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Large-scale retail and the behaviour of people and firms towards sustainability

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The large-scale retail trade has been providing its contribution towards environmental sustainability through different means, principally on the basis of consumer demand. However, there are still large gaps in this area, as the best practices that can be found are sporadic cases, as opposed to standard practice.

The analysis of case studies reveals several environmental problem areas: the geographical location of dealers, the adjustment of the retail trade to current consumer trends, environmental certification, packaging, transport, waste, energy expenditure and the limited success of sustainable solutions/products among the public. As part of this research we wanted to pursue the latter aspect, identifying specific lines of development, because it is essential to work on the choices and behaviour of costumers, who in turn affect those of large-scale retail.

The aim is to induce consumers to enter the system of values proposed by the product and then create a link of loyalty.

Overview

The trade history follows the evolution of the life-style of modern society. For example, in the Fifties women started to work more and more outside their own houses, so it was helpful the presence of large-scale retail where they can buy everything they want just in one place, saving time and money.

The first supermarket was born in 1930, with the opening of *King Kullen Grocery Company* in New York. The big change, that was brought with this sell system, is the self-service mode instead of client-shop assistant (often the owner) mode. That was because, after the 1929 crisis, on one hand, the entrepreneurs looked for new way to save money and gain the best profit possible, and on the other the costumers were looking for products cheaper and cheaper, so the "everything under the same roof" formula satisfied everyone. Those are the historical reasons because the large-scale retail is so successful, but the trend from small-scale to large-scale operation of retail distributive enterprises has been sharply accelerated during the last twenty years and the two major types of such institutions are department stores and chain stores. At the beginning the chartered places to open new large-scale retails were big building already existing in the city centre and simply converted to new needs, but from Sixties, they changed in new building built outside the downtown, where it was possible to have larger area (for shopping and parking).

This kind of sale influenced also the products themselves, and in particular their packaging, because they cannot be sold unpacked anymore, like in small shop. This change was expedited also by a new material, invented in 1855: the plastic. This material is easily formed in different shape, so it can generate

many different boxes that are suitable to many other products. Then, it is lighter than other traditional material (like the glass), so it can facilitate the transportation. Furthermore, it is clean and hygienic.

However, all those aspects generate many environmental problems: big buildings are selling/consuming huge amount of products, but also they are using many energy, heat, generating traffic and waste; and billions of products are increasing plastic waste.

The main environmental impacts of building with large surface are the energy consumption for lighting and more for air conditioning and much more for fridges and refrigerators and the heat dispersion.

Since the 1950s, one billion tons of plastic has been discarded and may persist for hundreds or even thousands of years (Weisman, 2007). Furthermore, burning plastic can release toxic fumes, like the dioxin from the polyvinyl chloride (PVC) burned. Also, the manufacturing of plastics often creates large quantities of chemical pollutants.

Method of the research

The research has a very strong method: from a very clear definition of the retail state of art it was analysed the problems related to that field, in particular the environmental impacts. In that complex scenario, some problems related to the limited success of sustainable solutions and products among costumers resulted more crucial to have broader results. To understand better the reason and to verify how is possible to go further, some best practises were analysed. These show that the successful realities are based mainly on senses and interaction with costumers.

The results of this research were a definition of guidelines to stimulate the development of green products trough large-scale retails, that should be sustainable themselves.

Environmental problems in large-scale retail

The large-scale retail analysis give a complex scenario and, in particular, some crucial criticalities: layout, display, trolley and products. Those are taken in consideration from the point of view of the costumer and of the enterprise.

Layout problems

Costumer side

The layout of a store is usually more oriented to achieve maximum possible profitability rather than customer satisfaction: that will highlight several issues during shopping. First, the location of units does not coincide with the logic of filling trucks: the delicate products such as fruits, vegetables and eggs are placed at the beginning while heavy and bulky staff, as water and detergents, are at the end. On the division of departments, it is noted that some (such as those relating to food) are overcrowded while others have little traffic. Along the route, costumers face other problems such as lane width limited, especially in the outlets of small areas do not allow the passage of multiple people with the trolley: the shelf is positioned as close as possible together to increase display area. Moreover, again for reasons of space, several shelves are positioned near the doors of the warehouse, causing overcrowding due to the presence of both clients and committed as well as equipment for the movement of goods, rather bulky. Often desks are installed for temporary special promotions not being provided special area these are located along the lanes going so impede the flow of customers and creating a sort of obstacle. Not for trolleys and baskets is a dedicated area designed to let them temporarily when you need to find a product and this causes the give up of these objects close to the shelves or even in the middle lane, preventing other customers to move comfortably. Finally, the path does not require the presence of litter bins with the exception of fruit and vegetable department but these are only used for the collection of plastic gloves (in these baskets are thrown but also other types of waste are not compatible with the collection of plastic). Analyzing the fence funds other difficulties arise: just ended spending must choose a box and wait your turn. But the gap between the cash and the shelves behind them are not suitable for the size of trucks it to the amount of customers who are forced to continue along the lane line also hinder other customers. The enclosures themselves are located very close by defining a minimum space for the passage of the cart only create complications for the client who has to fill the bags, place them in the cart and pay. If a customer buys products may leave the store without buying it from the past, however, since one is located just at the

