

**CHARACTERISTICS OF INNOVATION AND BUSINESS
MODELS IN INNOVATIVE ENTREPRENEURSHIP**

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Abstract

This paper analyzes the characteristics of innovations created by innovative social entrepreneurs, in addition to their relationship to business models. This is based on exploratory case studies in which evidence was processed using ATLAS.ti software and stylized in semantic networks. The cases suggest that the nature of such innovations, which are differentiated as technological or non-technological, is not only associated with the business model but with specific elements of the entrepreneur and of the context/ecosystem of operation. In this way, it was found that non-technological innovations allow for greater social inclusion, empowerment and the creation of skills within the population. Meanwhile, in the case of technological innovations, there is less participation of the population, which is then limited to the transmission of technology.

Keywords: innovative social entrepreneurship; business models; technological innovation; non-technological innovation.

1. INTRODUCTION

Innovative social entrepreneurship (ISE) has been a growing phenomenon in the last two decades, within the academy as well as in politics and in the development of new business practices. These ventures appear to be a source of solutions to persistent social problems which the public and private sectors have not been able to solve, as well as an alternative to the lack of financial resources that non-governmental organizations (NGOs) experience (Mair and Martí, 2006).

Thus far, the concept of ISE has remained heterogeneous and controversial. Authors such as Boluk and Mottiar (2013) and Zahra *et al.* (2009) see such endeavors as constituting a field of entrepreneurship, focusing on the study of the entrepreneurial individual's characteristics. Meanwhile, Tandon (2014) and Popoviciu and Popoviciu (2011) argue that the social organization or company is the innovative agent and, therefore, should be the analytical unit of ISE.

The literature on this topic is divided in terms of the business models used by such ventures. Thus, a body of literature focuses on non-profit organizations (Weerawardena and Mort, 2006; Leadbeater, 1997), while another considers that ISE eliminates the borders between the for-profit and non-profit sectors through models of hybridity and profits (Dees, 1998; Mair and Martí, 2006).

Despite the heterogeneity of approaches, one of the most accepted points is that innovation is essential in order to effectively achieve the social objectives of ISE. Accordingly, research on the subject is just beginning to show an interest in the study of innovation.

The objective of this paper is to analyze the nature of innovations in ISE in Mexico, and to discuss its relationship with the business model at hand. To do this, special attention will be paid to the association between the characteristics of innovations and the primary structural features of ISE in terms of the entrepreneurial individual, the leading social organization/company, and the conditions of the ecosystem/operational context.

The research design is based on a multiple exploratory case study. The cases correspond to two instances of ISE based on different business models, which are successful in the Mexican context. One uses a nonprofit business model (NP), and the other a for profit one (FP). Qualitative information is presented chronologically and analyzed using the qualitative data-analysis method, to then be stylized in semantic networks.

Based on the evidence presented, this work introduces a conceptual distinction between two characteristics of innovation in ISE: non-technology-based innovation (associated with innovations in the business and service models), and technology-based innovation (innovations in products which generally have a large technological component). It also discusses how these characteristics relate to the business model of a social organization, as well as to various structural features of ISE, which are identified throughout the development process of each ISE. It was observed that non-technological innovations allow for capacity building and empowerment of the population that benefits from them, making them potential agents of social change. Meanwhile, for technological innovations, the participation of the population is lower, and is limited to the effective transfer of technology.

After this introduction, the second section of the paper presents a conceptual genealogy, while the third section elaborates the methodological design. The fourth section demonstrates the empirical evidence; the key facts and their stylization are addressed in the fifth section. Consequently, in the sixth section the primary results are discussed, which raise four theoretical-analytical proposals. Finally, some conclusions and recommendations are presented.

2. CONCEPTUAL GENEALOGY

Social entrepreneurship and business models

Social entrepreneurship (SE) refers to business activities which are aimed at addressing major social problems. The term arose in the academic arena at the end of the 1990s with the work of Leadbeater (1997) and Dees (1998), and has been addressed primarily in relation to entrepreneurship and business administration. Despite its growing popularity, there is no consensus regarding the concept of SE (Alegre *et al.*, 2017). For Mair and Martí (2006), the main difference between traditional entrepreneurship and SE is that the latter creates *social value*, where value is understood as improvements in well-being, conditions and life opportunities, in addition to empowerment of vulnerable populations.

However, this point has been criticized and recent studies emphasize that the creation of economic value is a necessary condition for financial viability and the sustainability of entrepreneurship and its social impact (Tandon, 2014). According to Conway and Kalakay (2016), social entrepreneurs/organizations must strike a balance between social impact and market success. This balance enables intelligent resource management and facilitates achievement of the social objective, which also requires the entrepreneurial individual's leadership and vision for how to transform social problems into opportunities for solutions and entrepreneurship (Boluk and Mottiar, 2013). Additionally, such efforts work towards generating links and (support) networks with multiple actors, such as NGOs, local and federal governments, and private sector companies, among others (Omored, 2014). All of this means more pressure to innovate within the SE business model.

