

# Products and services versus sustainability

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## *Abstract*

The concept of corporate sustainability is a fast developing area of recent years. The simply environmentalism is becoming out-of-date: in accordance with the triple bottom line approach, the integration of social aspects in business activity has been started. Nevertheless, environmental aspects are more developed – compared to the social ones.

The lag of the social criteria is even more apparent in the case of products and services, which considering their role in corporate sustainability got a greater emphasis – several papers draw attention for. Nonetheless, only few attempts are dedicated to the concept of sustainable products and services, while this paper puts them in the context of corporate sustainable strategy. As the author has a marketing-management point of view the focus is not only on concrete products, but on solutions for customer demands.

## Introduction

The concept of sustainability was formed on the international field of the governmental sector. The Brundtland Report in 1987 revealed the *theoretical* framework of sustainability: it drafted the result needed, but not the path leading there. Moreover, during the following decade the focus was put on environmental issues, while social requirements were handled in an isolated way. The ‘translation’ of environmental criteria from a global to a local level, and the conversion of the theoretical requirements into the practice (i.e. drafting concrete actions needed) is a well discussed area. Nevertheless, the continuously increasing volume of consumption outweighs the energy and resource efficiency achieved (Michaelis 2003).

At the same time, global-local and theory-practice translations on the social issues of sustainability are currently forming. Business tends to reveal the possible benefits of social issues on competitiveness, and thus to integrate them into the strategy. Whereas, an integrated view (environmental *and* social) in the business strategy, and also, at the different functions of the company is needed. The potential of this new approach in enhancing corporate competitiveness is shown by some pioneer solutions. Consequently, new ways of fulfilling consumer demands have been formed. These solutions changed the net of motivators of the different market actors, while these ‘rearrangements’ of market participants’ motivators resulted in a more sustainable situation.

Nevertheless, the current study is not a product neither a sector specific one. The author intends to reveal a new approach on products and services. The aim is to widen the focus, and to show the importance of the ‘bottom-needs’ (the real, deepest need behind consumer purchase

action). By an 'alternative thinking' higher degree of freedom at product-development decisions can be achieved, resulting in a more sustainable supply.

## Integrating social factor

According to the current approach, environmentalism is required but not enough for achieving sustainability: the main goal is to integrate environmental as well as social consequences into economic business interests. Nevertheless, achievements on the social field have 5-6 years lag compared to the environmental issues (James 2001). Handling *integrated* these three areas, so called the triple bottom line (TBL) approach (introduced by Elkington 1999) started to spread around the Millennium. Whereas, still there are scientific works referring sustainability by pure environmentalism (e.g.: Fuller & Ottman 2002, Cerin & Karlson 2002). While there is not a generally accepted concept referring to the TBL sustainability of business, the European Union uses the wide understanding of 'corporate social responsibility' (CSR) to this purpose.

Besides the denomination, neither the frameworks of business social activity are fully formed and agreed. The social responsibility of business is used to refer mainly the international equity as well as safety and health issues; the focus of latter is moving from employees to all stakeholders in recent years (Kőszeghy 2005). The *local* social responsibility of business is discussed under the denomination of CSR of SMEs\* (see e.g. Munkelien & Vilsted 2002; Spence, Habisch & Schmidpeter 2004).

Moreover, the International Organisation for Standardization launched the development of a new standard, providing guidelines for social responsibility. This guidance standard will be published in 2008 as ISO26000, and it is supposed to offer a framework on social responsibility for organizations of all sizes and types, and at any degree of development. As a set of aspects to be handled, ISO26000 could serve as a base for companies. They should not have to deal with answering the question *'What to manage?'*; their task could be to reveal the ways of *'how to perform'* (manage) achieving sustainability goals.

The implementation of TBL issues into the business strategy, the commitment of the management is the starting point of a sustainable working organization. The following step should be to integrate TBL targets at all the functions of the company, in a way that decision makers should consider these aspects in every situation. The integration of the approach at all decision making levels could lead to radical innovations. However, several studies reports significant resistance of the middle management levels (see e.g. Bieker, 2005). This is even more imperative in the case of such a multidisciplinary work as e.g. the new product development is.

