct and indirect benefits earned both in India and overseas. To calculate the incremental earnings, the organisation considered group and age.

As Cases 6 and 7 illustrate, monetizing has the potential to improve transparency. It can be used to inform consumers with convincing, fact-

in INR crore	2013	2012	Annual change
Employees (No.)			
Software professionals	1,47,008	1,41,788	3.68%
Support	9,680	8,206	17.96%
Total	1,56,688	1,49,994	4.46%
Value of human capital			
Software professionals	1,24,867	1,15,900	7.74%
Support	12,978	9,817	32.20%
Total	1,37,845	1,25,717	9.65%
Value of human capital externality			
Software professionals	6,767	6,182	9.46%
Support	878	649	35.2%
Total	7,645	6,831	11.92%
Total value of human capital and human capital externality	1,45,490	1,32,548	9.76%
Value of human capital per employee	0.88	0.84	4.76%

Table 2 Human Capital Value Creation Infosys 2012 and 2013⁴⁶

based and standardized data on the current status and initiatives undertaken to improve an organisation's impact. Also, it can support already existing labels or gauge whether qualitative claims can actually be supported by hard data. Since monetizing can make the efforts and activities of companies more visible and comparable, it can also facilitate the selection process in sustainable awards and rankings. Judges can base their opinions on more factual data about companies' social and environmental performances or improvements and benchmark these over years. Last, conducting a True P&L will enhance transparency in reporting, which can attract investors with more long-term horizons and interest in more impactful investments.

6.3 Enhance brand loyalty

Next to transparency, communicating on societal impact can positively influence consumers' brand loyalty. A study by GMA and Deloitte found that sustainability considerations either drive or influence the buying decisions of more than 50% of the 6,000 consumers that were

interviewed.⁴⁷ Once a more sustainable product has captured the consumer's commitment it tends to create brand stickiness by retaining the consumer's loyalty through repurchase. In addition, consumers are still on a learning curve, because they do not always understand the social and environmental benefits of a product; 95% of the consumers would 'buy green' if they had the right information and an otherwise satisfactory product. Also, 'Employer's Brand' is enhanced if an organisation produces products or services with a positive societal impact. It is a key element in attracting and retaining talent, especially younger generations.⁴⁸

Monetizing can enhance brand loyalty, by translating societal impacts into a frame that consumers are used to, namely prices. By directly showing the true price of a product, consumers can better compare the societal performance of products. Due to more objective information, they could perceive brands with a better societal impact as more attractive than conventional brands. This would increase trust and consumers could be more willing to pay extra for

products from brands that resonate with their social and environmental goals.

The true price of a product can be communicated in many ways and through many channels. For some companies this can be a great opportunity to show how their product differentiates from conventional products that have higher social and environmental impacts. PUMA has done so with a product EP&L, which shows the environmental costs of a conventional and a more environmentally friendly shoe and T-shirt. From an economic perspective, consumers would choose the product with the lowest price. In this case, PUMA's conventional T-shirt has the same retail price as its organic T-shirt. However, since the latter's environmental costs are lower, consumers could be more inclined to buy the organic T-shirt. For the suede shoe, showing the environmental costs might not necessarily stimulate consumers to buy the more environmental-friendly model, because the difference in retail price (€10) between the two products is larger than the difference in environmental costs (€1,34).

One of the risks in showing the true price of a product, is that if competitors do not show their true price (yet), consumers may perceive the product of companies that do show their true price as more expensive. This is mainly, because consumers cannot make a fully-informed comparison with the societal impact of other products, so they might be inclined to continue purchasing their regular brand.

Lastly, companies can use true pricing to show how they improve their impact, for example through lowering their true price or publishing a true P&L. Stakeholders will more likely improve their perception of the product, service and brand, which may increase sales and revenue. Companies that publish their improvements should however consider that if the true price of a product increases, or their true P&L does not improve over time, consumers and investors may shift to brands that do improve. This does provide a great stimulus for product innovation. ●

41 Cone Communications (2012). Consumers Demand More Than CSR "Purpose".

42 BBMG, Globescan and SustainAbility (2012). RE: Thinking consumption; Customers and the Future of Sustainability

43 Greenwashing Index (2013).

44 Nielsen MAT DATA (2009). Lipton Yellow Label Tea sales.

45 Horlings- Wonderwings, S. (2009). Bridging the gap between branding, sustainability and consumer demands.

46 Assumptions: Long run inflation rate assumed at 5%, discounting rate assumed at 4%.

47 GMA and Deloitte (2009). Finding the green in today's shoppers, Sustainability trends and new shopper insights. 48 MIT Sloan management review & BCG (2013). The innovation bottom line.