Several authors show that SE is not a homogeneous phenomenon which can be implemented by organizations with different business models. One of the most accepted forms of SE is that proposed by Mair and Martí, who stress that "social entrepreneurs often aim to create social and economic value through different business models and approaches" (2006, p. 29), and propose three types of SE: 1) NP; 2) FP; and 3) hybrids. On the other hand, Austin *et al.* (2006) consider this classification to be only one in a gradient of multiple approaches that can be followed in practice, arguing that the business model or type of organization is the vehicle to achieve innovative and effective solutions for unmet social necessities.

The role of innovation in SE

One of few points of consensus within the literature on the subject is that innovation is an element that enhances the impact of SE. Various studies refer to these ventures as innovative activities in and of themselves. For example, Guclu *et al.* (2002) mention that SE refers to an innovative approach in addressing complex social needs; Seelos and Mair (2005) add that it is a set of innovative activities working to add social value, operating under a variety of resources and organizational forms that generate transformative social changes.

Two approaches can be identified regarding the role of innovation in SE: 1) as a result of entrepreneurial activity, which may or may not be present (Leadbeater, 1997; Abu-Saifan, 2012); and 2) as an intrinsic characteristic and necessary condition for creating social value and making sustainable transformations (Dees, 1998; Alvord *et al.*, 2004; Austin *et al.*, 2006; Mair and Martí, 2006). In accordance with the objective of the present work, the perspective of the second approach was chosen.

Innovation is just beginning to take a place at the center of the debate. The concept is newly taken up from the economic-Schumpeterian notion of *new ways of doing things* (Dees, 1998; Weerawardena and Mort, 2006; Abu-Saifan, 2012; Tandon, 2014). But what is omitted is that innovation, in Schumpeter *Mark 1*, is linked to enterprises/entrepreneurs/companies that seek to satisfy needs in the market, which has the main goal of generating economic gain and increasing competitiveness. According to Schumpeter *Mark 2*, innovation is an invention accepted by the market that results from large investments in research and development (R&D) (Fagerberg, 2009).

Recent works debate the above position. From a Latin American perspective, important ideas and evidence can be found on the specificities of innovation in the region's ESI (Martínez and Dutrénit, 2017; Auvinet and Lloret, 2015), such as those that argue that innovation usually applies to services, and implies a close and systemic relationship with the beneficiaries. Additionally, after reviewing various cases of ISE in the world, Alvord *et al.* (2004, p. 270) show that "successful social entrepreneurship uses innovations that mobilize the assets of marginalized groups in order to improve their lives, rather than just providing external resources and services."

The above authors propose three "forms of innovation," according to the intensity of the beneficiary population's participation and the business model: 1) local capacity building; 2) dissemination of innovation packages, and 3) formation of social movements. However, in this work there is a conceptual confusion between "forms of innovation" and "forms of entrepreneurship," terms which are used interchangeably throughout the text, such that it is not clear what an SE is and what innovation is created.

For their part, Tandon (2014) shows that learning and innovation occur through systematic interaction with beneficiaries, as well as with multiple actors in the national and international ecosystem. However, the text does not analyze the characteristics of such innovations; rather, it focuses on the learning processes that emerge during the SE process. Therefore, it can be argued that knowledge about the characteristics of innovation in ISE and the structural elements that determine those characteristics is still limited.

The present work fills this vacuum in the literature. Following Schulz (2008) and Lall (1992), it states that the nature of innovation is defined by at least four dimensions: 1) type of innovation (product/service, process, organizational and commercialization [typology according to the Oslo Manual], as well as business model); 2) novelty (in what context is a development considered new); 3) structure of sources or costs, and 4) results/impact.

Based on a critical review of the literature, ISE is defined as: a set of business activities aimed at solving social problems or needs experienced by vulnerable communities through innovative solutions, whose results contribute social value and can be sustained over time. These solutions consist of new combinations of resources (human, material, natural, etc.), carried out both by individuals and by social organizations that are based on various for- or non-profit business models.

3. RESEARCH DESIGN

Given that the topic at hand is little known in its specific context, a qualitative research design using an exploratory-descriptive case study was used (Yin, 2003), for the development of two Mexican ISE cases. In addition to levels of success, this selection was based on their business models; although the cases are not comparable in terms of the type of solution provided and their leading organization, both represent highly innovative social enterprises that demonstrate the heterogeneity of the phenomenon being analyzed. That is, they are polar cases as understood within the typology of Mair and Martí (2006)—one is NP and the other FP.

