

# SUSTAINABILITY ISSUES AND INNOVATIONS IN FOOD INDUSTRY AND RETAILING

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## ABSTRACT

Sustainability is the key driver of marketing and technological innovations in many cases. The paper shows several cases where the sustainability is considered as bringing the healthy food to the market or environmentally friendly solutions in retailing. In current difficult conditions of growing competition each company considers how to distinguish itself from its rivals. Differentiation can be carried out already when choosing the production activity of the company, by focusing on producing foodstuffs which are increasingly desired by consumers, as in the case of cereal and muesli bars. Dividing market segments and selecting a specific group of target customers and sale channels provides the opportunity to achieve greater success in the market, especially if this choice is also supported by a specific marketing strategy or product innovations. However, sustainability considers not only the production of rational or functional food, but also supporting activities when selling these products. These actions include cost saving, streamlining operational capabilities and finding new forms of rationalization in the sales process as well as intensification of promotion tools at the point of sale. In general, energy constitutes up to 70 % of operating costs in retail stores while the most energy consuming are cooling and lighting. The issue of energy saving is becoming frequently considered lately, but so far attention is paid to it only by bigger players with transnational capital links. By reducing energy consumption, the retailer can achieve substantial savings in the operation of its store. It is the only factor that can be accurately measured and controlled. The lighting of a modern store is largely involved in the overall design and the final atmosphere of the shop. Using Lux meter and Color meter we found out which light source is used for domestic and foreign chains for different categories of basic, accent and dramatic lighting. In conclusion, we recommend options for energy-efficient, effective and spectacular lighting while using the optimum number of light sources, their logical arrangement, automatic control and finally by using energy-saving LED lights or practical skylights. The paper is part of the research project VEGA 1/0951/12 "Sustainable development of subjects in the agri-food chain in the conditions of the Slovak Republic", conducted at the Department of Marketing at the Slovak University of Agriculture in Nitra.

**KEY WORDS:** sustainability, innovation, retailing, lighting, cost saving

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## INTRODUCTION

The conditions in the global market are fundamentally changed by several ongoing economic tendencies which include the exploitation of the former sources of development and growth, reduction of yields of production capital, therefore there is lower willingness to invest, and also the global financial crisis has hit the markets. The concept of a sustainable (balanced) development sets the current direction of socio-economic development all over the world.

Sustainability is the idea that environmental (and ethical) objectives are not incompatible with ongoing economic prosperity. It's a step closer to marketing. Any drastic change is a spur to innovation and opportunity in some quarters; for every loser there are potential winners in need of insightful marketing (Grant 2007).

In current difficult conditions of crisis and growing competition each company considers how to maintain and not lose its customer. The proper tool to study requirements of market, buyers

and demand is to carry out marketing researches. Companies need to consider whether they are interested in offering products or services to everyone or they distinguish themselves. Differentiation of market segments and selecting a specific group of target customers provides the opportunity to achieve greater success in the market, especially if this choice is also supported by a separate marketing strategy or product innovations.

## MATERIAL AND METHODS

The main aim of the paper is to highlight a few aspects where the sustainability is considered as bringing the healthy food to the market or environmentally friendly solutions in retailing. The paper focuses on the good practice of selected producer of müsli and cereal bars as a fine example of how to meet changing customer needs by innovating and introducing new differentiated products to the market. The paper also shows the different basic and accent lighting in selected grocery stores operating on the Slovak market. Finally, it gives recommendations how to maintain sustainability by products targeted to specific audience and by reducing energy consumption in stores.

The data collection methods include managed interviews, available literature sources (scientific works of various well-known domestic and foreign authors), print (magazines and papers), information from websites as well as publications available in libraries, with the method of observation, comparison and synthesis.

To measure the underlying data about lighting conditions in stores, we used digital luxmeter (brand Mastech, type MS 6612) and digital colormeter (brand Minolta). As a basic method for processing these data, we used comparative analysis, selection and graphic presentation. Calculating energy initiatives is based on the following formula:

$$S = \frac{P * t * d * m}{1000} \text{ in (€)}$$

P – power of electrical device (W)

t – time of use of the appliance during the day (hours)

d – number of days

m – price per 1 kW

## RESULTS AND DISCUSSION

Market orientation has been a foundation of corporate marketing strategy since the middle of the last century. There is a need for a broader conceptualization of market orientation and a new corporate marketing model is proposed: sustainable market orientation. Taking a macromarketing perspective, it proposes the use of three key sustainable development objectives in corporate marketing strategy; economic, social, and ecological sustainability (Mitchell, Wooliscroft, Higham 2010). Each of these three areas is necessary because:

- Economic sustainability provides us with future income and resources.
- Environmental sustainability provides a stable ecosphere that supports and protects life, including the provision of food and water.
- Social sustainability provides well-functioning societies that protect and enhance quality of life and safeguard human rights (Hopwood, Unerman and Fries, 2012).

