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True Cost Accounting and Social Entrepreneurship as Key Factors for a New Food System

Contabilidad de Costos Reales y Emprendimiento Social como Factores Clave para un Nuevo Sistema Alimentario

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ABSTRACT

The paper aims to understand the problems of the food system, identify the value of food, and the role of social entrepreneurs in changing the status quo. Based on this objective, this documentary and descriptive work present a first approach to understanding the food system, and the search for solutions to measure the value of food and its key actors. The methodology was a documentary search on the world food crisis, true cost accounting, and social entrepreneurship¹.

Keywords: social entrepreneurship, food system, true cost accounting, value creation.

JEL CODE: Q18.



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RESUMEN

El artículo tiene como objetivo comprender los problemas del sistema alimentario, identificar el valor de los alimentos y el papel de los emprendedores sociales en el cambio del estatus quo del sistema alimentario. Partiendo de este objetivo, este trabajo documental y descriptivo presenta una primera aproximación a la comprensión del sistema alimentario, así como a la búsqueda de soluciones para medir el valor de los alimentos y los actores clave para ello. La metodología fue una búsqueda documental sobre la crisis alimentaria mundial, la contabilidad de costos reales y el emprendimiento social.

Palabras clave: Emprendimiento social; Sistema alimentario; contabilidad de costos reales; Creación de valor.

Código Jel: Q18

INTRODUCTION

The link between socioeconomic inequalities and global economic, environmental, technological, and geopolitical risks sets unprecedented challenges for the world economic system. Income inequality has increased in both developed and middle-income countries. "Initial analysis of data on income inequality due to COVID-19 suggests that the pandemic has created new inequalities and exacerbated existing income gaps" (WEF & Schwab Foundation for Social Entrepreneurship, 2022).

Conflict, low household purchasing power, and extreme weather conditions negatively affect access to nutritionally diverse diets, essential services, and a safe and healthy environment. At the same time, food supply chains and environments that are critical components of food systems are disrupted in emergencies, reducing household access to adequate nutritious food, and further contributing to the challenges of nutritional vulnerability (World Food Programm/FAO, 2022).

It translates into current levels of acute hunger, i.e., the number of people unable to meet their short-term food needs will increase by 40 million in 2021. The armed conflict between Russia and Ukraine is the leading cause of the food crisis for 139 million people from 24 countries (Stanley, 2022). In addition, shortages of wheat and fertilizer because of the armed conflict have increased food import costs in the most vulnerable countries by more than \$25 million (Edwards, 2022). According to the Food and Agriculture Organization of the United Nations (FAO, 2022), between 702 and 828 million people were affected by hunger in 2021, equivalent to almost 6.4 times the population of Mexico.

Table 1
Number of people suffering from hunger in the world

Region	Prevalence of undernourishment	Millions of undernourished people
North America and Europe	<2.5%	s.d.
Asia	9.1%	424.5
Oceania	5.8%	2.5
Africa	20.2%	278
Latin America	8.6%	56.5

Note: Values are based on the middle of the projected range.

Source: FAO (2022).

In Mexico, there are 4.8 million people with severe food insecurity, which means 3.7% of the total population in the country (FAO, 2022).

Table 2

People suffering from food insecurity around the world, in percentages

Region	Moderate and severe food insecurity ¹	Severe food insecurity ²
North America and Europe	8%	1.5%
Asia	24.6%	10.5%
Oceania	13%	4.5%
Africa	57.9%	23.4%
Latin America	40.6%	14.2%

Note: Values are based on the middle of the projected range.¹ People experiencing moderate insecurity face uncertainty about their ability to obtain food and have been forced to accept less quality or quantity in the food they eat. ² People experiencing severe insecurity go without food and, in the worst cases, go a day or more without food.

Source: FAO (2022).

This food crisis, like others, can also bring seeds of renewal. The crisis "is a spontaneous and discontinuous change... which alters and displaces forever the previously existing state of equilibrium" (Schumpeter, 1934, p.64). These seeds of renewal offer opportunities for innovative goods, new markets, transformed methods of production, new sources of supply, and new organization. Thus, according to the theory of creative destruction, entrepreneurs are critical actors in establishing a new equilibrium, creating prosperity and social wealth in the ashes of a destroyed equilibrium (Dushnitsky, Graebner & Zott, 2020).

