



# Inclusive business. A biological metaphor model for the agricultural sector

## Negocios inclusivos. Un modelo de metáfora biológica para el sector agropecuario

**Dra. Luz Alexandra Montoya-Restrepo** is a professor and researcher at the Faculty of Mines, National University of Colombia-Medellín (Colombia) (lamontoyar@unal.edu.co) (<https://orcid.org/0000-0002-4896-1615>)

**Dr. Iván Alonso Montoya-Restrepo** is a professor and researcher at the Faculty of Agricultural Sciences, National University of Colombia-Medellín (Colombia) (iamontoyar@unal.edu.co) (<https://orcid.org/0000-0003-0959-3466>)

### Abstract

*The agricultural sector was one of the sectors that was most compromised during the confinements in the COVID-19 pandemic, guaranteeing the value chain and the necessary inputs. But even so, the problems of the sector are still evident: poverty, inequity, lack of rural and non-rural employment, low profit rates, lack of distribution chains and market development, among others. An alternative that is presented to achieve successful productive chains is that of inclusive businesses, for its better application and understanding, the application of a biological metaphor of coevolution and mutualism is presented in this document, noting that inclusive businesses should not occur only on occasions of vulnerable producers, but to recognize in them their skills, knowledge, and capacities that they can share and put in favour of the integration model to achieve joint developments with the other organizations in the chain. The proposal focuses on strengthening inclusive models from the recognition of diversity and difference, and the development of management alternatives for the entire chain in general.*

### Resumen

El sector agropecuario fue uno de los más comprometidos durante los confinamientos en la pandemia de COVID-19, garantizando la cadena de valor y los insumos necesarios. Pero, aun así, los problemas del sector siguen siendo evidentes, pobreza, inequidad, falta de empleo rural y no rural, bajas tasas de ganancia, falta de cadenas de distribución y desarrollo de mercados, entre otros. Una alternativa para lograr encadenamientos productivos exitosos es la de los negocios inclusivos. Para una mejor aplicación y entendimiento, este documento presenta la aplicación de una metáfora biológica de la coevolución y el mutualismo, señalando que los negocios inclusivos no solo deben darse en productores vulnerables, sino que deben reconocer sus habilidades, conocimientos y capacidades que pueden compartir y utilizar a favor del modelo de integración, para lograr desarrollos conjuntos con otras organizaciones de la cadena. La propuesta se centra en fortalecer los modelos inclusivos desde el reconocimiento de la diversidad y la diferencia, y el desarrollo de alternativas de gestión para toda la cadena en general.

### Keywords | palabras clave

*Biological metaphors, agro-industrial value chain, small producers, anchor companies, inclusive business, coevolution, mutualism.*

Metáforas biológicas, cadena de valor agroindustrial, pequeños productores, empresas ancla, negocios inclusivos, coevolución, mutualismo.

**Suggested citation:** Montoya-Restrepo, L. A., and Montoya-Restrepo, I. A. (2022). Inclusive business. A biological metaphor model for the agricultural sector. *Retos Revista de Ciencias de la Administración y Economía*, 12(23), pp. 25-44. <https://doi.org/10.17163/ret.n23.2022.02>

## 1. Introduction

The Covid 19 pandemic profoundly affected the economies of Latin American countries (Useche-Aguirre et al., 2021, Huerta de Soto, 2021), impacting not only families in their physical and mental health, but also in economic models and generating situations of greater poverty (Chacón, & Ramírez-Chaparro, 2020; DANE, 2020, 2021). By 2020, mobility restrictions, and then the pandemic peaks at the end of 2020 and 2021 came with limitations of all kinds, which made it difficult to sustain the economies of the region. At the end of the first semester of 2021, the vaccination programs began and at the same time, the difficulties of logistics and production of supplies for all industries in the world were evident. The outlook could not be more discouraging (United Nations, 2020).

One of the economic lines that continued to support household consumption was the agricultural sector (Del Carpio et al., 2022), which continued to produce and carry supplies and food continuously, even with difficulties. For UNDP, 61% of the poorest people in the world work in the primary sector UNDP (2021), but it is recognized that the possibilities offered by agriculture are between two and three times more effective in reducing poverty and food insecurity than the growth in other sectors because small-scale production generates self-sustainability, job creation and recovery of the rural community (IFAD, 2021)

The characteristics of this sector make it vulnerable, especially in Colombia, where land distribution, infrastructure problems, insecurity caused by illegal production and poverty in the region are elements that hinder the development of this important sector of the economy.

UNDP (2021) points out how:

It is found that of 90.9% of the population in rural areas of Colombia, in the year 2020, 42.9% was poor and 48% is in a vulnerable condition; while of the 67.7% of the population in the cities, 42.4% are poor and 25.3% vulnerable. (p.1)

In addition, the report points out that there has been a sustained drop in average rural labor income, which is related to productivity losses in the sector (UNDP, 2021). The impacts of the pandemic on rural poverty were a catalyst for the economic difficulties associated with the territorial nature: rural poverty tends to be concentrated in areas with low population density, as well as with lower levels of schooling and illiteracy, ecological and environmental fragility, and distance from consumption centers, among other characteristics (Trivelli, 2020).

For this reason, one of the initiatives of the FAO (2021) proposes investing in agriculture in countries with lower incomes, which will have a greater impact on poverty reduction and must be accompanied by government policies such as social protection, development of business skills, strengthening of infrastructure, technology, innovation, education and support for models of social organization. In addition, it is proposed to strengthen the role of rural women, recognizing that they can represent more than 60% of the rural population, and to develop environmental protection programs, especially in native forests, water sources and natural resources in general.

For this, the FAO (2019) proposes five lines of work to achieve a sustained and sustainable reduction of rural poverty:

- Bet on family farming.
- Move towards an expanded social protection scheme.

- Move towards a sustainable management of natural resources.
- Achieve integrated infrastructure packages.
- Expand rural non-agriculture employment options (p. 6).

Taking into account these difficulties in the social and economic development of the sector, together with the changes caused by the pandemic (Sánchez-Galán, 2020), this document proposes a recognized alternative from the organizational management of the markets to analyze and enable the business development of affected communities under a family farming scheme, based on collaborative work using nature as a model.

## 2. Materials and methods

### 2.1 Conceptual contributions

The methodological proposal for this document is the application of the biological metaphor applied to organizations (Montoya et al., 2010). The development of the metaphor as a field of understanding (Csatár, 2022) is inherent in the human capacity to interpret and relate knowledge from one area to other areas, Aristotle pointed out the metaphor as a powerful mechanism of interpretation, analysis, and teaching, due to the possibilities that the translation of a concept from a known field to another newly born has. For Lakoff and Johnson (2003) and Cornelissen (2005), the way of thinking is metaphorical, in such a way that the brain, when analyzing, compares and proposes new meanings through metaphors.

The metaphor takes advantage of a known interpretation and takes it, hence the etymology of the word “foreign”, to another field of knowledge, for this reason it has a double component, a descriptive one that orders and classifies, and another constructive one that allows innovation and creation, this makes it possible to relate the abstract with the concrete, formal logic with figurative logic, or complexity with simplicity (Mendoza, 2003).

Metaphors can define a problem, delineate the scope of the analysis, and suggest hypotheses to test theoretical propositions (Ge et al., 2022). Metaphors communicate not only facts, but a network of facts and values, and resonate within a particular framework, the use of metaphors enables the discussion of opposing points of view and even can motivate people to take measures and lead to action (Sage et al., 2022).

It is pointed out that the development of the metaphor is useful for science (Aguilar & Arroyo, 2008), because when a new phenomenon is discovered, it needs to be named, but since it is not known by others, it would not have greater meaning. The metaphor becomes a new meaning for words that already have meaning and, in this way, allows a new categorization, understanding and learning tool (Molina-Rodelo, 2021).

In the case of social models, metaphors make it possible to make familiar what is not familiar and make it easier to flesh out knowledge, arrange both ideas and organizations in new ways, and for this reason they are used by organizational researchers to promote alternative ways of economic or social models (Cadavid et al., 2010). Many authors have focused on carrying out these analyzes of organizational theories to understand companies and industries from metaphorical models (Montoya et al., 2010).

