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Design of Strategies for the Implementation and Management of a Complementary Monetary System Using the SWOT-AHP Methodology

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Received: 28 July 2020; Accepted: 21 August 2020; Published: 23 August 2020



Abstract: The objective of this research is to contribute to the scientific debate on “complementary monetary systems” (CMSs), what strategies may be the best for allowing the implementation of a CMS in a territory and that optimise the potential that it seems to have to strengthen processes of sustainable local development and urban resilience. For this, the Strengths, Weaknesses, Opportunities and Threats-Analytic Hierarchy Process methodology (SWOT-AHP) has been used, which has allowed us to identify four strategies: (1) build a social, economic and political consensus, (2) create a community observatory for “complementary social monetary systems” (CSMSs), (3) define communication tools for raising awareness and education in ethical finance and (4) promote the alignment of the CSMS with sustainable local development strategies. These strategies have been formulated so that they can be implemented by any entity, public or private, and for any of the types of CMS that may be part of a CSMS.

Keywords: complementary currencies; sustainability; sustainable development; resilience; SWOT-AHP; strategy

1. Introduction

Today, with the global challenges that the international community set out in 2030 agenda, there is a challenge to combat the social and economic crisis affecting our societies. Under this scenario, the 17 Sustainable Development Goals (SDGs) are particularly relevant as a guide to further setting the horizon to be achieved. To achieve this, it is only necessary to change or adapt the strategies that have so far been implemented by adopting an innovative perspective [1]. It is therefore a question of experimenting with new and different forms of social, political and economic interventions that, although unable to offer a definitive way to solve these global challenges, may well be part of the solution rather than remaining part of the problem [2].

In order to achieve the 2030 agenda targets, particularly those related to SDG 11, both sustainable development and resilience remain as strategies to follow at the local level. Although different paradigms, both must be closely related. If sustainability is about the impact of human actions on the environment, resilience prepares us to resist the reactions of the environment. Sustainability must be resilient, and resilience must be sustainable [3,4].

But what are these other forms of social, political and economic intervention that can become part of the solution rather than the problem?

This question can be answered from different perspectives. For example, proposals on universal basic income can provide an answer to that question [5–7]. More generally, in the area of social innovation, there has been a number of solutions [8,9].

Considering that, from the paradigm of sustainable development, we cannot give up the balance between the economy, society and the environment [10,11], and joined by the fact that strengthening local financial capabilities is a key aspect of building resilient cities [12,13], this research aims to provide an answer to a previous question regarding “complementary monetary systems” (CMSs), those complementary currencies that, unlike other complementary payment instruments with a commercial or business orientation, are intended to have a beneficial impact on the society [14]. In this regard, Table 1 shows some examples of complementary currencies currently in use, while emphasising the main achievements of these currencies.

Table 1. Examples of complementary currencies in use around the world.

Denomination	Territory	Active	Achievements	Source
Calgary Dollar	Calgary (Alberta, Canada)	From 1996 to present	The use of Calgary Dollars has provided social and economic benefits to users. They achieve greater economic stability and can also develop economic networks of professionals and businesses, as well as community participation networks.	[15,16]
Chiemgauer	Rosenheim and Traunstein (Bavaria, Germany)	From 2003 to present	Small trades in the region have increased their annual billing, and non-profit organisations have received support for some of their activities. This currency has become a community symbol.	[17,18]
BerkShares	Berkshire County (Massachusetts, USA)	From 2006 to present	As a result of tourism in the city, many goods and services saw their price increase. BerkShares currency, used by residents, means that residents can consume these same goods and services at a lower price.	[19,20]
Crooked River Alliance of Timebanks	Portage, Stark and Summit counties (Ohio, USA)	From 2010 to present	The people who use and participate in this monetary system have expressed a greater sense of community membership and greater loyalty to the network of local trades.	[21]
Sardex	Sardinia (Italy)	From 2009 to present	Sardex has managed to become a system capable of involving people in several dimensions, which has enabled the expansion of economic activity to expand innovation, creativity, research and the ability to create culture and community.	[22,23]
WIR	Switzerland	From 1934 to present	The use of the WIR system has enabled cyclical economic crises to be addressed. The use of this monetary system in low-liquidity economic cycles facilitates economic stability in times of crisis.	[24,25]

Source: own elaboration.

CMSs, from their complementarity status, can provide a high capacity for flexibility and resistance to the socio-economic system [14]. This means that, in essence, they can have a high potential for strengthening sustainable local development processes and promoting urban resilience. However, achieving this requires measures in their implementation and management to identify those external and internal conditions that favour or hinder their operation [26,27].

The particular objective of this investigation is therefore to identify which or what the best strategies may be to establish a CMS in any territory—a city, a county or a region—and optimise the potential

that it seems to have to strengthen sustainable local development processes and urban resilience. This objective has a dual perspective: to contribute to enriching the scientific debate on CMSs, but also to guide practical implementation of the results obtained, in this regard, providing a strategic framework for those entities, public or private, which wish to implement and manage a CMS model within their territory with the aim of strengthening sustainable local development and urban resilience processes.

In order to achieve this objective, this research uses the following outline: through the review of the scientific literature, a theoretical framework for CMSs is developed. The analysis methodology will then be presented, and in this case, this research applies the Strengths, Weaknesses, Opportunities and Threats-Analytic Hierarchy Process methodology (SWOT-AHP) this hybrid methodology, using qualitative and quantitative techniques, allows for hierarchising those weaknesses, threats, strengths and opportunities most relevant to the proposed model and objective. On the basis of the obtained hierarchisation, the results obtained will be analysed and discussed. The obtained conclusions shall be presented in the last section.

2. Theoretical Framework

The review of the scientific literature, focused on the field of social and complementary currencies, was carried out using two scientific bases of reference, Web of Science (WoS) and Scopus. Google Scholar was used as an alternative.

The choice of these three databases derived from the purpose of being able to delve into the research of social and complementary currencies. To achieve this, a set of keywords was used in the search for scientific literature, such as “social currencies”, “complementary currencies”, “parallel currencies”, “local currencies”, “regional currencies”, as well as their relationship to other terms such as “impact”, “assessment”, “resilience”, “sustainability”.

The search in both of the databases mentioned, the choice of keywords and the subsequent selection of the scientific literature used were carried out after establishing an initial time frame of the last five years. However, in order to expand the bibliographic sources of reference on the object of study, this time frame was gradually extended.

The CMS is a social and economic phenomenon that, one way or another, has always been present in various human societies [28]. However, the exponential growth that has been occurring since 1984 in the design and use of these currencies, such as time banks, barter systems, local trading systems or Local Exchange Trading Systems (LETS) [16], has not gone unnoticed by the scientific literature [29,30].

