

THE FRUGAL ECO INNOVATION: HOW TO DO MORE WITH LESS IN TIME OF CRISIS

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1 - INTRODUCTION

The global economic landscape is changing. While the major developed countries¹ are struggling to bring about economic recovery, the emerging economies (e.g. , Brazil, Russia, India, China) are experiencing rapid economic growth and play an increasingly important role in the global economy (Kharas, 2010, UNDP, 2013). The economies of these countries are moving toward a model of increased private consumption inside, where the companies have increasing opportunities to provide products and services to the new emerging middle class, for example , in 2000, 10% of the expenses incurred by the middle class of the whole world took place in Asia, but it is expected that by 2030 this percentage increases to 40% (Kharas, 2010).

In these countries, companies are responding to this new demand by the so-called *innovations frugal*: new products and services more simple (eliminate benefits superfluous), at prices more adjusted and with acceptable quality standards. This trend is spreading to the markets of the western countries, where many of these innovations might even have to "cannibalize" existing products and services .

Thus, companies are facing, on the one hand, to growing markets with a burgeoning middle class but unstoppable with reduced purchasing power from the western prism, but that requires a large amount of products and services previously not defendants and, on the other hand, in mature markets where a growing proportion of consumers has changed remarkably their consumption patterns, directing their purchases toward products or services useful, without unnecessary features that the more expensive but of sufficient quality and affordable to their economic capacities currently more reduced.

However, companies in developed countries that wish to cover that market must assume an additional challenge: the consideration of the protection of the environment, either by the growing environmental awareness of its customers or the increased scrutiny of environmental regulation that applies in these countries (Sharma and Vredenburg, 1998).

This work analyzes the concept of *frugal ecological innovation*, a new management approach directed to develop and offer new products , services and even productive processes more economical, easy and that they comply with the standards of both quality and environmental protection required to companies in developed countries. The eco innovation frugal can be understood as an alternative management of innovative, profitable and directed to the optimization of resources and production factors. This concept responds to the objectives defined by the United Nations Development Program (2013) as the paradigm of sustainable human development and desirable for the world today. Through management approaches based on frugal ecological innovation companies that develop their activity in developed countries can reorient their business to a profitable model economically and ecologically sustainable and abandon traditional systems focused on providing products or services that, in many cases, do not meet the new demands of the market.

2. THE ECO INNOVATION FRUGAL

Frugal ecological innovations are those innovations that apply a philosophy of frugality as a backbone for their development, streamline processes and eliminating benefits superfluous with the aim of reducing costs and offer economic products but quality. The name of ecological implies that these innovations are developed by applying criteria

¹ In this work means by developed country to anyone with a human development index (HDI) very high according to the classification of the Human Development Report (UNDP, 2013).

of environmental respect. In spite of the fact that this idea is being treated in specialized economic press (Forbes, 2011, The Economist, 2010; Wall Street Journal, 2009), in the academic literature there is still much to develop.²³⁴

This work tries to delimit the concept of innovation frugal ecological basis of the two basic ideas underlying the same: innovation frugal and eco-innovation.

From the point of view of corporate governance, the frugality can be understood as the acquisition of goods and services in a moderate fashion and austere by optimising the use of resources with the aim of achieving other objectives in the long term (Lastovicka *et al.*, 1999). Well, the frugality is identified with the use of any type of resource to a lesser and better measure from an economic point of view, facilitating the process of obtaining improvements in the productivity of the company (Tiwari and Herstatt, 2012a).

This idea, which is applied in the field of innovation, offers as a result the *innovation frugal*, which is defined as "the introduction of new products (or significantly improved), services, processes or methods of organizational or marketing that are looking to minimize the use of material and financial resources along the entire value chain with the aim of reducing their cost without leaving to meet (and exceed) certain predefined criteria on the acceptable quality standards" (Tiwari and Herstatt, 2012b: 4). The management approaches based on the *innovation frugal* have acquired a great importance in the emerging countries (Fukuda, and Watanabe, 2011; Zeschky, Widenmayer and Gassmann, 2011) since this type of innovation fits properly in contexts in which the resources (financial, material or institutional) are limited.