Chapter 7

Integrate: Finding the optimal moment and strategy to improve externalities

Once companies have identified the general, qualitative business case for improving externalities, the question is: when to start improving which externalities, and to what extent? Improving externalities means avoiding negative externalities and stimulating positive externalities. It is an impact-specific approach, where companies can for example focus more on water than on living wages at a certain point in time. When timed effectively, improving externalities can lead to a first-mover advantage,⁴⁹ for example in terms of more effective risk management, new business innovations and enhanced reputation. There are two steps companies can take to start improving their externalities: 1. Identify the business case for improving externalities and 2. Choose an improvement strategy.

7.1 Step 1: Identify the business case for improving externalities

After discovering the business case for engaging in true pricing, the first step companies should undertake is identifying the business case for improving externalities, so reducing negative and increasing positive externalities. As shown in Figure 17, this is driven by three factors: (1)

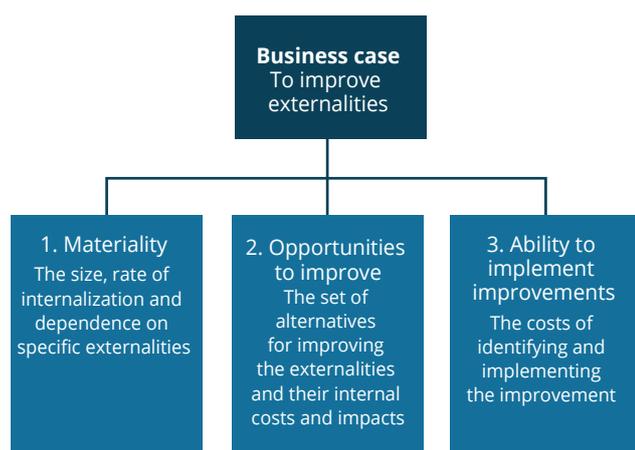


Figure 17 Factors that determine the business case for improving externalities

the materiality of specific externalities to the organisation, (2) the opportunities to improve externalities, and (3) the ability to implement improvements.

7.1.1 The materiality of externalities

Effective decisions as to when to improve, which externalities, and to what extent, require a deep organisation-specific understanding of the total societal impacts, be they environmental, social, economic or fiscal.⁵⁰ It is important to understand the materiality of specific externalities, which depends on their size and rate of internalization as mentioned in section 1.1. External factors such as regulation, access to resources, demands from financial institutions, but also a growing consensus about costs all affect the materiality of externalities. A third factor is the dependence of an organisation on a specific externality, which is determined by its business model—air pollution is likely to be more material for an aluminium smelter than for a professional services firm. Additionally, it is important to gain insight into which stakeholder groups are affected by externalities.

7.1.2 The opportunities to improve externalities

The second factor that determines the business case for avoiding negative and promoting positive externalities is the opportunity to improve externalities. It is important to know the sets of alternatives that exist to improve externalities. Different alternatives will require different levels of investments and collaboration with other stakeholders. For example, if an organisation wishes to reduce its dependence on suppliers that do not pay their workers a decent living wage, there are several alternatives from which it can choose. The organisation can: shift to a supplier that pays decent living wages, punish suppliers that do not pay a decent living wage, adjust sourcing requirements to ones that include conditions on a decent living wage, or collaborate with current suppliers to improve their payment schemes or arrange compensation schemes for employees with suppliers.

The opportunities to improve are also influenced by the dependencies and trade-offs between different externalities. For example, growing a crop

at one location may reduce transport and therefore emissions, but may require the use of water in an area where it is relatively scarce.

In some cases, companies will decide not to take action even if an externality is highly material. For example, if there is no alternative that creates a lower externality or if the alternatives are too expensive or result in a higher premium. That is where innovation becomes important, because it can increase the set of alternatives, for example by providing new products that have a larger positive impact as compared to current alternatives.

7.1.3 The ability to implement improvements

Box 5 The effect of industry type on Honda's ability to implement improvements

The 2011 floods in various regions in Thailand resulted in USD 46.5 billion of total damages and losses, such as lost production and income. The decrease in exported goods was valued at USD 7.9 billion. Roughly 90 percent of the damage and losses were borne by the private sector of which the manufacturing industry was hit the hardest bearing approximately 70% of total costs. For Honda it meant a 23.1% decrease of its unit production in Asia as well as and major supply chain and production operations around the world. Despite these risks, Honda continues to make use of the same facilities, given the large investment required to relocate.

References: TFS Initiative (2013); Epstein (2008); World Bank (2012).

Thai Food (2011).