For Palma, metaphorical procedures are more the rule than the exception in the constitution of the sciences (Palma, 2005), where it is pointed out that the language

of science is based on this cognitive and analytical mechanism. Palma (2004, 2015) finds throughout the history of science what he calls the “great metaphors”, which can even cross several areas of knowledge, related to the historical moment and that allow explanations to be given at the time of the reality that is lived. The author points out that, for example, the concepts of physics were taken to economics and sociology, the model of atoms to astronomy, and the models of evolution from biology to practically all areas of the social sciences.

Although many of the great metaphorical processes arise in everyday life and in the explanation of the events that take place, it has been possible to characterize the main milestones in the metaphorization process. One of them is presented in table 1 where the main elements and their definition are highlighted.

**Table 1**

*Metaphorization process*

Element	Definition
Identification of the problem	It is the process in which the need to create a new meaning is expressed.
Identification of metaphors	Concepts that can be used in a comparative way or an image are sought. This is how the different domains are connected with the vehicle that makes the transfer of the concept.
Approach Processing	The metaphor is processed in terms of belonging.
Vehicle construction	The vehicle is the figure of speech itself, that is, the image that is included or "carries" the tenor (the subject of the metaphor).
Construction of metaphors	When the understanding of the vehicle as a concept is clear, the metaphor or network of metaphors that make the new understanding possible is created.
Functionalization of the metaphor	The metaphorical concept is internalized and included within the language.
Construction of the context of the metaphor	The current metaphor is connected to the network of metaphors that exists or needs to be developed and alternative metaphors are substituted.
Metaphor Appreciation	It is recognized if the metaphor meets the stated objectives and can really be considered a "creative metaphor".

Note. Adapted from Šorm and Steen (2013).

Three types of relationships are found in the construction of metaphors:

- Those of correlation or correspondence can also be cause-effect.
- Those of connection, relate, for example, something with its part.
- Those of similarity, present an idea under the parameter of another better-known idea (Gurillo, 2006).

This metaphorical creation can be useful in many ways, to reason, to create meaning and emotion, to give force to an expression, to joke, to make conceptual or cultural changes, to extend categories, to provide integrated conceptual structures to arrays of non-integrated elements, or to integrate actions (Gurillo, 2006).

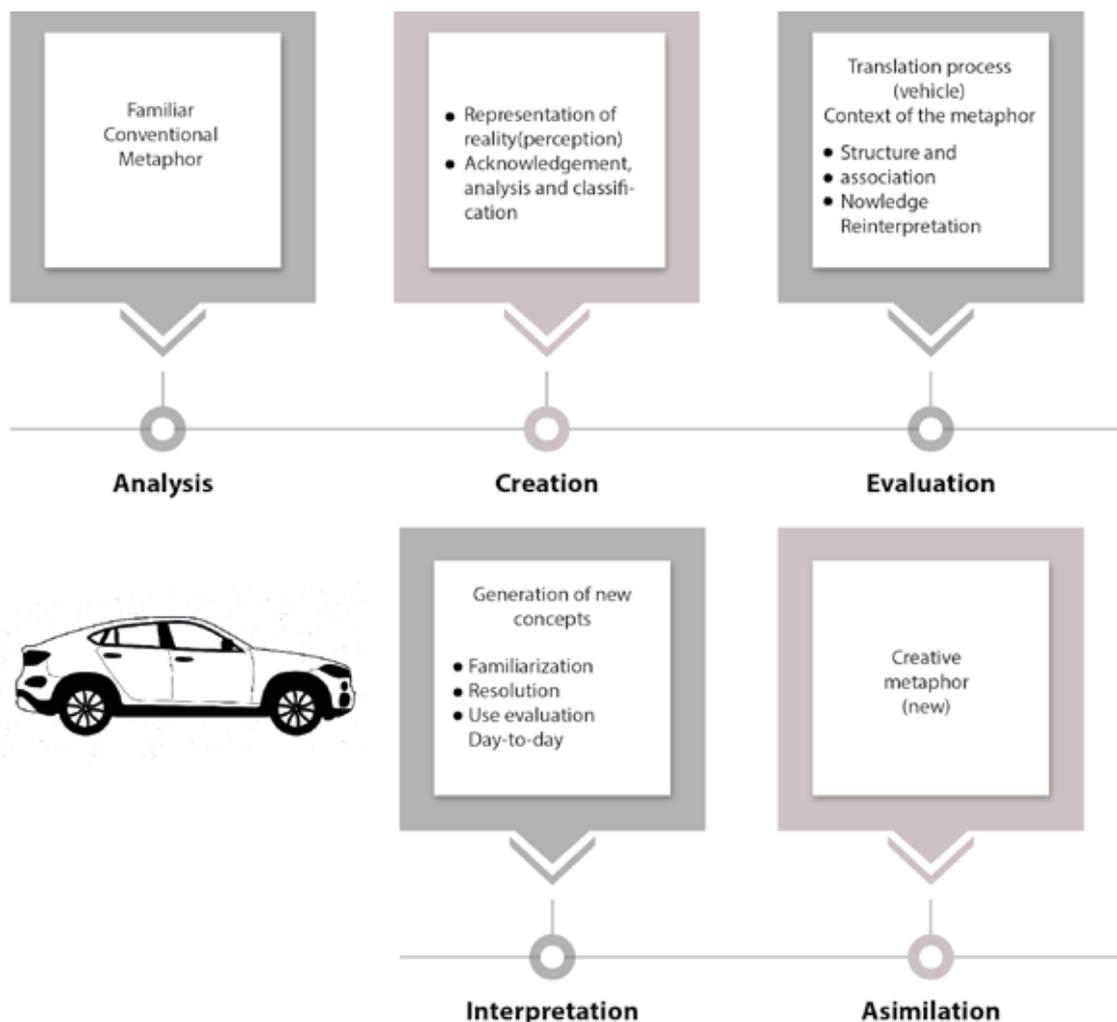
For this work, the following scheme developed for this interpretation will be followed, in which the logical following logical steps are followed:

- Analysis
- Creation
- Evaluation
- Interpretation
- Assimilation of the new metaphor and its accompanying network.

In this case, we start from the model of perception of the need indicated in figure 1, having awareness of the usefulness of the generation of comparative metaphors, and through the construction (Vehicle), the generation of the concept that allows the interpretation of the reality to be constructed is proposed.

**Figure 1**

*Generation of the comparative metaphor*



Note. Adapted from Birdsell (2018).

The process begins with the recognition of the problem, which in this case is the need to strengthen the development process of agricultural producers after the pandemic, and the application of the biological metaphor will be used as an interaction mechanism.

## 2.2 Methodological development: cooperation metaphors from biological models

The comparison of social sciences with biological metaphors has been a phenomenon that emerged from the beginning of economic sciences, important economists such as Adam Smith, Alfred Marshall, Karl Marx, Thorstein Veblen, Joseph Schumpeter, applied it in their theories and especially, in recent years, thermodynamic and evolutionary models have been used by the social sciences to explain some phenomena and establish new semantics of traditionally known terms. Thus, Lewin and Volberda (1999) propose some similarities with these evolutionary approaches that can be seen in Table 2.

**Table 2**

*Metaphors in selection and adaptation theories and their applications in organizational management*

Conceptual framework	Dominant paradigm
Sociology	Population ecology
Economic models	Institutional theories.
	Industrial organization.
	Transaction costs.
	Behavior theory of the firm.
	Theory based on the resources of the firm.
	Dynamic capabilities, form theory based on knowledge.
Strategy and organizational design	Contingency theory.
	Strategic change.
	Organizational learning.
	Balance of the punctual life cycle.

Note. Lewin and Volberda (1999).

In general, it can be said that the application of the biological metaphor to organizations is an analytical strategy that has allowed us to understand important processes for organizational theory by applying concepts such as entropy, cybernetics, niche marketing concepts, organizational ecosystem or cooperation (Montoya et al., 2021).

The applications of metaphors in organizational theory that have been especially used are those related to the mechanisms of cooperation of individuals or species in nature, with organizational cooperation and integration, and among the emerging concepts are those of reciprocal altruism, the same sociobiology (Wilson, 2002; Alcock, 2001), coevolution, mutualism-symbiosis, and even endosymbiosis models (where one species is directly involved with another, generating a greater alliance with characteristics of both).