Data collection and analysis

According to Morse (1991), theoretical inaccuracy and the lack of empirical evidence are arguments in favor of qualitative research. As already noted, the present work addresses a contemporary social phenomenon around which a theoretical debate is developing, and as such records more variables of interest than provides information available about them. Under these conditions, the exploratory case study method, with its holistic design, is adaptable to the study's objective (Yin, 2003). A description of the two cases is presented chronologically according to stages of development: from its conception as an individual idea, to its current

stage. Thus, the extraction of information (qualitative data) is longitudinal, and additionally three analytical levels of interest are considered: individual, organizational and contextual. Furthermore, this study emphasizes the main structural elements of each level and each particular case.

Interviews were used as the primary source of information; a total of eight semi-structured personal interviews were conducted with qualified informants, with an average duration of 2.5 hours. The information was triangulated and verified properly with various informants (the ISE founder, organization staff and beneficiaries), and with other sources such as: 1) documentation (annual reports, technical manuals and interviews available online), and 2) direct observation (operations inside and outside of both social organizations). Respondents were asked to emphasize the process of growth and development of the ISE, highlighting innovations during each of its stages.

Once the content of the interviews was transcribed, it was systematized in two dimensions: 1) chronological: the key facts were linearly organized on a timeline and 2) levels of analysis: the information was divided according to the characteristics and experience of each social entrepreneur, the operation of the organization, contextual conditions, and the characteristics of the innovations. In each of these levels, the codes extracted from both theoretical approaches and empirical evidence were grouped (see table 1). These codes/concepts/categories represent the qualitative data that were subsequently processed using the ATLAS.ti.1 software.¹

Table 1. Codifying of information

<i>Level of analysis</i>	<i>Structural dimension</i>	<i>Codes and empirical examples</i>
Individual	Social entrepreneur [personal characteristics, (Boluk and Mottiar, 2013; Dees, 1998)].	<ul style="list-style-type: none"> - Gender (Woman/man). - Education level. - Academic discipline. - Type of university. - Age.
Organizational	<p>Social business [diversity of legal forms according to the purposes and goods and services provided (Tandon, 2014; Popoviciu and Popoviciu, 2011)].</p> <p>Business model (Mair and Marti, 2006; Abu-Saifan, 2012).</p>	<ul style="list-style-type: none"> - Legal structure (Civil association/company). - Size. - Profitability. - Stage of development. - Geographic area. - Users/beneficiaries. - Conditions of vulnerability of beneficiary population. - Role of women. - Role of young people. - Sector.
Contextual	Ecosystem [operational context (Puimalainen <i>et al.</i> , 2015; Weerawardena and Mort, 2006; Austin <i>et al.</i> , 2006)].	<ul style="list-style-type: none"> - External income sources (grants/prizes). - Linkages/actors. - Barriers to financing. - Barriers to consolidation.
Innovation	<p>Following Schulz (2008) and Lall (1992):</p> <p>Innovation type</p> <p>Newness</p> <p>Protection</p> <p>Results/impact</p>	<ul style="list-style-type: none"> - Product or service; process; organizational; commercialization; business model. - New to the world; new to the country; new to the business; not new. - Patents, utility models, etc. - Effective adoption; environmental care; generation of capacities for the population: mobilization of local assets.

Source: prepared by the authors based on the evidence and the cited literature.

The data analysis using specialized software allowed for the reduction of interpretation biases which are inherent to qualitative non-experimental analysis. Table 1 presents the coding of the information obtained.

Once the information was coded, it was processed to establish relationships between the codes (for example, causal ones), and to stylize them in semantic networks (see figures 1 and 2). These networks facilitate an understanding of the empirical evidence, since they allow for a graphic visualization of the intrinsic complexity of qualitative information, enabling the contrast of results with theory, and forming the basis of the theoretical-analytical proposals presented in section 6.

Case profiles

Reinsert A.C. is an ISE with a NP business model that addresses the problem of the failed penal justice system in Mexico. Sistema Biobolsa S.A. (hereinafter Biobolsa) uses a FP model that offers biogas production systems. Table 2 gives a profile of each case, according to their business model and primary innovation. Reinserta's innovation is its business model which attends to a group of people in conflict with the law, and it has four programs that work with model's specific objectives:

1. Women and children in prison: promotes women's empowerment through ethical education, early childhood social development and the creation of spaces for maternity and recreation.
2. Adolescents in the reintegration process: seeks to convert such youth into agents of change through an educational model focusing on mental health capacities development, legal justice, labor skills and education (basic and higher).
3. Just causes: undertakes the defense of unjustly imprisoned people, to return their freedom to them, and

4. Dignifying prison: seeks to improve health and safety conditions and to attack the problem of self-government within penitentiaries.