Sustainability, often employed as a short-hand term for sustainable development, is truly a word of our time. In the early twenty-first century we inhabit a world which is witnessing a dramatic change in climate, the rise of new economic powers, a crisis in the global financial system and technological breakthroughs that happen almost on a daily basis (Morse, 2007).

Sustainability marketing represents an evolution of marketing that blends the mainstream economic and technical perspectives with the emerging concepts of relationship marketing and the social, ethical, environmental and intergenerational perspectives of the sustainable development agenda (Belz and Peattie 2009).

Sustainability is all about people and time; the past, present and future (Morse, 2007). Sustainability is based on the principle to meet the needs of the present without compromising the ability of future generations to meet their own needs (Varshney and Barman, 2007). Landrum and Edwards (2009) continue that it contains within two key concepts:

- the concept of "needs", in particular, the essential needs of the world's poor, to which overriding priority should be given; and
- the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs.

In business, sustainability is defined as building long-term consequences into processes by managing a business in such a way that processes or the overall state of organizational-dependent resources can be maintained over an indefinite time horizon (Jacobsen, 2011).

The concept of sustainable development recognizes the vital social role of economic activity and development. But it also seeks to ensure that this economic development is undertaken in a manner that weighs and balances positive economic and social impacts against negative social and environmental ones, taking into account the long-term sustainability of that economic activity and development (Hopwood, Unerman and Fries, 2012).

Sustainable consumption focuses on formulating equitable strategies that foster the highest quality of life, the efficient use of natural resources, and the effective satisfaction of human needs while promoting equitable social development, economic competitiveness and technological innovation (Tukker 2008). Sustainable consumption implies a more equitable sharing of the resources between the rich and the poor and ensuring the Earth's resources are able to meet the needs of future generations (Bartels and Nelissen 2002).

Limitations of the concept of sustainable consumption are considered in terms of the inadequate attention given to the social, cultural, and historical contextualization of consumption. The implicit assumptions of sustainable consumption center on the rational individual and his or her needs and wants, and neglect the significance of consumption practices as embodying the relations between individuals. Consumer practices are cultural and social practices that have historically developed and are manifestations of local and global linkages of social interdependencies (Dolan 2002).

The market segment is a specific group from the whole market where its members have something in common and these are the specific products. The main reason for segmenting is to spend money and efforts in the most efficient way (Kretter, 2010). According to Doole and Lowe (2008), the market can be segmented by social, legal, economic, political and technological (SLEPT) groupings.

Given the rapid changes in taste, technology and competition, a company cannot rely solely on its existing products to sustain growth or to maintain profitability (Kotler, Armstrong, Saunders and Wong, 1999). Sustainable success is achieved by creating outstanding solutions and providing total satisfaction, and that such performance can be derived only from a comprehensive understanding of the underlying needs, wants, and expectations of all of the consumers, stakeholders, and constituents (Rainey, 2010). Success can be achieved by differentiating products from the competitors. Differentiated marketing is described by Kotler, Armstrong, Saunders and Wong (1999) as a market coverage strategy in which a firm decides to target several market segments and designs separate offers for each. According to this, differential advantage is a sustainable internal or external strength that an organization has over its competitors.

The company TEKMAR SLOVENSKO, Ltd. is a business subject situated near Nitra in Slovakia, established in 1997. It produces cereal and muesli products for various customer segments, not only under the brand Tekmar, but also under private brands of retail chains. Thanks to its experience with producing, the company continuously diversifies its product

range. In 2003, they gained large market share and become really popular among consumers by launching the product range Muesli bars (with and without yoghurt topping). Two years later, Slim Bar and Juicy Bar were introduced to the market, with Creamy Bar in the following year (all bars are from the so-called Sweet Line, recently changed to Funny Line, aimed at younger customers). Snacks are premium products for people who appreciate the highest quality products. In 2008, the production of Functional Bars with several vitamins began, designed for the distribution channel of drugstores, pharmacies and fitness centers. In 2009, the Green Line range entered the market as a new product line which is both for the delight from the taste and the promotion of health.

