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TECHNOLOGICAL PERSPECTIVES FOR RISK MANAGEMENT IN THE SOLIDARITY SECTOR IN COLOMBIA

PERSPECTIVAS TECNOLÓGICAS PARA LA GESTIÓN DEL RIESGO EN EL SECTOR SOLIDARIO EN COLOMBIA

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Abstract

This article presents a conceptual framework for Solidarity Economy Enterprises (SEEs), which are organizations emerging from social interest in the common good, in contrast to traditional for-profit enterprises. SEEs have been the subject of theoretical controversy, with some viewing them as a humanization of capitalism, while others, particularly from a neoliberal perspective, regard them as obstacles to economic development. In a global context characterized by increasing social inequality, SEEs emerge as a proposal for resistance; however, they face significant challenges due to their operation outside the state regulatory framework, rendering them vulnerable to infiltration by illicit activities. The global economy, dominated by banking interests, tends to classify SEEs as part of informal value transfer systems, arbitrarily associating them with the black economy. This article addresses the challenges faced by SEEs from a global perspective, with a particular focus on Colombia, in implementing risk management systems. It explores possible solutions, such as tailored regulations and low-cost technologies, to ensure their efficiency and sustainability in combating criminal activities.

Key words: Solidarity Economy, Solidarity Economy Enterprises (SEE), Risk Management, Social Inequality, Neoliberalism.

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Resumen

Este artículo presenta un marco conceptual para las Empresas de Economía Solidaria (ESS), las cuales son organizaciones que surgen del interés social por el bien común, en contraposición a las empresas tradicionales con fines de lucro. Las ESS han sido objeto de controversia teórica, pues algunos las ven como una humanización del capitalismo, mientras que otros, particularmente desde una perspectiva neoliberal, las ven como obstáculos al desarrollo económico. En un contexto global caracterizado por una creciente desigualdad social, las ESS surgen como una propuesta de resistencia; sin embargo, enfrentan desafíos importantes debido a que operan al margen del marco regulatorio estatal, lo que las hace vulnerables a la infiltración de actividades ilícitas. La economía global, dominada por los intereses bancarios, tiende a clasificar a las ESS como parte de los sistemas informales de transferencia de valor, asociándolas arbitrariamente con la economía sumergida. Este artículo aborda los desafíos que enfrentan las ESS desde una perspectiva global, con un enfoque particular en Colombia, para implementar sistemas de gestión de riesgos. Explora posibles soluciones, como regulaciones a la medida y tecnologías de bajo costo, para asegurar su eficiencia y sostenibilidad en el combate a las actividades criminales.

Palabras clave: Economía Solidaria, Empresas de Economía Solidaria (EES), Gestión de Riesgos, Desigualdad Social, Neoliberalismo.

1. Introduction : a conceptual framework for Solidarity Economy Enterprises - SEEs

At the beginning of the 20th century in Paris, Charles Gide published his work The Institutions of Social Progress (Gide, 1905), in which he describes the operations and responsibilities of organizations such as workers' associations, savings and credit cooperatives, and groups that advocate for civil rights, farmers' trade associations, among many others. These organizations cannot be categorized within the framework of neoclassical economics as entities that generate profit for the personal benefit of investors; rather, they originate collectively for the social interest of the common good. A little more than a century after Gide's work, these alternative organizations to hegemonic economic power have become the primary subject of study in the Social Economy or Solidarity Economy (Limonad, 2024). The enterprises linked to this category are known as Solidarity Economy Enterprises (SEEs).

The theoretical controversies surrounding this social vision of the economy can be divided into two major strands: one evident in organizations based on cooperativism as a means of humanizing capitalism (Cantor & Cely, 2022), and the other, primarily rooted in neoliberalism, which views such organizations as obstacles to development and economic growth (Carrillo, 2024).

Occasionally, they are even discriminated against, being labeled as entities supporting communism.