However, for which this philosophy can be implemented in developed countries there is a need to incorporate an additional concept that will accomplish the current requirements of developed countries: the protection of the environment, the *ecological innovations*, also known as *eco-innovations*, are those "performances carried out by firms to develop new ideas, behaviors, products or processes that contribute to the reduction of environmental burden as well as to achieve specific objectives in the field of ecological sustainability" (Rennings, 2000:322). The main objective of these innovations is the development of new products or processes which provide value to the customer, but at the same time, reduce significantly the environmental impacts that produce (Fussler and James, 1996) by reducing the use of natural resources (i.e., materials, energy, water, earth, among others) and the decrease of emissions of pollutants (EIO,

Concept	Definition	Studies that deal with the concept
Innovation Frugal	Introduction of new products, services, processes or organizational methods that are looking to minimize the use of material and financial resources with the objective of reducing their cost without fail to meet the standards of acceptable quality (Tiwari and Herstatt, 2012b)	Bound and Thornton (2012) Fukuda, and Watanabe (2011) Kharas (2010) Lastovicka <i>et al.</i> (1999) Tiwari and Herstatt (2012b) Zeschky, Widenmayer and Gassmann (2011)
Eco-innovation	Proceedings to develop new business ideas, behaviors, products or processes that contribute to ecological sustainability and the reduction of environmental impacts (Rennings, 2000).	EIO (2011) Fussler and James (1996) Rennings (2000) Rennings and Zwick (2003)

2011).

Table 1: State of the art of innovation frugal and green innovation.
 Source: own

² *The Best Way to innovation? An important lesson from India.* May 24, 2011. Available at: <http://www.forbes.com/sites/karlmoore/2011/05/24/the-best-way-to-innovation-an-important-lesson-from-india/>

³ *First break all the rules: The charms of frugal innovation.* April 15, 2010. Available at: <http://www.economist.com/node/15879359>

⁴ *Eco-friendly... and frugal.* February 12, 2009. Available at: <http://online.wsj.com/news/articles/sb123439322355574671>

Table 1 summarizes some of the major studies that have addressed the concepts of innovation frugal and green innovation independently.

Of the union of two arises the concept of frugal eco innovation, which we understand as that led innovation to develop new products, services and processes, simplifying their benefits to the maximum, they fail to reduce your cost and be highly competitive in price and quality, and are developed under criteria of environmental sustainability, it is important to note that, despite the fact that the frugal ecological innovations may involve the development of eco-innovations, this circumstance is possible but not necessary. While the primary objective of the eco innovation frugal is to produce as cheaply as possible while respecting the environment, (which may or may not innovate from an environmental point of view), eco-innovation if has as purpose innovate to improve environmentally any product, process or service. Figure 1 shows the differences and similarities between the different types of innovation.