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METHODOLOGY

In the context of the food crisis, the objective of this paper is to present the first approach to the understanding of the current food system and its externalities, the search for solutions to measure the value of food as a step towards the solution of market failures caused by externalities and the critical actors for change in the food system.

Thus, the methodology was a documentary search on the world food crisis, obtaining reports from international organizations, non-governmental organizations, and academic articles to present a context of the food system. At the same time, information was obtained from documentaries that allowed visualizing and confirming the food system's problems.

It was found that: *i*) it is a complex problem with diverse edges, but within this multiplicity, it is necessary to have measures allowing a correct evaluation of the production value of each kind of food to guide the solutions and provide more symmetrical information to eliminate the externalities that affect the food system; *ii*) within the food system there are critical actors

for change: social entrepreneurs. Because of this, we delved into one of the tools to know the value of each food: true cost accounting and research were conducted on social entrepreneurship to understand the key actors to produce a change in the food system.

THE FOOD SYSTEM: THE VALUE OF FOOD

As Müller and Richardson (2022) mentioned, "Identifying harmful externalities in our food systems can make it possible to drive change in sectors as disparate as climate, public health, and poverty reduction." In this way, a transformation in food systems can disrupt various global crises such as climate, health, nutrition, economic independence, and even the COVID-19 pandemic. The world's challenges faces are interconnected (WEF & Schwab Foundation for Social Entrepreneurship, 2022).

The need for more information in quantifying externalities is an information asymmetry problem leading to food market failure. The social costs associated with food production are not quantified, let alone reported to consumers. Therefore, it is necessary first to know the externalities produced in food systems to quantify them and then to communicate them.

Table 3
Summary of the main externalities in the food systems

<i>Type of externality</i>	<i>Example of externalities</i>	<i>Endpoint impact(s)</i>
<i>Environmental (effects on natural capital)</i>	Air, water, and soil pollution GHG-emissions Land use Overuse of renewable resources Soil depletion Use of scarce materials Water use	Contribution to climate change, health effects, depletion of abiotic resources, and depletion of biotic resources including ecosystem services and biodiversity.
<i>Social (effects on social rights and human & social capital)</i>	Animal welfare Child and forced labor Discrimination and harassment High and variable prices Training Underpayment and underearning	Poverty, well-being, food security, and human skills.
<i>Health (effects on human health)</i>	Antimicrobial resistance Undernutrition Unhealthy diet composition Zoonoses	Human life (mortality and the quality of life), Economic (medical costs, informal care, lost working days)
<i>Economic (effects on financial, manufactured, and intellectual capital)</i>	Food waste Tax evasion	Increased food demand, and a decrease in public funds

Source: Global Alliance for the Future of Food (2021).

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The negative externalities produced by the behavior of companies have a negative environmental impact on society. However, an environmental regulation that seeks to reduce these externalities and make the polluter pay for the environmental degradation caused needs to be revised (OECD, 2021). Externalities are hidden impacts of market actors' choices and make sustainable and healthy food less affordable for consumers and less profitable for producers (Global Alliance for the Future of Food, 2021).

In 2021, it was estimated that current externalities are approximately twice (USD 19.8 trillion) the current total world food consumption (USD 9 trillion). These externalities comprise \$7 trillion in environmental costs, \$11 trillion in costs to human life, and \$1 trillion in economic costs. Therefore, it indicates that food is about one-third cheaper than it would be if these externalities were included in market prices (Global Alliance for the Future of Food, 2021; UNFSS, 2021).

Despite the joint and constant struggle of cooperatives, social enterprises, small farmers, non-governmental organizations, and government agencies that have prioritized social and environmental value (WEF & Schwab Foundation for Social Entrepreneurship, 2022; Gasparin et al., 2021), they have also worked towards building sustainable and healthy food systems. SMEs and entrepreneurs are considered part of the solution to climate change mitigation (OECD, 2021).

These actors are disadvantaged as they compete in a biased market with misguided incentives to produce as much as possible at the lowest cost regardless of negative externalities impacting climate, health, workers' rights in the sector, or equitable distribution (Müller & Richardson, 2022).

Additionally, an asymmetry in the information leads to some market failures, affecting how individuals evaluate the quality of goods and services available in the market. Consequently, the market does not produce equilibrium prices and cannot coordinate transactions efficiently. One way to reduce the negative impacts of information asymmetries is through information disclosure signaling, incentive structures and monitoring (Barbaroux, 2014).