Thus, after two centuries of growth and development of capitalism, the global landscape reflects a significant concentration of capital in the hands of a few and considerable social inequality that transcends national borders (Piketty, 2014). This divides the world into two major blocs: one comprising the affluent, white, individualistic, patriarchal, powerful, and hegemonic global North, and the other, the impoverished global South, which includes marginalized ethnic groups characterized by cultural plurality but condemned to ignorance due to limited educational opportunities. The global South, or periphery, supplies raw materials to the North at low prices and cheap labor, while the North returns these raw materials as expensive products with high technological and intangible added value, such as brands (Wallerstein, 2011).

As a consequence of this inequality and global polarization, the proposal of SEEs emerges, framed within a context of resistance, as "where there is power, there is resistance" (Foucault & Hurley, 1990). However, this resistance provokes a counter-attack strategy from hegemonic powers, who instrumentalize even alternative and progressive proposals for their own ends (Polanyi, 1944).

SEEs emerge as a counter-power for social groups seeking social justice, the common good, the protection of nature, the defense of socio-political freedoms, in addition to ensuring their own material reproduction within the framework of legality. However, as alternatives, these SEEs are generally not regulated by various state control systems, making them attractive to illegal groups such as drug trafficking organizations, human traffickers, and even terrorist organizations, which exploit SEEs to introduce proceeds from criminal activities into the formal economy (Martínez, 2016).

The situation becomes even more complex with the advent of new information technologies, which disrupt the already chaotic world of financial operations, resulting in increased transaction speeds and volumes that make it virtually undetectable for illicit activities to be concealed within legal businesses. In this global scenario of heightened risks, the world economy, primarily represented by banking interests, tends to view SEEs through a neoliberal lens; they are seen as organizations that hinder progress and are linked to illicit activities. Technically, they have been classified as part of "informal value transfer systems" (IVTS or TIS, also known as "Alternative Remittance Systems - ARS"), where everything that the hegemonic economy cannot control is located, and they are also arbitrarily categorized within the "black economy."

With this perspective, capitalist countries, predominantly in the West, accuse SEEs of complicity in drug trafficking and global terrorism, deciding to combat or control them. This results in equating them in terms of oversight with large global banking firms, neglecting the fact that SEEs often possess simpler and more precarious structures.

Consequently, rigorous risk management systems, such as anti-money laundering systems, internal control systems, and financial risk systems, originally designed for the financial sector, are now being imposed on the cooperative sector, often with minimal modification and without considering the reduced capital, low transaction volumes, and non-profit nature of SEEs.

It is within this context that SEEs are now faced with the mandatory implementation of risk management systems. Thus, several questions arise: How can they confront such a situation, which may entail significant capital investments, within low-income and non-profit organizations? Can SEEs develop concise yet effective regulations in the fight against drug trafficking and other criminal activities? What technologies can be utilized to ensure efficient low-cost technological implementations in risk management?

2. International context of risk management within the Solidarity Economy Enterprises (SEE)

Corporate risks have increasingly focused on those emanating from illicit businesses and organized crime. For example, in 1919, the United States prohibited the production, commercialization, importation, transportation, and consumption of alcoholic beverages, leading to the formation of American mafias that began concealing their clandestine operations through laundry companies (Rovner, 2004). This gave rise to the term "money laundering," which refers to the process through which crime is facilitated by the transfer of resources originating from criminal acts.

Money laundering is one of the primary risks faced by contemporary organizations, prompting legislatures worldwide to develop laws aimed at mitigating it. This risk, in turn, generates or facilitates other risks, such as corruption, embezzlement, and tax evasion. Therefore, this analysis refers to the evolution of money laundering risk control as a general reference for its development. Countries have united under the United Nations Office on Drugs and Crime (UNODC) to operationalize the fight against money laundering. The UNODC (2021) is associated with several international agreements, including the United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances -1988 Vienna Convention, the United Nations Convention against Organized Crime - 2000 Palermo Convention, the United Nations Convention against Corruption (Merida Convention), and the Convention for the Suppression of the Financing of Terrorism. It has also established international standards outlined in the Recommendations of the Financial Action Task Force against Money Laundering and Terrorist Financing (FATF). According to its most recent reports, money laundering currently accounts for approximately 5% of the world's gross product, with around $2 trillion spent on bribes annually. Countries are deprived of about $600 billion in taxes from these funds held in tax havens, with the alarming statistic that 90% of money laundering remains undetected (Souza, 2016).