In 1999, Lietaer first coined [31] the criterion of complementarity to define the characteristic that certain currencies had to operate alongside an official currency [32].

Since this criterion of complementarity, Lietaer himself [32–34] began to refer to supplementary currencies as an agreement, within a community, to accept a non-national currency as a means of exchange, in order to link unmet needs with resources that would not otherwise be used. They are called complementary because their intention is not to replace the official currency, but to perform social functions for which this official currency was not designed, to which is added the fact that most people use both currencies in parallel.

Since then, the scientific literature has approached from different perspectives the study of CMSs, such as their historical evolution [16,35], their classification [16,36], their purposes [16] or the impact they can have on the local or regional economies in which they are inserted [28,36–39].

However, despite the intensity with which research has been carried out on this type of coin, it is not possible to find a single definition of CMSs, and there is even a diversity of terms with which to refer to them, e.g., parallel currencies, complementary social currencies, local currencies and alternative currencies. Thus, authors such as Lietaer [29,32,40], Seyfang [30,41], North [42,43], Blanc [44,45], Fare [28,46], Primavera [47] and Gawthorpe [24] have developed various definitions that have been enriched over time based on their understanding of CMSs.

However, it is not, in line with Doria and Fantacci [48], about finding a unique explanation of the notion of CMSs, which this research—where appropriate in order to respect this plurality of concepts

and instruments—refers to as “complementary social monetary systems” (CSMSs), but to identify those basic variables from which an interpretation of CSMSs has been sought.

Thus, as is apparent from the review of the scientific literature that was carried out, the study and conceptualisation of CSMSs has tried to respond, with greater or lesser intensity, to basic questions such as: why are they promoted, who promotes them, where are they promoted, and for whom and what are the guiding principles? Questions that translate into the six basic variables (Table 2) that, having their support in the scientific literature, allow us to diagnose external and internal factors that facilitate or hinder the implementation and management of a CSMS in a territory.

Table 2. “Complementary social monetary systems” (CSMS) study variables.

Variable	Description	Source
Purpose	Refers to the primary orientation or purpose for which a coin is designed. This does not mean that this is its sole purpose, since the same currency can have several purposes, being able to find a main and other secondary purpose. A CSMS may have a more economical or social purpose, being able, in this sense, to be oriented, or to have as its purpose, among others, the promotion of the economic growth of a territory, the human development of a territory, the promotion of more resilient or sustainable territories or simply the strengthening of the community.	[24,29,30,32,43,49–59]
Promoters and Management	Refers to the actors that drive and manage the initiatives of a CSMS. They can be organised civil society organisations, public institutions or any social or economic agent.	[32,43,47,51,53,54,56,57,60–63]
Territory or Reference Space	Refers to the geographical delimitation of the use of a CSMS. A CSMS can be regional, local or community based.	[24,29,30,32,40,43,49–52,55,56,58,59,62,64–68]
Utility	Refers to the utility that a CSMS can have. It has to do with all goods or services—public or private—taxes and fees, which can be paid or charged through a CSMS.	[29,30,32,47,50–56,58,59,61,63,65–71]
Use or Use Network	Refers to all natural or legal persons—public or private—who participate in the complementary monetary system, making it possible for the functions for which a CSMS has been designed to offer or demand goods and/or services.	[49,64,66,68]
Principles and Values	Refers to the set of ethical and social norms that constitute a frame of reference to guide people’s conduct. These principles and values include, among others, trust, community identity, the pursuit of the common good, solidarity or transparency.	[43,49–51,56,64,66,70,72,73]

Source: own elaboration from the literature review.

2.1. Purpose of a Complementary Monetary System

The purpose or ultimate goal that a CSMS may have has been extensively studied in the scientific literature.

A CSMS, as highlighted in various investigations, seeks to set up a new social and economic infrastructure based on different values from conventional provisioning systems [74]. Complementary monetary systems have been identified, among others, as instruments that can enable multiple objectives to be achieved [35], such as defining sustainable development projects in one territory [26,51,75,76], fostering the social and solidarity economy [49], local resilience [18,43,46], social inclusion [77] and economic development [39,67].

In a complementary monetary system, currency is not intended to be accumulated but to circulate and be consumed in the economic system of a territory [78]. As a result of this monetary movement, a territorial economic dynamic is generated which may lead to: new economic incentives, increased domestic demand, new business ideas, new jobs or the possibility of valuing and rewarding unpaid social reproduction work; structures and institutions are also established within which society is

engaged in economic transactions. A territorial economic dynamic is created which is ultimately capable of increasing endogenous development and territorial self-reliance by providing new opportunities for the economic and social activity of that territory [27,39,76–79].

Motta, Dini and Sartori [22] highlight the opportunity that complementary monetary systems provide to promote social impact investments, those investments in projects that combine a social and environmental impact without sacrificing the economic sustainability and financial profitability of the CSMS itself [80–82].

Fare and Ahmed [28] point out, after analysing the impact that a group of CMSs have on their respective economies, that a CSMS can provide support for a territorial development strategy and the leverage effect of it on the territory's economy by combining with other economic and social policy mechanisms and instruments. In the same vein, they add that connecting the logics and tools that come from the social and solidarity economy and using them for social and economic development can often be fruitful to improve social and cultural inclusion and territorial coherence.

Another reason that can be identified for implementing a CSMS is the possibility it provides to increase the supply of money in a territory, through the coexistence of two or more coins, without generating inflationary effects, as demonstrated by the empirical research of Gawthorpe [83]. As noted in the previous paragraph, the existence of a CSMS in a territory increases potential local economic activity [73]. This increase, contrary to what the monetarist current suggests, does not lead to an inflationary increase. In that regard, Lietaer and Dunne [29] propose that the supply of goods and services in a given economy is concurrent with the creation of the CSMS.

On the other hand, CSMSs can make an important contribution to softening the effects of a monetary crisis, especially in those countries with emerging economies [84]. In this regard, WIR—a CMS in Switzerland—may be a good example of this. WIR, as Gawthorpe [24] and Stodder [25] have indicated, may curb the lack of liquidity in the official currency, thus providing a scenario of greater monetary and economic stability. Considering Alaminos's [85] research, the capacity of a CMS to prevent and address monetary crises could be established.

Finally, and because their functionalities are the opposite of each other, in this section, “cryptocurrencies” require a special mention. Today, with nearly 1000 “cryptocurrencies” competing in a fairly opaque market, they tend to monopolise the debate or at least hegemonise it. However, this opacity does not prevent large investments in “cryptocurrencies” and blockchain technology. Clearly, there are many differences between “cryptocurrencies” and social and complementary currencies, not only in terms of economic weight, but also in terms of their design and operation [78].