A third factor in identifying the business case is an organisation's ability to implement improvements. This depends on organisation-specific characteristics, one of which is size. Large companies may have more resources or experience available than smaller companies. While smaller companies will experience less bureaucracy, which allows them to adapt more quickly, for example in terms of innovation.⁵¹ Decision structure also plays a role, where centralized compa-

nies will be able to change course more easily than decentralized companies. This is linked to geographical location, in that decisions may be further complicated when geographical diversity increases due to local laws and cultural differences.⁵² Another characteristic is industry type. For example, capital-intensive industries such as utilities are characterized by long-term commitments to large investments in fixed assets such as land, equipment and machinery, which makes them more vulnerable to unexpected events.⁵³ They have limited ability to disinvest or shift investments as illustrated by the example in Box 5. Also, the extent to which best practices to improve externalities are already available differs per industry,⁵⁴ in some cases research and development of new solutions may require large investments. Companies may not want to invest individual resources to set up a framework to measure industry-specific externalities, which other companies in the industry can use afterwards. That is why openness to collaboration with peers and other stakeholders in the value chain is critical, see for example initiatives in the textile industry⁵⁵ and chemicals industry⁵⁶. Lastly, the systems available for gathering information,⁵⁷ the information already available, and the skills to translate information into strategy execution also determine organisation's ability to implement improvements.

Next to organisation-specific characteristics, behavioural factors play a role in the ability to implement improvements. One such factor is the willingness of people in the organisation to implement improvements, which is often influenced by the CEO's involvement. Leading by example, he or she can affect the core values of the organisation⁵⁸ and the degree to which top management is held accountable for improving externalities.⁵⁹ Current strategy may or may not be conducive to an organisation's willingness to implement improvements. This depends on the extent to which sustainability is seen as an opportunity, threat or compliance exercise. Companies that focus on the former are more likely to see the improvement of externalities as a way to manage risks, drive innovation and enhance

reputation. A last factor is appetite for risk, where risk-averse companies are more likely to improve externalities to avoid risks and stay ahead of competition.

Case 8 describes how Holcim uses monetization to identify material impacts, calculate the business case and develop a strategic roadmap for improving negative and positive impact.

Case 8 Holcim: Developing a strategic roadmap based on measuring social and environmental impact

Holcim is a leading supplier of cement, aggregates, ready-mix concrete, and asphalt, and provides related services. The production and use of these essential building materials provide significant benefits, but also impacts the environment and society. Ambuja Cements (ACL) in India, a part of the Holcim Group, undertook a study to understand the value of its social and



environmental impacts and to gain insights into how much value could be at risk by 2020. The study was conducted at the company level in order to understand how much value Ambuja creates across the full triple bottom line.

The study estimated the costs and benefits of aspects such as water usage and rainwater harvesting, carbon and other emissions to air, the use of alternative fuels and raw materials and agri-based livelihoods. The results showed that overall, ACL delivers a greater value than only financial value, but highlighted where the company needs to invest to reduce especially environmental costs. Figure 18 highlights the 2012 social and environmental costs and benefits.

Overall, ACL's value including social and environmental costs and benefits in 2012 is 60% higher than its financial value. The social and environmental benefits were estimated to be around 3,800 Cr INR (€760 million) with significant benefits from providing solutions to waste from other industries, strategic social investments and contribution to economy. Costs were estimated at 3,047 Cr INR (€690 million),