In the Solidarity Economy Enterprises (SEE) sector, there are approximately 761,221 organizations worldwide with assets nearing $19 trillion and revenues of approximately $2.5 trillion, linking more than 800 million people globally (Utting, 2015). Although this figure represents close to 3% of the World GDP (World Bank, 2021), it is significant in the context that criminal organizations seek to exploit any type of organization to achieve their objectives. While the majority of financial crimes are directly associated with the financial sector, specifically banks (Barrington, 2020), SEEs have also been utilized for these illicit activities.

For instance, informal money transfer networks in Asia, such as Hawala, initially emerged as faster and cheaper alternatives to formal bank payment systems (which can fit into the category of SEEs). However, these networks have also been implicated in financing terrorist activities in the region (Force, 2013).

In India, for example, 80% of non-bank companies, where financial cooperatives—classified as SEEs—play a significant role, were designated as high risk in 2020 concerning money laundering offenses (Gupta, 2021).

To better illustrate the financial risk scenario within SEEs, let us consider the "fair trade" model (Fair Trade Federation), which encompasses a set of SEEs aiming to improve the quality of life for producers by eliminating intermediaries, enhancing product supply, and reducing social and environmental costs in production processes (Ceccon Rocha & Ceccon, 2010). In Europe, there are approximately 79,000 fair trade establishments, creating a vast network benefiting around five million people, with an added sales value exceeding $400 million.

In the United States and Canada, fair trade stores have reached $100 million in sales, experiencing a growth rate of 40% per year in North America and the Pacific, and 20% in Europe (cited by Ceccon, 2010, in Krier, 2005; Loureiro & Lotade, 2005). In a network of this magnitude, characterized by rapid growth and millions of interrelated individuals, as well as countless commercial transactions annually, the likelihood of these organizations being exploited for financial crimes is high.

This risk scenario presented for SEEs has been a primary argument for implementing regulations imposed by the public policies of each country in the fight against financial crime. The following section presents four critiques of such regulations:

Ineffectiveness in the fight against financial crime	**Inefficiency in the fight against financial crime**	**Strategy focused on compliance and not on results**	**The citizen is penalized more than the offenders**

2.1 First criticism: Ineffectiveness in the fight against financial crimes

There exists a latent contradiction in the anti-money laundering regulations imposed on Solidarity Economy Enterprises (SEEs): an excessive reliance on their purported effectiveness in combating financial crimes, despite figures indicating otherwise. For instance, while anonymous reports of suspicious transactions lead to the blocking of 31% of all laundering operations annually, this figure only represents 10% of global laundering activities, leaving 90% of illicit operations undetected. The actual effectiveness of these regulations is alarmingly low; in 2019, the U.S. State Department estimated that the success rate of money laundering control was merely 0.2% (TRAFFICKING, 2011), while the global effectiveness of the system stood at just 0.05% (Pol et al., 2020). In other words, the success rate of illegal transactions is 99.95%, resulting in only a negligible adjustment in the balance sheets of criminal organizations.

2.2 Second criticism: Inefficiency in the fight against financial crime

There is no global statistician on operating costs in the fight against financial crime, although in practice these values are key, measurable and verifiable for each agency in each country. There is no consolidated system for reliable measurement, which would be very important to be able to measure the management of anti-crime policies in each country. According to re-search conducted by LexisNexis, overall, the estimated annual compliance costs are between $304 billion to $1.28 trillion, a very high cost that exceeds the amount seized by the authorities, which is only $3 billion (LexisNexis, 2017), a success rate of 0.1% against the 3 billion of criminal funds calculated in that research. This makes the system against financial crimes highly inefficient. Be warned that the costs estimated here, may be underestimated because it is not accounting for public sector costs or penalties, which increase this value considerably.