Table 2. Case profiles

Case	Business model	Main innovation	Reach of innovation (benefitted population, results and impact)
<p>Reinserta Founded in 2013 by a young psychologist civil servant.</p>	NP	Business model: integrated model of attention, education and penal justice, with a focus on gender.	<ul style="list-style-type: none"> - Implements four holistic capacity development programs for children, women and adolescents who are in conflict with the law, whether they be agents of change within or outside prisons. - Operates in 11 prisons in nine states of the Mexican Republic. - Provides an integral education and psychological treatment aimed at successful social reintegration for more than 300 adolescents. - Works towards the empowerment of women (mothers) who are in prison. - Has achieved the creation of eight maternity, recreational and child care spaces, focused on gender, within five prisons. Additionally, two gyms outside have been established the prisons. - Works on more than 600 cases of innocent people deprived of their liberty, 15 of whom have been released.
<p>Biobolsa Established in 2010 by a young journalist and renewable energy engineer.</p>	FP	Product: system of energy (biogas) and biofertilizer production, based on the transformation of animal waste.	<ul style="list-style-type: none"> - More than 23,000 people who benefit, with approximately 4,000 biodigesters installed in 18 countries in Latin America, the Caribbean, Africa and India. - Facilitates access to a source of clean and renewable energy, and an organic fertilizer that improves soil productivity and harvests. - Implements a new micro-financing model based on the diversification of financial sources. 80% of its clients have received financing (it has granted more than \$500,000 USD in credit without interest). - Based on savings on energy and fertilizer costs, the return on producers' investments is obtain in less than a year (\$1,300 USD).

Source: prepared by the authors based on the evidence gathered.

Biobolsa's main innovation is a product: anaerobic biodigesters. This is a technology which helps small producers manage animal "waste" and generate their own renewable energy source. The systems take advantage of residues from the chemical-bacterial process, obtaining a powerful organic fertilizer (biocompost) that helps improve soil quality.

Both Reinserta and Biobolsa have received various awards for their social work, and maintain multiple alliances and collaborations (see section 4). In particular, Biobolsa has a vast network within ISE in Mexico and around the world.

4. EMPIRICAL EVIDENCE: STAGES OF THE REINSERTA AND BIOBOLSA DEVELOPMENT PROCESSES

The following is an analytical description of the stages of the development processes for both ISE, highlighting the key elements in each case.

Defining the problem and creating ideas for solutions

Reinserta's founder's adolescence was marked by a violent event that brought her closer to the problem of crime in Mexico.

Living the damages to mental health from up close, following a criminal act, guided my interest in psychology related to criminalistics [...] I was also influenced by a strong family tradition of criminal lawyers (Founder, Reinserta).

During her higher studies, she did internships in various prisons and was a legal intern at a recognized law firm in Mexico. After completing her studies (2012), she served as deputy director of Vulnerable Groups and Gender Equity in Mexico City, a position that allowed her—as a 24-year-old young woman—to visualize the prison population which is “invisible” and rejected by society. However, she observed that working with this population also meant the opportunity to reduce national crime on the long term, since “the children and adolescents in jail are, potentially, the criminals of the future.”² These facts were her main motivation in launching a civil association that would help this population access comprehensive education and successful social reintegration.

Contrary to this experience, the founder of Biobolsa grew up in a family of small agricultural producers in the United States of America, which allowed him to develop hands-on learning and gain the experience of working in the field. He studied journalism at Western State Colorado University, where he oriented his research to the study of renewable energy from a social justice perspective, documenting agricultural worker movements in Africa and Latin America. He was able to publish news stories on the socio-economic conditions of small producers, but had the desire to create a broader impact: “I realized that my work was not neutral, and sought to have a more direct impact than writing about the conditions experienced by this population, which are so precarious” (Founder, Biobolsa).

In 2005, the International Renewable Resources Institute (IRRI) offered him the position of Director of Innovation Projects in Mexico. As a consequence, he became familiar with several projects dealing with biogas production technologies; given his experience with rural communities, he identified that the biodigesters available on the market were a “simple technology with great potential for socio-environmental impact, but extremely expensive and inaccessible (for this population).”

Thus, for the next two years he worked on the idea of a high quality and low-cost biodigester. By 2007, he had a prototype which he called the Biobolsa-system and, with IRRI financing, he was able to install 12 biodigester systems. It should be noted that, in that same year, this founder began a master's degree in Environmental Engineering, with the goal of improving his system.

From idea to formalization

Reinserta was legally registered in 2013, with the participation of four partners (the founder, a child psychologist, and a male and female lawyer). Its initial model was oriented towards three lines of action: 1) women/mothers and children in prison; 2) adolescents in conflict with the law and in the process of reintegration, and 3) just causes. The strategy was to "demonstrate the current problem of the Mexican prison system, to make a de facto invisible population visible, and to attack the problem from its roots" (Co-founder, Reinserta). At the end of 2013, they obtained access to the largest female prison in the city³ and its main operations center, to implement psychological and educational methodologies with women and children. In 2014, the founder won the Procter & Gamble contest for "Young Entrepreneur," an award that allowed for the acquisition of school equipment for young people in treatment.

