

Chapter 35

Information Technologies in Social Entrepreneurship

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Abstract Social organizations are usually subject to a high number of requests. In addition, it deals with a variety of problems to which an answer is needed. In this context, it is important to understand how these organizations can better support their process activity: Can technologies help to solve the problems of social organizations in a more efficient way, bringing greater benefits to the community? This paper presents a study on the use of information technologies in Portuguese social organizations to meet the needs of these organizations in responding to current challenges.

35.1 Introduction

As a result of the economic crisis, particularly in Portugal, we have witnessed the emergence of several social entrepreneurship (SE) initiatives. Some entrepreneurs focus their attention on creating innovative social, cultural and environmental responses in order to respond to economic and social needs [26]. In addition, the economic crisis brought the opportunity to create these entrepreneurial companies [25].

SE manifests itself in different ways, from initiatives initiated by non-profit organizations, in its purest state, to the action of organizations that combine philanthropy with operational management models [6]. Three lines of research on the entrepreneur

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profile can be identified: Hayek's Social DIY [8], Kirzner's Social Builders [11] and Social Engineers from Schumpeter [23]. The profile of the social entrepreneur highlights people who identify a flaw in society that turns it into a business opportunity, recruit and motivate others for their cause, while creating networks of contacts with key people. And they become entrepreneurs because they want to change society, they are uncomfortable with some characteristic of society, they have altruistic feelings, and they need to be socially responsible [13]. In addition, they do everything in their power to alleviate the problem they want to solve, even though they often need help from other entities and experts to increase results, do a better job, better manage resources and benefit more people.

The concern about using the appropriate technologies to boost SE should be considered: Mainly because the world is entering the fourth industrial revolution, storage and processing capacities are increasing exponentially, and information technologies are the basis of this revolution. Thus, even with the awareness of these entrepreneurs focused on the social problem [1], for the success of the initiative, there is still much to learn in the areas of management and technology adoption.

Thus, both the public administration and the entities dedicated to SE in Portugal, can gain relevance and trigger more initiatives in the field. To achieve this objective, it will be necessary to acquire more knowledge and awareness about the benefits that technology, or more specifically, that information technologies (IT) can provide to social organizations.

In this sense, we have identified the different entities and initiatives that support and promote social entrepreneurship, and we were able to evidence the existence of numerous awards and support programs for social organizations in Portugal. There are also other entities that are open to listening to new social projects, such as the PT foundation or other international organizations that finance projects in Portugal, such as Robert Bosch Stiftung, Fondation d'Entreprise AirFrance, Guerrilla Foundation, Addax & Oryx Foundation or Oak Foundation.

To achieve this goal and help make SE activity more effective, this study proposes a framework for the appropriate use of IT for each type of social organization.

In this paper, we will: (a) characterize the social organizations that operate in Portugal; (b) study the main contributions that information technologies can bring to help improve the performance of each type of social organization; and (c) define which information technologies have the greatest potential for help meet needs and current challenges.

35.2 Information Technologies at the Service of Social Entrepreneurship

There are numerous SE entities that can benefit from the adoption of IT in their daily lives, but have not yet adopted it [7]. Considering frameworks that can contribute to supporting IT adoption decisions is an essential issue. The main frameworks

are: networked readiness (NRI) [7], diffusion of innovation (DOI) and technology, organization and environment (TOE) [18].

The NRI framework measures the countries' ability to leverage information technologies in order to increase competitiveness and well-being [7].

Since 2001, NRI has proven to be an important tool for identifying differences, channeling actions, structuring a policy for dialogue and tracking the progress of IT readiness over time.

This set of frameworks for IT adoption, focusing on the impact they can have on innovation, led the Fórum Económico Mundial [7] to identify ways to recognize this relationship:

- R&D and basic research: there are new technologies in the range of tools used in research and cost reduction in research activities that were previously unaffordable. They allow for more accurate conclusions based on large amounts of data and allow for more extensive research;
- Product and process novation: digital technology enables the creation of new products and services and improves the existing production systems, allowing a reduction in costs;
- New business model: digital technologies are enabling companies to reinvent their business models;
- Increase in market size: with technology, markets are closer, since there is a reduction in communication costs and an increase in the efficiency of research-meetings, which increases the pressure of competitiveness;
- Reduction of the barrier for creating new projects: new online services, such as the cloud and online marketing platforms are saving a significant percentage of fixed costs for startups and small- and medium-sized companies. This facilitates the creation and scalability of new projects;
- Acquisition and leverage of knowledge about consumers: Big data is providing companies with the opportunity to better understand their customers' consumption patterns, which increases the pressure on competing companies to also innovate.