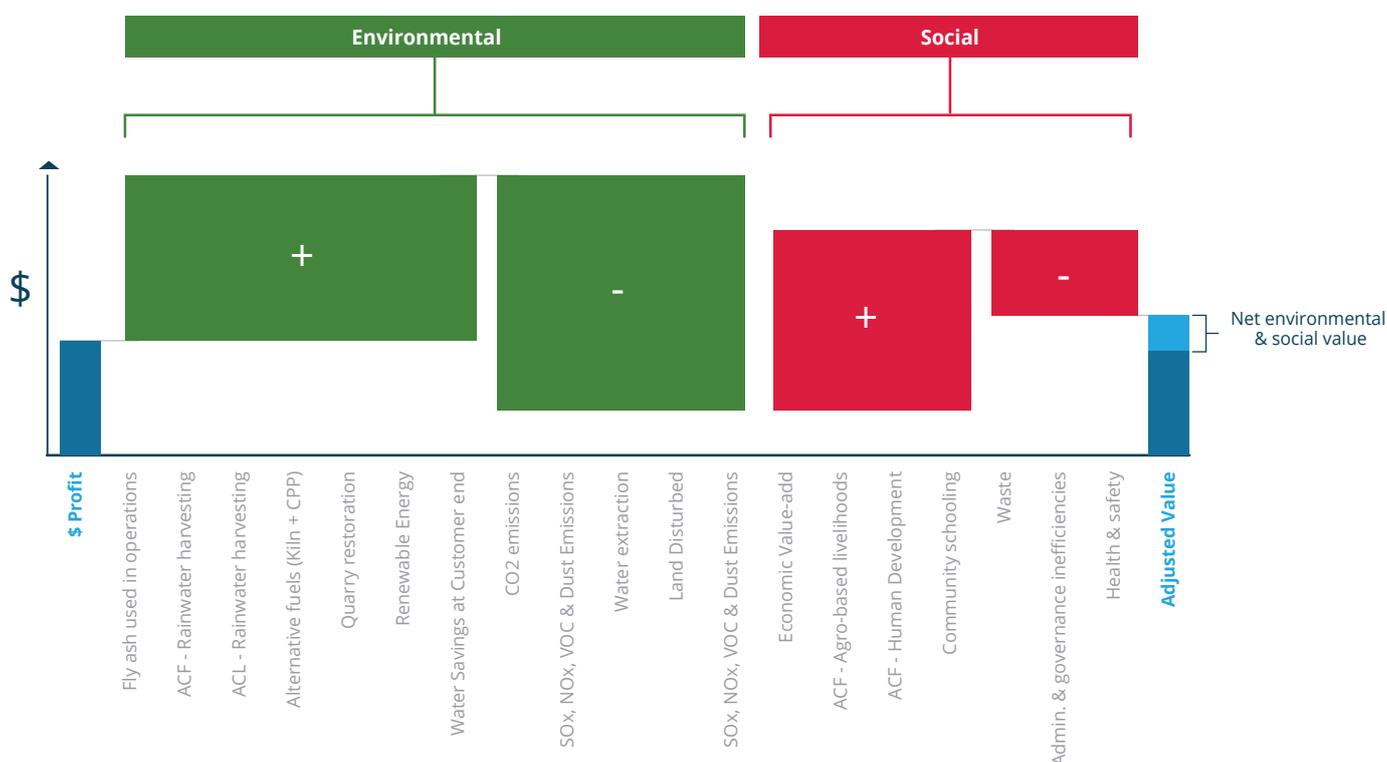


Figure 18 The social and environmental costs and benefits of ACL

which were mainly due to emissions of CO₂, SO_x, NO_x and dust.

Analysing how much of this value is at risk by 2020, Ambuja prioritized 3 focus areas (carbon emissions, water and further expanding its social engagements) to profitably improve its impact. A number of projects have been identified in these three areas, which are its key contributions to the Holcim Group Sustainable Development Ambition 2030.

The increased transparency from looking at financial, environmental, and social performance in one view enabled Ambuja to better understand and measure its performance. This approach has helped the company to demonstrate the business cases with positive NPV that reduce negative and increase positive impacts.

Taking the learnings from ACL, Holcim is developing a “Triple Bottom Line” toolkit that can be used by all its group companies. The toolkit consists of 3 main elements:

1. Quantify the Impact. Calculation of the social and natural capital of the company gives a view of the extent of the impacts (both positive and negative) in Holcim’s operations and down the value chain for customers and communities.
2. Prioritize focus areas. Analysis of the risk of internalization and opportunities that can be harnessed helps identify focus areas. Once focus areas are identified, the company can explore what initiatives can be taken in response.
3. Calculate the business case. By selecting profitable initiatives, Holcim can ensure social and environmental benefits are maximized along with financial benefits.

Having transparency on the societal and environmental value enables Holcim to better identify opportunities to reduce negative impacts and deliver more benefits. Through this process, Holcim can set forward-looking targets taking into account the full triple bottom line. The company has developed the framework, and has

now begun to work with its group companies to use the tools to prepare their sustainable development roadmap for 2030 with specific targets and initiatives.

7.2 Step 2: Adopt one of three improvement strategies

Once the business case has been identified, step 2 for companies is to determine which of three improvement strategies to adopt: active, reactive or inactive. Each strategy comes with a different set and timing of actions to improve externalities. Actions will come with internal and external costs, and have different consequences for the future cost curve of an organisation.

Figure 19 presents the three improvement strategies and the effect of their timing on the cost of improving externalities. The assumption here is that companies that adopt an active improvement strategy already take actions that are typical of the reactive strategy. Also, it is assumed that the cost of not improving externalities will increase over time and touches the maxima of the cost curves of the active and reactive strategy. It intersects the reactive and inactive strategy cost curves at the point where it becomes profitable for companies that adopt a reactive strategy to invest in improving externalities. As shown, an active strategy will ultimately lead to lower costs as compared to a reactive strategy. Companies that adopt an inactive strategy are expected to struggle.

7.2.1 Active improvement strategy

Companies that adopt an active improvement strategy are likely to take actions in the sphere of innovation and branding. They will want to develop new sets of alternatives, such as new process innovations to reduce waste, exploring natural rather than manmade solutions (e.g. Veolia’s use of natural wetlands to filter water rather than industrial mechanisms⁶⁰) and