For its part, the formalization of Biobolsa came after the start of its social work. The founder met another young Mexican, a graduate in business administration and an entrepreneur with an environmental solutions consultancy in the hotel sector. They were brought together by a mutual interest in doing business with socio-environmental impacts. During 2008, they worked on a business model "that could reflect how, using a business plan, we would achieve our social mission." Their model was the winner of the Dutch "Business in Development Network" contest of 2009. With the prize, they invested in development of their website and patented their design. Once the patent was obtained, they registered Biobolsa as a FP corporation.

The primary characteristic of their biodigester is its reactor-body, a robust and dense polymer geomembrane that optimizes solar heat and (naturally) generates anaerobic bacteria, which then remain alive inside the reactor. After a fermentation process, the bacteria break down the input of animal waste by transforming it into biogas rich in methane. In addition, this system has a "low" cost and has high performance and durability (40 years), converting between 75 and 85% of solids into biogas and reducing chemical pathogens harmful to health by 99%.

Although the design was low-cost, Biobolsa faced the problem of the economic capacity of their clients to cover this cost, which led to the design of a micro-financing strategy. In 2012, Biobolsa and KIVA invested in a project that benefited more than a dozen small producers in Mexico, offering them payment plans (without interest) so they could acquire the system. The total amount of that investment was recovered in only 1.5 years, and as a result KIVA became the main financial ally of Biobolsa. By 2017, more than \$700,000 USD had been lent. Thus, Biobolsa is not only self-sustainable, but also profitable, while also fulfilling its social mission.

Expansion, innovation and impact

The founder of Reinserta was named Fellow Ashoka in 2015,⁴ thus achieving international exposure. In 2016, she received the Visionaris Social Entrepreneur Award⁵ during its 13th edition: *Diversifying income*, where the prize included a workshop with CEOs of world renowned companies, aimed at strengthening Reinserta's business model through diversification and innovation of its revenue sources.

However, the difficulty of working with people in prison and the lack of public programs that foster fair industry within prisons are Reinserta's main barriers in generating its own income. Despite this, they carry out research and make documentaries to capture the attention of different actors and raise awareness in society, which is reflected by an increase in donations and government purchases. Reinserta developed, for the federal government, a National Profile of Kidnappers and a Study on Maternity in Prison. In addition, with the publication of the Yearbook of Invisible Children 2015, they uncovered the situation of children living inside prisons, receiving multiple awards.⁶

In 2017, a change in the National Law of Criminal Enforcement was achieved that reduced the maximum age—from 6 to 3 years old—at which children can be in prison. Their two most recent projects are "The Cage," and a documentary about the penal situation of women and mothers in prison. "The cage' consists in the online sale of products made (by hand) by the mothers and adolescents with whom we work. This project is the first FP one that we have implemented [...] at the moment the income gained by it represents only 10%" (Founder, Reinserta).

The documentary is part of the leverage strategy to expand its impact and visibility. This project applies laughter therapy as a psychological method for work with women in prison, and represents an innovation, both in the business model and in terms of Reinserta's processes. Adaptation in its business model has been a constant for the last four years.

This social organization has 58 workers and more than 100 people performing social service and volunteering. By 2017, it benefitted more than 400 women and 100 children in prison; it also worked with more than 100 adolescents in the process of reintegration and was responsible for 20 young ex-convicts continuing their university studies. Similarly, it has supported 12 young people in starting small businesses and has gained the freedom of 15 innocent people who were imprisoned for serious crimes.

In the case of Biobolsa, its expansion and innovation is based on R&D, as well as an innovative diversified business model (sales, granting of micro-credits, grants and scholarships/awards from NGOs and the private sector). It has a team of 31 people in Mexico, and is a world leader in the production and sale of biodigesters. It has installed more than 4,000 systems and benefitted 23,000 people in the country.

Its technology and business model have been disseminated in 18 countries in Latin America, the Caribbean, India and Africa, and its products have been greatly diversified by adapting them to each context. It has 14 biodigester models that work with waste: from one cow (6 pigs/sheep) to 200 cows (1,200 pigs/sheep). The smallest biodigester produces enough gas for showering as well as lighting two kitchen burners for 5 hours, and the largest produces enough gas to heat a greenhouse of 60,000 square feet (146 hours of gas).

5. STYLIZED FACTS

This section presents the stylization of the primary facts and findings derived from the empirical evidence.

Multilevel characterization of the cases

Based on the evidence, it was found that the nature of innovation is related to multiple cross-cutting aspects of ISE, especially as far as its business model is concerned. These aspects or factors were identified during the development process of both ISEs and respond to three analytical levels (which interact with each other during said process): individual, organizational and contextual.