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\* small and medium sized enterprises

## Transforming consumption?

The typical way of fulfilling consumer demands is through products and/or services. From another point of view, we could say that the answers for explicit consumer demands are limited: the products (or better: types of products) available. Nevertheless, actual production and consumption system of Western societies are unsustainable.

Several studies revealed the feature of the current consumption (see e.g. Dobers & Strannegard 2005), that can be characterized as aesthetic one. This refers to the motivators of buying products and services, that are rather emotional than functional ones. In the USA, for example, the new houses built in 2002 were 38% bigger than in 1975, that is even more imperative considering that the average household size is decreasing (Dobers & Strannegard 2005). Another example can be clothing: consumers mainly purchase new fashion, new style or new image, rather than the function of cloths and shoes (the replaced cloths usually could fulfil their function).

The reasons behind the transformation of consumer behaviour are connected to the transformation of modern societies into post-modern ones. The ‘traditional’ and the ‘modern’ consumer can be differentiated based on modern and post-modern characteristics. Modern consumers are looking continuously for new challenges, new experiences, new sensations, which result in an increasingly differentiated and trend conscious consumption. Bottom-needs (real motivators) of consumption are rooted in identity and self-realization, character and personality, authenticity and competence and confidence (Töröcsik 2003). For fulfilling the bottom-needs, traditional consumption patterns are available. Concerning car-share and city-bike systems values, needs and aims by consumption as well as the standardised feature of these solutions can be the barriers in the success – beyond the cultural background.

The roots of conscious consumerism can be traced back to Elkington & Hailes’s book titled *Green consumer guide*, published in 1988. Following the publication of the book, formation of consumer groups started: initially for concrete events, and later thematically – but mainly on environmental issues. The segmentation of consumers based on environmental (e.g. Roper 1992\* cit. in Hassan & Vandermerwe 1994, and RoperASW 2002) as well as on ethical concerns (Corrado & Hines 1997) has been performed. While conscious consumption need to be formed, it is indispensable to consider the interconnections with supply, and consequently with production and products.

## Altering supply?

Targeting the reduction of resource use of Western societies ‘factor X’ concepts (aiming X-fold improvement) was surged, where X value is between 4 and 50 (Reijnders 1998). ‘Factor

10' (introduced in 1995) aims the tenfold reduction of the material flow per unit of service. 'Factor 4' (Weizsäcker, Lovins & Lovins 1997) moderates the former, setting down the first step by achieving 'doubling wealth and halving resource use'. Basically, the higher the X value is, the longer time-period is referred. Also, higher X value mainly expresses the higher perceived severity of (usually environmental) problems.

Achieving sustainability seems to need a radical (technological) innovation. The barrier can be – beyond the risk/benefit rate, time period, etc. – the stage in which actual technologies are in their life cycle. Nevertheless, actual sustainability measurements are mainly characterized by step-by-step improvements (James 2001) rather than radical innovations\*. Whereas, some examples exist that, within the traditional structures, result in radical improvement.

Several studies emphasize the prolonged time-horizon that sustainable approach needs – as compared to the traditional economic or environmental view (see e.g. Charter 1998; Schmidt-Bleek 1999). This is conceived as a barrier, since business is used to, and usually interested in shorter period than sustainable situation would require. Short-term economic interest is (or should be) balanced with middle-term environmental issues – that business started to deal with. At the same time, the implementation of social issues makes the system more complex and requires a long-term horizon. As it is shown on Table 1, the higher the 'sustainability' degree (level) of innovation, the longer the time-horizon needed is.

Table 1: Time horizon of sustainability innovations

Level	Features	Time horizon
4	(TBL) Sustainability	20-30 years
3	Product alternatives	10-20 years
2	Green limits	~5 years
1	Improvements	~2 years

Source: Based on Charter (1998, 59; Fig. 2.) and Schmidt-Bleek (1999, 18-19)

## 'Product' development

From a TBL point of view, product development deals only with environmental criteria: while there are tools for measuring and managing environmental performance of products, the

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\* Rekettye (2004) distinguishes continuous innovation that is based on traditional structures, and radical (discontinuous) innovation, that supposes new structures.

social requirements are not systemized at all, and even, they are slightly understood (James 2001). The Integrated Product Policy (IPP) of the European Union for example deals only with environmental issues; the scope will be widened *later* to the social requirements (IPP 2003).