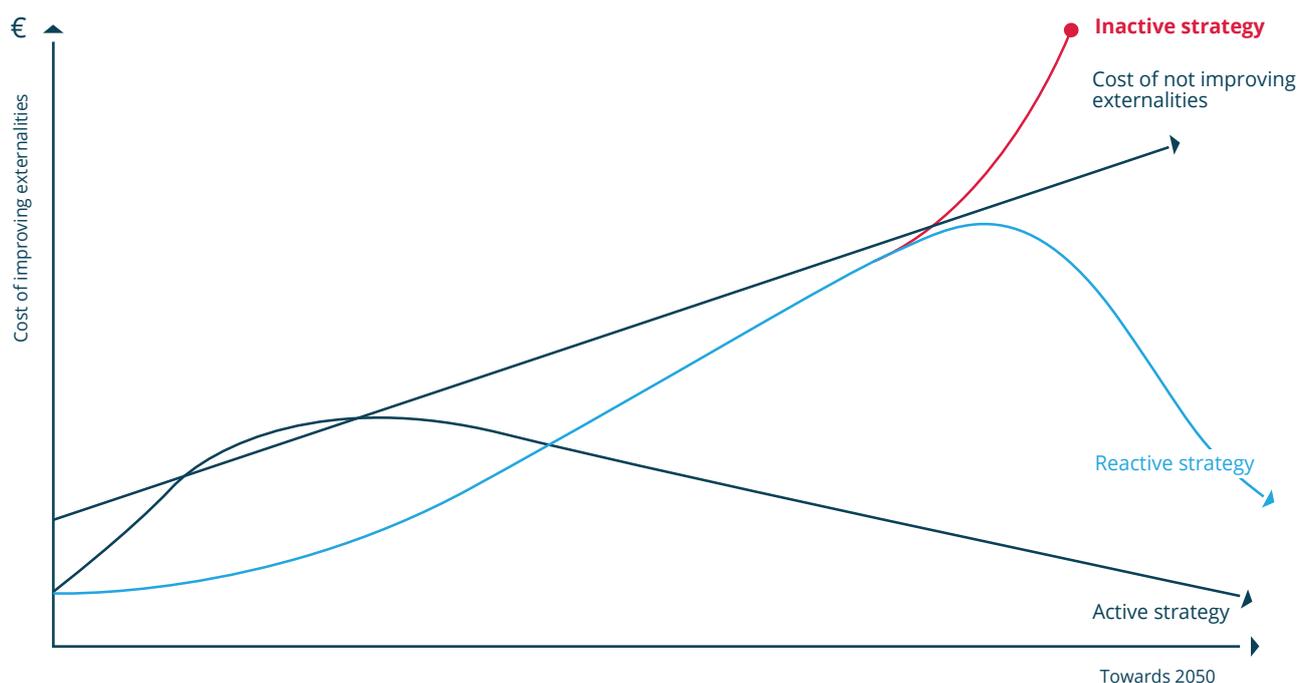


Figure 19 Cost curves of the three generic improvement strategies

alternative business models (e.g. Kingfisher's plan to lease equipment rather than sell it⁶¹).

With regards to branding, companies that adopt an active strategy are transparent about their impact and can better communicate to stakeholders how they (will) improve it. In addition they can choose to adjust pricing strategies in relation to their impact strategies, as they may be able to transfer (part) of the benefits stemming from the improvement of their impacts to consumers. Typically, companies take action and consequently incur costs early on. Due to such investments, their overall costs are expected to be lower in the long run than if they would have adopted one of the other strategies. This is often the case because they forego possible costs related to taking measures in response to stakeholder concerns about externalities.

7.2.2 Reactive improvement strategy

Under a reactive strategy, companies are likely to take actions to actively manage risks. They can adjust sourcing requirements, for example by starting with selecting suppliers based on sustainability criteria and collaborating with

suppliers to improve their environmental and/or social aspects such as working conditions or living wages. Also, they can take measures to monitor new government regulations for internalizing externalities. Generally, companies that take a reactive approach will prefer to wait and see how stakeholder interests develop. This gives them time to learn from active companies and further develop their own strategy. They may perceive that taking the first step to improve externalities is impossible within their industry and requires a pre-competitive setting. In that case, they need time to convince peers to take joint steps, to share risks and costs related to improving externalities.

Taking a reactive approach can be a high risk strategy.⁶² By adopting a reactive strategy, companies risk that stakeholder pressure accumulates and that stakeholders might take over the initiative. This will likely result in more overall costs than in the case of an active strategy. If companies wait too long, they might not be able to improve externalities or only at extremely high cost. They risk losing their licenses to operate. A reactive strategy can delay the cost to improve externalities, but only temporarily. However, once companies have to start improv-

ing their externalities, the costs of doing so are likely to be significantly higher than for active competitors as change will be forced upon the organisation.

7.2.3 Inactive improvement strategy

Companies that adopt an inactive strategy take no action to improve externalities. Often companies will adopt an inactive strategy if they are unable to improve externalities, despite the size of their externalities or the willingness of people in the company to implement improvements. Inactive strategies result in a downward spiral; as negative externalities become more severe they have an increasingly negative impact on the organisation, which in turn affects its ability to adapt. As a result, this strategy will often result in bankruptcy. The cost of externalities spirals out of control and then suddenly drops to zero. The prospect of becoming locked-in in an inactive strategy may offer opportunities for innovation, for example to drastically transform an organisation's business model or abandon stranded assets.