The company states its mission is to satisfy the needs of its customers, by producing and selling healthy original products of rational nutrition, perceived as of the highest quality, innovations and price availability, while maintaining the specifics of eating habits of consumers. The management of the company considers the ability to innovate as its main competitive advantage. In order to maintain this advantage, it realizes continuous market research about the consumer behavior on the market, internal and external surveys, cooperates with experienced marketing research agencies, all this with the aim to meet the needs of the largest possible group of consumers. These activities include also regular consumer discussions and questionnaire surveys for its business partners.

The Table 1 shows how Tekmar products can be categorized according to selected segmenting criteria. As the main factors of segmentation three aspects were chosen: the target customer, life cycle of family and the price category of the product.

Table 1 Segementation of customers according to life cycle of products and price categories

Segementation of customers according to life cycle of products and price categories	GREEN LINE	MUESLI BARS	FUNNY LINE	FUNCTIONAL BARS	SNACKS
	Probiotic Fitness Line Cappucino Green Tea Wilin	Muesli in yoghurt SWISSI Chocolate Tekmarky Slim Bar	Juicy Bar Creamy Bar	Calcium Bar Antioxidant Bar Echinacea Bar Multivitamin Bar Vitamin C Bar	Harmony Vitality
young singles					
young families without children					
families with children up to age 18 years	parents customers and consumers	parents and children are consumers	parents customers and children consumers	parents customers and consumers	
others					

Source: Own research and processing 2013

Explanatory notes:

-  price category discount (0.29 – 0.39 €)
-  price category standard (0.45 – 0.69 €)
-  price category premium (0.75 – 1.05 €)

Concerning distribution, Tekmar products are available all over Slovakia, in nearly all retail chains, such as supermarkets and hypermarkets Billa, Tesco, Kaufland, COOP Jednota, CBA,

Hypernova and Ahold (except Lidl), as well as in other smaller retail and wholesale systems. The company exports its products throughout Europe, e.g. to Baltic countries, Croatia, Belgium, France, Italy and Turkey. It also has a subsidiary company TEKMAR CZ in the Czech Republic which serves this market. The company's promotion policy is not strong, because of negative experiences and inefficient promotion campaigns from the past, therefore it prefers direct contact with its business partners by participating at fairs and exhibitions.

Further we will deal with another aspect of sustainability besides bringing healthy products to the market, which belongs to the category of environmentally friendly solutions. Climate changes are reflected in exposure to humans and the environment throughout the world, says Baldwin (2009). Global warming is increasingly changing the climatic conditions as well as the natural environment. Combating climate change has become one of the challenges of current time. More and more retail stores, mainly with multinational capital ties operate with this in mind. Mainly foreign and less domestic retailers are increasingly aware of the need for protecting the environment and climate, where they conduct their business projects, according to Jongen and Meulenberg (2005). Therefore they seek to build projects of so-called green stores with the use of energy-saving initiatives. Some are equipped with new, more efficient technologies such as solar panels, wind turbines and geothermal wells, according to the specifics of each store. Generally, energy makes up 70 % of the operating costs of retail stores, while the most energy consuming are cooling and lighting. Energy saving is becoming a frequented matter recently. However, so far only companies with international exposure pay more attention to the topic. Well-designed lighting can not only contribute to significant energy saving, but also to increase sales.

Table 2 presents basic and accent lighting on fruit and vegetables and bakery products in selected retail chains operating in our food market. The table presents the compared intensity and color temperature of lighting in four foreign and two domestic chains.

Table 2 The intensity and color temperature in selected food retail chains

<b>Retail chain</b>	<b>Basic lighting</b> (intensity) lx	<b>Basic lighting</b> (color temperature) K	<b>Accent lighting</b> – <b>fruit and vegetables</b> (intensity) lx	<b>Accent lighting</b> – <b>fruit and vegetables</b> (color temperature) K	<b>Accent lighting</b> – <b>bakery</b> (intensity) lx	<b>Accent lighting</b> – <b>bakery</b> (color temperature) K
Billa	605	4230	1682	4500	1425	3600
Tesco	538	4000	1186	3800	692	3900
Lidl	380	2900	374	3900	380	3900
Kaufland	440/695	4200	430	3800	740	3450
COOP Jednota	574	4200	655	4200	670	4200
CBA	369	4000	397	4200	285	4200