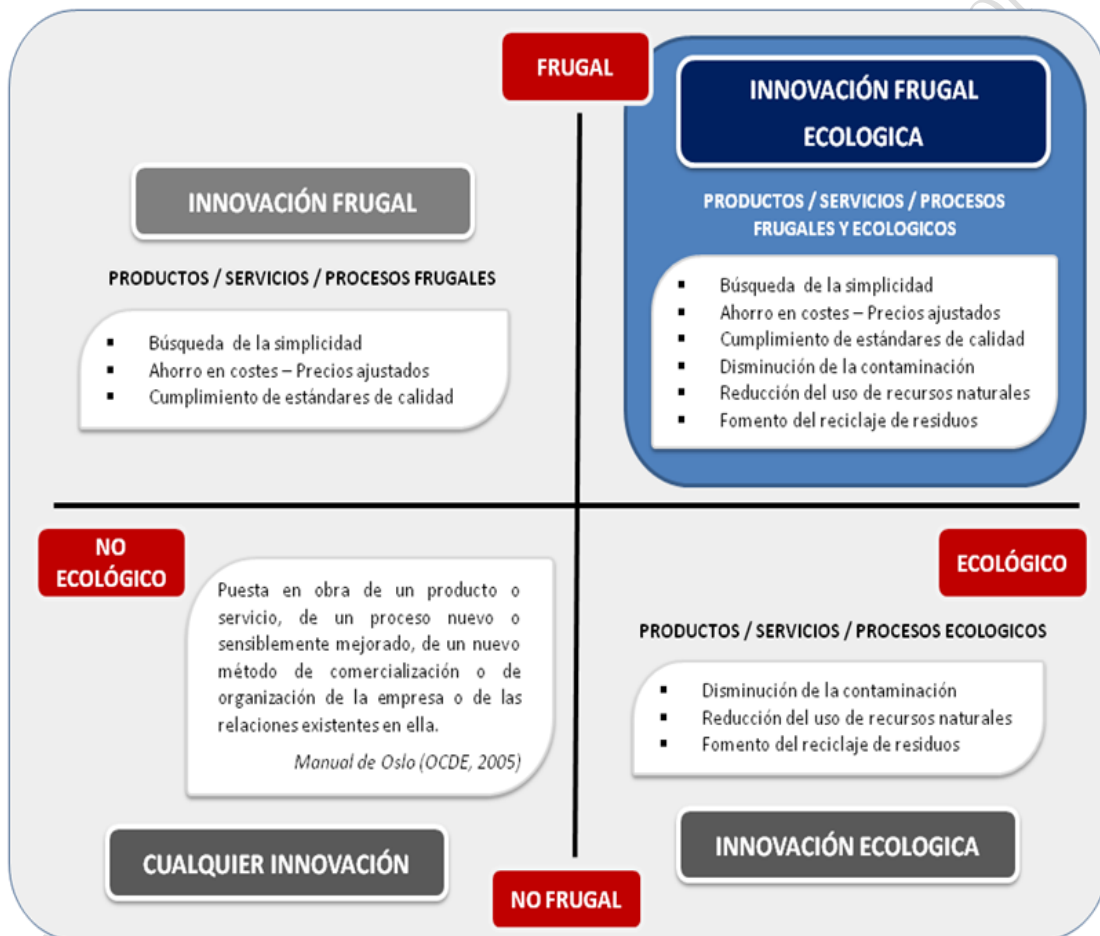


Figure 1: Differences and similarities between the different types of innovation

Source: own

Frugal ecological innovations have to be developed under a philosophy of eco-efficiency, which is defined as "the delivery of goods and services at competitive prices that meet human needs and provide quality of life and gradually reduce the environmental impacts and the intensity of the resources, over the life cycle, to a level at least in line with the estimated load capacity of the earth" (WBCSD, 2000:4). Thus, a eco-efficient practice implies a lower environmental impact per unit of product. Considering that the frugal ecological innovation has as its cornerstone ecoefficiency is understands that among its purposes also find the reduction of costs without diminishing the quality of the product or service. In fact, Rennings and Zwick (2003) suggest that one of the main factors that stimulate the managers to implement ideas provide is the ability to reduce costs during the production process. Therefore, the main objective of

the eco innovation frugal is to produce at least cost, trying to do this form eco-efficient and pollute at least possible. Figure 2 shows the underlying assumptions previously commented on the frugal eco innovation.



Figure 2: underlying assumptions of the Eco Innovation Frugal
Source: own

3 IMPLEMENTATION OF FRUGAL ECOLOGICAL INNOVATION IN COMPANIES FROM DEVELOPED COUNTRIES: THE EXAMPLE OF IKEA

Given the requirements of environmental regulation in developed countries, as well as the greater concern for the environment of consumers in these markets, the eco innovation frugal is proposed as a management practice that allows enterprises in the developed countries meet the demands of consumers highly price-sensitive and the environmental issues developing new business models capable of operating in an environment where profit margins are tighter. This type of innovation must be understood on the part of management as an opportunity to offer innovative products, more competitive, based on the philosophy of "doing more with less" (Bound and Thornton, 2012) and with a lower environmental impact.