The environmental conscious design is usually referred as design for environment, green design, clean design, eco-design, environmental conscious design, life-cycle design, and life-cycle engineering. Also, the expression ‘sustainable design’ is misused for this purpose, as excluding social issues. All these refer to mainly technological and engineering tasks, which contradicts to the literature that reveals the significant role of marketing management in the development of a successful new product (Vágási 2000). The involvement of marketing management staff in product development processes and an integrated approach on sustainability of the product development team can result in a more effective response for altered consumer demands – with an emphasis on bottom-needs.

Based on the degree of integrated approach of innovations different levels of sustainable design were defined (Figure 1). These levels can be reconciled with the categories of time horizon in Table 1.

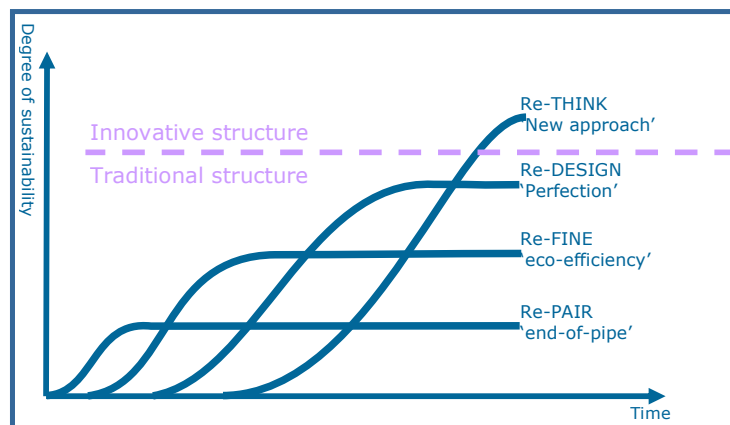


Figure 1: Levels of sustainable design.  
Source: Based on Charter and Chick, 1997, 5 (Fig. 1)

Within traditional structures incremental improvement can be achieved by improving the environmental performance of existing products. This requires a life-cycle thinking as early as possible in the product design phase, and mostly engineers/designers are involved. ‘Re-Pair’ (level 1) is characterized by ‘end-of-pipe’ solutions: usually the once ‘created’ pollution is handled and decreased by an added technology. The aim by ‘Re-Fine’ is an enhanced eco-efficiency, with special focus on the energy and the raw material use during the production process as well as during the product use. While ‘Re-Design’ is still within the frameworks of traditional technology, improvements are performed along the whole lifecycle.

Nevertheless, innovative structures enhance a more systematic and integrated approach. 'Re-Think' means the reconsideration and understanding of the key motivators of actual consumption by understanding consumer 'bottom-needs', that have the potential to reorganize actual production and consumption systems. Some examples show high degree of improvement within the framework of traditional technology. The FRIA, for example, is a hybrid of the larder and refrigerator, answering more sophisticatedly the demand for 'conservation by cooling' in a kitchen. It is easy-to-adapt to the altering consumer needs over the time (e.g. variable cooling intensity in sectors), and enhances eco-efficiency in several other ways (alternative isolation, using cold outside air during winter, etc.). Due to its 'in-built' feature the chest's lifetime is equal to the building where it has been placed, and only cooling system should be replaced – and can be changed by any alternative solution, at any time. A more developed example is the one of Xerox (see next section). These initiatives can be considered as the low hanging fruits of TBL-sustainability design, and can be recognised by results in restructuring the actual 'product oriented' supply.

Based on the dematerialization requirement of environmentalism, the need for the substitution of products by services started to spread. At the same time, in many cases eliminating products in fulfilling consumer demands seems to be impossible. The main goal from this point of view is to answer consumers' bottom-needs with innovative *solutions*. This requires a demand-oriented approach instead of product-oriented one from the early product development phase (e.g. documents instead of copy-machines or flexible, weather independent mobility instead of cars and the above mentioned 'cooled place' instead of refrigerators).