It can be concluded that, in biological models, cooperating populations are found to have higher aptitude and adaptation, noting that in “natural selection in well-mixed

populations, assistance is needed for the establishment of cooperation” (Nowak, 2006, p. 1562).

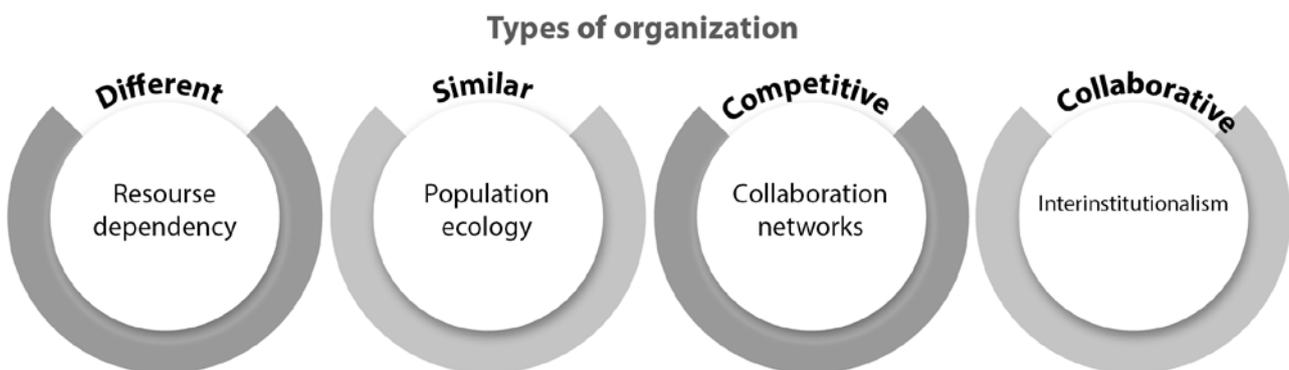
To frame it in a general context, it can be said that the population ecology approach (Hannan & Freeman 1977, 1986, 1989, 1992, 2005) examines how new organizations that work together, position themselves in niches that provide variety and better opportunities for individual organization and interaction model:

Population ecology is a very useful approach for understanding industry performance, especially with organizations that share resources and overlap in a specific niche. These models demonstrate the power of metaphor, especially in the concepts of population ecology and the niche concept widely used in management sciences. (Montoya, 2010, p. 129)

Figure 2 shows Hannan and Freeman’s proposal, which shows how, regardless of whether the type of organization is similar or different, there is an opportunity to have multiple interactions, to move from more competitive environments to more collaborative ones. The ideal, from this metaphor of population ecology, is that organizations can be integrated as similar and collaborative organizations.

**Figure 2**

*Relations between organizations*



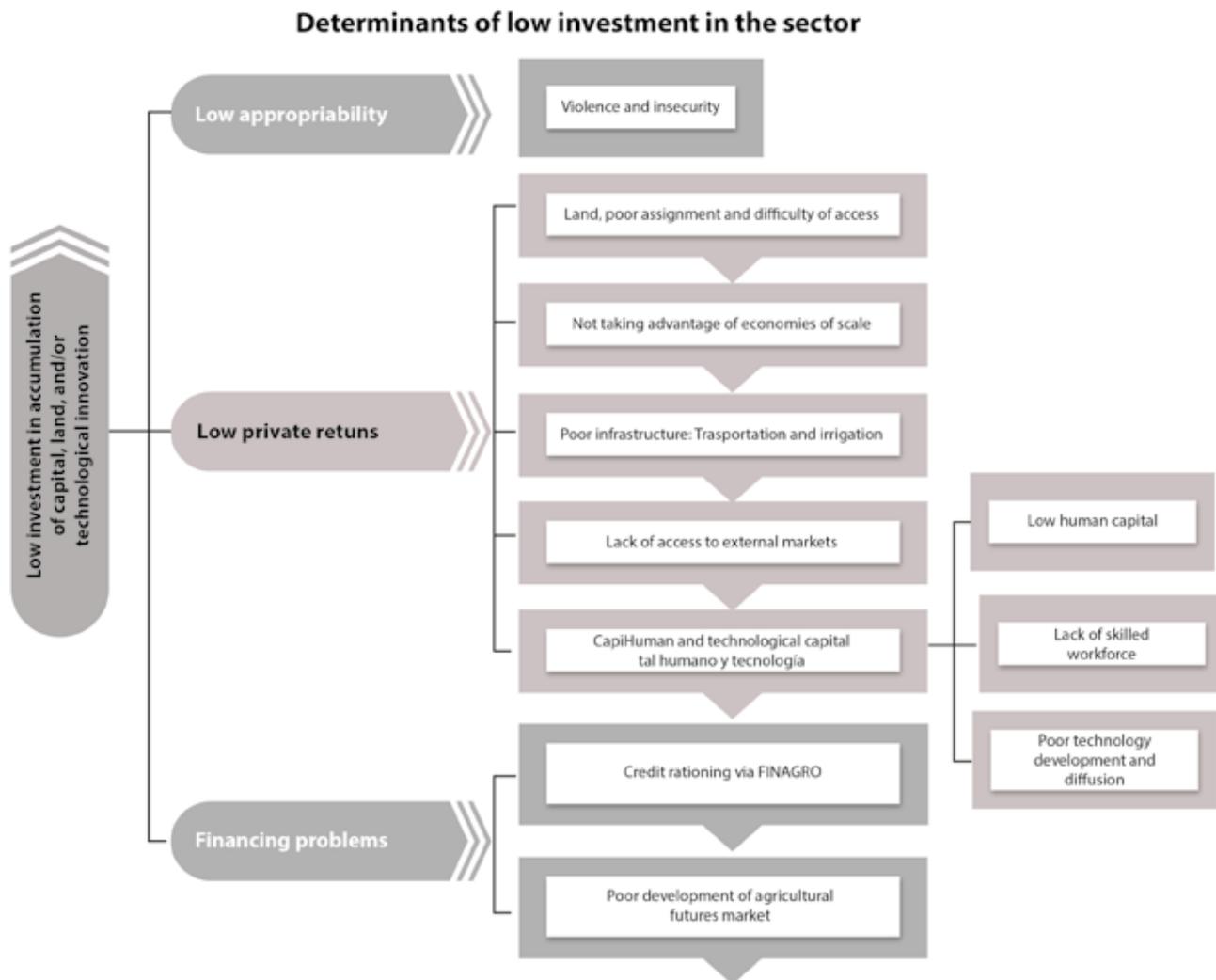
Note. Adapted from Hannan and Freeman (1989, p. 16).

### 3 Results

#### 3.1 Reality establishment (Problem)

The need to integrate the value chain in the agricultural sector (Ubaque, 2021) is presented as an interesting alternative to solve the main problems of the sector, which are characterized in the region by their heterogeneity, the variety of agroecological zones and the topography, as well as the structure of the varied productive systems characterized by small productive units in which there is subsistence and family farming and, in other cases, there is a consolidated business sector with intensive use of capital (Parra-Peña & Puyana, 2021).

In general, the sector in the country has problems on several fronts, it is found that there is low investment due to problems of appropriability such as problems of territory and security (Gómez, 2022), low returns related to the lack of access to markets, development of human talent and, in general, access to resources, as shown in figure 3.

**Figure 3***Determinants of low investment in the agricultural sector*

Note. Colombia competes (2017, p. 151).

Some market failures are also detected that could be remedied with a concatenation model that includes requirements for quantity, quality, logistics management, or traceability, as well as the development of markets in price management and the allocation of profits within the chain. That is why the Productive Development Policy of Colombia Conpes PDP 3866 (Calderón et al., 2016) highlights the importance of the development of linkages to solve the problems of the sector and points out that the low level of both vertical and horizontal linkages, which must be strengthened by a development policy to solve the problems of the sector. Consolidating chains makes it possible to improve productivity, include producers of all sizes, and improve performance in the markets (Bloomfield et al., 2021). Within this chaining system, the need also arises to include inclusive chains which link productive projects for vulnerable populations (ANDI, 2017, p. 142).