The first step in correcting externalities' hidden costs is redefining food prices. For this reason, with a growing awareness of measuring and quantifying the hidden costs of food systems, an approach is needed to level the playing field and prove that transforming food systems can accelerate progress on global challenges.

This tool is known as "true cost accounting" (TCA), which is "a decision-making approach that captures the positive and negative impacts that food systems have on the economy, environment, and society" (Baker et al., 2020; Müller & Richardson 2022). It is an extension of traditional economic accounting systems that aim to identify externalities, including cost-benefit analysis. A TCA assessment can be performed at various levels: a food system, a policy, a region, an organization, an investment, or a product, according to Baker et al. (2020).

To begin a TCA evaluation, the objective and scope of the evaluation are identified, and a unit of analysis and system boundaries are established. Then the various externalities are evaluated qualitatively or quantitatively, and the methods used vary in terms of the maturity of their development (Global Alliance for the Future of Food, 2021). For this reason, their results are not perfect, but they provide food chain actors with much more information on the value of food than is currently available to them. (Global Alliance for the Future of Food, 2021; UNFSS, 2021)

Quantification begins with measuring or evaluating inputs and outputs, the measurable direct effects of production and consumption. Once externalities are quantified, they can be valued, in monetary terms or in a way that expresses them in a standard unit. To capture the value that is not reflected in market prices, a TCA assessment requires either an implicit or explicit measure of welfare (Global Alliance for the Future of Food, 2021; UNFSS, 2021).

Industrial food systems are some of the biggest drivers of climate change, habitat destruction, biodiversity loss, displacement of indigenous peoples, disease, and the double burden of malnutrition (Müller & Richardson, 2022; Global Alliance for the Future of Food, 2021). Moreover, in various parts of the world, food production directly inflicts conflict, poverty, and the mistreatment of workers (DW Documental, 2020, 7m10-58s).

However, these costs due to the negative externalities presented are not considered. There are reports by institutions such as the Rockefeller Foundation and the document of the scientific group of the United Nations Summit on Food Systems indicating that the current externalities of food systems are almost double the current value of global food consumption (Müller & Richardson, 2022). Table 4 is a TCA measurement.

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Table 4

Costs from quantitative metrics across 14 key metrics¹, annual (bn USD)

Human Health		1145
Cost of obesity/overweight	359	
Other NCDs (e.g., CVD, hypertension, cancer, diabetes)	604	
Food insecurity	146	
Impact of pollution (e.g., air, water)	36	
Environment		442
Greenhouse gas emissions from food production	300	
Greenhouse gas emissions from plastics	15	
Water use	60	
Soil erosion	67	
Biodiversity		453
Cropland use	181	
Grazing land use	162	
Nitrogen pollution	110	
Livelihoods		134
Child labor ²	1	
Underpayment (wages) ²	33	
Lack of benefits	76	
Occupational health/safety ²	24	
Economy		21
Subsidies	21	
Total		2195

Notes: 1. Some metrics do not capture all connected costs due to low data availability or accessibility. 2. Estimates were found to be particularly low due to underreporting exploited labor along the value chain (e.g., incarcerated, and undocumented persons).

Source: The Rockefeller Foundation (2021).

Consequently, innovators and change agents can only compete if the negative externalities of unsustainable, unhealthy, and industrial or ultra-processed foods are considered in decision-making. That is, if the metrics remain volume (yield per hectare) and price (price per unit), then poor outcomes will continue to be incentivized, and better, less harmful practices will not be able to thrive. It is also pointed out by Gustavo Oliveira, an expert in agriculture (DW Documenta, 2020, 21m18s).

The True Value report showed significant benefits, among which are: a reduction in health costs due to improved disease burden as a consequence of reduced pesticide use; improved crop yields as a result of reintroducing traditional knowledge and agroecological farming practices; and increased local food security thanks to the exchange of indigenous seed

varieties through seed banks, as well as helping farmers adapt to changing climates and gain financial independence by moving away from synthetic fertilizers. These impacts can only be perceived through "true value" (Müller & Richardson, 2022; Global Alliance for the Future of Food, 2021).