The world's most famous and widespread “cryptocurrency”, “Bitcoin”, is a currency that claims to be an alternative to and radically different from official currencies, and where payments are no longer brokered by third parties, Bitcoin has the presumption of representing a radical alternative to official money. However, the fact that Bitcoin is traded with domestic currencies on exchanges according to a fluctuating market price, reflecting the relative supply and demand, implies that Bitcoin is not a CMS, but a substitute [78].

2.2. Promotion and Management of a Complementary Monetary System

Most CMSs were born as a result of a civil initiative associated with social movements. These initiatives have had, or may have, greater or lesser involvement by local, supra-municipal and/or provincial public administrations, with better or worse results [28,76,86,87].

In their research, Blanc and Fare [87] delve into the various levels that this support and involvement can adopt, concluding that basically two possible scenarios can arise: supporting and promoting monetary systems driven by socioeconomic entities, or implementing and managing a complementary monetary system from the administration itself.

The former implies a logic of subsidiarity to encourage a bottom-up process of new initiatives aligned with objectives of general interest, providing a framework of economic

empowerment and citizenship participation so that socio-economic actors can organise and propose an endogenous response that better meets social needs. With regard to this, the results obtained by García-Corral et al. [76] in their research indicate that institutional support for a CSMS has a positive impact on the level of acceptance of the local population.

The latter scenario means the establishment of a top-down action in the service of government-defined objectives and policies of general interest. This alignment with social, economic and political strategies in a territory [88] can provide an opportunity within local public policies [27] to strengthen social relations, reciprocity, mutualism, accountability and trust among economic and social actors in a territory by ultimately fostering a model of human development in which finances stand up as a tool to strengthen social ties and local economic life. In some ways, it is possible to increase the economic impact of public resource (efficiency) without the need to increase public spending (efficiency) [2,18,27,89,90]. However, in this second scenario, by conferring the task of designing and managing the complementary monetary system to an administrative technostructure, one runs the risk of limiting the possibility of economic empowerment and citizen participation that is intended in the first scenario [87].

Various investigations have revealed the managerial and organizational difficulties (human resources, technical and technological resources, time availability, . . .) that, inherent to the management of a complementary monetary system, can lead to its failure, whether it is promoted in the field of social organizations and local public institutions [88,91,92].

The weak governance of a CSMS, translated into a lack of training, technical preparation, commitment and improvisation to make the appropriate economic and financial decisions by managers and users, is one of the debilitating factors of the system [2,78].

In addition, taxation may be another issue in the management of a CSMS. An example of this is the difficulty or problems that may arise from conversion to the legal tender of the taxable amount of certain taxable facts—such as income from economic activities, work, provision of services, supply of goods or obtaining income from legal persons—which can be made through the use of an CSMS.

In this sense, as Dini [93] proposes, the possibility of using a CSMS as a facilitator method for the circumvention of tax liability may arise, which is why some governments may not be in favour of complementary monetary systems, and may even legislate against them. In this context, Dini and Kioupkiolis [2] point out that it is necessary for the manager of the CSMS to assume the role of controller of economic transactions in order to provide the necessary and timely information to the relevant tax authority in order, precisely, to avoid non-payment of taxes.

Derived from the above, some investigations have pointed to the adequacy of certain financial institutions assuming the management of complementary monetary systems [88,94].

However, the absence or shortages of local financial institutions, with an orientation to the local development of a territory, hinder not only the previous idea, but ultimately weaken the possibility of implementing a complementary monetary system in a territory [94].

2.3. Territorial Scope of a Complementary Monetary System

The fact that a given complementary monetary system can only be used in a particular territory is identified in various investigations as one of its most relevant strengths [77].

The fact that the economic circuit generated by the complementary monetary system remains centred in a territory encourages people who make up the community to acquire goods or services (public or private) in a particular territory, which increases economic activity and consumption in that territory [73].

The economic benefit created by the savings and expenditure generated within that territory, being a benefit obtained through the complementary monetary system, should be used to assume expenses or finance investments (public or private) in the territory itself [36,95].

This benefit that a CSMS provides can have a beneficial effect on local economies, affecting them endogenously [46] something that undoubtedly has a positive effect on local human development and on the creation of more resilient territories [56,94,95].

2.4. Utility: Functions a CSMS Covers

The utility or functions that a CSMS can cover has been one of the factors that has received the most attention in the scientific literature. The utility refers to the use that a CSMS may ultimately have, common examples are the economic transactions between wholesalers and retailers that can be made, the payment of local taxes or the payment of wages [88]. In terms of utility, CSMSs have been identified as particularly useful tools to facilitate the processes that some companies may suffer in dealing with insolvency proceedings by enabling a compensatory agreement between creditors and debtors [96].

For Amato and Fantacci [78], there must be a balance between this utility and the real possibility of using the CMS. This balance is what they have called a “balance clause”, i.e., there must be a reciprocal relationship between the CSMS and the usefulness it is supposed to have. Therefore, a CSMS will be stronger the greater the reciprocity is between itself and its usefulness. So, an unbalanced or short-income CSMS—that is, when a given CSMS can only be used to acquire a small number of goods and/or services—causes frustration [91] or complaints [92] in the users as they no longer perceive the effectiveness and usefulness of it [97].

Aldridge and Patterson [91] noted the tax aspects among some of the problems that could cause a CMS to fail. These problems, such as time and resource constraints or lack of liquidity in the CSMS, would ultimately make it difficult to use the CSMS, resulting in the accumulation of balances. In this sense, Dini and Kioupiolis [2] point out, for the case of mutual credit circuits, two typical problems that can occur in this type of CSMS: the accumulation of large positive balances or the accumulation of negative balances. However, none of these problems is so simple: many of the chronically negative balances are not malicious “free-riders”, but the result of entities that may be bankrupt. As for the accumulation of positive balances, these could be the result of entities or people who trade in goods that are not produced in the territory, and have to acquire them outside of it in the official currency before being able to sell them on the local market in the CMS.

Corrons and Garay [97] observed, among others, the causal relationship between the compatibility of a CMS or the capacity that that currency has to meet the current needs of a territory and the usefulness perceived by the users. It can be understood that greater compatibility implies a greater set of needs met and, therefore, greater functionality of the currency, thus increasing perceived usefulness and, consequently, a positive attitude towards the use of the CMS.

Finally, since it can represent an important endorsement of any CSMS, it should be noted that a CSMS should not only be supported by a public administration [98] but also accepted and used by a public administration. This recognition of a CSMS as an instrument of exchange by a public administration can also cause it to be accepted by a greater number of natural and legal persons, thus strengthening the system itself [28,94].

2.5. Network of Use: Natural or Legal Persons Who Make Use of the Currency

The “network of use” consists of natural or legal persons—public or private—who participate in a CSMS. A correctly defined CSMS does not have as its mission the accumulation of currency but its permanent circulation [78], therefore, if the “network of use” does not reach a sufficient number of members, or is narrow, this makes the CSMS a low-impact instrument [91,98,99].