However, it is necessary to clearly identify the IT that is useful in this context and can be used by social organizations. Considering the activities and areas in which these social organizations are located, the ITs to be considered must also meet the forms of promoting decision making. Thus, we consider IT that falls within the scope of the concepts of enterprise resource planning (ERP), customer relationship management (CRM), business intelligence (BI), data mining (DM) and artificial intelligence (AI).

ERP is a set of systems and software used by organizations to manage some of the daily tasks of their businesses, such as accounting, procurement, project management and production [19]. The implementation of an ERP system will contribute to the automation and improvement of low-level transactions and processes, leaving more time and resources for companies to focus on more critical and complex activities [24]. Through a centralized database, an ERP offers real-time data and allows workers to be more innovative and flexible [4]. In addition, the integration of systems,

data and information processes increases the ability to process information and therefore confidence and speed in decision making [9]. Without an ERP system, small and medium enterprises, as a rule, base their support on business processes and performance monitoring, on Excel spreadsheets or on other isolated tools [12]. As a result, companies may have less accurate reporting and performance processes [5]. The main benefits are standardization, visualization of important data in a single window, efficient use of data from the database, automation of the company's main processes, improved visualization and accessibility of data through different locations and platforms [24].

CRM is a technology that allows a company to manage all relationships and interactions with its customers, current or potential. Its objective is to improve business relationships [21]. CRM is a fundamental tool for companies to respond more assertively to what the customer wants, allowing them to know him in more detail, especially in a global and extremely competitive market, such as the one that currently exists [15]. CRM is directly related to new information technologies and it is possible to automate the activities of memorization and data processing, implement various analyzes and make contacts with customers through the available channels [10].

Business intelligence is defined as a wide category of applications, technologies and processes to collect, store, access and analyze data, in order to provide better decision making to users [27]. There are several definitions of business intelligence [17], because BI is a productive process whose raw material is information and the final product is knowledge. Moss and Atré [16] state that BI is not a product or a system, they consider it as an integrated operational architecture and a set of decision support applications that provide a community with better accessibility to business data. BI can also be considered a term "umbrella" that combines architecture, tools, databases, analytical tools, applications and methodologies (Gartner, Inc).

Data mining is another information technology that can be extremely useful for organizations. In the current context, it is essential to create value (tangible and intangible) and increase productivity (technology and know-how and in this way, translate resources into desired outputs in the market and resources within the company in order to produce goods and services). Currently, companies have an increasing volume of data, and it is expected that this value will only increase. However, the estimates point that less than 10% of the data created are minimally organized or developed and this percentage should decrease as the data production increases [2]. According to McKinsey Global Institute (2011), data has invaded all sectors and business processes and is now an important factor in the organization, as well as human resources and capital. Data mining is a very useful tool for companies to value the large databases they have.

Artificial intelligence is a subfield of computer science that studies the ability of computers to perform actions that require human intelligence, rather than routine processing. Actions such as reasoning, color perception, language comprehension, vision, object manipulation, world navigation and learning are subfields of AI and all combined result in an intelligence entity that, in this case, would be artificial, and not natural [20]. AI is an area that originated in the last century (1950) and has since been structured in different areas. In 2017, MIT and BCG carried out a study on the

topic “Reformulate the Business using Artificial Intelligence,” which involved more than 3000 executives from different sectors globally. Three quarters of executives believe that AI will allow companies to enter new business, almost 85% believe that AI will allow companies to gain or maintain a competitive advantage; however, only one in five companies has incorporated AI into any offer or process so far.

SE organizations can use IT for all aspects of the process (budgets, strategic planning, human resources, fundraising and knowledge management and project evaluation) [22]. To implement those technologies, organizations must first overcome the fear of measuring and evaluating their work in order to realize the various benefits of culture of measurement, and second, there must be a conceptual shift in the focus of proving the impact to improve performance. Third, it must increase the organization’s capacity, create better tools and develop common standards [22].