Being polar cases, it is argued that the experiences of its founders, the type and condition of the beneficiary population, as well as links with certain actors, imply two different paths for Reinserta and Biobolsa. Specifically, the idea for solving a social problem emerged from the personal motivations of the social entrepreneur, while the solution is determined by their professional experience.

The role of the entrepreneur is to create relationships with other stakeholders and interested people, forming an organization whose mission is the effective solution to a social problem. This organization, in turn, interacts with other public or private organizations, national and international, as well as with the socioeconomic, institutional, policy, etc. conditions under which it operates (SE ecosystem).

It is in this way that access to collaborative networks and links to multiple and diverse actors have been crucial to the success of both ISEs. Such links not only focus on financing, but also cover aspects such as dissemination and impact, support for resource management and facilitation of access to the population. However, it stands out that in the case of Biobolsa the business model is based on the diversification of financial sources, such that its interaction with other actors has been more even present than that of Reinserta.

Table 3 presents a multilevel characterization of the cases, following the coding presented previously (see table 1). The first column shows the level of analysis to which the codes/categories listed in the second column refer. Thus, the analytical level is a reflection of theoretical constructs or concepts "constructed" by various analytical categories or characteristics of each construct (third and fourth column).

Table 3. Multilevel characterization of the cases

<i>Analytical level</i>	<i>Codes/categories</i>	<i>Reinserta</i>	<i>Biobolsa</i>
Individual	Gender	Woman	Man
	Education level	Bachelor's degree	Postgraduate
	Discipline	Psychology	Environmental engineering
	Type of university	Private national	Private foreign
	Age	Young person between 18 and 30	Young person between 18 and 30
Organizational	Legal form	Civil association	Company
	Business model	NP	FP
	Income level	From 2 to 10 million annually	More than 20 million annually
	Stage of development	Completely dependent on external resources	Profitable
	Size	Medium: 58 collaborators	Medium: 30 collaborators
	Role of women	Founder; more than 50% of the staff	Founder; more than 50% of the staff
	Role of young people	Founder	Founder
	Sector	Safety; education; justice/rights	Energy; health; agriculture; eco-technology; micro-financing
	Geographic location	Urban	Rural; indigenous; semi urban
	Beneficiaries	People in conflict with the law	People/households; small businesses
Conditions of vulnerability	Lacking employment opportunities; social exclusion	Extreme/moderate poverty; exclusion of goods and services	
Contextual	Sources of income	Grants/awards; donations	Sales; crowdfunding; grants/awards; member contributions; subsidies
	Actors	NGOs; private sector	NGOs; government; other ISE; private sector
	Financial barriers	No indicators of results; weak capacity to generate profits	Economic conditions; no indicators of results
	Barriers to consolidation	Corruption; economic conditions; low culture of ES; violence within the population; lack of adequate public programs	Lack of adequate public programs; corruption; lack of legal figures for ES hybrids

Source: prepared by the authors based on interviews.

Differential characteristics in innovation

According to the literature under review, ISE is a heterogeneous phenomenon that can adopt distinct business models (Mair and Martí, 2006; Puumalainen *et al.*, 2015). This paper argues that ISE is rooted in the social entrepreneur's ideology and in the mission of the organization that implements it, but is also shaped by the dynamics of its operational context.

Regarding innovation, it was found that the main difference between Reinserta and Biobolsa's innovations is their technological bases. While Reinserta provides a free and completely new service using an NP business model, Biobolsa, for its part, bases its FP model on the sale of biodigesters to the rural population and on the continuous improvement of its product.

The evidence suggests that the type of ISE—or rather, the business model—is directly associated to its innovations' characteristics (the nature of innovation). In particular, the present work establishes an analytical-conceptual distinction between *technology-based innovations* and *non-technology-based innovations*. This difference is reflected in their social, economic and environmental impacts, as well as in their scope/novelty.

Following the classification of Alvord *et al.* (2004) regarding "forms of innovation," table 4 describes the primary characteristics of the innovations identified in the two cases and their impact.

Table 4. Innovation and social impact

Case	Primary innovation	Secondary innovations	Mobilization of assets and the population's capacities	Strategy for broadening scale	Leverage of the innovation	Novelty (principal innovation)	Level of impact
Reinserta	Business model (non-technology-based)	- Service. - Processes.	High: educates and empowers women and adolescents to be agents of change.	- Diversification of financial sources. - Expansion of organization and national and international diffusion of impact.	Social: development of capacities and tools for effective education and reintegration. Economic: fosters opportunities for women and adolescents to learn business skills.	High: new to the world.	- Social and cultural: high. - Economic: low. - Environmental: null.
Biobolsa	Product (technology-based).	- Business model. - Process. - Commercialization.	Medium: transfers technology and knowledge for correct usage. Improvements/adaptations through feedback.	- Diversification and adaptation of its systems. - Grant micro-financing	Economic: reduces costs for energy consumption and damages to health; grants microcredits. Social: provides a source of renewable energy.	Medium: improvement of an existing technology.	- Social: medium. - Economic: high. - Environmental: high

Source: prepared by the authors based on the interviews performed.