As Motta, Dini and Sartori [22] point out, the strength of SARDEX—a CMS used on the Italian island of Sardinia—resides in a multi-layered system, or a wide-ranging network, involving people in various dimensions at once, allowing the expansion of human activity, creativity, research and the ability to create culture and community.

Corrons and Garay [97], based on theories of human behaviour, identify in their research a set of variables, such as compatibility, ease of use or perceived usefulness, that cause a given currency to be

more or less used. Thus, the causal relationship between compatibility and ease of use, perceived ease of use and perceived utility support determine the extent to which a CMS is used. Therefore, the existence of difficulties, for example, technological difficulties, the perceived low usefulness of the currency by the people who can use it or the low complementarity of it may cause the currency to not be used.

On the other hand, it is interesting to note the following: a CSMS is not designed to either compete with fiat money or for the sole purpose of articulating a monetary alternative in times of economic recession. In this sense, Gawthorpe [24] and Gómez [84] conclude that, in the face of moments of economic growth, the use of complementary currencies is lower. Gómez [84] even claimed that economic growth caused the various Argentine initiatives around barter markets to collapse, which arose in the face of the economic crisis endured by the Latin American country in the first decade of the 21st century.

2.6. Principles and Values

One of the most prominent principles in the scientific literature in relation to the principles that should guide the implementation of a CSMS is the social consensus around it among the economic and social actors of a territory. In this sense, Kim et al. [88] point to this consensus as a necessary condition for the success of a CSMS and Dini and Kioupiolis [2,100] point to the absence of this consensus as one of the most risky elements and that it can weaken a CSMS, particularly the lack of social consensus on the importance of individual responsibility as part of shared responsibility for welfare, good management and proper use of the CSMS as a common good. This is a consensus that, as Fare argues [26], will require a new way of understanding the active participation of citizens and all social and economic agents of a territory.

Aldridge and Patterson [91], as well as Cooper [92], considered in their analysis the weakness that could represent the fact that a CMSs are promoted in diverse and foreign territories, pointing to, in this regard, the mistrust that distant relations may produce in a CMS.

For their part, Corrons and Garay [97] have highlighted the requirements a CSMS needs to fulfil in terms of making the use of it compatible with the lifestyle of users.

CSMSs, embedded in an alternative market or economy form, are based on underlying principles such as equality, democracy, cooperation, reciprocity, justice [101] and the common good [102], and are driven by satisfaction and identification with the values they represent. An ethos that, as Meyer and Hudon [56] argue, tries to organise common practices both through collective organisation and through ethical concern for human development.

For North [86], the presence of these values gives the complementary monetary system a particular strength so that it succeeds in the long term, since users interact in an “alternative market” and seek not only to trade, but also to achieve social objectives, [102] creating and strengthening the bonds and identity of the community [73].

Sartori and Dini [23] go on to say after their research on SARDEX that the success, and therefore the strength, of a complementary monetary system is determined, among others, by the balance between specific design mechanisms that provide for economic rationality with a commitment and the set of social values that support it.

Finally, studies such as those by Lee [103], Iosifidis et al. [104] and Gómez-Álvarez Díaz and Rodríguez Morilla [36] show the importance of direct social relations in the territory and trust, both interpersonal and towards the complementary monetary system itself, as more of the main strengths that guarantee the success of a complementary monetary system. In this regard, the fact that a CSMS receives institutional support, as well as the degree of knowledge that the population may have of this mechanism, positively affects the possibility of implementing a CSMS in a territory [76].

2.7. Objective of This Investigation

According to how each of the variables that are explained in the scientific literature has been evaluated, this research accepts the general thesis that CSMSs are appropriate and useful

tools for strengthening sustainable local development processes and urban resilience [4,105,106]. However, what is at issue and, in turn, the objective of this investigation, is to identify and to decide which or what the best strategies may be to implement and manage a CSMS in any territory—a city, a county or a region—and optimise the potential that it seems to have to strengthen sustainable local development processes and urban resilience.

In achieving this objective, this research aims to enrich the scientific literature on CSMSs and, at the same time, to provide a strategic framework that will enable the implementation of CSMSs.

3. Materials and Methods

The methodological to be used follows, on the one hand, the hybrid SWOT-AHP method and, on the other hand, the SWOT strategy matrix. Thus, first, the analysis of strengths, weaknesses, opportunities and threats (SWOT) will be addressed, with which the analytical process of hierarchy, known by its acronym AHP (analytic hierarchy process) is used. Ultimately, optimal strategies are identified from the SWOT matrix.

The SWOT analysis, since it was defined by Learned et al. [107], has been widely used. Using this analysis allows for the identification of external factors (threats and opportunities) and internal factors (weaknesses and strengths) which positively or negatively influence a particular social system.

However, this SWOT analysis, in itself, has no intrinsic value, its use is justified in the framework of a strategic planning process; alongside this, and as a weakness of this methodology, it should be noted that it is not possible to determine the importance that each factor can have over the rest [108]. It is possible to eliminate this limitation if one of the multi-criteria decision methodologies, such as the analytical hierarchical process or AHP, is used [109].

The analytic hierarchy process (AHP) is a methodology usually used by the scientific community [110,111].

Developed by Thomas L. Satty, it is a general measurement theory that allows us to order the problem, or objective, derived from the decision in a hierarchical structure composed of goals, factors, sub-factors and alternatives that, as a whole, make up the decision elements. The relevance that each of these decision elements can have is compared, in pairs, to the immediately preceding element at the hierarchical level, by a numerical scale that allows quantitative values to be obtained from qualitative valuations. This process of measuring the relative importance of each of the decision elements gives the AHP model one of its main advantages: to allow for the evaluation of aspects in a qualitative and quantitative nature.

However, the purpose of an AHP model is to determine, through a mathematical peer-to-peer comparison architecture, what is, at the global level, the best possible alternative, or decision, that the model presents, thus facilitating decision-making under multiple criteria and strategic planning. [112,113].

Therefore, the use of the hybrid SWOT-AHP method allows for the creation, from the SWOT analysis, of a qualitative initial reference framework that analyses the external and internal factors influencing the decision, which, by applying the AHP method, incorporate, into the overall analysis, a quantitative perspective of those factors. In short, the purpose of the AHP combined with the SWOT analysis is none other than to systematically and understandably assess and weigh each of the factors present in it and thus compare their intensity [114].

The SWOT-AHP methodology can be implemented in multiple areas [115]. Thus, there have been a variety of studies that have used this method to facilitate decision-making or solve multiple problems in industrial [116], energetic [117], agricultural [118], tourism [119], engineering [120] and territorial development sectors [121].