These non-profit organizations face three major performance challenges: the lack of the ability to articulate and measure performance, the lack of tools to track and report data performance and the lack of standards for reporting and interpreting measures. To implement information technologies, social investors must make this investment knowing that, in the long run, valuable information will be available [22]. This investment may be one that will bring greater social return to the sector. The practical steps suggested by the author are: demystify and encourage the importance of performance, create infrastructure for measurement and start measuring something.

In this sense, ERP and, particularly, CRM for customer relations, can help organizations in their daily operations.

35.3 Research Methodology

The research strategy was survey, one of the most used in the social sciences, such as social entrepreneurship [28]. In this investigation, due to time and financial restrictions, it was not possible to present the questionnaire, an instrument used in a quantitative approach, to all social organizations in the country. However, it was possible to present to the associations representing 93% of social organizations in Portugal.

35.3.1 Data Collection

The research instrument, the questionnaire was built with goal of collecting data in four main parts:

- Questions about the use of information technologies in the day-to-day life of the organization, in order to understand how these social organizations are managed today;

- Questions of intention, in order to understand whether social organizations are open to the introduction of ERP and CRM in their operation and to understand which tasks can benefit the most. For these questions, the Likert scale was used, in which 1 strongly disagrees and 5 is entirely in agreement;
- Questions related to awards and programs to support social entrepreneurship, in order to understand whether some of these awards allowed or encouraged the adoption of information technologies;
- and, finally, the characterization of the social organization: seniority, typology, legal status, number of employees, number of beneficiaries per year, area of activity and geographical location.

Also, at the end of the questionnaire, there was an open question, in order to allow suggestions to improve it.

The questions were created with two types of scales: nominal and interval. The nominal scale corresponds to questions that have two or more answer options and where the options identify objects. In this case, objects are assigned mutually exclusive characteristics, and there is no ordering for response options. On the interval scale, objects representing categories are assigned numbers and the intervals between adjacent classifications are the same.

35.3.2 Sampling and Data Processing

The sample of this study is representative of the various types that constitute the third sector in Portugal: cooperatives, “mutualities,” associations, “Misericórdias” and foundations. Most responses come from associations as they represent 93% of social organizations in Portugal. The initial objective was to have a sample of more than 50 organizations, in order to have a broad perception of the object of study.

In this sense, for the validation of the constructed model, pre-tests were carried out with some social organizations to validate the questionnaire. After obtaining the answers to the questionnaires, they were cleaned, validated and analyzed.

35.4 Study

The analysis focused on 69 responses to the questionnaire. The sample was characterized according to the following aspects:

- Seniority: the majority of responses came from organizations over 10 year old, which gives great stability and where the processes must already be rooted;
- Types of social organizations: the vast majority are Associations; this was to be expected since the majority of social organizations in Portugal are Associations (93%, INE 2016), with the IPSS legal framework being the most common;

- Regions: Twenty-five organizations have projects underway in the Lisbon Metropolitan Area, twenty-four streamline activities in the North and twenty-one in the center. The Algarve received only four nominations and Alentejo six. No responses were obtained from organizations with projects taking place in the autonomous regions.
- Size: the largest number of responses (28) came from organizations with a higher number of employees (>31 employees); however, it should be noted that the number of beneficiaries is independent of the number of employees, as there were quite a few responses scattered: 16 for <100 beneficiaries, 11 for the 101–250 range, 16 for the 251–500, 6 for the 501–1000 and 13 for the >1001;
- Areas of expertise: the most suitable category was “Action and Social Security” (42 responses), followed by “Health and Well-Being” (23 responses), “Teaching and Research” (16 responses) and “Culture, Sports and Playground” (13 replies).

It was intended to analyze the responses of individuals with a managerial role in a social organization, and therefore, only 62 of the 69 questionnaires answered that respected this criterion were analyzed.