Patel (2021), for his part, points out the lack of consumer choice in the marketplace and highlights this in the documentary "Obesity and corporate greed" (DW Documental, 2022). However, Müller and Richardson (2022) argue that not everyone has the power of individual choice over food, as hunger and malnutrition are determined by economic power and access. In that sense, "people often do not have enough money to buy healthy food, while food environments are the cultural and socioeconomic contexts that shape how accessible, affordable, desirable, and convenient these foods are." Case in point are Bangladesh, Nigeria, Pakistan, and India do not have the purchasing power to increase meat consumption as noted by Dan Basse, Chicago farmer market analyst (DW Documental, 2020, 10m17s).

Being aware of the true costs of food systems and valuing them allows us to reduce harmful externalities and increase positive externalities. It translates into a significant disruption of the industrial status quo and will challenge those interested in continuing with the current way of doing business. However, this is essential for progress on climate, food, health, and other issues of global concern.

A second step is to redesign food economics to internalize price externalities. In this way, a price adjustment would be more inclusive than harming third parties with reductions or penalties so that actual pricing could make sustainable and healthy food more affordable and profitable (Global Alliance for the Future of Food, 2021).

One of today's significant challenges is creating a food system that can feed a growing population in step with climate change and without damaging the industrial food system. According to Storton and Aston (2019), one in nine people in the world cannot access nutritious and healthy food; an example is that in the United States, there are 17.6 million people without access to healthy food.

The use of technology focused on growing food with fewer resources is not the only way to solve the food supply problem; in this framework, small farmers are working to strengthen regional food systems in a way that gives local communities a more extraordinary voice in the allocation of resources and at the same time allows the creation of quality jobs and land stewardship. Moreover, these small enterprises constitute a resilient food system. Smallholder farmers feed 70% of the world's population (Storrton & Aston, 2019).

In the United States, small farms supported by Iroquois Valley Farmland REIT (Food Systems Focused Fund) at 50% are run by millennials who grow, produce, and raise pastured

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meats and dairy using organic methods and expand access to organic food (Storron & Aston, 2019). Meanwhile, in France, according to Amslem and Gendron (2019), "most social entrepreneurs come from top business schools and belong to a younger generation of millennials and digital natives."

Tony Weis of the University of Western Ontario states "We need to think about our food to reorganize agriculture" (DW Documental, 2020, 38m55s).

Food systems initiatives are fundamental to change as they feed and improve communities, and their positive impact counts and feeds the world.

In this way, social enterprises offer the potential to solve major social and environmental problems (Chinchilla, 2019). At the same time, they give the most disadvantaged individuals the opportunity to integrate or reintegrate into the labor market while contributing to building more cohesive and creative societies.

Also, various stakeholders, such as politicians, entrepreneurs, citizens, and investors are interested in social enterprises and social entrepreneurship (OECD/EU, 2017; Ramadani et al., 2022). In addition, consumers favor supporting these social projects, as evidenced by fair trade and social purchasing. Participatory financing models such as crowdfunding and crowdlending have also been developed (OECD/EU, 2017).

SOCIAL ENTREPRENEURSHIP

The social economy comprises multiple models for a more inclusive and sustainable economic paradigm. It comprises a "heterogeneous set of private actors, including associations, cooperatives, foundations, non-profit organizations, volunteer groups, and social enterprises" (WEF & Schwab Foundation for Social Entrepreneurship, 2022).

In crises, entrepreneurship can be seen as pursuing opportunities regardless of the context: startup or corporate, for-profit, or not-for-profit, public or private, discovery or creation. Moreover, entrepreneurship occurs under great uncertainty and with an intense scarcity of resources. These conditions also characterize crises (Dushnitsky, Graebner & Zott, 2020).

The critical distinction between entrepreneurship and social entrepreneurship lies in the value proposition. The proposition for the former is to anticipate and organize to serve markets that can comfortably pay for the new product and/or service; thus, it is designed to generate

financial returns. It was recalled that what distinguishes the social economy is that it puts purpose before profit (WEF & Schwab Foundation for Social Entrepreneurship, 2022).

"Profit is a sine qua non, essential to the sustainability of any enterprise and the means to its ultimate end in large-scale market adoption and ultimately a new equilibrium" (Martin & Osberg, 2007). Of course, markets are not perfect, but they function as a proxy for value creation, especially for value creation customers are willing and able to pay for. Thus, the ability of entrepreneurs to attract resources in a competitive market is a reasonable indication of productivity. In this sense, "value is created in business when customers are willing to pay more than it costs to produce the good or service being sold" (Dees, 2001). If companies fail to generate value, they exit the market.

