

# **Sustainability as a dynamic capacity: evidence in the sugarcane energy sector**

## **Sub-theme 21**

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## **ABSTRACT**

Sustainability is a trend that plays a crucial role in the reflection on the organisational strategy. Organisations and the chaotic and turbulent environment in which they operate can be analysed through the theory of systems as the social system adapts to its surrounding's complexity to survive. The present study is aimed at this process of adaptation to understand which and how organisational processes are changed when an organisation seeks to become sustainable. It is known that this process of adaption is reflected in innovative practices. However, there is still a gap between the often disconnected practices and the organisations' strategies. A company's capacity to make sustainability dynamic and integrated with strategies, transforming it into

business ability, is something to be yet studied. Therefore, the objective of the present work is to identify organisational factors leading to the corporate sustainability as a dynamic capacity. For such, a qualitative descriptive research based on a case study will be carried out. Managers of eight different areas of a company chosen for study will be interviewed, including a stakeholder. The soft system methodology was used for data analysis, which consists of a systemic technique to structure the knowledge and, consequently, to enable a better comprehension of the situation studied, including propositions for changes and suggestions. It is expected that the results will reveal both categories of organisational factors and their relationships with the strategy for sustainability and that these considerations will provide enough knowledge to replicate our study with other companies of the sector.

**Key-words:** Sustainability; dynamic capacities; strategy; theory of systems.

## 1. INTRODUCTION

The problematic of sustainability, in this new century, assumes a central role in the reflection on the dimensions of development and possible emerging alternatives. The socio-environmental picture characterising the contemporary societies reveals that the human impact on the environment has had increasingly more complex outcomes (Liboni & Cezarino, 2014).

There is no universally accepted definition on what sustainability means. Today, the discussions are focused on the concept of the triple bottom line (TBL), which deals with the positive results regarding economic, social and environmental dimensions – the latter being the hallmark of the first use of the term “sustainable development” (Elkington, 1997).

An alternative definition of sustainability has been proposed by means of the comprehension of such a phenomenon as a way to balance consumption and regeneration of resources within the company. The idea is that if companies strive to both recover and develop the resources they consume today and in the future, this can be called sustainability and lead to the development of a sustainable organisational behaviour (Ehnert, 2009).

Consequently, a new development strategy emerges embodying political, economic, social, technological, and environmental dimensions. This new paradigm of a sustainable development implies the need for profound changes in the current production systems, human society organisation, and utilisation of natural resources essential to human life and other living beings (Belico et. al, 2000).

In order for the sustainability to be incorporated into the strategy and for the managers assume attitudes reflecting into actions for the company's business sustainability, it is firstly necessary to change behaviours, culture, and interests (Mebratu, 1998).

Therefore, the paradigm of sustainability implies the need for changes in the current production systems, including human society organisation and utilisation of natural resources essential to human life and other living beings.

In view of this context, it is pertinent to understand how the Brazilian companies have performed their practices of sustainability and how these practices have been becoming a dynamic capacity in some companies.

Helfat et al. (2007, p. 4) define dynamic capacities as "the capacity of an organisation to purposefully create, extend, and modify its resource base".

Strongly rooted in both evolutionary economics and resource-based view, the dynamic capacity theory tackles this challenge by reasoning that it is factual that organisations consistently operating in dynamic environment create and recombine their resources in new ways. The main theorists on dynamic capacities (Eisenhardt & Martin, 2000; Teece, Pisano & Shuen, 1997) support the idea that performance and competitive advantage result from the reconfiguration of the resources in congruence with the environment and whose organisational processes are the origin point. This capacity of reconfiguration has been increasingly more desirable in unstable and complex dynamic environments.

According to Walby (2009), the theory of complexity is formed by the compilation of academic formulations which focus on the systems' nature and their changes. This complexity occurs with instability, evolution, and fluctuation everywhere, not only in the social arena but also in key processes of the natural arena. The apparent simplicity of the definition of systems opposes the chaotic

world's reality. The systems' challenge is to establish adaptations consistent with sudden, ambiguous, discontinuous changes within the context as this complexity cannot be understood and treated as a whole. These organisations, as social systems, are faced with a complexity regarding their surroundings in the construction of their attempt of survival or viability, as termed by Beer (1984).