The Alliance of the Inclusive Businesses (IB), is constituted as a collaborative agreement of Mutualist Management, in which this relationship builds bridges between companies and low-income populations, for the benefit of both (CECODES,

2008), which takes advantage of the advantages of the producers and improves the competitiveness of the region (FAO, 2017).

UNDP (2014) highlights that these processes are oriented towards carrying out inclusive production that not only reduces poverty and inequality, since the value chain is directly strengthened, redistributing profits equitably (Giunta & González, 2020).

It is for these reasons that modeling is presented from the biological metaphor for the consolidation of inclusive businesses.

## 4 Discussion

### 4.1 Proposal for a co-evolutionary chain for inclusive businesses (Vehicle)

As an alternative to favor linkages between agro-industrial organizations, a business model is proposed that can be called co-evolutionary from mutualism (Montoya et al., 2021) in which the biological metaphor is taken up to understand the degree of integration:

It is the relationship between two or more organizations that are characterized by being independent and autonomous that cooperate and where they share resources and capabilities. In this relationship, all species benefit and improve their biological aptitude and allow them to increase their evolutionary and innovation capacities. (Montoya et al., 2021, p. 3)

This approximation of the mutualism-symbiotic relationship is presented from the integration of association and business cooperation, which allows an evolutionary process to integrate efforts in which reciprocity allows not only understanding but also solving problems in organizations (García et al., 2011).

Inclusive businesses have the characteristic of being networks of joint work (Ickis et al., 2019; Iñaki, 2011) in which large organizations (called anchors) that favor the development of small producers (recognized as vulnerable) can stand out. Within the IB concepts, Table 3 presents the contributions of some authors and institutions:

**Table 3**

*Contributions of authors on inclusive businesses*

Authors	Contribution
Ibero-American Network of Inclusive Businesses (BI) <a href="https://iberinclusion.org/red-iberoamericana-de-empresas-inclusivas">https://iberinclusion.org/red-iberoamericana-de-empresas-inclusivas</a>	Business initiatives, characterized by being profitable and environmentally and socially responsible.
Dutch Service for Development Cooperation-SNV (2012), Avina (2011, p. 3).	The quality of life of low-income people is improved by improving employment.
Cobos, J. S. H., Arbelaes, D. C., & Carrillo, C. B. (2019).	It seeks the insertion of the population in the economic model and hopefully through entrepreneurship.
Garizabal Donado, M. E., Sánchez Otero, M., and Estrada López, H. H. (2017).	Productive and social improvement.
Betancourt Latorre, A.V. (2014).	Generation of co-creation and shared value.

Authors	Contribution
FAO, 2019.	Integration of sellers and buyers for a shared benefit.
For WBCSD an inclusive business model World Business Council for Sustainable Development. <a href="https://bit.ly/3vyG4uC">https://bit.ly/3vyG4uC</a>	The communities participate in the model and improve their quality of life.
Guadarrama and Tavera (2017).  <a href="https://bit.ly/3sQC1It">https://bit.ly/3sQC1It</a>	Development of the value chain to improve people's life cycle.
Hurtado (2017).	Anchor companies support and enable the growth of their associates.
Márquez et al. (2009).	Participation of all actors in the value chain.
FAO, 2016.	Generation of market opportunities and improvement of the quality of life.

Note. The authors

The development of inclusive businesses enables the support of agri-food systems (Guzmán & Varela, 2018), the strengthening of the agro-industrial chain, the consolidation of markets in a rural and urban multi-stakeholder process, strengthening commercial networks (FAO, 2017, 2021, Santacoloma et al., 2017) that can even impact innovation through collaboration networks (Carpio-Gallegos & Miralles, 2021; Rodríguez de Pepe & Cervilla Ruano, 2020). However, although the advantages of this type of productive relationship are clear, it is not so easy to achieve them to be successful (Herrera-Kit et al., 2021). There are various methodologies for the consolidation of inclusive businesses, which can be seen in table 4.

**Table 4**

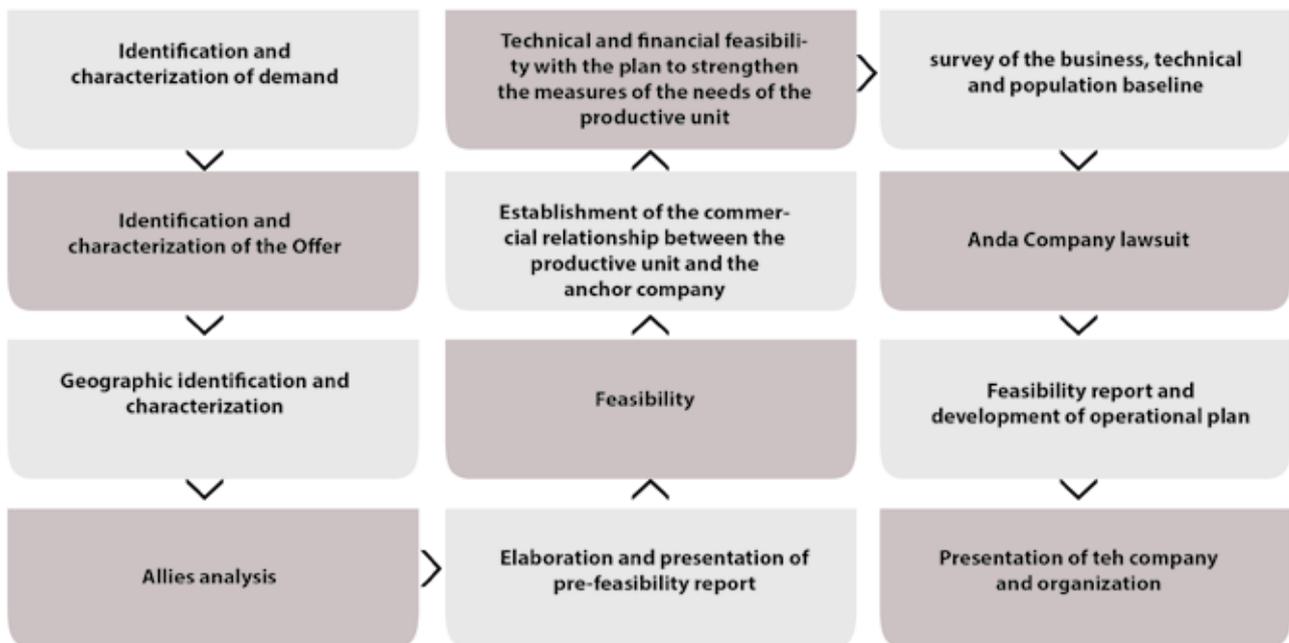
*Methodologies for the creation of inclusive businesses*

SNV-CECODES Alliance Dutch Service for Development Cooperation-Colombian Business Council for Sustainable Development, Fedepalma and USAID's MIDAS Program- More Investment for Sustainable Alternative Development (USAID MIDAS Program, Fedepalma, & CECODES, 2010, SNV, 2008. Rodríguez, M. C., Carrizosa, A., Bonell, C., and Rengifo, S. (2010).	The guide proposes development alternatives for the oil palm sector.
Practical guide for the facilitation of Inclusive Businesses and Public-Private Projects in agri-food chains of the Consortium of Provincial Autonomous Governments of Ecuador-CONGOPE (2014).	The guide proposes actions to governments to promote these initiatives and generate development in the territories (CONGOPE, PPPS- Public-Private Projects.

GIZ-PRODES and SENA (2016).	The objective is to guide companies to create inclusive ecosystems from a green economy approach.
Inclusive Business of UNDP, Deloitte UNDP and Deloitte, (2016).	Guide for companies to start, develop or scale their models and meet the 2030 Sustainable Development goals. It contains a self-assessment and a toolbox.
CIAT LINK methodology (2018).	Promotes the role of rural women. This methodology makes it possible to facilitate the articulation of actors in a value chain, and provide the necessary tools to generate opportunities for inclusive businesses.
PNUD (2008)-Program ART-REDES (2018).	It is a proposal within the framework of strategies for peace with the articulation of the actors promoting sustainable socio-economic development.
Negocio Social Yunus-McCain de Campo Vivo.	It seeks the analysis and strengthening of the value chain (in potatoes) to reduce rural poverty.
CECODES Inclusive Territorial Development Strategy (2017).	Methodological framework and orientation to the group of companies that comprise it to generate sustainable and inclusive territorial development.
University of the Andes, Corpoica, and Corocora (2018).	Sustainable Agribusiness Model in Meta – MAS META, for the strengthening of the banana, coffee, passion fruit and cocoa chains.
Innovation Cycle for Inclusive Businesses of the CINI Foundation (CINI, 2017).	The methodology proposes 8 phases of an innovation cycle,
Inclusive Chains of the ANDI Foundation (2017).	Based on productive linkage strategies, they propose alternatives for: employment, linkages, purchases and distribution through interaction in the development of markets.