2.3 Third criticism: strategy focused on compliance and not on results

The ineffectiveness of systems designed to prevent financial crime is evident from the figures presented in the previous two sections. One of the primary reasons for the failure of these systems to yield results is their emphasis on checklists and compliance, which do not address the underlying issues and instead focus on superficial aspects of the processes. By adhering to certain controls, the system presumes that a transaction is neither suspicious nor illegal, effectively allowing it to blend in with millions of other transactions. In other words, the system itself contributes to the disguise and legitimization of criminal operations. For instance, in the practice of searching names against risk lists, it is unlikely that a criminal or terrorist included on such lists would voluntarily submit their name for a transaction involving money laundering or the financing of terrorist activities. However, conducting these searches within the systems provides sufficient evidence that the financial institution has performed the required control, thereby exempting it from liability.

A similar situation occurs with fines. Although the monetary value of fines has increased in the past decade, and the number of fines imposed on banks has also risen, the costs associated with these fines are significantly lower than the illicit profits that a bank may generate by engaging in illegal transactions. While many banks may be complicit in criminal activities, the payment of fines absolves them of liability without imposing criminal sanctions on the managers of such corporations. This reflects the philosophy of "pay for crime."

2.4 Fourth criticism: The citizen is penalized more than the criminals

Another relevant point in the criticism of systems designed to combat financial crime is that, although sanctions have increased and the focus of these systems is on compliance rather than on results, non-compliance with regulations in financial entities, including Solidarity Economy Enterprises (SEEs), incurs high penalties. Ultimately, these penalties are passed on to investors and clients, resulting in lower dividends or higher interest rates, respectively.

Consequently, it is ordinary citizens who bear the costs of inefficiencies in the fight against money laundering, while criminal organizations remain largely unaffected (Pol et al., 2020).

The four criticisms of the systems for combating financial crime presented above include: their ineffectiveness; their inefficiency; their focus on compliance rather than outcomes; and their tendency to penalize ordinary citizens.

3. Evolution of SEEs in Colombia

The Latin American region, classified as part of the global South, possesses unique characteristics regarding solidarity sector enterprises, as well as in the fight against organized crime and economic or financial crime. On one hand, we have countries with precarious, semi-industrialized economies that collectively (including the Caribbean) account for only 8% of the world's GDP (World Bank, 2020). However, these countries are also home to nearly 60% of the planet's biodiversity (Mello et al., 2020). This situation has generated significant tensions over territorial control, as companies and governments from the global North have historically exercised dominance—often violently—intensifying social inequalities and exacerbating struggles for the recognition of equal human rights.

The dynamics of solidarity economy enterprises (SEEs) have also evolved with nuances. Many of these enterprises have developed in parallel projects that advocate for a more progressive economic model, in contrast to the neoliberalism that has predominated in the region. Concurrently, they confront complex challenges such as drug trafficking and corruption.

3.1. Factors that have influenced the evolution of SEEs in Colombia

Colombia presents a more extreme configuration compared to its regional neighbors, as it is the most unequal country in the Americas (IDERE LATAM, 2020) while simultaneously hosting 10% of the planet's biodiversity (Moreno, 2020). The country faces acute socio-economic challenges, including over 50 years of armed conflict and being the largest coca producer in the world (UNODC, 2021). These factors have contributed to the development of unique processes of social struggle.

In terms of Solidarity Economy Enterprises (SEEs), Colombia's complex situation has fostered a distinct evolution within this sector, influenced by four fundamental factors: 1) drug trafficking; 2) illegal armed groups; 3) corruption; and 4) extractivism. We will now analyze each of these factors.

3.1.1. Influence of drug trafficking

Simultaneously, as large transnational companies established themselves in Colombia to extract minerals and oil, these corporations financed paramilitary groups with the support of the Colombian state, leading to severe waves of violence in various territories, resulting in deaths and the displacement of populations. These paramilitary groups, along with guerrilla movements during the last decade of the 20th century, collaborated with drug cartels, enhancing their power to control territories and their ability to infiltrate all social, political, and economic spheres of the country.

The U.S. government provided military assistance to combat drug trafficking through Plan Colombia, which some critics describe as a project of new interventionism (Tokatlian, 2001).