7.3 The added value of monetizing: optimizing strategic decision-making

From a strategic perspective, monetizing externalities offers companies the opportunity to make better-informed strategic decisions. First, it helps to determine the optimal moment to improve which externalities to what extent, because it quantifies social and environmental externalities and their dependencies. It enables companies to compare externalities that have different attributes in terms of materiality. Also, by attaching a financial value to alternative scenarios in which different externalities are improved, companies are in a better position to determine which combination of externalities is most optimal and at which moment it makes strategic sense to start improving the externalities. This is illustrated by the true price of a rose in Case 9.

In addition, monetizing can be used to choose the type of strategy to improve externalities. It enables companies to quantify the costs and benefits of implementing specific actions to improve externalities and their effects on their future cost curve. In that way, it becomes easier to compare actions to improve externalities with other strategic actions. Also, they can better define appropriate actions and relevant KPIs with full awareness of the consequences for their future cost curve. This allows them to measure improvement of externalities, because KPIs can also be defined in quantitative terms. Although quantifying externalities remains challenging at times, in pursuing it, the decision process will move from qualitative to quantitative analysis. This is shown by Tony Chocolonely, which used true pricing to optimize its strategy, see Case 10.

Case 9 Creating a strategic roadmap to make the horticulture sector in Kenya more sustainable

The Dutch based NGO Hivos is an international development organisation that aims to contribute, together with local civil society organisations in developing countries, to a free, fair and sustainable world. This objective can for example be achieved by making supply chains more sustainable. Hivos has used true pricing in its campaigns to initiate positive engagements with horticulture companies in Kenya, giving them actionable advice on further improving their financial, social and environmental performance.



In the coming five years, Kenyan rose farms will be susceptible to rising costs of water, materials, energy and labour, international competition and regulations to comply with workers' rights standards. This is challenging for farms, because current small margins compared to revenues leave little absorption capacity for further cost increases. At the same time, costs can be reduced by investing in innovation, like

sea freight, renewable energy and skills training for workers. This is a sticky paradox: the small margins create both a necessity and barrier to invest. How can rose farms overcome this paradox to achieve resilient and sustainable companies in 2020?

A true price analysis was conducted to identify a business case for sustainable rose farming. The study covered T-hybrid roses of 20 grams from Lake Naivasha, Kenya and compared roses produced at a conventional farm to those produced at a sustainable farm. Mapping the supply chain showed that the retail price of roses produced on both types of farms are on average the same

impact associated with transporting the roses through airfreight and the social impact regarding income.

The results allowed Hivos to identify various projects to reduce environmental or social costs, without reducing the margin (see Figure 20). They could map the costs of each project and their effect on the profit and loss of an average farm. For example, an intervention of training on health and safety would generate about €4.500 profit per hectare while switching to transport by sea would increase profit by €5.000 per hectare. By speaking the language of flower farm owners, the organization could