Source: Own measurements and processing 2013

Figure 1 shows an overview of the intensity of basic lighting in the surveyed stores. The highest intensity of basic lighting in shops was measured in the German company Kaufland – in some parts of the store up to 695 lux. The color of basic lighting in this store is typical for fluorescent lamps that produce the so-called cool white daylight. The second highest intensity of basic lighting was measured in the Austrian company Billa with the value 605 lux. The lowest value of light intensity – only 369 lux – was measured in the store CBA, since at the

time of measurement the lighting was not in full operation in order to save costs. Though, the lack of intensity of basic lighting evokes a gloomy atmosphere in the shop.

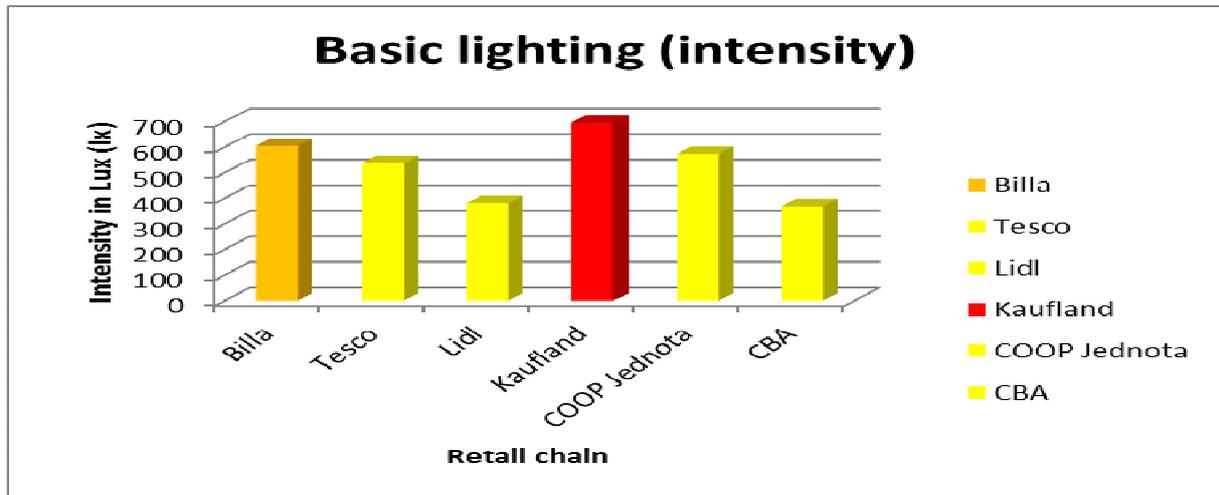


Figure 1 Basic lighting (intensity)

Source: Own measurements and processing 2013

Figure 2 shows an overview of the intensity of accent lighting. Accent lighting is used for additional lighting of fruit and vegetables and bakery products. Often the accent lighting is not just the only, but also a powerful marketing tool, which is used with fresh and unpackaged goods. The highest intensity of accent lighting 1682 lux was measured in a store of the company Billa. This store is equipped with an entire system of accent lighting, which produces 4230 K at fruit and vegetables and 3200 K at bakery products.