However, Plan Colombia has not effectively addressed drug trafficking; instead, it has allowed the phenomenon to proliferate, sustaining a growing demand for coca in Central America and the United States. The impact of drug trafficking on the Colombian economy is substantial, with conservative estimates suggesting it constitutes 3% to 4% of GDP (Arias Leiva, 2019). This influence extends beyond economics; drug trafficking has significantly affected various cultural aspects of Colombian life, including lifestyles, consumption patterns, lexicon, architecture, fashion, and music—phenomena categorized under the label of "traqueto life or style" (Dimas, 2009).

In the case of SEEs, their development has been impeded by the influence of drug cartels, particularly during the 1980s and 1990s, which exploited many savings and social housing cooperatives to launder drug money. This led to the stigmatization of cooperatives as front companies for these criminal groups, resulting in state interventions and liquidations. The remaining cooperatives faced severe sanctions and were subjected to monitoring with standards comparable to those imposed on large private banks.

3.1.2 Influence of illegal armed groups

Colombia has experienced an armed conflict lasting over 50 years. Although a peace process has been signed with the Revolutionary Armed Forces of Colombia (FARC), which was the largest and oldest guerrilla group in the Americas, the conflict continues in several territories across the country. Dissident factions of the FARC, other guerrilla groups such as the National Liberation Army (ELN), and paramilitary groups remain actively involved in the drug trafficking business.

It is important to note that the paramilitary structure in Colombia was bolstered by private security companies known as CONVIVIR, which ostensibly provided security to farmers and ranchers while conducting military operations in conjunction with the Colombian armed forces. Initially, these organizations received full backing from both regional and national governments. The CONVIVIRs were funded directly by private companies of various types, including large transnational firms, and they also received equipment and training from the Colombian Armed Forces. According to investigations by the Attorney General's Office, the CONVIVIRs received funding from private companies amounting to at least US$3 million per year from approximately 193 firms (HCHR, 2017; Verdad Abierta, 2011).

Regarding the relationship between SEEs and guerrilla groups, it has been challenging to establish clear links due to the clandestine nature of these organizations. However, it is evident that the involvement of SEEs in reintegration processes and the implementation of productive projects within the framework of the peace agreements with the FARC is crucial (CONFECOP, 2018). For instance, according to information from Economías Sociales del Común (ECOMUN), a cooperative composed of former FARC combatants has successfully initiated 260 entrepreneurial projects throughout the country (Daza, 2020).

3.1.3 Influence of corruption

Corruption is a global problem; however, Colombia exhibits a particularly high incidence of this issue. According to the Corruption Perception Index for the year 2021, Colombia received a score of 39, where zero (0) indicates maximum corruption and 100 signifies an absence of corruption. The regional average is 43 points, placing Colombia among the countries with a high level of corruption (Transparency International, 2021).

This issue has affected all economic sectors, including Solidarity Economy Enterprises (SEEs). When drug trafficking and corruption intersect, they create a perilous environment for the integrity of organizations. Research by Gutiérrez and Pineda indicates that “at the beginning of 1999, 49 first-degree cooperative entities—particularly savings and credit cooperatives—and two cooperative banks had either disappeared, been intervened, or merged into other organizations, resulting in the closure of more than 700 branches and affecting over 800,000 savers” (Cerda & Pineda, 2002). Therefore, it can be asserted that the corruption factor has negatively impacted the reputation of SEEs in the country.

3.1.4 Influence of extractivism

The free market economic model, consolidated since 1990 under the economic opening project initiated by the government of César Gaviria Trujillo, marked a significant milestone in the country’s economy, leading to the launch of privatization projects, a reduction of state involvement, an increase in military expenditures, heightened activity in free trade agreements, and, consequently, greater foreign investment. The 1991 Constitution was somewhat aligned with this free market project; notably, Article 333 states that Colombia is a free market state, establishing a legal framework within the Magna Carta to support this model’s full implementation (Political Constitution of Colombia, 1991).

This shift in the economic model accelerated mineral and oil-related businesses, dramatically increasing the issuance of mining titles. For instance, during the two administrations of Álvaro Uribe Vélez, the area dedicated to mining increased from 1.13 million hectares to 8.53 million hectares. Mineral exploitation in the paramos doubled, as did the associated ecological conflicts (Vélez Torres, 2014).