Finally, defining an array of “SWOT” strategies based on the methodology designed by Weihrich [122] allows for diagnosing the interactions between all external factors (threats and opportunities) and internal factors (weaknesses and strengths) to identify the best possible strategies to achieve the defined objective [114].

Considering, therefore, the methodological framework presented, this research is carried out in the following four phases:

Phase 1) Development of the SWOT matrix.

The review of the scientific literature identified the weaknesses, threats, strengths and opportunities that may arise in the implementation of a particular complementary monetary system in a territory.

Taken together, none of the four factors should exceed ten elements. This is due to the search for consistency in the AHP model, to be developed in phase three. A large number of sub-factors decreases the relative importance of each of them and may therefore cause one of them to be mistakenly ignored or the inconsistency of the model [123].

Phase 2) Definition of the decision hierarchy using the AHP methodology.

Once the set of weaknesses, threats, strengths and opportunities has been identified, the structure of the hierarchical relationships of the criteria and the decision sub-criteria that make up the model is constructed.

Phase 3) Measurement of the relevance of criteria and sub-criteria using the AHP methodology.

On the basis of the findings in the theoretical framework, the peer-to-peer comparison of each of the four decision criteria that, in this case, coincide with each of the four elements of the SWOT matrix, as well as the peer-to-peer comparison of each of the decision sub-criteria, matching each of the elements that make up the SWOT, is made.

As soon as the number of people required to make these comparisons is acquired, Saaty and Zdemir [124] argue that an expert person may become sufficient to make each and every peer comparison.

Each pair is evaluated by reference to the values listed in Table 3, which measure the intensity of the relevance of each element and sub-factor relative to another.

Table 3. Peer assessment of the importance of two elements with reference to the main criteria in the tree hierarchy.

Intensity of Relevance in Numerical Values	Definition	Description
1	Equal importance	The two elements contribute equally to the achievement of objectives or have the same relevance
3	One element is moderately more important than the other	The experience and rating of one element is greater than that of another
5	One element is strongly more important than another	The experience and the rating of one element is much higher than another
7	The importance of one element is much stronger than another	The experience and rating are much higher than another
9	Extreme importance of one element over another	The evidence that favours one element over another is of the highest possible affirmation order
2, 4, 6 and 8	Intermediate values between previous ratings	Used to specify the valuation of one element over another

Source: [112].

On the other hand, the confidence offered by the formulated model is expressed by the consistency of the model. Consistency, in other words, allows you to determine the stability of the peer comparisons made and is represented by the index or consistency ratio (CR). Calculated for each of the comparison matrices, the value taken by the consistency index must be less than 0.1, thus reflecting the acceptability of the model.

The consistency index calculation does not search for or intend to reach the value 0. In this sense, a value of the consistency index or, if preferred, the inconsistency of the model, below 0.1 represents to what extent it is possible to achieve a better understanding of the problem [123,125].

Finally, as a result, the relative relevance of each element of the SWOT array and each of the sub-factors within each of these elements is obtained. This will make it possible to prioritise each sub-factor within the whole model and ultimately determine the optimal strategy for the objective set.

The algorithmic treatment of matrices and vectors of these values, as well as the calculation of each of the consistency indices, typical of the AHP methodology, is carried out by an AHP Excel template with multiple inputs [126,127]. Unlike other computer tools, such as ExpertChoice 2000 or “XLSTAT”, the use of this spreadsheet for Microsoft Excel is authorised under a Creative Commons licence, which undoubtedly represses the cost for this research. Alongside this, an added advantage is the ease of use for the development of collaborative and network work, allowing, in this sense, for each valuation to be incorporated individually so that, subsequently, the system generates a single integrated valuation model.

Phase 4) Definition of strategies using the SWOT matrix.

Finally, in phase four, the SWOT strategy matrix is developed. The purpose is none other than to define, taking as a reference the set of relevant elements obtained in the previous phase, the most appropriate strategies to achieve the proposed objective.

The SWOT strategy matrix, presented in Table 4, lists a set of four strategic groups resulting from crossing the external and internal factors of the SWOT analysis: weaknesses–threats (WT), weaknesses–opportunities (WO), strengths–threats (ST) and, finally, strengths–opportunities (SO). Prioritising those sub-factors that have gained greater relevance in the previous phase, it is generally in this last phase important to maximise strengths and opportunities and minimise weaknesses and threats. In this way, SO strategies aim to maximise both strengths and opportunities, while ST strategies are based on the strengths that threats can face in the environment. WT strategies are created by minimising both weaknesses and threats, while WO strategies attempt to minimise weaknesses and maximise opportunities [122].

Table 4. Strengths, Weaknesses, Opportunities and Threats (SWOT) strategy matrix.

		External Factors	
		Threats (T)	Opportunities (O)
Internal Factors	Weaknesses (W)	<p>“WT-mini-mini” strategies. Try to minimise both weaknesses and threats, thus reducing the risks that may arise.</p>	<p>“WO-mini-maxi strategies”. Seek to minimise weaknesses and maximise opportunities. In this sense, it is a question of identifying internal weaknesses that prevent the seizing of opportunities.</p>
	Strengths (S)	<p>“ST-maxi-mini” strategies. The goal of these strategies is to maximise those strengths capable of minimising threats from abroad.</p>	<p>“FO-maxi-maxi strategies”. The purpose of these strategies is to maximise those strengths that will allow for seizing or developing opportunities.</p>

Source: [122].

4. Analysis and Discussion

4.1. Analysis of Strengths, Weaknesses, Opportunities and Threats (SWOT)

Thus, the theoretical framework defined above will allow, based on quantitative and qualitative research carried out on social and complementary currencies, to determine the weaknesses, threats, strengths and opportunities that have most often been mentioned in the scientific literature. As a result, the SWOT matrix is obtained for the implementation and management of a complementary monetary system in a territory (Table 5).

Table 5. Matrix of weaknesses (W), threats (T), strengths (S) and opportunities (O).

Weaknesses (W)		Threats (T)	
W1. Lack of training, technical preparation, commitment and organisational weaknesses [2,78,88,91,92].		T1. The rise of other alternative complementary monetary systems, especially “cryptocurrencies” [78].	
W2. Absence of a local or territorial financial system [88,94].		T2. Low use of the coin [84,97,128].	
W3. Narrow “use network” [78,91,98,99].		T3. Tax fraud [2,93].	
W4. Short utility [91,92].		T4. Lack of endorsement or rejection by public administrations [98].	
W5. Low compatibility of the CSMS with the social environment, culture and lifestyle of users [91,92,97].		T5. Loss of trust and reciprocity in the CSMS [36,72,91,101,103,104].	
W6. Absence of a broad social consensus on the implementation and responsible use of social currency [2,100].		T6. Growth of the economy [24,84].	
Strengths (S)		Opportunities (O)	
S1. A “wide network” [22,88,106].		O1. Increase social ties and strengthen community consumer networks [2,27,89].	
S2. Alignment of the CSMS with social, economic and sustainable policy strategies in a territory [27,88].		O2. Increase endogenous economic activity in a territory [73,76,77].	
S3. Boosting by the public administration [28,76,86,87,98].		O3. Increase the economic impact of public resources on a territory without the need to increase public spending [2,18,27,89,90].	
S4. Acceptance and use of the currency by a public administration [28,94].		O4. Contribute to greater economic equity, stability and social inclusion of the territory [28,77].	
S5. Diversity in terms of the possibilities of use [78,88,97].		O5. Promote entrepreneurship and social innovation initiatives, as well as social impact investments in the territorial area of the currency [22,27,29].	
S6. High identification with the principles and values of the CSMS reached through the social consensus [22,23,73,86,101–104].			