beginning or at the end of the barrier cases, forcing the customer to make a path more (much more if it is a large store surface). The orientation between the lanes should be facilitated by the presence of billboards above the shelves (for example, hung from the ceiling) with indications of the products included in each of these: but often overlap to view and read them you need to go almost at the beginning of the same lane. There are other ways to help customers find products. Moreover, the placement of a product is changed periodically, so the customer who is used to find the product preferences in a certain position, finds herself having to search through the lane, losing time.

Enterprise side

The biggest problems concern the store management are related to order the exact quantities of products to avoid both the sell out and the unsold. Just for the products are needed refueling operations involving the use of shelf resources like the roller pallet or container being large for the transportation of large quantities simultaneously, could cause disruption to customers. Also just the moment of restocking the shelves implies an obstacle both for the customer who does not see certain products and is an obstacle to its passage, both for the worker who must carry out their work as fast as possible than to try to create minimal discomfort to customers. Finally it can result in broken packages of products which then reversed: the intervention of the cleaners must be timely and quick and cause the least possible impediment to customers.

Display problems

Costumer side

The problems can be divided into three areas: on the shelves, products and labels. Regarding the first area the biggest drawback is given by the height of shelves. Foods placed in the last shelf is not accessible to most customers (especially women and older) due to the high altitude and depth of the shelf. Furthermore, in many cases using the same type of shelf for several references: this does not help the customer in the place of storage products to understand and prevent the kind of product content. The second area is characterized by the main problem of identifying the product brand desired when in fact there are many brands for the same reference is difficult to identify the one chosen on the fly. Another drawback is the difficulty to move products as particularly heavy packs off the ground. Regarding to labels instead of reading difficulties exist for that position too high or too low, being also written with a limited character, not of immediate reading. Often the allocation of a label to a product is difficult as they can be moved and therefore not clear which of the products on the shelf are reported. Another exception is made for environmental labels that are placed on product packaging but are not reported on the shelf (in some stores has recently adopted this method, but the cases are still very rare). So do not evident that at first sight, especially since products with eco-labels are placed on shelves where the rate of sales is less, not encourage the purchase by the customer.

Enterprise side

The shelves are too high an obstacle for the employees to be as fast as possible to fulfil them. In some cases involving the use of ladders to facilitate the operations. Another task of the clerks is to identify and fix the products out of place in the right wards. Customers often leave it on a shelf any product that decide not to purchase more before arriving at the checkout, not willing to return to where they had taken. Proper label placement is a task, which the company should take care, in order to help our customers to read them. Labels should be checked regularly and replaced in the right place if you move, sometimes inadvertently, by the customer. A concern is also in the risk of theft products on the shelves and they must be willing to avoid creating hidden areas to facilitate the theft and each area should be controlled by surveillance cameras.

Trolley problems

Costumer side

When you decide to take a cart is necessary to insert a coin to release the frame with the previous one. Often, however, this joint you cannot open easily. Also not uncommon to find waste as plastic gloves and flyers left by the user before. Inside the store management of the basket is quite difficult given the size, more if the truck is full and heavy to move. Despite its size it can happen to buy a few large products and fill quickly. The trucks are lacking a method for supporting a shopping list that instead must be hand held

by the customer, making the operation more difficult to ride the trolley. The same applies to the possibility of supporting the bag or jacket.

Enterprise side

The main issue appears to be similar to that of the baskets with the difference that the blocks have a special housing. The difficulty is the fact that customers use the truck to transport spending to the parking lot to load it easily by car, then depositing it into the slots located at the parking lots. Workers must continually move into positions near the entrance of the store for subsequent customers who otherwise would not have provided.