The analysis of the questionnaires began by trying to understand the main tasks of the day-to-day activities of social organizations. The two most mentioned tasks were management and employee management and, in third place, the fundraising task. The gap between 73% (45) and 27% (17) of organizations that use software to support their activities and those that do not actually use them was immediately identified. Of those who use software, Excel is the most used (34), following ERPs (27). In this context, and although there is some balance in the use (47%) or non-use (53%) of ERPs, it was possible to list in order of quantity of responses the market solutions actually used: ERP Primavera, F3M, Sage and SAP, with F3M being the solution developed specifically for social organizations. The level of knowledge of respondents from the list of identified ERPs was also identified, with the following sequence: Sage (27), ERP Primavera (23), SAP (20) and F3M (19). It should also be noted that 18 of the respondents do not know the listed ERPs, as the organizations they manage use programs for the management of nursing homes (Fig. 35.1).

Since there are programs focused on social entrepreneurship, with prizes included, when asked if they had already benefited from some software to support the activities of social organizations or from a program or promotion prize in such a program, 65% of respondents replied that they did not.

Those who answered affirmatively (35%), 9 indicated that they won the EDP Solidária Award from the EDP Foundation, the Bootcamp from the Social Entrepreneurship Institute was mentioned six times and the BPI Capacitar Award 5 times. The Bolsa de Valores Socias, ISEP Portugal, Impact Generator and the BPI Solidário Award were mentioned four times. In addition to the options listed, the Calouste Gulbenkian Foundation’s Partis, EEAGrants, Lisbon City Council’s Bip Zip, Ren-Agir Award, Dr. Leonilda Aurora da Silva Matos Award, Missão Sorriso do Continente and Caixa Agrícola were also mentioned.

In addition, in this context, 36% of the awards were given for the use of IT: The adoption/use of technologies by these organizations has a greater influence on the

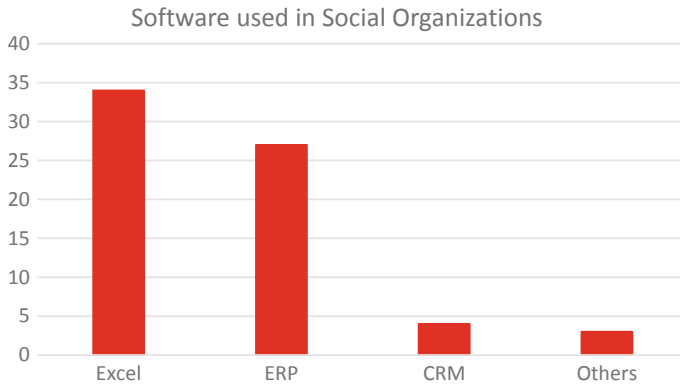


Fig. 35.1 Software used in social organizations

EDP awards. It was also observed that the interviewees recognize the benefits that information technologies can bring to their organization: seventy-one percentage of the interviewees answered the maximum of the scale (5)—I totally agree, 19% answered the second largest of the scale and 10% answered in the middle of the scale. No one responded below the middle of the scale, which indicates that respondents recognize the importance of information technology for the functioning of their organizations.

Thirty-five percentage of respondents were also asked whether there is an intention to implement IT, that is, whether it is a priority to use technology: Sixty percentage intend to do so (two higher levels of intention, 33 and 27%). It was also asked which tasks of social organizations can benefit from using an ERP, or in particular CRM. The management task was the one that had the greatest choice of respondents at the maximum level of the intention scale. It is followed by the accounting management task and immediately after the employee management task.

In parallel with the ERPs, we sought to understand what was happening with the use of web/mobile applications. In this context, 25 know about eSolidar and 15 solidarity purchase, which are the best known on the list. However, 28 of the respondents do not know the applications listed. Even so, it was possible to understand that these applications bring benefits to social organizations (85% of the respondents answered yes) and which ones really support this perception: eSolidar (40 responses), solidarity purchase (33 responses) and the zoom platform (20 responses).

35.5 Discussion

Most of the social organizations that responded to the study have existed for at least 10 year as service providers in the sector, typically with IPSS status and employing 31 or more employees.