Worker cooperatives in the mining sector are relatively few; of the 10,160 mining titles, only 40 belong to cooperatives, and out of more than 5 million hectares dedicated to mining in Colombia, only 6,000 are exploited by cooperatives (National Mining Agency [ANM], 2014). These figures indicate that, although extractivism has grown in the country, it has marginalized workers’ associations from participating in this sector. Simultaneously, other cooperatives, such as peasant cooperatives, have fallen prey to armed groups that control the areas where mining occurs, whether legal or illegal (Pérez & Betancur, 2016; Weizner, 2018).

Extractivism has also caused significant impacts on the environment and on companies, generating not only harm to nature but also substantial environmental liabilities (Salazar-Tabima et al., 2021). Colombia is currently one of the countries with the highest levels of environmental injustice in the world. Sustainability reports, following GRI and ISSB standards (Correa-García, 2022), which could reveal much of these impacts, remain largely unutilized by SEEs.

3.2 The fourth industrial revolution and SEEs in Colombia

In Colombia, regulations pertaining to financial crimes, anti-corruption measures, and money laundering are defined in the Organic Statute of the Financial System, specifically in Decree 663 of 1993, which is part of the Basic Legal Circular issued by the Financial Superintendency.

Following the establishment of lists of high-risk individuals associated with drug trafficking by the United States government under President Bill Clinton (often referred to as the Clinton List) in 1995, Colombia created the Integral System for the Prevention of Money Laundering (SIPLA) with External Circular No. 61 on July 19, 1996. SIPLA was the first formal "system" for risk management in the country. At that time, the system was limited to reporting suspicious transactions to the Attorney General's Office, and banks were just beginning to implement systems capable of consolidating information from large databases. Transaction analysis and comparison with the Clinton List were largely conducted manually or via paper reports.

This initiative was quickly followed by various regulations from entities such as the Financial Information and Analysis Unit (UIAF), the National Tax and Customs Directorate (DIAN), the Central Bank of Colombia (Banco de la República), and the Superintendencies of Corporations, Health, Surveillance, Transportation, Notaries, and Solidarity Economy, as well as the Ministry of Communications, Coldeportes, and Coljuegos. All these organizations have been advancing in parallel towards the implementation of information technologies capable of exchanging and cross-referencing information.

In 2008, the Superintendency of Finance issued External Circular 26, which mandated supervised entities to implement money laundering and terrorist financing risk management systems (SARLAFT), replacing the outdated SIPLA. This new system required the use of information technologies for its implementation and operation.

The regulatory decrees outline the structure of the system, the types of reports to be generated, the methodology for analysis, and the format for reports in magnetic media or flat files, which must be transmitted periodically.

By 2013, the method of transmitting information transitioned from FTP (File Transfer Protocol) to web transmissions for many reports. Additionally, software vendors began offering integrated packages with back-office systems to perform most tasks related to SARLAFT, thus supporting compliance officers. Table 1 illustrates the main functions of the SARLAFT risk management software systems currently available in Colombia.

Table 1. Main functions of the SARLAFT risk management software systems

Functions	Description
Alerts and management flow manager	Defines who is responsible for management
Reports and graphic tools	They allow to analyze, measure and refine the profiles by customer and product created, as well as their behavior, enabling graphic comparisons by different concepts.
Assignment of risk weights	Deepens the measurement and control of risk in the entity.
Application to the different lines of business	Financial and Private Sector
Analysis of Clinton, OFAC, PEPs (Publicly Exposed Persons) and Binding Lists Information	
Configuration in various economic sectors	

Source: Software catalog and IT services guide (2022)

3.3 Updating to SARLAFT 4.0

On September 2, 2020, the Financial Superintendency launched a significant update of the SARLAFT system, wherein the use of information technologies became even more essential for the implementation and operation of the new system. In this updated version, the criteria for analyzing customer information were made more flexible, as there are no longer minimum fields required for customer data. Instead, companies must autonomously design analysis structures that ensure comprehensive knowledge of the customer and effective monitoring of their operations.