Attempting to deal with the environment's complexity, the organisations – which are also complex – have been looking for means to make sustainability a dynamic capacity, integrated with strategies and business models.

Therefore, this work aims at analysing innovative practices in organisational processes of those organisations whose strategy is to become sustainable.

This study is part of an international project called *Global Organisational Learning and Development Network (GOLDEN)*<sup>1</sup>, carried out in partnership with universities of other countries such as Università Commerciale Luigi Bocconi (Italy), University of Minnesota (USA), London City University (England), Tsinghua School of Economics and Management (China), University of Technology Sydney (Australia), and University of São Paulo (Brazil). The project's members are responsible for creating a platform of cooperation and sharing knowledge about how organisations modify (and learn to modify) their business models involving corporate sustainability.

The GOLDEN's group of Brazilian researchers seek to compare and evaluate companies of the same sector and summarise their dynamic capacity of integrating sustainability into their business models. As a start point, the sugar and ethanol industry was chosen as study focus because it is an important sector for the Brazilian economy in terms of generation of wealth and employment, in addition to being a clean energy matrix.

Therefore, the objective of this work is to identify organisational factors leading to the corporate sustainability as a dynamic capacity by studying a Brazilian company considered a reference in terms of sustainability in the sugar and ethanol industry.

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<sup>1</sup> For further information: [goldenforsustainability.com](http://goldenforsustainability.com)

## 2. METHOD

The present study can be classified as qualitative and descriptive, addressing a case involving a sugar, ethanol, energy company by collecting both primary and secondary data, including personal interviews with executive directors and intermediate managers.

The sugar and ethanol energy sector was chosen because it is a strategic sector for the country. The Brazilian sugar and energy sector summed US\$ 43.4 billion in the 2013/2014 crop year, an increase of 44 percent in relation to the 2008/09 crop. This figure is higher than the GNP of more than 100 countries. The sector contributed with US\$ 8.5 billion in taxes and moved US\$ 107 billion in the production chain, with exports summing up to US\$ 1.67 billion. Ethanol has also a significant participation in the employment level, generating about 1 million of direct jobs – a figure reaching 3.6 million if indirect and informal jobs are computed (NOVACANA, 2014).

Following the GOLDEN's methodology guides from the beginning, the present study has adapted the research protocols and developed a case study of the Balbo Group.

The Balbo Group is located in the city of Sertãozinho, State of São Paulo. Data on the company were collected from reports, official site, and interviews with eight managers of different areas, including a stakeholder. The following areas were addressed: strategy, financing, research & development, operations, logistics & production chain, marketing, personnel management, and corporate, social, environmental responsibility. These areas were defined for study because they are the major areas for a sugar, ethanol, energy plant.

The interviews with the managers were conducted by using a script, which was developed based on categories elaborated for data gathering and late analysis (Bardin, 2011). These categories were created to structure information and facilitate comprehension during knowledge construction, and they are used for analysis based on three pillars of sustainable development, namely: economic, social and environmental. They represent the main inner factors to be raised and studied within the organisation, as shown in Figure 1.



**Figure 1. Categories of analysis used**

### **3. RESULTS & DISCUSSION**

The Balbo Group (established in 1946) currently has the capacity to mill 5 million tons of sugarcane, which is supplied by more than 300 independent producers and by a Balbo Group's specific company that owns lands. The Balbo Group operates these lands through partnerships. The group has benefited from the production of electricity from the sugarcane waste in its unit for 14 years, allowing the plant to be self-sufficient in meeting the energy needs of its industrial activities.

The Balbo Group produces sugar, organic sugar, ethanol, organic ethanol, biodegradable plastic, and other sugarcane by-products. The company's mission is to explore the sustainable agribusiness potential of sugarcane and other agricultural products. The group has strong sustainability practices related to production process and product innovation, being the world's largest organic agribusiness company.

The group's strategy was to shift its organic strategies towards the creation of the trademark "Native", present in the market since 1996, but formally traded in 2000. Native is an important branch of the group as it allows the company to focus on higher aggregate-value products rather than producing commodities only. Native produces organic sugar, chocolates, coffees, cookies, juices, soya beverages, cereal bars, breakfast corn flakes, chocolate powders, among other organic food products.