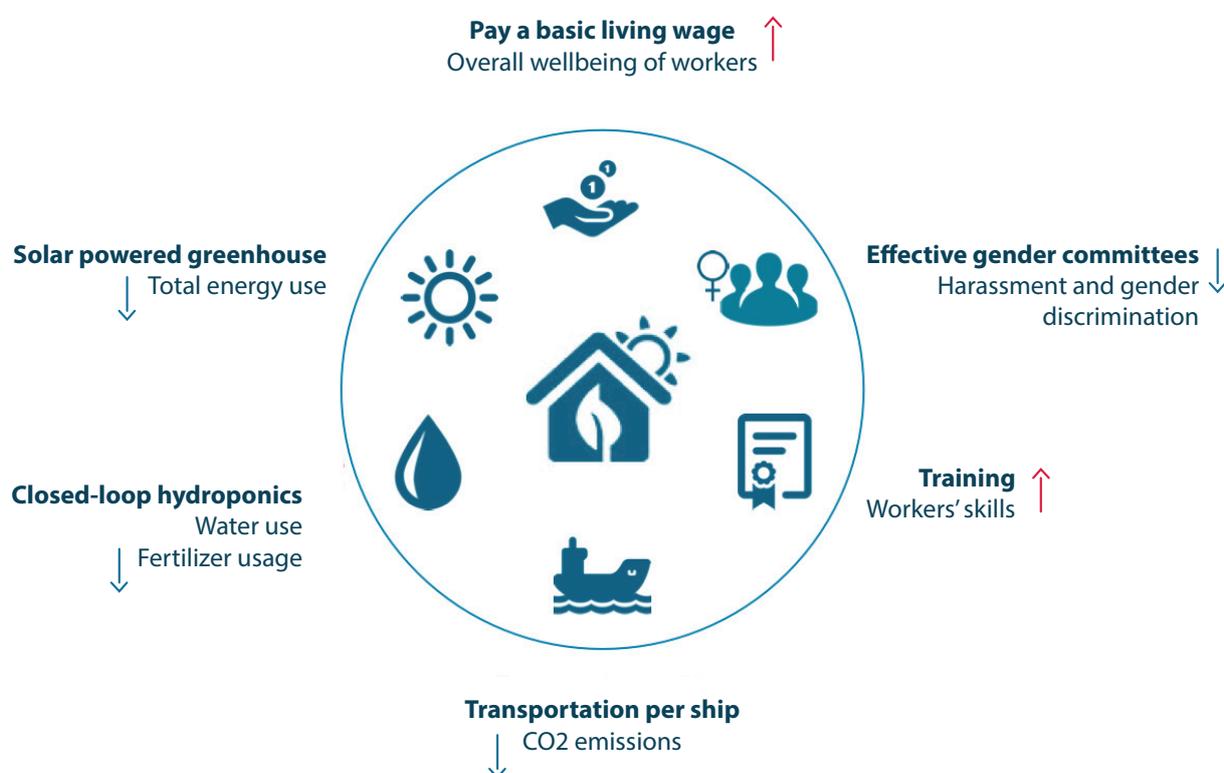


Figure 20 A successful rose farm in 2020 – projects to improve social and environmental impact

(€0,70). Since roses are mostly sold through the Dutch auction, where it is not so easy to distinguish sustainable from conventional roses, especially with regards to social standards. The true price on the other hand was much lower for the sustainable rose (€0,74) than the conventional rose (€0,92). This difference in true price mainly stemmed from the environmental

demonstrate how better social standards for horticulture workers and more environmentally friendly growing and transport techniques are financially feasible, without negatively affecting their bottom line.

Some improvements in social standards, such as paying a living wage to workers, were less

feasible if farm owners would have to incur all the costs. Based on an economic value chain analysis, Hivos could show how providing a living wage could be possible when a fraction of the costs are borne by wholesale, retail and consumers. This strengthened Hivos' negotiation position in the process of lobbying for better social and environmental standards.

Case 10: Tony's Choclonely optimizes strategy with true pricing

Tony's Choclonely (Tony's) is a Dutch chocolate brand, known for its ambition to make the global chocolate chain 100% slave-free. Since 2012, Tony's has been buying cocoa beans directly from farmer cooperatives in Ivory Coast and Ghana. Besides sourcing Fairtrade and organic cocoa from Ghana at a premium, Tony's pays an additional premium to the farmers, so as to enable them to improve their social and environmental costs.

From a strategic perspective, Tony's Choclonely was looking for a way to know, show, and improve the environmental and social costs of the cocoa. What is the impact of the premium? Which additional steps could they take to improve living conditions and environmental impacts? And how did Tony's perform compared to non-sustainable alternatives? In answer to these questions, Tony's used true pricing to determine the footprint of a pure chocolate bar and monetized externalities such as CO₂ emissions, forced labour and income distribution throughout its supply chain. These were compared to a sector benchmark and helped to identify the optimal moment to undertake improvements in line with the company's strategy.

Results show that Tony's social and environmental footprint of cocoa was 40% lower than that of the cocoa used in the average non-sustainable chocolate bar in 2013. Also, it was found that 25% of the farmers that receive a premium experience a higher net income and receive more

training. Areas of improvement are amongst others underpayment, land use, child and forced labour, health care and capacity-building of farmers. Concerning environmental costs, it was notifiable that around 70% of these are located at farm level, where issues such as land use, productivity and cacao prices can receive more attention.

"Tony's Choclonely is always looking for innovative ways to raise awareness and find solutions. In this context, our collaboration with True Price™ is an interesting opportunity. This project allows us to quantify our progress, focus our attention, and refine our strategy."

Arjen Boekhold, Chain Director

If all measures succeed, the future is bright: Tony's aims to eliminate all environmental and social costs in their supply chain by 2019.

7.4 Seven steps ahead for your business

The framework in Figure 21 provides an overview of the steps companies are recommended to take in order to start with monetizing externalities. As in any strategic process, it is key for the initiator of monetizing externalities to have buy-in and support from C-level executives. Also, engaging internal stakeholders before taking step 1 is an important precondition for a successful launch.

This framework is different from existing frameworks on impact measurement because it focuses specifically on externalities. This primarily affects the steps taken in data gathering. In addition, steps 5-7 do not appear in other frameworks, as they capture the process of monetizing externalities and integrating them in regular business processes in a sensible way. ●