Source: own elaboration.

4.2. Definition of the Hierarchy Structure

The definition of the hierarchy structure has made it difficult to present the relationships of hierarchical dependence between criteria and decision sub-criteria and strategic decisions. These relationships, presented in Figure 1, are structured into four levels. The first presents the objective that the model aims to achieve, or which strategic decisions must be made: to implement and manage a CSMS in a territory to strengthen sustainable local development and urban resilience. The second of the levels refers to the decision criteria, in this case weaknesses (W), threats (T), strengths (S) and opportunities (O). The third level presents the decision sub-criteria that match each and every element that integrates into the result of the SWOT analysis. Finally, the fourth level presents the set of strategic decisions—“WT-mini-mini strategies”, “WO-mini-maxi strategies”, “ST maxi-mini strategies” and “SO-maxi-maxi strategies”—on which a decision must be made.

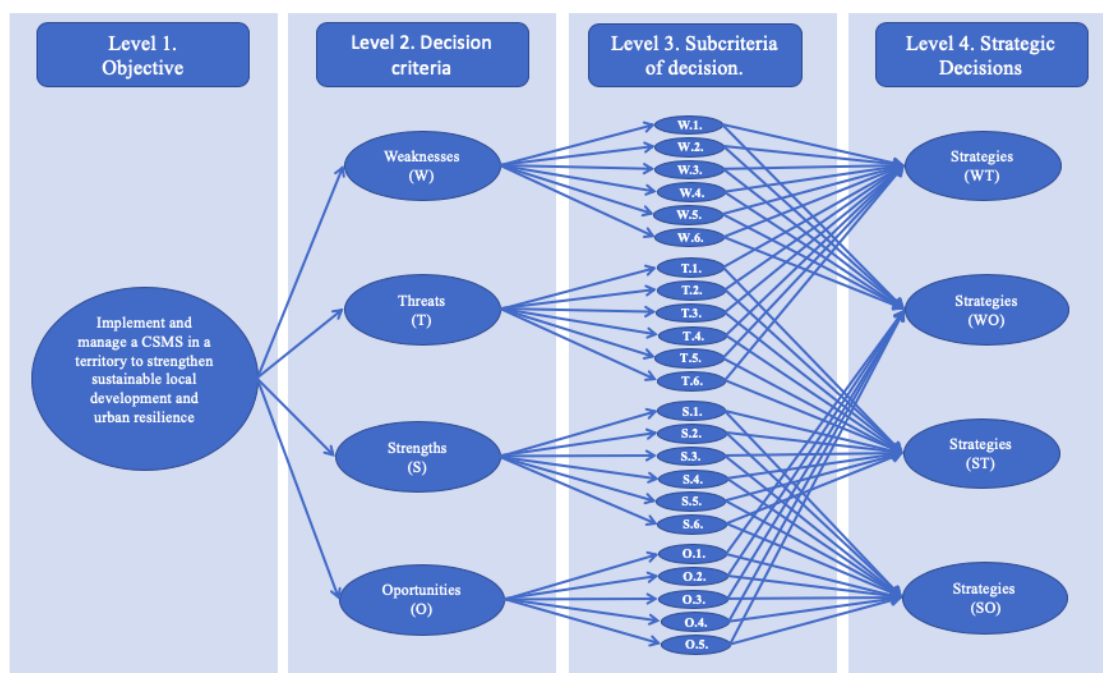


Figure 1. Decision model for the implementation and management of a CSMS in a territory to strengthen sustainable local development and urban resilience.

4.3. Measurement of the Relevance of Criteria and Sub-Criteria

The revised scientific literature is rich enough—in terms of the theoretical and practical knowledge expressed by its authors—and well-structured enough—in relation to the definition of the objective raised—that it has allowed the research team to make judgments that evaluate and measure the relevance of the criteria and sub-criteria that give the model a high consistency [124].

These judgments are the result of a process of critical analysis of the reviewed scientific literature [129] that was carried out in two parts, one collective, within the research team, and one individual, in which each investigating person involved in the analysis of data made their judgment. In this way, the research team sought to integrate the arguments of the experts consulted in the scientific literature together with the holistic vision of the objective raised to which the research team contributed [124].

As a result of the above, Tables 6 and 7 reflect, through geometric means of peer comparisons made individually, the consensus reached for the model for the assessment of each criterion and the decision sub-criteria.

Table 6. Relevance of each of the decision criteria (factors of the SWOT analysis) at level 2.

Criterion (SWOT Factor)	Relevance/Importance
Weaknesses	51.0%
Threats	9.3%
Strengths	19.1%
Opportunities	20.6%
Consistency ratio (CR): 3.8%	

Source: own elaboration.

Table 7. Relevance of each of the sub-factors.

Criterion	Relevance of Criterion at Level 2	Sub-Criterion	Rating of Sub-Criterion at Level 3		Rating of Sub-Criterion in Relation to the Total Model	
			Relevance	Ranking	Relevance	Ranking
(W)	51.0%	W1	6.15%	5	3.14%	12
		W2	2.84%	6	1.45%	20
		W3	17.33%	4	8.84%	4
		W4	20.53%	3	10.47%	3
		W5	25.22%	2	12.86%	2
		W6	27.93%	1	14.24%	1
		Consistency ratio (CR): 4.4%				
(T)	9.3%	T1	3.78%	6	0.35%	23
		T2	26.06%	2	2.42%	16
		T3	7.66%	4	0.71%	21
		T4	17.69%	3	1.65%	19
		T5	38.03%	1	3.54%	10
		T6	6.78%	5	0.63%	22
		Consistency ratio (CR): 4.2%				
(S)	19.1%	S1	21.50%	1	4.11%	7
		S2	10.96%	6	2.09%	17
		S3	13.97%	5	2.67%	15
		S4	16.05%	4	3.06%	13
		S5	17.35%	3	3.31%	11
		S6	20.17%	2	3.85%	8
		Consistency ratio (CR): 5.4%				
(O)	20.6%	O1	27.24%	2	5.61%	6
		O2	9.30%	5	1.92%	18
		O3	17.97%	3	3.70%	9
		O4	27.88%	1	5.74%	5
		O5	17.61%	4	3.63%	10
		Consistency ratio (CR): 4.1%				

Source: own elaboration.