Reinserta is a private organization which is a pioneer in holistically serving the prison population, and whose business model is new worldwide (*high* novelty). On the other hand, Biobolsa's product innovation is based on R&D and, although the technology already existed (*medium* novelty), its original design made it accessible to the rural population.

Similarly, there is more mobilization of assets in the beneficiary population in Reinserta than in Biobolsa. Reinserta's model was designed for the empowerment of women and social reintegration via the development of necessary capacities, thereby turning beneficiaries into agents of social change. In turn, Biobolsa transfers technology, providing access to clean and renewable energy in vulnerable populations; this transfer implies training the customers to achieve the correct usage and maintenance of the technology, allowing beneficiaries to provide feedback for the improvement/adaptation of the systems.

The economic and environmental impact of Biobolsa is higher than that of Reinserta. Biobolsa is a self-sustaining social enterprise, in addition to having a high environmental impact. Reinserta is entirely dependent on external resources (although some efforts have recently been made to capitalize on its work), and it presents a *null* environmental impact as its mission is social.

Relationship between characteristics of innovation and structural elements of ISE

Both cases demonstrate that both the business model and the characteristics of innovation are associated with multiple cross-cutting aspects of ISE. Figures 1 and 2 illustrate the semantic networks obtained for each case; the criteria for grouping the codes was by analytical level, starting with the *contextual* level, then *organizational*, *individual* and, finally, the level of the *innovation*.⁷ There is a differentiation between conceptual codes and empirical codes, the latter being a reflection of specific concepts from each case. For example, Biobolsa is in a *stage of development* (concept) of *growth* (evidence), as is Reinserta.

Figure 1. Reinserta semantic network

The association found between the innovation's characteristics and economic impact was relevant. The evidence suggests that a high technological component is related to high economic impact of innovation (cost reduction and profit generation).

The type of target population also seems to be decisive in terms of the organization's profitability. Reinserta's innovations, being not based on technology, are difficult to sell in the market, since the prison population (beneficiaries) cannot pay for the service being received. On the contrary, Biobolsa's innovations are technological, which is associated with a greater capacity for commercialization. Additionally, granting financing guarantees the return of the initial investment.

6. DISCUSSION: PROPOSALS BASED ON THE EVIDENCE

Below, results and findings are discussed in the light of conceptual antecedents, and, based on the lessons from each case, four theoretical-conceptual proposals are constructed regarding the relationship between the characteristics of innovation and the key structural elements in each ISE.

The qualitative analysis which was carried out suggests new categories or conceptual relationships, which are hoped to be able to serve as a basis for new research that allows more robust results and generalizable conclusions. An analytical distinction is made between innovations with a technology-based nature and those not based on technology—a distinction defined not only by the business model, but by multiple and complex relationships between the skills and experiences of the entrepreneurial individual, the type of social organization and its mode of operation, as well as conditions of the ecosystem (see figures 1 and 2). In the case of Reinserta, the main innovation lies in its business model, that is, it is not technological. On the contrary, Biobolsa's innovations are mostly technological products based on R&D.

Proposal 1. In ISE, at least two differentiated characterizations of innovation can be presented, including those based on technology and those not based on technology.

The scope of Biobolsa's innovations is global, and suggests that technology-based innovations address common problems experienced by diverse populations. It was observed that this characteristic is associated with innovations and improvements in products, which present greater possibilities for scalability in the market, while generating conditions for developing FP (or hybrid) business models. Meanwhile, Reinserta's case suggests that non-technology-based innovations address more specific and localized social problems, through NP business models. Accordingly, the scalability of these innovations is more difficult.

Proposal 2a. Technology-based innovations are generally product innovations with the potential to be marketed through FP business models.

Proposition 2b. Non-technology-based innovations are the primary form of innovation in business models and services associated with NP ventures.

Various studies have shown that ISEs maintain a close relationship with the beneficiary population. Tandon (2014) documents these relationships and demonstrates how this generates interactive learning processes. The present work goes further, arguing that the main source of innovation in the cases analyzed is systemic and systematic interaction with the beneficiaries, since this allows for in depth knowledge of the problem being addressed, as well as its implications (cultural, social and economic). Therefore, the definition of the problem and the proposed solution are associated with the characteristics of its founders: a criminal psychologist, and a social journalist and environmental engineer.

Interaction with and feedback from the population have been fundamental in the improvement and adaptation of the products and services provided. If the beneficiaries of Biobolsa were only attended and not taken into account as part of their own solution, the rural population would hardly adopt a change in their way of understanding and treating animal waste. Likewise, prisoners are individuals with trauma and psychological problems, a fact that demands continuous interactions and treatment over long periods of time—that is, inclusion occurs at all times, not only in technological transfer and through feedback received.