However, markets do not work as well for social entrepreneurs since markets need to do a better job of valuing social improvements, public goods and harms, and benefits for people who cannot pay. It is, therefore, more complicated to know whether a social entrepreneur is creating enough social value to justify the resources used in creating that value (Dees, 2001).

Therefore, social entrepreneurship seeks value through large-scale transformative benefits that accrue to a significant segment of society. It is a process of creating value through new ways of combining resources to explore and exploit opportunities to create social value by stimulating social change or meeting social needs (Short et al., 2009).

Thus, it assumes that a market can pay for innovation and provide a substantial advantage for investors. "The value proposition targets an underserved or highly disadvantaged population that lacks the financial means or political clout to achieve the transformative benefit on its own." This does not preclude the value proposition from being for-profit. Social entrepreneurship is distinguished by the primacy of social benefit, i.e., mission-related impact. Thus, they "conduct activities in the interest of their members and beneficiaries (collective interest) or society at large (general interest) and are governed accordingly" (WEF & Schwab Foundation for Social Entrepreneurship, 2022, p.9).

Social entrepreneurship has various conceptualizations as follows:

Dees (2001) point out "the pursuit of innovative resources and opportunities for the strategic intent to achieve an improvement in social conditions." In addition, Pedraza and Acosta (2017) indicate that this undertaking can be carried out by non-profit entities, for-profit entities, and the public sector, but with a perspective of continuity and not only as a single act.

The mission of this type of entrepreneurship highlights the creation and sustainment of social value, the recognition of opportunities, and the commitment to innovation and learning, as

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well as the adaptation to the environment to provide proposals that solve social problems (Merino 2013 cited in Pedraza and Acosta 2017).

Bornstein and Davis (2010) point it out as the process in which citizens build and transform institutions to provide solutions to social problems such as poverty, diseases, illiteracy, environmental destruction, human rights abuses, and corruption, creating a new balance in society.

For Skoll Centre for Social Entrepreneurship of the University of Oxford, they conceive it as combining opportunities, innovation, and ingenuity to address critical social and environmental challenges.

Then, the aspects that address social entrepreneurship are not circumscribed to financial aspects such as profit maximization but go beyond seeking sustainability of entities and improvement in social conditions (Pedraza & Acosta, 2017). For entrepreneurs, creating wealth is a way of measuring value creation. It determines whether the value is being created; for social entrepreneurs creating wealth is only a means to achieve the social mission. This explicit social mission becomes the central criterion affecting how entrepreneurs perceive and evaluate opportunities (Dees, 2001).

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The social enterprise "has a positive impact on the environment or society, and at the same time, is profitable as a business" (BBVA, 2021).

For Chinchilla (2019), social enterprise is "an organization created to solve a social problem under the rules of the market."

Another conception is that the OECD identifies a social enterprise as "an operator in the economy whose main objective is to have a social impact rather than to make a profit for its owners or shareholders" (European Commission, 2011). It operates within a market by providing goods and services in an entrepreneurial and innovative way and uses its profits to achieve its objectives. "It is managed in an open and accountable manner and, in particular, involves employees, consumers, and stakeholders affected by its business activities" (European Commission, 2011).

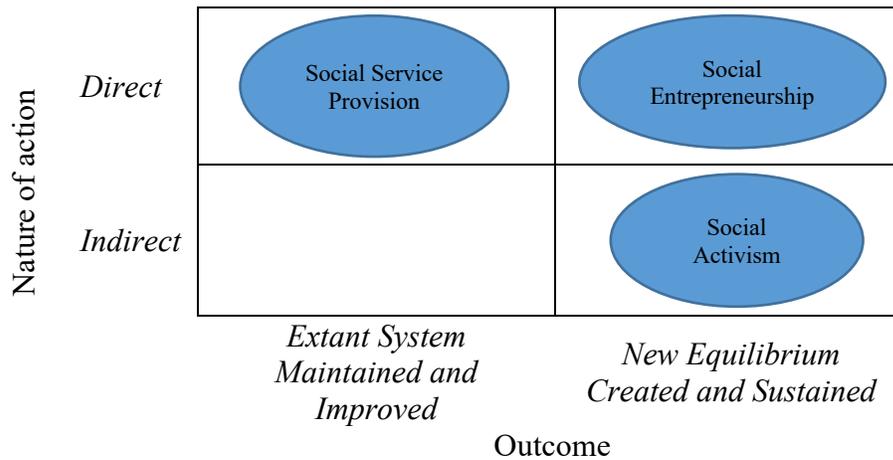
According to the World Economic Forum, "social enterprises ... prioritize social or environmental purposes and often employ an entrepreneurial, for-profit and innovative way to provide goods and services" (WEF & Schwab Foundation for Social Entrepreneurship, 2022, p.10). Additionally, they are democratically governed and can share profits.