To implement the philosophy of innovation eco frugal, managers should consider the following points of departure:

1. *Focus on the needs of the end customer as the core of the process.* Should be analyzed the needs, conditions of the environment and purchasing power of existing and potential customers. This is especially necessary for western consumers where "anything goes". In fact, a problem facing companies in these markets is that some clients tend to be unwilling to frugal approaches for fear of the low quality and the social stigma associated with the use of cheap products (Tiwari and Herstatt, 2012a). In spite of the fact that these customers are sensitive to price, quality and attractive designs play a crucial role in demanding markets characterized by intense competition (Tiwari and Herstatt, 2012b).
2. *Internalize the frugality.* In order to achieve the necessary balance between quality and price are required low manufacturing costs and simplicity in design based on an approach to basic functionality (Zeschky *et al.*, 2011). Since the innovation part of frugal ecological efficiency and the reduction of costs, one of the main benefits of the implementation is the obtaining of internal improvements in the management and production processes. This new approach, adapted to new market circumstances, it enhances the competitiveness of the company.
3. *Be flexible and make profound changes in the entire system.* You must be constantly the "status quo". This requires leaving the rigid structures of management and keep all options open for processing, distribution and marketing of the processes, products and business models with the existing objective to be able to respond quickly to unexpected changes of the environment (Zeschky *et al.*, 2011), for this purpose, it is necessary to reconsider all the activities of the value chain in an individualized manner, from the productive

processes until the distribution and commercialization activities (Zeschky *et al.*, 2011). This entails the need to reinvent itself, betting for new formulas without fear of change and even change the direction of the innovation process. Instead of carrying out the process of innovation of "back to front" (first determine the features, then develop the product, calculate the cost basis and finally determine a margin), this is to modify the internal processes and adapt them to work "front to back", i.e. first sets the restrictions (price, functionality, quality and environmental guarantees) and then are designed productive processes adapt to them.

4. *Basing the entire process in a respect for the environment.* The philosophy to go beyond mere compliance with environmental legislation must permeate the corporate culture of the company. The adoption of practices proactive environmental impacts positively on three aspects: first, the redesign of products and the reengineering of processes generate organizational capabilities linked to eco that allow reducing costs through better utilization of the inputs, energy and materials, as well as a lower waste generation (Hart, 1995; Rennings and Zwick, 2003). Second, it facilitates compliance with increasingly stringent environmental regulations in the developed countries, by reducing (and even avoiding) the risk of incurring legal sanctions, fines or penalties (Sharma and Vredenburg, 1998). Finally, maintaining a proper environmental behavior enhances the reputation of the company eco, increases the social legitimacy of their actions and increases the confidence of the various stakeholders such as regulators, financial institutions or environmental groups (Hart, 1995).

An example that illustrates this type of innovation in developed countries would be the group IKEA Swedish business. This company has been anticipating and apply with remarkable success the philosophy of innovation eco frugal in mature markets. The key to the success of IKEA lies in the low prices of their products, in the ease and simplicity of their designs, the quality of their materials and in their ability to be ecological (Figure 3).

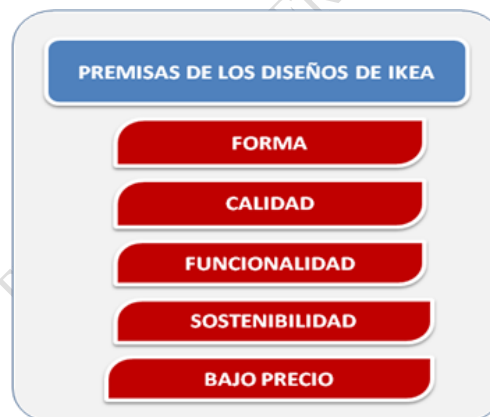


Figure 3: The "democratic design" of IKEA

Source: www.ikea.com/es

The company, with great success world, designs by minimizing the use of resources, requires its suppliers and partners meet certain environmental standards, markets trying to lessen their environmental impacts, performs annual sustainability reports in each country and offers advice to their customers to recycle or reuse their products. That is to say, IKEA applies the philosophy of frugality and environmental criteria in order to adapt to the needs and requirements of its customers. Table 2 shows how this business group has faced the implementation of the eco innovation frugal.