According to level 2 of the hierarchical decision model, the assessment of the decision criteria—with a consistency rate of 3.8%—resulted in the highest relevance for weaknesses, at 51%. In this sense, it is no coincidence that these strong barriers have to be overcome in order for the proposed objective to be achieved. In other words, it would be complex to achieve the proposed objective if the right strategies to minimise weaknesses are not designed. Thus, it is possible to consider that, once these barriers are overcome, it will be possible to seize the opportunities (with a relevance of 20.6%) and convert some of the identified weaknesses into strengths (relevance of 19.1%).

On the other hand, threats, with 9.3% relevance, can cause the CSMS to fail to achieve its goal, but its below average relevance indicates that threats can be neutralised by optimising strengths.

In relation to the decision sub-criteria of level 3 of the hierarchical model, Table 7 shows the relevance obtained by each of them in the peer comparison processes, all showing a consistency rate below 10%.

Thus, in the case of the sub-criteria that result from weaknesses, the one related to the absence of a broad social consensus in the implementation and use of social currency responsibly (W6) and the low compatibility of the currency with the social environment, culture and lifestyle of users (W5) explain more than half of the weaknesses. In fact, in relation to the total hierarchical model, they take the 1st and 2nd places in terms of the assessment of all the decision sub-criteria. The results of aspects related to the fact that a CSMS has a low possibility of use (W4 with a relevance of 20.53%) and that people, physical or legal, who use it are few (W3, relevance of 17.33%) are also relevant.

Just over 64% of the threats are explained by two sub-criteria, the one related to the loss of trust and reciprocity in the CSMS (T5, with a relevance of 38.03%) and the lack of use of the CSMS

(T2, with relevance of 26.06%). Another of the most important threats concerns the fact that public administrations can not only not support CSMSs but also reject them through anti-CSMS legislation (T4, 17.69%).

In the case of decision-making sub-criteria related to strengths, three of them together accumulate more than 50% of the relevance, in particular S1 (21.5%), related to the number of persons, physical or legal, who make use of a CSMS, S6 (20.17%), the diversity of possibilities of use that a CSMS can present, and S5 (17.35%), the high identification that people can manifest with the principles and values of the CSMS through the social consensus reached for its implementation. The S3 (13.97% relevance) and S4 (16.05% relevance) criteria, that are still shared by different criteria, share the prominence, or role, that a public administration can adopt in terms of a CSMS, as a driver or simply by offering timely support and even accepting the CSMS as a means of payment. Thus, the strengths that a CSMS may have do not depend much or exclusively on the level of prominence that a public administration may have in its implementation and management, but it is no less evident that the combined action of promoting and recognising a CSMS as a means of payment gives it one of its main strengths.

Finally, with regard to the opportunities and sub-criteria of decisions that emerge from them, more than 50% of the relevance is explained by two sub-criteria, O4, contributing to greater economic equity, stability and social inclusion of the territory (27.88%), and O1, increasing social ties and strengthening community consumer networks (27.24%), both undoubtedly aligned with the principles of both sustainable local development and those of urban resilience. On the other hand, the fact that the sub-criterion O3 is related to the increment of the economic impact of public resources in a territory without the need to increase public spending has a relevance of almost 18% and can be interpreted with the same argument that the strengths that imprint the role of a public administration were interpreted with in the model: it is important, for example, to influence another of the sub-criteria, such as O5, but it is not contingent on the success of the CSMS.

4.4. Definition of Strategies

As a result of the previous SWOT-AHP analysis, and according to the hierarchical level 4 relationships presented in Figure 1, it is possible, using the SWOT strategy matrix, to define the various WT, WO, ST and SO strategies that make it possible to achieve the objective set (Table 8).

Table 8. SWOT strategy matrix for the implementation and management on of a CSMS in a territory to strengthen sustainable local development and urban resilience.

		External Factors	
		Threats (T)	Opportunities (O)
Internal Factors	Weaknesses (W)	<p>“WT-mini-mini strategy”. WT1. Build a social, economic and political consensus. $[(D5 + D6) \rightarrow (D3 + D4)] + [A5 + A2 + A4]$</p>	<p>“WO-mini-maxi strategy” WO1. Create a community observatory for the CSMS. $[(D5 + D6) \rightarrow (D3 + D4)] \rightarrow [O4 + O1]; [O3 \rightarrow O5]$</p>
	Strengths (S)	<p>“ST-maxi-mini strategy” ST1. Define communication tools for raising awareness and education in ethical finance. $[(F6) \rightarrow (F5 + F1)] \rightarrow [A5 + A2 + A4]$</p>	<p>“SO-maxi-maxi strategy” SO1. Promote the alignment of the CSMS with sustainable local development strategies. $[F3 + F4]; [(F6 + F5 + F1) \rightarrow [O4 + O1]]; [O3 \rightarrow O5]$</p>

Source: own elaboration.

There is one piece of data that stands out above any other: the weaknesses W3, W4, W5 and W6 explain 46.41% of the hierarchical decision model. Alongside this data, one can add the close relationship between the most relevant weaknesses and threats: the lack of social consensus (W6) and the incompatibility between the CSMS and the community (W5) will easily weaken the CSMS in terms of the number of people who are part of it (W3) and the set of possibilities of use that it may have (W4) causing, ultimately, the emergence of relevant threats, particularly T2, T4 and T5.

Therefore, without minimising or overcoming weaknesses, it is complex to equip any CSMS with the necessary capabilities and strengths so that it can minimise the impact of threats and take advantage of opportunities, thus ensuring success in achieving the proposed objective. Table 9 shows a summary of the designed strategies.

Table 9. Summary of strategies for implementing and managing a “complementary social monetary systems” (CSMS).

Strategies	<ul style="list-style-type: none"> • WT1. Build a social, economic and political consensus. • WO1. Create a community observatory for the CSMS. • ST1. Define communication tools for raising awareness and education in ethical finance. • SO1. Promote the alignment of the CSMS with sustainable local development strategies.
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Source: own elaboration.

The WT1 strategy, aimed at minimising weaknesses and, as a result, threats that can jeopardise the objective, becomes key to the model.

Whether the CSMS is in a definition phase, or embryonic phase, or is at an advanced stage in its life cycle, the entity, collective or institution (public or private) that exercises the role of driver, or manager, of the CSMS should make a socio-economic diagnosis of the territory in order to identify the maximum correlation between the CSMS and the social environment, the culture and lifestyle of the people who will be users, and also involve social and economic actors and organised civil society with the aim of achieving the greatest possible social consensus as to the relevance, suitability, trustworthiness and use of the CSMS.