	What	Goal
Step 1	Define ambition	Define the business case of why to monetize externalities and identify key success factors. The business case can be divided into: <ul style="list-style-type: none"> • 1. Enhance decision-making in business • 2. Manage risks • 3. Spur innovation • 4. Enhance reputation
Step 2	Define dimensions of value by mapping the value chain and value creation process of your organization	Understand each externality, how they arise and which set of indicators and methodologies to use to assess them.
Step 3	Define scope by conducting a materiality analysis	Determine whether you are measuring the right externalities; those that are relevant and significant and not just those that are easy to measure.
Step 4	Measure externalities by collecting existing data and sourcing new data	Gather information from existing corporate systems. Fill gaps identified by setting up new information systems and sourcing additional information from e.g. suppliers or from targeted evaluations.
Step 5	Monetize externalities by analysing data and valuing impact	Create a holistic view of the impact on the business and its stakeholders by monetizing the externalities.
Step 6	Manage externalities by integrating them in the business strategy	<ul style="list-style-type: none"> • Improve externalities, so reduce negative and promote positive externalities in order to create shared value. • 1. Integrate externality risks and opportunities in existing assessments and frameworks; • 2. Take action to improve externalities, so reduce negative and promote positive externalities; <ul style="list-style-type: none"> a) Reactive improvement strategy: manage identified risks by e.g. adjusting sourcing requirements (Ch.4) b) Active improvement strategy: focus on innovation by developing products with less externalities involved opening up new markets. and communicate true prices of your product and adjust pricing strategies (Ch.5&6) <p>- Start or join industry initiatives to collaborate and create synergies.</p>
Step 7	Set KPIs to manage externalities	Manage externalities by defining relevant KPIs on how to improve them and track progress.

Figure 21 Seven steps ahead framework. References: these next steps are distilled from key action points for business as defined by TEEB for Business, PwC (2013), EY & COSO (2013), Deloitte (2012) and this True Price business case report.

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Key definitions

Cost of coordination: All costs that need to be incurred in order to carry out a transaction.⁶³

Cost of information: Search and information costs are costs such as those incurred in determining that the required good is available on the market, which has the lowest price.

Externality: a side effect of market behaviour on a person that was not agreed to by that person. This can be a problem, because the effect is often not reflected in market prices.

Externality risk: a probability of negative effects stemming from social or environmental externalities that are caused by factors internal or external to the organisation.

Impact: Impact is defined as the portion of the total outcome that happened as a result of the activity of an organisation, above and beyond what would have happened anyway.⁶⁴ As such, impacts can be differentiated from intentions, outputs and outcomes. While outputs and outcomes are related to the provider of the product, activity or service, impacts are associated with users⁶⁵ and other stakeholders. Impact includes both intended and unintended effects, negative and positive effects, and long term and short term effects.^{66 67}

Internalization: the process by which the costs or benefits to society become a private cost or benefit to an organisation. Internalization can take the form of regulation, taxation, scarcity or consumer preferences. Note that internalization means that an organisation pays for the societal costs (in case of a negative externality), but not necessarily that the damage is repaired or that the injured party is compensated. For instance, a CO₂ tax does not mean that CO₂ is taken out of the air.

Internalized externalities: An organisation's societal costs or benefits become the organisation's private costs or benefits.

Life-cycle analysis: Life Cycle Assessment (LCA) is a tool for the systematic evaluation of the environmental aspects of a product or service system through all stages of its life cycle. LCA provides an adequate instrument for environmental decision support.⁶⁸

Materiality: an issue is material if it has a direct or indirect impact on the organisation's ability to create, preserve or erode economic, environmental and social value for itself, its stakeholders and society at large.⁶⁹

Monetizing: Monetizing external impacts provides "figures that can be directly integrated with conventional financial measures and unequivocally linked to the financial bottom line".⁷⁰

Planetary boundaries: Nine bio-physical processes, which have boundaries that compose the safe operating space of the planet. Due to human activity, some of these boundaries have already been crossed and can only be restored with human intervention.

Transaction costs: Transaction costs refer to the costs of providing for some good or service through the market rather than having it provided from within the firm. Examples are search and information costs, bargaining and decision costs, and policing and enforcement costs.

True pricing: Integrating the external social and environmental costs and benefits to society into financial metrics, such as prices, profits and returns. Based on already existing models and frameworks, true pricing is a new methodology that facilitates the calculation of societal impacts.

Valuation: can be a qualitative, quantitative, non-financial or financial assessment of an impact.

Abbreviations

EPR: Extended Producer Responsibility.

ETS: Emissions Trading Scheme.

ERF: Ecosystem Return Foundation.

GDI: Green Development Initiative.

REACH: Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals.

ROHS: Restriction of Hazardous Substances.

WEEE: Waste Electrical and Electronic Equipment Directive.

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Case 2: How Solvay uses monetization for investment decisions	Solvay, TNO, Arthur D. Little
Case 3: How DSM is exploring the use of product EP&L to identify innovations	DSM, CE Delft
Case 4: How BAM uses true pricing for identifying product innovations	Royal BAM Group, True Price
Case 5: Randstad Project Baanbrekend	Randstad
Case 6: How Kering uses EP&L to integrate environmental impact in strategic decision-making	Kering
Case 7: Integrating Human Capital in Infosys' balance sheet	Infosys, Gist Advisory
Case 8: Holcim: Developing a strategic roadmap based on measuring social and environmental impact	Holcim, KPMG
Case 9: Creating a strategic roadmap to make the horticulture sector in Kenya more sustainable	Hivos, True Price
Case 10: Tony's Chocolonely optimizes strategy with true pricing	Tony's Chocolonely, True Price

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