Regarding the number of beneficiaries/years they receive, these social organizations are classified in three categories: small, medium and large. The main area of activity is action and social security, followed by health and well-being. In terms of geographical distribution, a balanced scope was possible, with 25 organizations participating in this study being from Lisbon Metropolitan Area, 24 from the North and 21 from the Center. The main daily tasks of organizations are: management, employee management, fundraising, beneficiary management, accounting management and training management. Seventy-three percentage of the organizations surveyed say they already use some type of software to support the execution of the main daily tasks.

However, in half of the organizations, the software used is Excel, which is a powerful tool, but not specific to social organizations. Most of the organizations surveyed do not use any ERP or CRM in their organization. The ERP/CRM most used are ERP Primavera, F3M and Sage. As for the knowledge of the managers of social organizations about ERP CRM, the most referenced were: Sage, followed by ERP Primavera, SAP, FM3 and Oracle. About a quarter (26.1%) of the managers who answered the questionnaire did not know any ERP/CRM.

In relation to programs/awards related to social entrepreneurship, 65% of respondents have never benefited from any program. The program/award that most organizations won was EDP Solidária from Fundação EDP, followed by Bootcamp from Instituto de Empreendedorismo Social. Only 36% of the awards/programs won by social organizations were related to or allowed the use of information technologies. The award that most helped organizations with information technologies was EDP Solidária.

Regarding the second part of the questionnaire, in which the objective was to understand the perception of social organizations on the benefits of information technologies, the organizations were unanimous in stating that they agreed that, in the future, their organizations could benefit from the use of some information technology. However, only 60% respondents responded positively to the intention to implement some information technology in their organizations in the future, 20% responded neutrally and 20% have very little or no intention to implement IT.

This fact points to the importance of strengthening the information and awareness of managers of social organizations about the importance of investing time and resources in this specific area, since the integration of technologies is recognized as beneficial, but it is not a clear and immediate intention on the majority part.

The predominance of the female gender in the management of social organizations, less linked to technologies, the age of managers who, in the great majority, are not digital natives, the scarcity of resources and the lack of existing opportunities for the social area are possible factors explaining this circumstance.

As for the main tasks that could benefit from information technologies, the most mentioned was management, which corresponds to the most prevalent task in daily life, as it is very comprehensive, followed by measurement of results, accounting management and employee management. The tasks that managers believe do not have

Table 35.1 Information technologies to support social entrepreneurship

	ERP	CRM	BI	DM	Specific Applications
		Yellow		Blue	Grey
Fundraising	Brown	Yellow		Blue	Grey
Funders / Sponsors Management	Brown				
Membership Management		Yellow			Grey
Treasury Management	Brown				Grey
Volunteer Management		Yellow			Grey
Training Management					Grey
Accounting Management	Brown				
Route Management				Blue	Grey
Strategic management			Green		
Measurement of Results	Brown				
Employee Management					Grey

as many benefits from the introduction of information technologies are route management and customer acquisition (which can be justified since not all organizations have these tasks).

Table 35.1 elaborated against the results of the questionnaire, identifies the applicability of information technologies, ERP/CRM, BI, DM and specific applications in the various activities already listed above.

35.5.1 Proposal and Recommendations

Regarding the technologies identified in Table 35.1, it is recommended:

- ERP, to be implemented in entities with relevant fundraising, customer acquisition, partner management and volunteer management processes;
- BI, to be implemented in strategic management: this is a big gap in the structures of social organizations that, when they find themselves overloaded with daily tasks, end up neglecting strategic planning; the implementation of BI will bring relevant data and information collection processes that allow a better evaluation of the processes and results, adjustment of processes, priorities redefinition and increase in the efficiency of the organization;
- DM, applied to the tasks of fundraising, client acquisition and route management; in this case, organizations must have systematic and efficient data collection processes: this condition presupposes, from the outset, an evolution in relation to the processes of the entities of the social sector and requires an initial effort that, a posteriori, will be rewarded;
- Specific applications existing in the market for client acquisition, fundraising, partner management, treasury management, volunteer management, training management, route management, employee management are implemented in different social organizations;
- Likewise and in relation to the various initiatives and projects dedicated to the development of information technologies that social economy organizations can use and benefit from, which generally exist in the form of tenders or which require more or less complex application processes, we recommend if the following opportunities are considered;
- Awards related to information technologies such as ScaleUp Porto;
- Awards and training programs for the social economy, such as the Community Fidelity Prize—Support for sustainability in which the prize aims to support initiatives that contribute to the strengthening of the social sector in Portugal, through initiatives aimed at strengthening the activity/capacity for intervention of the institution (such as, for example, in the areas of human resource management or processes, marketing, communication, training or certification or billing systems, computerization, among others), initiatives that promote an increase in the capacity for intervention of the institution (whether by attracting new resources, investing in marketing and communication areas or creating models for expanding the institution's work, among others) or allowing the diversification of the respective contribution to the strengthening of the social sector in Portugal (either by defining a development strategy, for the definition of a replicability model or for the investment to launch social businesses, among others);
- Training Program for the Social Economy of Portugal Social Innovation that aims to support Entrepreneurship and Social Innovation Initiatives (IES) in strengthening their organizational skills and management skills, with the aim of making them more prepared to generate social impact and capture social investment. This program may include up to five different interventions in the following areas: value