Note. Adapted from Covo (2019, p. 54).

Figure 4 proposes a consolidation model for inclusive businesses with its various stages.

**Figure 4***Inclusive business construction process*

With this present process, the application of the metaphor is proposed.

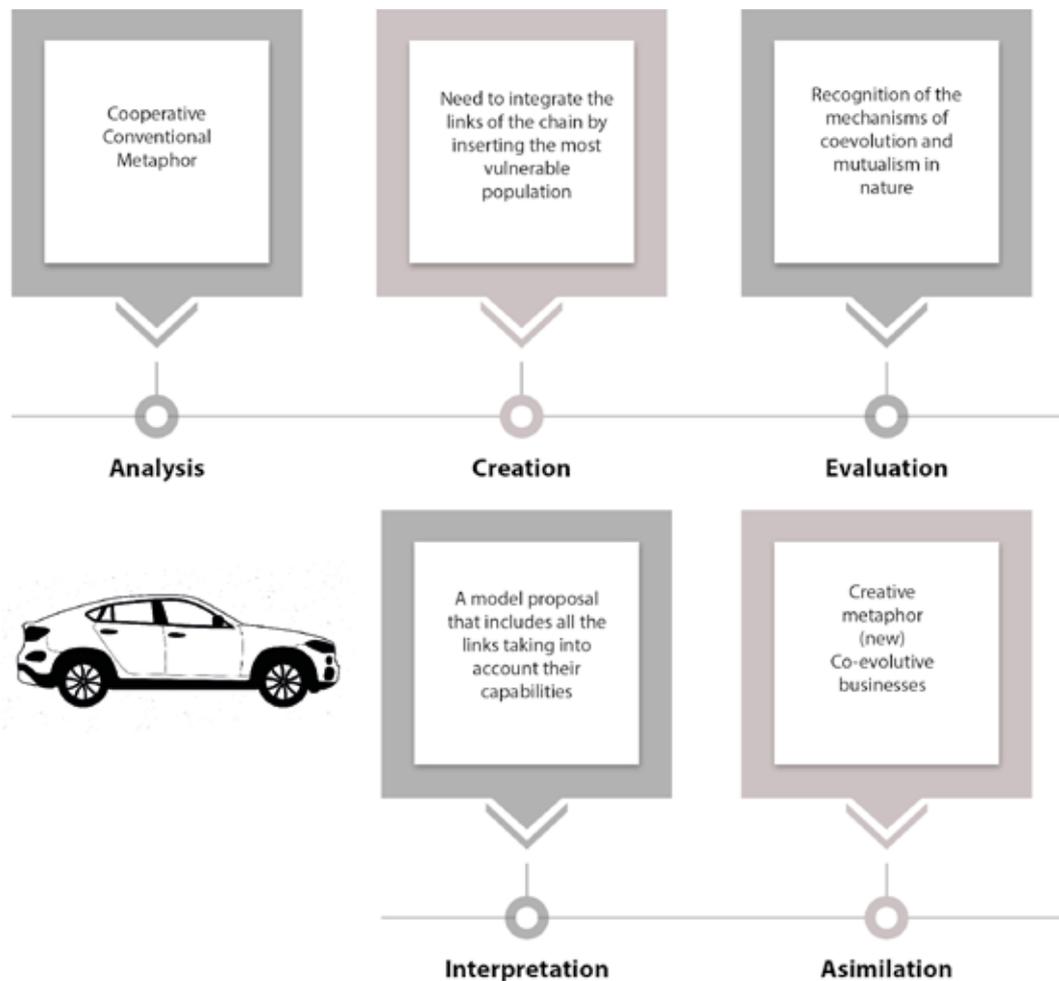
## 4.2 Construction of the creative metaphor

Two biological metaphors are relevant for the consolidation of inclusive businesses, the mutualism model and the co-evolution model, closely related to cooperation in nature. Co-evolution implies the reciprocal evolution of both species in the needs that each one has, to strengthen the relationship and it is not only an adaptive process (Co-adaptation) but a real change in at least two of the species that interact, with three elements that are inherent to it: 1. Specificity: the evolution of each character is due to selective pressures from the character of the other species, 2. Reciprocity: both characters must evolve together and 3. Simultaneity: both characters evolved at the same time (Janzen, 1980; Thompson, 2010 ; Breslin et al., 2021).

In the metaphorical application, the proposed model is taken up again, finding that the two elements of co-evolution and mutualism become mechanisms for the rebirth of the opportunities offered by the system (Figure 5).

**Figure 5**

*Metaphorical application for inclusive business*



Note. Authors.

Among the elements that help build the metaphor as semantic networks are the aspects of the ecosystem, which can be summarized in actors (network) and their relationships (species), adaptation and change strategies (evolution), the behavior of the actors ( functions) and health (performance, with four important factors: value co-evolution (niche creation), critical mass (solidity), continuous improvement (productivity/ effectiveness or efficiency) and learning and optimization (Moore, 2006; Lansiti & Levien, 2004; Montoya et al., 2011; Haider, et al., 2021; Janzen, 1980).

Among the elements for the coevolutionary process to develop, the following must be guaranteed:

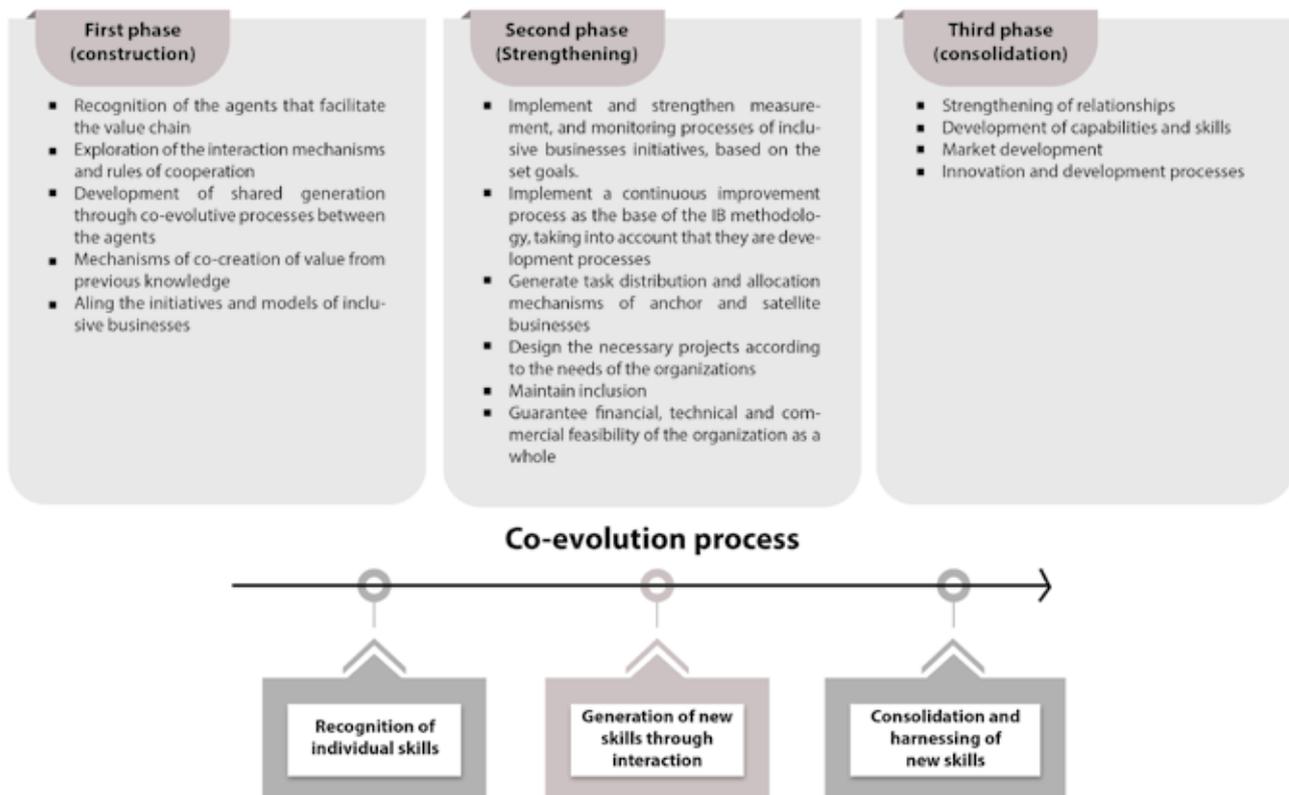
- That the systems are interrelated, interdependent, but maintain their individuality.
- The units in each process can be separated and their mutual influence represented (with adaptation paths and learning process)
- It becomes a conscious response in the case of social sciences in order to improve the performance of the system