It would be appropriate to follow a participatory research action (PRA) methodology or social audit that, ultimately, sensitises, empowers and engages the largest number of persons, natural or legal [99,130–132], in turn giving the CSMS a broad social consensus and social legitimacy that will lead to a greater number of users and possibilities for use.

However, there are two expected results of this strategy: to convert the W5 and W6 weaknesses into the S6 strength and the W3 and W4 weaknesses into the S1 and S5 strengths, respectively. This would make it possible to minimise the impact that the T5, T2, and T4 threats can have on the objective.

The WO1 strategy, aims to minimise weaknesses that cause opportunities to be missed. The above strategy is an important input for the others. Once the most relevant weaknesses and the way to minimise them by turning them into strengths are identified, it is appropriate to observe and identify their evolution and how they impact on the set of opportunities that can make it possible to increase the resilience of the territory (O4 + O1) by offering possibilities for sustainable local development (O3 + O5). In this regard, it seems appropriate to recommend, by virtue of the social consensus, that the creation of a body such as a community observatory for the CSMS to carry out these functions of the observation and evolution of the CSMS in relation to the environment in which it is being developed should be carried out.

The ST1 strategy seeks to maximise and leverage strengths to minimise threats. Thus, developing the S6 strength is essential to sustain other strengths, such as S5 and S1, and achieve the proposed objective. From the position of strength granted by S6, the entity—public, private or mixed—that promotes and manages the CSMS could define communication tools for raising awareness and education in ethical finance that could motivate and incentivise the use and participation of the largest number of people in the CSMS. The development of such communication initiatives can be a relevant tool for trying to minimise all threats.

Finally, the SO1 strategy aims to maximise the strengths that will allow for taking advantage of the opportunities identified in relation to the defined objective. It is therefore a question of the entity

responsible for the implementation and management of the CSMS seeking maximum synchronisation between the CSMS, its strengths and the sustainable local development strategies of the territory.

In this sense, the participation of a public administration in an CSMS is not essential, although the support it can receive from the authorities is very important. This support can be well through institutional support, and, above all, through recognition as an instrument of payment and public collection. This can have a relevant impact in terms of aligning the CSMS with the local sustainable development strategies of the territory. Much more if this participation is the result of combining strengths F3 and F4. One of the effects of this impact is to increase the level of Fortress F6 and, by extension, F5 and F1.

Taken together, this succession of factors is the starting point from which to try to make the most of the opportunities that can best achieve the goal of strengthening sustainable local development (O3 + O5) and local resilience (O4 + O1). To this end, the existence of a multisectoral participation and representation advisory body may not only be of interest but may also be timely to identify, from the data and measurements obtained by the observatory proposed in the WO1 strategy, the evolution of other opportunities that may arise in the environment linked to sustainable local development and local resilience.

5. Conclusions

There has been various scientific research that has produced results on weaknesses, threats, strengths and opportunities that can be presented by implementing and managing a particular complementary monetary system. However, this research, unlike others, provides a SWOT analysis by integrating the various arguments and conclusions offered by the scientific literature on these types of instruments.

On the other hand, in order to achieve the objective of this research—to decide on which or what strategies are the most appropriate for implementing and managing a CSMS to strengthen sustainable local development and urban resilience—the AHP methodology was used. Having used this technique means a methodological innovation in the area of analysis of complementary currencies and, therefore, a contribution to the scientific literature.

Using the SWOT-AHP technique enabled us to analyse and discuss which of the strategic decision criteria and sub-criteria were more relevant in order to achieve the proposed objective. In itself, this hierarchisation of the criteria and sub-criteria for decisions (Tables 5 and 6) involves all of the findings of this investigation.

Of this set of findings, the most prominent is the one that warns about the need to overcome, first and foremost, the weaknesses in order to carry out the implementation and management of a CSMS that strengthens sustainable local development and urban resilience processes. Weaknesses include those that cause the low compatibility of the CSMS with its social environment and, above all, those that prevent the achievement of a social consensus on the creation, implementation and management of such an instrument.

The conclusion is, therefore, that in the implementation and management of any CSMS in a territory such as a city, a county or region, there is a need, in the first instance, for a social consensus as to the relevance of the CSMS, which ultimately supports and gives the CSMS a sense of confidence and legitimacy in its use in a variety of manners by various people.

This conclusion precisely represents the starting point in this research for the design of strategies for the implementation and management of a CSMS.

As a result of the strategic analysis and decision process, facilitated by the methodologies used, the following set of strategies could be designed, thus achieving the objective of this research:

- (1) the building of a social, economic and political consensus (WT1).
- (2) the establishment of a community observatory for the CSMS (WO1).
- (3) the definition of communication tools for raising awareness and education in ethical finance (ST1).

- (4) the promotion of the alignment of the CSMS with sustainable local development strategies (SO1).

As proposed in this investigation, these strategies have been designed to enable practical implementation in any territory where an entity, public or private, wishes to implement and manage a CSMS. However, the following points should be highlighted. (1) These strategies have been defined by the objective initially set for the CSMS, i.e., strengthening local development processes and urban resilience; the definition of any other objective for the CSMS could result in other strategies, something which, based on the proposed methodology, can be addressed by the scientific community. (2) The proposed strategies, even as a result of a rigorous strategic analysis from the extensive and varied scientific literature revised, have not yet been discussed and not yet been contrasted, which constitutes a limitation of this research. However, it should be considered that, like any other strategic process, these four strategies should be subject to an evaluation exercise, something which, in this case, does not correspond to this investigation and which could be addressed in future investigations.

Complementary social currencies, by their characteristics, can make cities and territories stronger, more resilient and able to better absorb the effects of crises. The answer is, therefore, to make the most of and yield to a medium such as complementary social currencies to achieve an end. Today, when a social and economic crisis threatens to shake the well-being of millions of people, it seems necessary to redouble every effort to offer solutions that, without abandoning the path of sustainable development marked by the 2030 agenda, not only help to overcome the crisis, but also lead to the social and economic transformation necessary to build another possible world.

Author Contributions: Conceptualisation, A.L.E. and R.R.L.; methodology, R.R.L. and J.E.G.G.; software, R.R.L. and J.E.G.G.; formal analysis A.L.E. and R.R.L.; investigation, A.L.E. and R.R.L.; resources, A.L.E. and R.R.L.; data curation, X.X.; writing—original draft preparation, R.R.L. and E.S.C.; writing—review and editing, R.R.L. and E.S.C.; supervision, A.L.E. and R.R.L.; project administration, A.L.E. and R.R.L. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Conflicts of Interest: The authors declare no conflict of interest.

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