For Martin and Osberg (2007), social entrepreneurship includes three components: "(i) identifying a stable but inherently unjust equilibrium that causes the exclusion, marginalization or suffering of a segment of humanity that lacks the financial means or political clout to achieve any transformative benefits for itself; (ii) identifying an opportunity in this unjust equilibrium, developing a social value proposition and bringing inspiration, creativity, direct action, courage, and fortitude, thus challenging the hegemony of the stable state; and iii) forge a new and stable equilibrium that releases the trapped potential or alleviates the suffering of the target group and, through imitation and the creation of a stable ecosystem around the new equilibrium, ensures a better future for the target group and even for society at large. "

One of the most representative characteristics of social enterprises is that they generate decent jobs with good salary conditions, which makes them more resilient and stable in the face of economic crises (BBVA, 2021).

It should be noted that social entrepreneurship is distinguished from social service enterprises and social activism. Social service enterprises have limited results and do not spread, i.e., there is no impact from being replicated and changing the status quo. On the other hand, social activism attempts to create change through indirect actions to influence others to act.

Figure 1
Pure forms of social engagement



Source: Martin & Osberg (2007).

Consequently, the social entrepreneur who is considered successful will take direct action and produce a new sustainable equilibrium.

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"We believe that social entrepreneurship is as vital to the progress of societies as entrepreneurship is to the progress of economies and deserves more rigorous and serious attention than it has so far attracted" (Martin & Osberg, 2007).

Characteristics of social entrepreneurs

Theorists universally associate entrepreneurship with opportunity. Entrepreneurs are thus conceptualized as people with an exceptional ability to see and seize new opportunities, who have the commitment and drive to pursue them, and an immutable willingness to take the inherent risks (Martin & Osberg, 2007).

An entrepreneur is a person who stimulates economic progress by finding new and better ways of doing things (Dees, 2001). According to Jean Baptiste Say, "the entrepreneur moves economic resources from an area of lower productivity to an area of higher productivity and higher output," quoted in Dees (2001).

Later, Schumpeter indicates that the entrepreneur is an agent of change in the economy, while for Druker, entrepreneurs are exploiters of change, astute and committed. Finally, following this idea, Kirzner indicates that the entrepreneur's most important skill is identifying alertness, i.e., he observes the need for change, responds to it, and exploits it as an opportunity (Martin & Osberg, 2007).

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Qualities of social entrepreneurs according to Ashoka (2022):

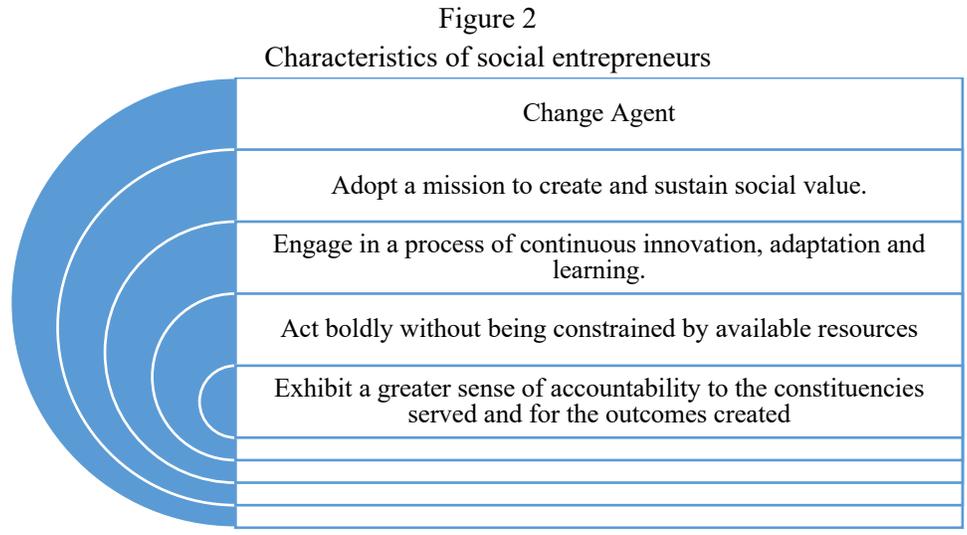
1. A new idea. That is a new solution or approach to a social problem with the potential to change the pattern, in other words, a truly transformational innovation, not just a tiny approach.
2. Creativity. In its objectives and in providing practical answers to problem-solving.
3. Business quality. The drive is the vision of the solution to the problem, working on it, and will only rest once an idea becomes the new standard of society. Likewise, they are willing to fight against the challenges and/or challenges that come their way.
4. Social impact of the idea. The idea must have the potential to significantly change the field in which it is presented and have a national impact. This idea must be new, practical, and valuable enough to be adopted and become the new industry standard.
5. Ethical Fiber. The entrepreneur will have to inspire change on a large scale and to diverse stakeholders, so if he or she is not trustworthy, his or her chances of success are significantly reduced.