- The multiple difficulties of the process are recognized, which should be seen more as an opportunity, because it means that development is improving the parts for progress (Gual & Norgaard, 2010).
- The coevolutionary process is characterized by being unique with variability and interdependence, in which a balance between cooperation and symbiotic relationships occurs.
- It is a complex process due to the network of interactions that occur.
- It has indeterminacy of the consequences of uncertainty and risk.
- The processes are irreversible and irrevocable both biologically and in economic processes (Font & Cuant, 2021). Figure 7 shows the process between the Anchor company and the processes of the producers that are in the integration.

These alternatives study the different phases of the process that can be strengthened in three phases, construction, strengthening and consolidation (Figure 6).

**Figure 6**

*Phases of the applied coevolutionary process*

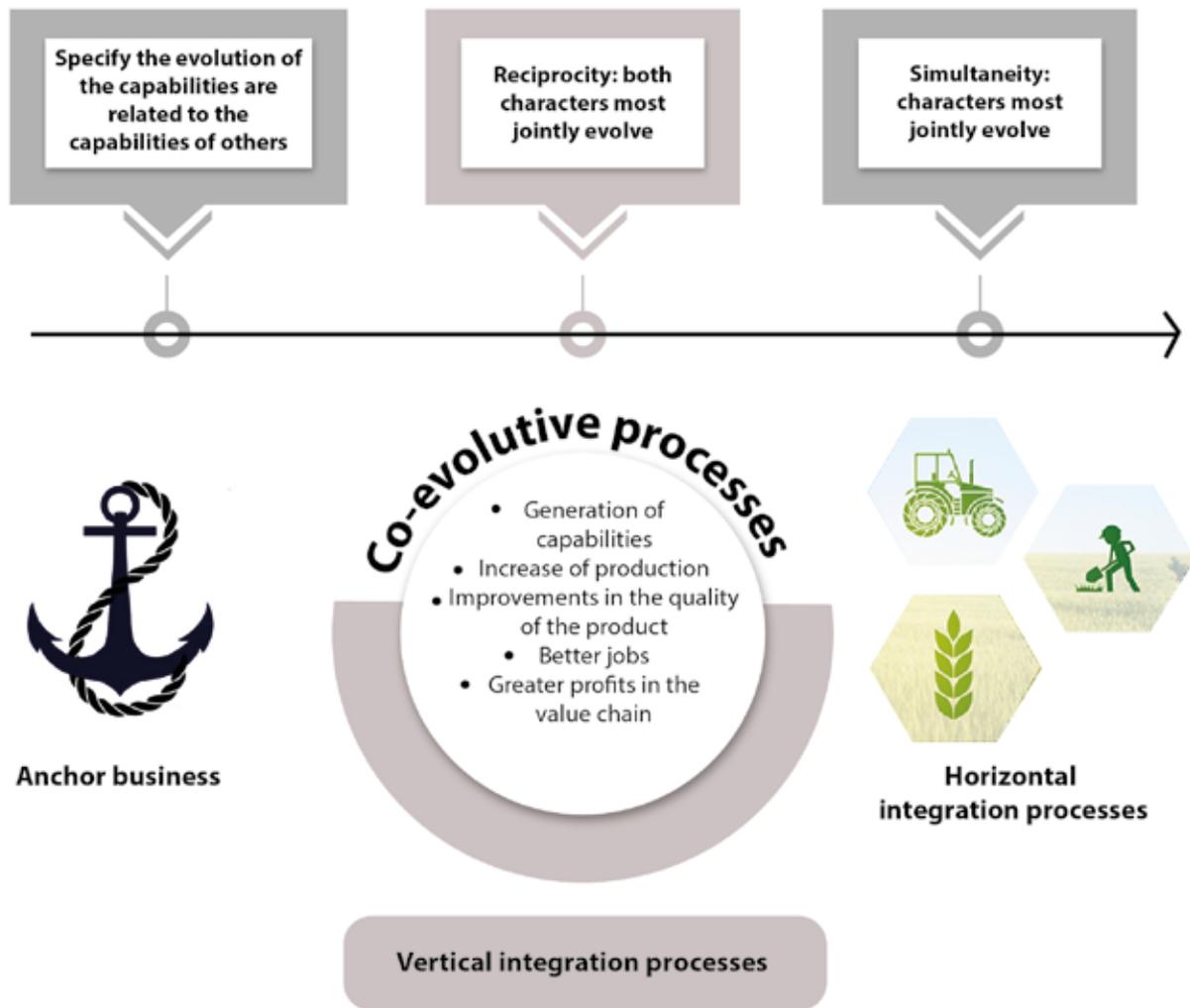


Note. From Covo (2019).

Finally, the role of the anchor company is recognized as a dynamic mechanism of the co-evolutionary processes and generation of mutual alternatives, recognizing a gain in the consolidation of the process (Figure 7).

**Figure 7**

*Co-evolutionary processes in inclusive businesses*



*Note.* The authors

One of the elements that can be taken as an application from the biological model is that in nature the size of the organisms that interact is not important, that is, the anchor company as coordinator of the process does not have to be a large company and the other systems productive units do not have to be so vulnerable or small. Inclusion in nature and in the model, what is recognized is not so much the vulnerability, but the difference, and it is recognized that all the productive units have something to contribute to the ecosystem as a model and that both the anchor and satellite companies have a process of co-evolution and their mutual cooperation is required.

**4. Conclusions**

The Covid-19 pandemic was an unexpected and shocking event in the economic sectors, which affected developing economies to a greater extent, due to their own vulnerability. In Latin America, in particular, the rural sectors were impacted by difficulties in the collection of supplies, transportation difficulties due to mobility restrictions, the absence of health services, and health issues for people due to the disease itself. There were also setbacks in the education of boys and girls, an increase in rural poverty,

commercialization difficulties, and in the production processes themselves. However, the great importance of the agricultural sector in the economy of the countries and its role in rural development and in reducing poverty levels in the region is recognized. As an alternative, the analysis strategy of the biological metaphor is presented, following the process of representation of reality, a translation process through the vehicle that allows the generation of the creative metaphor, that allows giving new meanings to the signifiers that are available to take advantage of its powerful cognitive mechanism.

From the biological metaphor applied to social and productive organizations, we can gather cooperation mechanisms, from the models of nature, which provide interesting elements for organizational collaboration in a special sector. Co-evolutionary models and mutualism provide a reference framework that teaches the evolutionary advantages of collaboration between species in ecosystems, where there is evidence that these alternatives are evolutionarily more successful and stable than even competition mechanisms.

Finally, the opportunity of defining inclusive business was analyzed, in which producers are presented as (species) with weaknesses that can be supported by companies (strengthened species) that can support their development. Inclusive businesses recognize the potential of small producers as families that sustain the economies of the countries and their own subsistence and that are important for the development of the entire value chain.

Although they are small, these producers have family and ancestral knowledge of production and productive capacity that contribute to the development of the region, strengthening the territory and improving the quality of life of small producers. This document emphasizes that producers must be recognized as important, even if they are small and somewhat vulnerable. In nature, species, even if they are small, are essential because they maintain the balance of the system, but they do so because of their ability to interact as a community.