Biobolsa made adaptations and improvements to an existing product in the market, while Reinserta's model was completely new. However, since Biobolsa has now crossed the national border, as a company it is experiencing difficulties in maintaining continuous contact with its beneficiaries.

Proposal 3. Innovation in ISE is strongly linked to the inclusion of the population.

Finally, in the case of Biobolsa, product innovations are transferred directly to users/beneficiaries, although there is also training for proper use of the technology. In the Reinserta case, the model is designed for capacity building of the beneficiary population.

Proposal 4. Social participation in technological innovations is limited to the expression of needs and the absorption of technology. Meanwhile, a non-technological innovation fosters capacity building and empowerment.

7. CONCLUSIONS

This research presents an exploratory qualitative analysis of characteristics of the innovations created by two Mexican ISEs with different business models. Particular attention has been drawn to the relationship between the innovations' observed characteristics, and the main structural elements of each ISE—the social entrepreneur, the leading organization/company and the conditions of its context/ecosystem.

Based on the evidence and theoretical approaches, it is argued that there are at least two differential characteristics of innovation in ISE: technology-based and non-technology-based. As the name implies, the main difference between these lies in their technological component, having implications for the potential commercialization and capitalization of these innovations, as well as the participation of the beneficiary population. It is suggested that product innovations have a technological base that facilitates profit generation, such that the FP business model would be associated with technology-based product innovations. On the contrary, innovations in business models serve specific populations, hindering their scalability and commercialization via the market, such that their business model is NP.

The evidence reaffirms that the type of solution/innovation is causally related to the previous experience of the entrepreneur, as well as to their level and discipline of study, as documented here (Glucu *et al.*, 2002). This work confirms that the actors with whom the social organization/company forms relationships are determinants for its growth, given the difficulties faced in generating financial gains.

It is suggested that the higher the participation of the population and the more capacity building for the beneficiaries, the greater the effectiveness of the solution provided. That is, there is more acceptance on the part of the population, given that they feel like part of their own solution. Likewise, by having more complete

knowledge of a problem, the solution/innovation attacks the roots of the social problem, thanks in large part to continuous feedback from the population based on bidirectional learning and the capacities generated for the beneficiaries.

In the case studies, a notable fact is that innovations with a relatively higher degree of novelty correspond to a non-technology-based nature, compared to those based on technology. This is likely to be due to the fact that the (non-technological) services provided by a non-profit ISE (NP) are geared towards a specific population, such that their geographical reach is smaller (low novelty), compared to easily scalable technological products (as in the case of biodigesters). However, in technology-based innovations, the inclusion of the population is comparatively low, since social needs are met through technology transfer, but they do not maintain such a close link with the beneficiaries.

It should be noted that processing and analyzing information through semantic relationships, as a basis for qualitative exploration, constitutes in itself a methodological contribution that provides the conclusions with a basis, even if the number of cases is reduced. However, although this design guarantees internal validity and minimization of interpretational biases, it is not possible to make a statistical generalization from these results.

It is urgent to carry out further research using large-scale qualitative or quantitative studies that allow for measurements of innovation (technological and non-technological) in ISE. Additionally, this would provide a broader characterization of the features, results and impact of these innovations, and would test the proposals presented in this paper, thus contributing to broader knowledge about ISE and the characteristics of its innovations.

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¹ This allows for processing multiple and complex relationships between empirical-analytical categories, forming the basis of new theoretically relevant categories-concepts. This software works with the number of times that a code repeats in the set of texts (density) and the type of analytical relationships that the researcher defines (Varguillas, 2006).

² In Mexico, 4,500 adolescents are deprived of their liberty every year due to felonies. These young people, for the most part, are returned their freedom before turning 20 (one of every three will commit further crimes and return to prison) (OADPRS-CNS, 2013).

³ It has a registered population of more than 2,000 inmates and 200 children between 0 and 5 years old (ENPOL, 2017).

⁴ Entrepreneurs with innovative social projects who are members of the Ashoka community. This status is obtained after a rigorous selection process.

⁵ Granted by UBS Financial Group, in collaboration with Ashoka, to entrepreneurs who are solving social problems by way of innovations <<https://www.ubs.com/mx/es/wealth-management/about-us/visionaris.html>>

⁶ Such as the Mexican Gran Effie Awards for creative initiative (2017); Procter & Gamble's Self-sustainable Model Proposal (2016); and TIME Magazine's designation as the founder as one of the "leaders of the next generation" (2015), among others.

⁷ Innovation is an element that can emerge at any stage of the process of ISE development, not just as a final/static result, as can be seen in the networks, since these only demonstrate a "map" of interactions between analytical levels and their dimensionality (categories included in each level of analysis).