Products problems

Costumer side

There are various problems related to packaging: first of all packs of proportion with the content (designed to bring attention) that deceive the customer on the amount of product. Also represent an environmental problem since it increases the amount of material used: this occurs mainly in packaging doubles, where the outer function takes the image and communication while the internal security and storage. Some packages may be damaged during transport, in all its phases. These damaged items are discarded immediately. Are there any packages that protect fragile during the trip, however, may be broken or damaged by the customer when they take in hand to choose when or places them in the cart / basket or put them in bags to take home with them. The problem is in fact due to the disposal of the products, often do not pay much attention and is likely to deposit a brittle under a heavy product. There are also packages whose structure is not perfectly linear, it causes instability: the customer, picking up products for evaluation or read labels, often in danger of dropping it. In the selection of products is important to read the expiration date is often difficult to detect. The same applies to environmental certifications that are often placed in the back or lower and therefore hardly visible. Furthermore, the choice may fall on the customer's products aim to promote saving: in fact doing so is likely to buy more than necessary and if it is fresh that he could not consume them before they decay. Finally you have a problem even to the case: certain products are placed on display located behind or beneath the boxes, so it is difficult to achieve as well as detect them. Furthermore, by depositing the products on the tape, it can happen to confuse them with those of previous client or later: the same can happen to the cashier.

Enterprise side

The staff has the task of unpacking: this is not always easy and quick: to open the cartons sealed with tape or plastic film as it is necessary to use the knife. Opening of the pack comes a problem for environment: large amounts of waste (waste material from the biggest selling point is the cardboard). Another problem is that the packaging thin and fragile, often used for fruit and vegetables, can be pierce easily. For heavy products you have issues of transportation and moving inside the store, mainly from the warehouse to the shelves.

Limited success of eco-friendly products

The problem of reference of this analysis concerns the consumption pattern of people and the willingness or not to take on new behaviours that are more sustainable. The causes behind the lack of interest in adopting sustainable behaviour can be grouped into three main areas: product selection, the choice of how shopping and alternative ways of purchasing.

Product selection

The products introduced recently in the local references of retail customers are often not chosen because of failure to read the labels on which shows the place of origin. In fact to save time you choose the product that is usually used to purchase without stopping to read the labels of various products to compare and choose instead the path that has fewer miles. Since the range of local products constituent is lower than the traditionally this: consumers are accustomed rather to find any type of product, from exotic foreign ones, and difficult to give up to buy what they want. The same applies to organic products, but what often leads to not choose the higher price to other products, we add the distrust of certain persons in relation to actual farming methods adopted. For products marked with certification ecological problem, be-

sides the higher cost, is the misinformation on the meaning of the certificates themselves. Such products are not exploited but rather are placed in positions where the rate of sales is minimal, apart from the fact that the logos are placed on the sides of certifications that are hidden in the time of exposure of the product on the shelf or not emerge in other packages. The products on tap, introduced so far only a few outlets have reported initial success but few consumers. In fact, a customer needs is the time savings: buy in bulk means a waste of their time greater than the range of packaged products. Moreover, despite the economic savings, spread a sense of distrust of novelty, also linked to the fact that you do not know the quality of the bulk and the operation of the dispenser. Finally a responsible choice would also aim at products that use less relevant material for their packaging: instead of the current trend is to buy single product because the increasingly hectic lifestyle that requires fast and easy consumes. Furthermore, the individually packaged product is perceived as of greater value or quality (such as boxes of chocolates: the larger the pack size and the smaller the number of chocolates content, the higher the perceived quality).

The choice of how shopping

The first choice to make when you decide to go shopping is the mode of transport: public transport or cycling or walking are often unused because of the convenience of transportation by car to which it is difficult for the waiver is 'habit for comfort, especially when the distances are large and difficult climatic conditions. There are also no incentives to encourage the first mode, besides the fact that the car can save you time. Another option is responsible for spending online causes of low use in Italy, are the added cost of delivery that not everyone is willing to pay, the fear that mistakes may occur or delays in deliveries, especially the lack of a direct contact with the product is particularly important in the vegetable-fruit products, while for products that easily wither important is chosen based on the expiration date. In some case, sacrificing quality for cost savings but also the distrust on the actual product quality. Also trademark does not allow misinformation to choose the most responsible way, supporting those products to be marketed require large amounts of energy or exploit the workforce. Fall in consumption patterns aware also buy only what you need and no more, for the simple desire to possess. This however is not favoured by large quantities of such products in a shop characterized by impulse but also the propensity to take advantage of offers or promotions to save the conviction and the ability to earn loyalty points with special purchases. Finally also the choice of bags recorded in this field: as consumers declare that responsible use reusable bags, many do not take this behaviour because they forget to carry the bag from home played a role in this important habit. Often the choice of paper or reusable bags is also constrained by the higher initial cost than a polyethylene bag (although this is repaid over time).