## References

- Aguilar, R., & Arroyo, A. (2008). La metáfora científica y los libros de texto. *Contactos*, 67, 52-56.
- Alcock, J. (2001). *The Triumph of Sociobiology*. Oxford University Press.
- ANDI (2017) Importancia de los encadenamientos productivos En *Estrategia para una nueva industrialización II*. <https://bit.ly/3Mmj1ck>
- AVINA (2011). *Negocios y Mercados Inclusivos*. <https://bit.ly/3KeBvtt>
- Betancourt-Latorre, A. V. (2014). *Propuesta metodológica para la creación de negocios inclusivos en el LANI-EAFIT Social* (Doctoral disertación). Universidad EAFIT.
- Birdsell, B. J. (2018). *Creative metaphor production in a first and second language and the role of creativity* (Doctoral dissertation) University of Birmingham. <https://bit.ly/3hC3U06>
- Bloomfield, M. C., Torres, A. G. M., Galindo, C. R. R., & Ramírez, J. L. C. (2022). Sistemas productivos locales y encadenamientos productivos a favor del desarrollo local: El sistema productivo local agropecuario del destino turístico Gibara en holguín. *Explorador Digital*, 5(1), 437-457. <https://doi.org/10.33262/exploradordigital.v5i1.1512>
- Breslin, D., Kask, J., Schlaile, M., & Abatecola, G. (2022). Developing a coevolutionary account of innovation ecosystems. *Industrial Marketing Management*, 98, 59-68. <https://doi.org/10.1016/j.indmarman.2022.07.016>
- Cadavid, L., & Awad, G. (2010). *Propuesta para la medición del ajuste entre las metáforas organizacionales y las herramientas de modelado*. Facultad de Minas, Universidad Nacional de Colombia, Medellín.

- Calderón, J. M. S., Lleras, G. V., Bustos, J. F. C., del Interior, M., Cu, M. Á. H., ministra de Relaciones (2016). Documento CONPES 3866 DNP DE 2016 (agosto 8). Fuente: Archivo interno entidad emisora Consejo Nacional de Política Económica y Social República de Colombia. <https://bit.ly/3pG2juL>
- CECODES (2008). Alianza para los negocios inclusivos. Los negocios inclusivos en Colombia. Zetta Comunicadores S. A. ISBN: 978-958-44-4383-0, SNV. CECODES, Bogotá-Colombia. <https://bit.ly/3ILJSfF>
- CECODES (2017). Desarrollo de Negocios Inclusivos con impacto social. Una herramienta para la toma de decisiones Una publicación del Consejo Empresarial Colombiano para el Desarrollo Sostenible (CECODES)
- Chacón Mejía, C., & Ramírez Chaparro, M. N. (2020). Pobreza en Colombia, en tiempos del Covid-19 [Poverty in Colombia, in times of Covid-19] (No. 100265). University Library of Munich, Germany.
- CIAT (2018). Metodología. <https://bit.ly/3sGTAug>
- CINI (2017). Estrategias para Negocios Inclusivos. <https://bit.ly/3KfhUsZ>
- Cobos, J. S. H., Arbelaes, D. C., & Carrillo, C. B. (2019). Programas de agricultura urbana como estrategia para la generación de modelos de negocios inclusivos. *Aglala*, 10(1), 196-220. <https://bit.ly/34cYGF6>
- Colombia compite (2017). Competitividad del sector agropecuario colombiano. <https://bit.ly/34ewmCh>
- CONGOPE (2014). Guía práctica para la facilitación de Negocios Inclusivos y Proyectos Público-Privados en cadenas agroalimentarias. Quito
- Cornelissen, J. P. (2005). Beyond compare: Metaphor in organization theory. *Academy of Management Review*, 30(4), 751-764. <https://bit.ly/3Ce2HFP>
- Covo-Guzmán, M. (2019). Evaluación de la metodología de negocios inclusivos aplicada en la Fundación ANDI en términos de eficiencia y eficacia. Estudio de caso: metodología de encadenamientos inclusivos de la Fundación ANDI. <https://bit.ly/3HCtU69>
- Csatár, P. (2022). *Extended conceptual metaphor theory*. *Acta Lingüística Académica* (published online ahead of print 2022). <https://bit.ly/3hIJDGc>
- Dane (2022). Encuesta Pulso social. Información octava ronda (febrero 2022). <https://bit.ly/3Mqfn1h>
- Dane (2020) Pobreza monetaria en Colombia. Boletín técnico. <https://bit.ly/3tuNIDx>
- Del Carpio, X., Cuesta, J. A., Kugler, M. D., Hernández, G., & Piraquive, G. (2022). What effects could global value chain and digital infrastructure development policies have on poverty and inequality after COVID-19? *Journal of Risk and Financial Management*, 15(2), 43. <https://bit.ly/3pG3wSP>
- Carpio-Gallegos, D., & Miralles, F. (2022). El impacto de redes de colaboración en la innovación tecnológica en empresas. *Retos. Revista de Ciencias de la Administración y Economía*, 12(23), 315-331. <https://doi.org/10.17163/ret.n22.2022.08>.
- FAO Food and Agriculture Organization of the United Nations (2016). El estado mundial de la agricultura y la alimentación. Cambio climático, agricultura y seguridad alimentaria. Roma
- FAO (2017). Note de política sobre Negocios Inclusivos. <https://bit.ly/3hBMzVc>
- FAO (2019). "Serie 2030-Alimentación, agricultura y desarrollo rural en América Latina y el Caribe" <https://bit.ly/3hBQqS3>
- FAO (2022). Portal de apoyo a las políticas y la gobernanza. <https://bit.ly/34cCj2C>
- FAO (2019). Guía sobre modelos inclusivos de negocio. Mejorando las relaciones entre grupos de productores y compradores de productos agrícolas. Panamá. 64 pp.
- Font, M. A. G., & Cuant, M. (2022) Hacia un marco conceptual sistémico-coevolutivo para el análisis de las políticas de promoción de la energía renovable. <https://bit.ly/3MqjmuI>
- Fundación ANDI (2017). Hub de Alianzas para el Desarrollo. Manual Operativo. Bogotá.
- García, C., Raufflet, E., & Portales, L. (2011). Las alianzas entre empresas y ONG como medio para promover la RSE y el desarrollo local. *Innovation RICEC*, 3(1), 1-15.