## Products, services or solutions?

The combination of products and services (called product-service system, PSS) is not inherently more sustainable than a product, but it can have the potential to alter the pattern of motivators of market actors - resulting in a shift towards sustainability. Also, the introduction of a PSS can *decrease* corporate competitiveness. Higher costs (and price), lower consumer acceptance, and weakened position of the company in the value chain should be mentioned (Tukker & Tischner 2006). Thus, careful assessment of created situation is needed before a PSS is introduced.

Nevertheless, several successful PSS are known. Three types of them can be differentiated, which categories have different sustainability potential (Tukker & Tischner 2006). The main aim of *product-oriented services* (product orientation) is to complete existing products with additional services (maintenance, reverse logistics, etc.). Consequently, the result can be (mainly small-scale) environmental improvement. The *use-oriented services* (service orientation)

refer to the substitution of products by services – the focus is put on the use of the product. Typical examples are product sharing, renting and pooling. These intermediate results can be achieved within the framework of traditional structure. *Result-oriented services* (need orientation) however, focus on the bottom-need of consumers. These can be formed by understanding the deep motivators of consumer demands for actual products and services, and by enhancing the degree of freedom of decisions by searching for new solutions rather than improved products or services.

The different PSS levels and the re-arranged motivators of market actors can be demonstrated through the case of copy machines. Xerox introduced a successful reverse logistic system, by realizing the re-use of parts and units of end-use products for the maintenance of other machines, and for the production of new ones. Reducing the resource use resulted decreasing the costs of the company. In this situation, the company got interested in offering a (competitive priced) maintenance service together with its products (product oriented PSS). However, due to the required initial investment (purchasing copy machine), the company can loose potential consumers, and the capacity of the (bought) product is fixed for consumers. The motivation of company still remains the number of products sold, and also, the economic results of service department – which can interfere with the environmental goal of optimum lifetime and thus, the quality of machines.

This ‘net of motivators’ can be altered resulting in a more sustainable situation by a use-oriented PSS, when consumers pay per copy made. In this case, the interest of the company is to reduce costs considering the whole life-cycle, to optimise product lifetime, and to replace machines according to the capacity needed. This situation enhances corporate interest in reverse logistics, because at the end of the life-cycle the machine should mean resource, rather than costly waste.

The Xerox defines itself as ‘The document company’ widening the focus and referring to consumers’ bottom-need. In several cases, consumers do not need the copy itself but to archive a document, which can be performed electronically through a network. Digital copy machines have scanner function as well as interface for computer networks, allowing electronic data storing. Obviously, technology development made possible the formation of this result-oriented PSS, which can be considered as technology push. Nevertheless, the identification of bottom-needs could stimulate market-pull technology development.

## Conclusion

Understanding the requirements of triple bottom line approach of sustainability for business strategy is a fast developing area of recent years. Nevertheless, environmental and social

conscious corporate operation requires the involvement of all functions and all decision makers of a company. Performing research on product development and products the lack of social issues were revealed. However, the environmental focus of sustainable design has been slightly widened by some authors (mainly Charter, Tischner and Tukker).

Product development is part of a complex system. When considering product development issues, beyond the basic economic interests of business, altering (post-modern) consumer demands should be considered. At the same time, as the basic role of business is to fulfil consumer demands, the base of business should be altered. Moreover, achieving sustainability is usually impossible within the boundaries of existing production-consumption system; it requires radical innovations. Whereas, several examples show the sustainability potential of rearranged demand-supply interests within the framework of traditional technology and with traditional products. These innovations are results of re-thinking the deepest motivators of consumption, and of revealing the bottom-needs.

In some cases, offering existing products in a new way can result in a more sustainable situation. This requires a sustainability approach not only on the strategic level, but on the operative levels, too. This philosophy has many common features with total quality management (TQM), which are e.g. the continuous innovation, the participation of all, and the stakeholder theory. Thus, the aim of the author in the future is to reveal the possible application of TQM achievements in the management of business sustainability and product development.

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