The Native products have to meet the following criteria: being organic, healthy, and tasty. The Native products also have the most restrictive environmental and production certifications, which makes the company to consolidate its project called

“Cana Verde” involving the production of sugarcane without the presence of agrochemicals. The Native’s suppliers have to be certified as organic, and with this strategy the company ends up developing a whole chain of suppliers within the parameters of sustainable agriculture.

Besides the aspects of healthy food and food security provided by organic products, studies carried out by EMBRAPA researchers<sup>2</sup> showed that biodiversity has increased in the cultivation areas involving Native products. In those areas operated by the Cana Verde project, one can find more than 339 species of the Brazilian fauna such as mammals, birds, reptiles and amphibians – this has only been possible thanks to the organic agriculture.

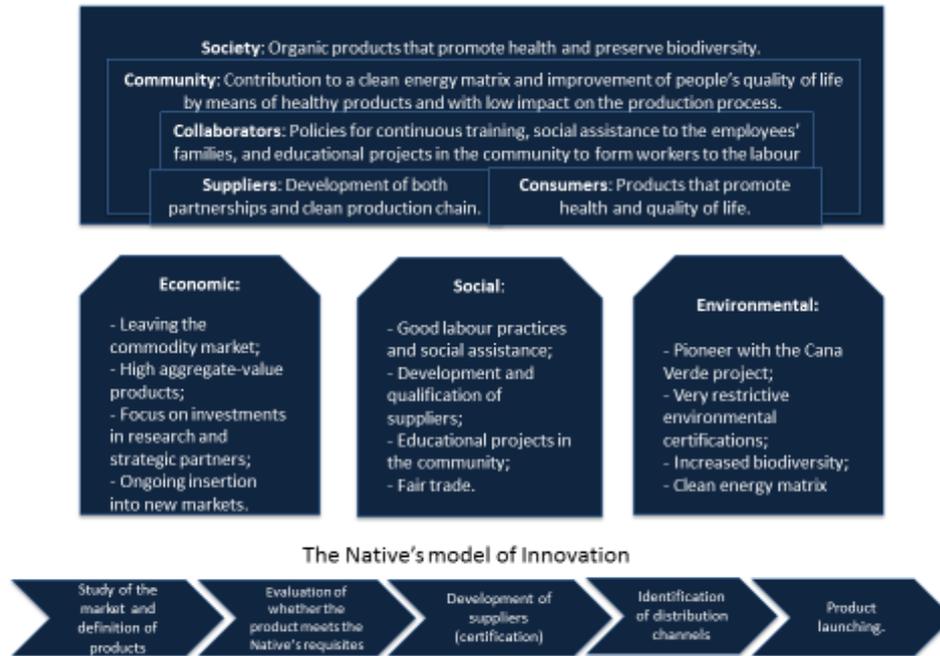
Unlike companies with environmentally or socially controversial activities and who base their sustainability actions in isolated projects, sustainability is a strategic pillar in Native and it is the core business of the company.

There is also a strong concern about working conditions, social assistance projects to employees and their families, as well as education projects for community youth.

With its processes and products based on green innovations, all three pillars of sustainability (economic, environmental and social) are included in the company. The complex relationship between organizational factors and the triple bottom line can be seen in the figure 2:

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<sup>2</sup> EMBRAPA: Brazilian Agricultural Research Corporation, connected to the Ministry of Agriculture.



**Figure 2 – Native's Dimensions of Sustainability**

#### **4. FINAL CONSIDERATIONS**

The Balbo Group has shown to be innovative regarding sustainable aspects over its trajectory. The company abandoned the traditional model of sugarcane cultivation based on the use of manual workers and plantation in partnership with landowners towards a modern one, which is aimed at and concerned with the negative effects of its production.

In order to seek a more sustainable management model, the company has developed dynamic capacities within the economic sphere focusing on efficacy, reduction and reuse of solid wastes, and cogeneration of energy; within the social sphere, the rural workers are assisted with security and quality of life programs; and within the environmental sphere, the company, through the Cana Verde project, has environmental certifications and preserves protected areas by conciliating the respect for the environment with the production processes of all areas.

Finally, the Native branch and all the changes demanded by the company's new business were the source of development of dynamic capacities and adaptation

of the company, which shifted from a stable commodity market to a dynamic, increasing market of organic food products.

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