Alternative ways of purchasing

Shopping at a farmers market is disadvantageous from the standpoint of a consumer because it involves a waste of time because these markets are not products for the home or personal care. The formula for everything under one roof is no longer valid and forces the consumer to go to another place to meet all its needs. As for local products among the desks of the large-scale retail, the selection of a farmers market is less than that of fruit and vegetable department of a store. Being a new formula in the market, the farmers market are not present in many cities, so if you live in a city where there are no clear beneficial move. This then is a general misinformation on this subject: not everyone is aware of farmers' markets and who knows what consist not always know how to find them. In fact, besides being present in a few locations, are not open every day: The customer must then inquire about opening times and they coincide with their commitments. An alternative solution is the buying group but also in this case knowledge on these associations is relatively low, those who do not know, who does not know how to join and how they work. But often plays a role imported the desire for independence: indeed, adhering to a buying group, it enters into a relationship with other people and, despite orders from the farmer products can be made individually, the time of supply is in communion with the second internal logic predetermined group. Both for the farmers market for the buying group then enters the game of usually problem: if the expenditure is made at the large-scale retail long hard a person is willing to change. Finally, the phenomenon of city gardens, still in its infancy, is difficult to spread primarily to the unwillingness of people to use their time to cultivate and to assume a commitment durable. Many aware of these initiatives are not aware of the growing techniques and are not willing to learn the field.

Best practices

This research field has been analyzed taking into consideration a number of best practices and highlighting the problems relating to layout, display, baskets, trolleys, products and shoppers, from the perspective both of the client and of the company, and lastly also the problems related to logistics, buildings, storage and packaging. These solutions come from the experience of some foreign countries, where popular consent is already steady. An important factor that comes from the cases is how the application of eco-guidelines in this field can reduce costs, facilitate purchasing and increase customer loyalty.

Conclusions

To understand in what direction the large-scale retail can move to achieve the goals of a greater empowerment of consumers, not only in buying but also in consuming, environmental guidance by manufacturing companies is required.

This research has defined six lines of development, divided into two main categories: those based on specific factors of experiential design (the 5 senses, environment and interactivity), and those representing new solutions (social relations, simulation situations, product knowledge).

To make an object more rich in experiential terms the simplest approach is to add elements that intensify the sensations experienced by the user. However, such stimulation may be unrelated to a particular object and should be expanded to an entire environment. As you can see from the current solution, stimulation of the senses is more focused on vision and hearing. Touch, taste and smell but are often overlooked. Within the retail distribution and in particular in the food sector, is fundamental for choosing one product over another, just the stimulation of these three ways, as well as the visual. To encourage more environmentally friendly products to choose should emphasize their ability to stimulate these senses in a way more intense than others. Regarding the view, often taking the treated products look better and thus more reassuring but are more harmful to health. You must make it clear to consumers that a pleasant visual perception is not always the goodness of the product. Even the taste of natural products is more intense: we can envisage samples: in fact the consumer is more convinced if he has the chance to personally try out the sensation.

Based on the confidence given by the subject to the product, future purchasing opportunities arise. To encourage responsible consumption, we can try to engage the consumer emotionally; through the association of intangible property to sustainable behaviour, the individual internalizes the values given by the products. Modern consumers require intangible aspects such as space, time, air, welfare and social development.

Currently society is characterized by a lack of quality of emotions related to human relations and solidarity. Our convintion is that the attitude should change to include others, and not just ourselves.

Bibliography

Bertolazzi, P., Pellegrini, L. and Sabbadin, E. (1993*), Il merchandising: interazione tra marketing del distributore e del produttore nel punto vendita*, EGEA

Codeluppi, V. (2001), *Il potere della marca, Bollati Boringhieri*, Torino.

Davico, L. and Staricco, L. (2006) *Trasporti e società*, Carocci, Bologna.

Di Bari, M. and Pipitone, S. (2007) *Schiavi del supermercato. La grande distribuzione organizzata in Italia e le alternative concrete*, Arianna Editrice.

Fava, F.A. and Garosci. R. (2008), *C'era una volt ail supermarket… e c'è ancora*, Sperling&Kupfer.

Findlay, A.M. (2002) *Retailing: the evolution and development of retailing*, Taylor & Francis, pp. 105-107.

Gambel, E.G. (2006), *Guida al marketing strategico e operativo*, franco Angeli.

Oxley, J. and Rushton, A. (1993), *Manuale di logistica distributiva*, Franco Angeli.

Weisman, A. (2007) *The World Without Us*, St. Martin's Press, New York.

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