Operationally, this update places greater responsibility for information analysis on the companies. Consequently, they are required to possess more robust IT tools to carry out this task. Additionally, the definition of lists of publicly exposed persons has been revised to include politically exposed persons (PEP Lists), with a suggestion that these lists should be international in scope.

From a technical standpoint, companies now need systems that can be updated online and are permanently connected to the web while simultaneously extracting information from transactions in real time. Both hardware and software requirements have increased.

For Solidarity Economy Enterprises (SEEs) in Colombia, this represents a significant challenge. Since January 27, the Superintendency of Solidarity Economy issued External Circular 4 of 2017, mandating that all companies in the sector implement SARLAFT systems. If this requirement was already a heavy burden for many low-income SEEs, the new technical requirements of SARLAFT 4.0, which will likely extend to the solidarity sector, will undoubtedly increase this burden further.

4. Horizons for risk management systems in Colombian SEEs

As mentioned previously, it is highly likely that Solidarity Economy Enterprises (SEEs) will, in the medium term, be subject to the new SARLAFT 4.0 standard. Although information technology (IT) has become more affordable than in the past, the costs associated with risk management systems in the market have not changed significantly, remaining prohibitively high for many small SEEs.

For instance, SARLAFT 4.0, by not specifying minimum fields for information analysis, requires companies to design their own risk management systems from scratch. However, many of these organizations lack sufficient personnel in the systems area to develop their own solutions, compelling them to seek external options for available risk management systems. This necessity imposes costs that can be significantly burdensome for smaller SEEs.

These systems typically incorporate sophisticated algorithms based on artificial intelligence and statistical methods to perform complex processes, such as segmentation by risk factors and the analysis of transactional information to identify unusual or suspicious transactions.

With the modifications introduced in SARLAFT 4.0, these processes have become more complex, as they no longer rely on a data structure defined by the standard. Instead, the system itself must establish the operational criteria. For example, in the case of segmentation, the AI-based algorithm must infer the criteria for segmentation as well as the parameters for determining when a transaction is deemed suspicious or unusual.

5. A software tailored to the needs of solidarity enterprises in Colombia

Most of the Colombian cooperative sector, comprising 87%, is concentrated in three main activities: Agriculture, Forestry, and Food Industries (34%), Insurance (34%), and Wholesale and Retail Trade (19%). Ninety percent of these organizations are classified as small and medium-sized enterprises (SMEs), which face limited budgets, scarce technological resources, and a shortage of highly trained personnel to meet the stringent regulatory requirements to which the sector is subject.

There is considerable pressure from the Colombian government, as well as from international organizations such as the OECD, for the cooperative sector to enhance its levels of transparency and controls to combat financial crimes and prevent money laundering and the financing of terrorism.

As a result, the cooperative sector in Colombia is expected to comply with the requirements of the SARLAFT 4.0 system; however, its capacity to implement this technology is limited. Therefore, it is both necessary and urgent to develop solutions that serve as alternatives to address this issue.

The present research proposes a low-cost software tool equipped with the basic algorithms required to implement SARLAFT 4.0 in solidarity sector organizations with small capital structures, named SIGERIES (Ministerio del interior, 2023).

Conclusions

The solidarity sector worldwide represents approximately 12% of all global businesses, generating a significant volume of goods and services, as well as a large number of direct and indirect jobs.

In Colombia, the composition and evolution of the cooperative sector have exhibited distinct characteristics, particularly due to the negative influences of drug trafficking and corruption. However, over the last decade, the sector has improved its reputation and transparency, leading to a substantial increase in its market share.

The requirements for controls and regulations governing this cooperative sector are becoming increasingly stringent, with the risk that such demands may become excessive, potentially jeopardizing the stability of the sector itself.

Therefore, it is essential to propose viable solutions for this sector that are rigorous yet affordable in terms of implementation and acquisition.

In this context, the development of a system based on information technologies has become imperative, as it can assist in fulfilling basic risk control functions, such as addressing financial crime risks while ensuring compliance with current regulations aimed at preventing money laundering and terrorist financing.

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