End-customer's needs as the core of the process	IKEA bases its production in the needs of its customers, by facilitating access to products of decor and furnishings, with attractive and functional design. For example, each year visit hundreds of homes and, based on the requirements and desires of customers surveyed, creates their designs.
Internalize the frugality	His approach is to make furniture setting, in the first place, the price that they would be willing to pay their customers. Once set, it optimizes the use of raw materials and apply economies of scale, thus seeking continuous improvement in transport and logistics, and the creation of synergies based on long-term collaboration with its suppliers. In the process of design suppliers participate actively, along with the designers, often in the factory itself, based on the savings, innovation and efficiency as fundamental pillars.
Flexibility and innovation continues throughout the system	For IKEA continuous improvement and innovation are priority values in its corporate culture. Its philosophy is based on continuously trying to make things better and ensure that they are simpler, more efficient and profitable.
Processes based on respect for the environment	<p>Maintains an extensive environmental policy in their processes of management, production and marketing. Aims at reducing costs while protecting natural resources, do more with less, transform waste into new raw materials and bet on renewable energy.</p> <ul style="list-style-type: none"> ▪ The 91% of the materials used are renewable, recyclable or recycled, taking as a goal to all key raw materials for the year 2015. ▪ The wood used comes from suppliers that comply with a code of conduct of forestry developed by the string itself, being the 23% of the same from forests certified under <i>Forest Stewardship Council</i> (FSC). ▪ In 2012, invested 1.9 million euros in projects for sustainable cultivation of cotton, buying 34% of the same to approved suppliers by Better <i>Cotton</i>. ▪ In the 2012 produced renewable energy equivalent to 34% of its total domestic consumption by 250,000 solar panels and wind turbines in operation 83. Aims to, in 2020, investing €1,500 million in renewable energy (solar and wind) with the goal of producing more renewable energy than they consume the facilities of the group. ▪ Environmental responsibility is also moved to suppliers through its affiliation to the compulsory IWAY code of conduct on labor conditions and environmental impact in the supply chain. There are thousands of audits to verify that suppliers meet the environmental standards laid down. In 2012, the 100% of the suppliers met those standards, discarding trade relations with 70 suppliers that did not comply.

Table 2: Application of innovation in ecological frugal IKEA

Source: own work based on the financial reports, sustainability and corporate social responsibility for the 2013 IKEA and news.

4. CONCLUSIONS

Innovation is a frugal trend in emerging countries. Through this type of innovation, companies in these countries have achieved successfully develop the binomial "business-social welfare" based on '*do more with less to most people*'. Here the issue is addressed from the point of view of businesses located in developed countries, justifying the need for them to adopt this philosophy and are able to improve it to include environmental sustainability within their purposes. Therefore, this work analyzes the eco innovation frugal as a channel for the companies in developed countries to adapt to the times of crisis and generate an offer most competitive for customers who are looking for more economical products but at the same time be respectful with the environment.

The implementation of the eco innovation frugal offers to the companies of developed countries, the following benefits: (1) obtain internal improvements in the management and production processes, (2) promote the processes of change and innovation, (3) increase sales in response to the increasing demand for products and services economic and

ecological, (4) promote the fulfillment of both the environmental regulation and the requirements of the environmental stakeholders and (5) to improve its reputation for eco to increase the results of the company's business .

This new approach refers to a new management philosophy adapted to the current era of austerity, in which companies in the developed countries have to optimize the use of the resources (financial and materials) to deliver quality, at affordable prices, and to a greater number of customers who demand environmentally-friendly products and services. Therefore, frugal ecological innovation implies a growth opportunity for companies in this type of contexts.

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