Entrepreneurs are attracted by suboptimal equilibriums (inconvenient situations that must be tolerated) and see in them the opportunity to provide a new solution, product, service, or process. In this sense, the characteristics of entrepreneurs are:

1. Inspiration. To alter the unpleasant balance either because they are frustrated users or feel empathy for these users.
2. Creativity. Develop a new solution that breaks radically from the existing one and seeks a new way to address the problem.
3. Communication with direct action. Takes direct action by creating a new product or service and promoting it. It involves affecting other indirect and supportive actions. With actions seeks to influence first investors, then colleagues and employees, and finally, customers who will buy his ideas and innovations.
4. Courage. It includes bearing the burden of risk and facing failure head-on, so take significant risks and do things considered reckless or impossible.
5. Fortitude. This characteristic is necessary to push the creative solution found to fruition and market adoption. The entrepreneur must find creative ways to overcome barriers and challenges.

All these characteristics are fundamental to innovation, but those who are more innovative in their work and achieve more significant social improvements will be categorized as more entrepreneurial.

For Dees (2001), social entrepreneurs are agents of change and must have the characteristics indicated in the following figure.



Source: Dees (2001).

However, the evidence presented by Martin and Osberg (2007), "entrepreneurship describes a combination of a context in which an opportunity is situated, a set of personal characteristics required for the identification and pursuit of this opportunity, and the creation of a particular outcome."

Social Entrepreneurs and their relationship to Innovation

Christensen, Baumann, Ruggles, and Sadtler (2006) point out that the innovation sought by social entrepreneurs is characterized by being scalable, sustainable, and promoting systems change. However, in the context of social entrepreneurship, innovation does not imply improving competitiveness but seeking alternatives to the significant challenges of the 21st century (Auvinet & Loret, 2015, p. 239).

The social entrepreneur should be understood as someone who targets an unfortunate but stable equilibrium that causes the abandonment, marginalization, or suffering of a segment of humanity; who brings to this situation his inspiration, direct action, creativity, courage, and fortitude; and who targets and ultimately affects the establishment of a new stable equilibrium that ensures a permanent benefit for the target group and society at large (Martin & Osberg, 2007).

Thus, social innovation is new ideas that meet unmet needs and improve people's lives (Mulgan et al., 2007, p.7). Thus, social entrepreneurs use entrepreneurial mechanisms to solve old social problems with social innovation (Ramadani et al., 2022). In addition, these innovations seek to contribute to social and ecological resilience to help communities create social value despite the capacity of the existing system (Gasparin et al., 2021).

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However, van Leeuwen and Mohen (2017) found that resource-saving eco-innovations improve processes and increase productivity in firms, but innovation that reduces pollution tends to reduce productivity. Hence, smaller firms are more likely to pioneer radical and disruptive innovations by exploiting market opportunities neglected by more prominent firms (OECD, 2013).

Consequently, innovation in social entrepreneurship does not seek to improve competitiveness but instead seeks different approaches to the significant challenges of the 21st century (Vernis, 2009; Auvinet & Lloret, 2015).

For both Christensen et al. (2006) and Auvinet and Lloret (2015), innovations within social entrepreneurship are catalytic innovations that, although they are a subset of disruptive innovations, the focus that distinguishes them is national social change. They seek to inspire the private sector to more inclusive and sustainable business practices.