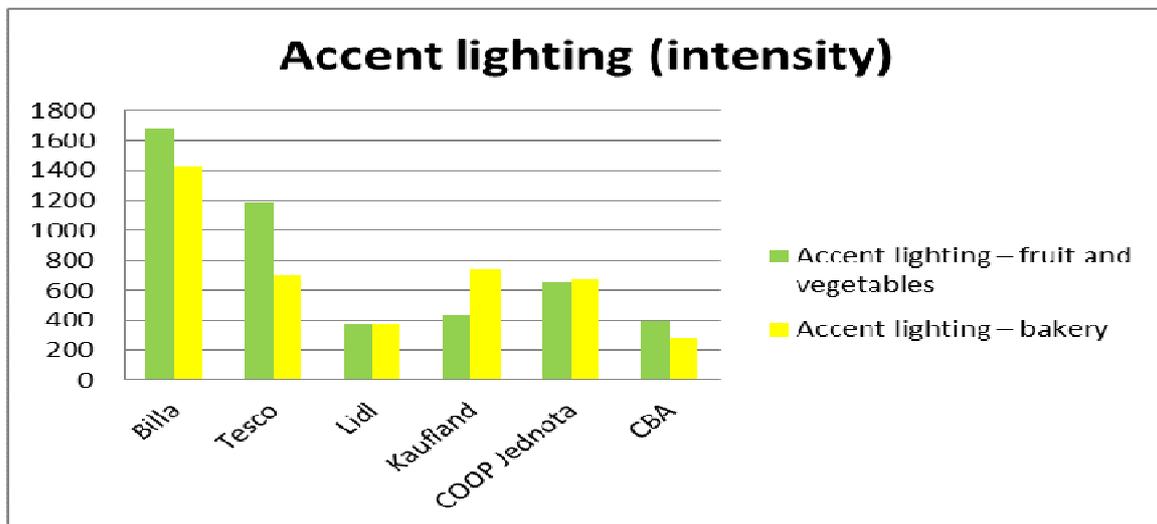


Figure 2 Accent lighting (intensity)

Source: Own measurements and processing 2013

Similar values of accent and general lighting were measured at the stores of the companies Lidl and COOP Jednota, as these stores use the same types of basic lighting in the whole shop, even at fresh goods.

By reducing the energy consumption expended on lighting, the retailer can achieve appreciable savings in the operation of its store. The lighting of modern store is largely involved in the overall design and the atmosphere of the shop. The amount and type of used

lighting is therefore always very different. In any case, operators of stores have the opportunity to regulate their own expenses by using the optimal number of light sources, their logical arrangement, automatic control according to the time settings and sensors, and not least with the use of efficient, for example LED lamps.

Table 3 contains an overview of the most widely used light sources in our grocery stores. Clearly the most widely used type of lighting in Slovakia is fluorescent lighting. It is characterized by relatively low acquisition costs. When calculating the energy consumption for four years, we can conclude the second largest cost savings within the compared types of lighting devices. The negative side of this type is the fact that in its production mercury and heavy metals are used, which in no way contribute to environment protection. According to our test, energetically the most preferred type is LED lighting, although it has higher acquisition costs, which return within the 4 years of use. The other two types of lighting are used mainly for accent lighting, where more important is their marketing effect as the energy efficiency.

Table 3 Energy consumption of different types of light sources

Type of light source	Halogen	Metal-halide	Fluorescent x 2	LED
Power (W)	160	70	72	60
Luminous flux (lux - lx)	650	580	540	620
Initial costs (€)	8	53	35	100
The cost of replacing the light body (€)	4.9	13.5	5.3	0
The cost of 30,000 hours operation (€)	73.5	67.5	42.4	0
Lifetime (hours)	2000	6000	8000	35000
Ecology	higher energy consumption	complicated accessories	mercury, heavy metals	ok
Energy consumption per 1 hour (€)	0.032	0.014	0.0144	0.012
Energy consumption per year (€)	187	82	84	70
Total cost after 4 years (€)	826	408	379	280

Source: Own measurements and processing 2013

## CONCLUSION

If a company wants to be successful on the market, it has to consider various activities, including bringing healthy products to the market and applying environmentally friendly solutions with effect on reducing operating costs.

The example of TEKMAR SLOVENSKO, Ltd. shows the way of successfulness on the market by segmenting and differentiating to maintain sustainability.

Lighting is not just a marketing tool which completes the right atmosphere of the store, but it is also the only factor that can be accurately measured and controlled. Through proper improvements in the energy intensity of lighting retailers may reduce costs, improve customer satisfaction, and thus increase their turnover.

In the context of environmental protection and energy saving, we recommend to replace traditional fluorescent tubes by LED diodes in retail stores, or even in parking lots in front of shops. The investment is indeed higher, but with well adjusted project of lighting renovation it will return in time. For accent lighting in the fresh goods segments, we propose to retain halogen and metal-halide lamps. In these sections, the lighting fulfills its specific task and not each type of lighting meets these preconditions (color temperature, color rendering index).

Possibility for this type of lighting is also the location of automatic sensors and dimmers in underused retail space or during less traffic.

The most expensive, but at the same time the most efficient solution is to build practical skylights on the roofs of retail stores. Such an arrangement would not only contribute to significant energy saving, but also to create the most natural shopping environment. The cost of building practical skylights will return in the form of reduced energy consumption and also satisfied customers making purchases will contribute to an increase in sales of the company.

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