creation model; impact assessment; strategy, partnerships and growth; marketing, communication and fundraising; structure, governance, leadership and human resources; financial management, control and risk; operations management and information technology;

- Initiatives to help social organizations such as TechSoup—international non-profit network of non-governmental organizations that provides technical support and technological tools to other non-profit entities. Through the website, it is possible to obtain software with a special price for non-profit organizations, Microsoft for non-profit—Microsoft’s international program to support social organizations, through donations and/or discounts on its products such as Microsoft Office 365, Power BI, Azure, Donate IT—community of volunteers specialized in the most diverse areas of information systems management who are willing to contribute to the improvement of information management, processes and electronic dematerialization of non-governmental and/or non-profit organizations;
- Through the corporate social responsibility area, means and resources are offered for third sector organizations to develop their projects in the IT areas, and some of the companies that have already contributed were Deloitte, EY, Your, Everis, Prime IT group, among many others.

It is also suggested the multiplication of actions and awareness campaigns to recognize the advantages and increase the intention to implement IT in the processes of the other entities (40%) who, in the questionnaire, expressed little or no intention to integrate them.

The advantages and benefits of using IT in all production processes and generating value for society are universally accepted and recognized. Resistance to implementation and its use is usually related to a lack of information, scarcity of resources to make the necessary investment, as well as the initial effort required to train employees and reorganize processes. However, with technological developments taking place, it is inevitable that technology will penetrate all sectors of society, and, in this sense, the social organizations that lead will have an advantage over the rest.

35.6 Conclusion

This study was dedicated to investigating the use of IT by social organizations and proposing a rational use of a set of technologies, with a view to making their action more effective, expanding the number of beneficiaries and increasing the impact generated.

The predominant area of activity in the organizations studied is action and social security, and, in geographic terms, most of the activities promoted by the organizations studied occur in the metropolitan area of Lisbon, North and Center.

The most common day-to-day tasks of these organizations are the management and employees management. Most entities already use some type of software for

their execution, Excel and ERP; however, more than a quarter of the studied entities claim not to use any type of software.

Information technologies can help improve the performance of different social organizations. Its leaders are unanimous in recognizing the importance of information technologies and the benefits for the functioning of organizations. Both the introduction of an ERP/CRM, which would benefit the task of management of the organizations, and the adoption of web/mobile applications, are perceived as beneficial by the entities.

Most of the organizations that participated in the study (60%) responded positively to the intention to implement some information technology in their organizations in the future. However, it would be expected that the totality would manifest this intention, due to the fact that all leaders recognize the advantages of its introduction. This fact deserves attention, as there is an unequivocal need to support social organizations in technological innovation, aiming at greater efficiency in their actions. This challenge can be framed, for example, in programs in the area of social responsibility of companies linked to IT. Although they already happen, actions of this nature deserve to be reinforced, this because of the capacity that IT companies have to add value to social organizations and that they will return to society through the services provided in support and in solving social problems.

To contribute to the challenge of strengthening IT in social organizations, a table was created to identify the information technologies that help to meet the needs of organizations and to better respond to the challenges they face in their daily lives. This table is a simple and useful tool that allows organizations to improve their processes, through the implementation of current, efficient and intelligent resources, and in accordance with the recommendations made.

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