These catalytic innovations have the following qualities:

1. They create systemic social change through scale and replication.
2. They meet a need that needs to be more satisfied (the solution is more complex) or unmet.
3. They offer more superficial and less expensive products and services than existing alternatives, which may be perceived as lower performing but need to be considered adequate by users.
4. They obtain resources from donations, grants, volunteer labor, or intellectual capital in ways that could be more attractive to established competitors.
5. They are often ignored, disparaged, or even encouraged by existing players for whom the business model could be more attractive and attractive and therefore avoid or withdraw from the market segment.

In this sense, social objectives are prioritized rather than profit, which allows for exploring niche opportunities within markets and unlocking new sectors for excluded groups, while pursuing a combination of social, environmental, inclusion, and economic objectives. In addition, this allows for cooperation and collective social innovation with local actors that often produce jointly developed and locally fixed solutions (WEF & Schwab Foundation for Social Entrepreneurship, 2022; Chia et al., 2022).

PRELIMINARY RESULTS

The results are diverse and include the state of people suffering from hunger between 720 to 811 million people, with Asia being the continent with the largest population of 424 million people, followed by Africa with 278 million people, in third place is Latin America with 56.5 million people, continuing with Oceania with 2.5 million people. The percentage of the population with severe food insecurity is found in Africa at 23.4%, Latin America at 14.2%, Asia at 10.5%, Oceania at 4.5%, and North America and Europe at 1.5%.

Another relevant fact is that the value of food must consider the environmental, social, health and economic externalities produced in its production. In this sense, indicators of human health, the environment, biodiversity, livelihoods, and the economy must be considered to value food production correctly.

Therefore, it is necessary to know the processes of food production to know their externalities and their cost. In this way, through true cost accounting, information can be integrated into the price of food to reduce the asymmetry of information available to consumers and allow producers who produce food with minor externalities to compete in a food market. Although true cost accounting is a tool to know the value of food, it does not have specific methods

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and is still under development; neither does it give an exact value of production, but it gives an approximation of the value of goods, which is essential for detecting areas of opportunity in food production.

Also, an important fact is the knowledge that social entrepreneurship can and has contributed to the change in the food system. Social entrepreneurs possess the characteristics required to change the status quo and are a crucial element. Thus, they seek innovations that enable systemic social change through scale and replication to improve the conditions of a society. They may not seek to improve competitiveness with their innovations but to impact vulnerable populations by strengthening their resilience and adaptation (Dougherty-Choux, 2014).

Then, social entrepreneurs can use the cost strategy to compete in the market if the true costs of the products are considered, i.e., including externalities. Consequently, "the creation and growth of social enterprises more than an isolated phenomenon is a trend on the right path to achieve well-being as a society" (Chinchilla, 2019).

Finally, the topic of the food system is deep and complex, as well as its implications and impacts. However, this first approach allows a reflection on food prices, the true costs, the externalities left out of its valuation, and a new way of considering competitiveness, including the valuation of externalities.

CONCLUSIONS

This first approach to the complex problems of the food system provides the following conclusions:

- The food crisis is a complex problem with diverse factors that generate it. However, at the same time, it is an opportunity for multidisciplinary work with diverse areas of opportunity to seek and/or contribute to solving it.
- The food crisis affects the entire world to varying degrees and may worsen if we do not act to change the current status quo of the food system.
- It is necessary to measure the current costs of food processes, including their negative externalities, to have a parameter to guide actions to reduce these impacts and achieve higher quality production and process improvement.
- Within the food system, social entrepreneurs are a vital factor in achieving change, as they seek a sustainable change of the status quo.

- The characteristics of social entrepreneurs are those required to find innovative solutions that enable a change in societies and processes where the most disadvantaged and vulnerable populations benefit.
- Evidence shows that externalities not considered in food production affect countries globally.
- A tool such as true cost accounting makes it possible to understand and value food correctly and create true value in the processes.
- The tool of true cost accounting and social entrepreneurship are key elements to achieve a change in the current food system, as they contribute to an understanding of it and, therefore, to the search for solutions.
- It is necessary to expand and improve education and research on social innovation, social enterprises, and social economy in schools and universities to increase the visibility of the social economy and achieve an impact that favors joint solutions to the food crisis.

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