- Garizabal Donado, M. E., Sánchez Otero, M., & Estrada López, H. H. (2017). Negocios inclusivos: una revisión teórica desde la dinámica colombiana. *Revista Espacios*, 38(47). <https://bit.ly/3KlxRy5>
- Ge, M., Mao, R., & Cambria, E. (2022). *Explainable metaphor identification inspired by conceptual metaphor theory*. <https://bit.ly/3sEW10r>
- Giunta, I., & González, J. D. (2020). Crecimiento económico inclusivo y sostenible en la Agenda 2030: un análisis crítico desde la perspectiva de la soberanía alimentaria y los derechos de la naturaleza. *Revista Iberoamericana de Estudios de Desarrollo-Iberoamerican Journal of Development Studies*, 9(1), 146-176. <https://bit.ly/3sJ7vAc>
- GIZ-PRODES, & SENA (2016). *Negocios verdes e inclusivos*. Bogotá.
- Gómez, H. D. P. (2022). Territorialidad campesina: ausente en proyectos políticos para el Oriente antioqueño. *Bitácora Urbano Territorial*, 32(1). <https://bit.ly/3sHZCL8>
- Guadarrama Y. & Tavera M. (2017). Negocio inclusivo en perspectiva al sector agropecuario en México. En F. Pérez, E. Figueroa, L. Godínez, R. García (Eds.), *Ciencias de la Economía y Agronomía*. Handbook T-II.-©ECORFAN, Texcoco de Mora, México.
- Gual, M. A., & Norgaard, R. B. (2010). Bridging ecological and social systems coevolution: A review and proposal. *Ecological economics*, 69(4), 707-717. <https://bit.ly/3MqElNK>
- Gurillo, L. R. (2006). *Metáfora y metonimia*. Liceus, Servicios de Gestión. <https://bit.ly/3KdDs9y>
- Guzmán, M. A. C., & Varela, S. E. M. (2018). Tendencias en Investigación en Negocios Inclusivos: una revisión de literatura. *Social Review. International Social Sciences Review/Revista Internacional de Ciencias*.
- Haider, L. J., Schlüter, M., Folke, C., & Reyers, B. (2022). Rethinking resilience and development: A coevolutionary perspective. *Ambio*, 50(7), 1304-1312. <https://bit.ly/3MhBF5f>
- Hannan, M. T. (1989). Competitive y institutional processes in organizational ecology. En Berger, Zelditch, M. y Andersen, B. (Eds.), *Sociological theories in progress: new formulations* (pp. 388-402). Sage.
- Hannan, M. T. (1986). Competitive y institutional processes in organizational ecology. *Technical Report* 86-13.
- Hannan, M. T. (2005). Ecologies of organizations: Diversity and identity. *Journal of Economic Perspectives*, 19(1), 51-70. <https://bit.ly/3hBTPQP>
- Hannan, M. T., & Freeman, J. (1977). The population ecology of organizations. *American Journal of Sociology*, 82(5), 929-964. <https://bit.ly/3CdBSS6>
- Hannan, M. T., & Carroll, G. (1992). *Dynamics of organizational populations: Density, legitimation y competition*. Oxford University Press.
- Herrera-Kit, P., Balanzó-Guzmán, A., Parra-Moreno, J., & Rivera, M. (2022). Mecanismos de colaboración interinstitucional: prácticas típicas. *Innovar*, 31(79), 145-159. <https://doi.org/10.15446/innovar.v31n79.91888>
- Huerta de Soto, J. (2022). The economic effects of the pandemic: an austrian analysis. *Revista Procesos de Mercado*, 18(1), 13-57. <https://doi.org/10.52195/pm.v18i1.703>
- Hurtado-Bermúdez, J. J. (2017). *Agronegocios inclusivos: Análisis de sus implicaciones a partir de tres casos en Guatemala, Nicaragua y Perú*. Universidad Javeriana. Bogotá.
- Ickis, J. C., Leguizamón, F. A., Metzger, M., & Flores, J. (2009) La agroindustria: campo fértil para los negocios inclusivos Academia. *Revista Latinoamericana de Administración*, 43, 107-124. <https://bit.ly/3sGWZsX>
- IFAD (2022) La COVID-19. <https://bit.ly/35oB0yl>
- Iñaki, P. (2011). El negocio inclusivo, un enfoque para la internacionalización de la empresa vasca. B+I Estrategia. <https://bit.ly/3CeT6ia>
- Janzen, D. H. (1980). When is it coevolution? *Evolution*, 34(3), 611-612 <https://bit.ly/3pDEJPo>
- Kulakowski, K., & Gawroński, P. (2009). To cooperate or to defect? Altruism and reputation. *Physica A: Statistical Mechanics and its Applications*, 388(17), 3581-3584.
- Lakoff, G., & Johnson, M. (2003). *Metaphors we live by*. The University of Chicago Press

- Lewin, A. Y., & Volberda, H. W. (1999). Prolegomena on coevolution: A framework for research on strategy and new organizational forms. *Organization science*, 10(5), 519-534. <https://doi.org/10.1287/orsc.10.5.519>
- Márquez, P. C., Reficco, E., Berger, G., & SEKN. (2010). *Negocios inclusivos: Iniciativas de mercado con los pobres de Iberoamérica*. Washington, DC: Banco Interamericano de Desarrollo.
- Mendoza, V. (2003). Metáfora: racionalidad comunicativa y responsabilidad ética. *Razón y Palabra*, 35. <https://bit.ly/3hBVzKb>
- Montoya, I., Hernández, J., & Montoya, A. (2022). *Marketing mutualista como estrategia emergente. Caso de la papa durante la pandemia Covid 2019*. En prensa. Bogotá.
- Montoya-Restrepo, L. A., Montoya Restrepo, I. A., Castellanos-Domínguez, O. F. (2010). La metáfora organizacional: Alternativa de entendimiento procedente de otras ciencias. *Rev.Fac. Cienc.Econ.*, XVIII(1), 75-86. <https://bit.ly/3KfohfT>
- Moore, J. F. (2006). Business ecosystems and the view from the firm. *The Antitrust Bulletin*, 51(1), 31-75. <https://doi.org/10.1177/0003603X0605100103>
- Naciones Unidas (2020) Informe: El impacto del COVID-19 sobre los ODS. New York: UN.
- Nowak, M. A. (2006). Five rules for the evolution of cooperation. *Science*, 314(5805), 1560-1563. <https://doi.org/10.1126/science.1133755>
- Ochoa, D., & Montoya, A. (2010). Consorcios microbianos: una metáfora biológica aplicada a la asociatividad empresarial en cadenas productivas agropecuarias. *Rev.Fac.Cienc.Econ.*, XVIII (2), 55-74. <https://bit.ly/3hBZc2z>
- Palma, H. (2004). *Metáforas en la evolución de las ciencias*. J. Baudino Ediciones.
- Palma, H. (2005). El desarrollo de las ciencias a través de las metáforas: un programa de investigación en estudios sobre la ciencia. *CTS: Revista Iberoamericana de Ciencia, Tecnología y Sociedad*, 2(6), 45-65. <https://bit.ly/3IKp48s>
- Palma, H. (2015). Ciencia y metáforas Los viejos ruidos ya no sirven para hablar. *Cuadernos de Neuropsicología/Panamerican Journal of Neuropsychology*, 9(1), 142. <https://bit.ly/35oCWH7>
- Parra-Peña, R. I., & Puyana, R. (2022). *Análisis de la productividad del sector agropecuario en Colombia y su impacto en temas como: encadenamientos productivos, sostenibilidad e internacionalización, en el marco del programa Colombia más competitiva*. <https://bit.ly/3vGcMKI>
- PNUD-Programa-ART REDES (2018). Índice de Capacidad Organizacional-ICO.
- PNUD Programa de las Naciones Unidas para el Desarrollo (2008). Las empresas frente al desafío de la pobreza: estrategias exitosas. New York.
- PNUD (2022). Panorama de la pobreza en el sector rural, 2 de julio de 2022. <https://bit.ly/3INnPFu>
- Molina-Rodelo, D. H. (2022). La metáfora: una aliada del aprendizaje. *Revista Senderos Pedagógicos*, 12(12). <https://doi.org/10.53995/rsp.v12i12.1020>
- Rodríguez de Pepe, M., & Cervilla-Ruano, M. A. (2020). Asociatividad empresarial y fuentes de capital social: hacia un modelo explicativo. *Innovar*, 30(77), 107-122. <https://doi.org/10.15446/innovar.v30n77.87452>
- Rodríguez, M. C., Carrizosa, A., Bonell, C., & Rengifo, S. (2010). *De las alianzas productivas a los negocios inclusivos: Guía de mejores prácticas para la implementación de negocios inclusivos en palma de aceite*. <https://bit.ly/3vDuSNf>
- Sage, C., Hughes, I., Byrne, E., & Mullally, G. (2022). Metaphor, transformation, and transdisciplinarity. In *Metaphor, Sustainability, Transformation*. Taylor & Francis. <https://bit.ly/3ttoPIj>
- Sánchez-Galán, E. A. (2020). Pobreza rural y agricultura familiar: Reflexiones en el contexto de América Latina. *Revista Semilla del Este*, 1(1), 27-35. <https://bit.ly/3HKjtUF>
- Santacoloma, P., Posas, A. L., Espinoza, E., Rodríguez, M., Jiménez, M. F., Ledesma, M., Llauger, R., Borja, R. M., Loconto, A., Risopoulus, J., Sánchez, Y., & Oportunidades Desafíos (2017). Oportunidades y desafíos de los sistemas agroalimentarios sostenibles en América Latina y el Caribe. FAO-Food and Agriculture Organisation. <https://bit.ly/34d9gvO>
- SNV-Servicio Holandés de Cooperación al Desarrollo (2012). Ecuador BID FOMIN Proyectos de Negocios Inclusivos. <https://bit.ly/3ttK6Sq>
- SNV & CECODES, Alianza para los Negocios Inclusivos (2008). SNV-CECODES, Alianza para los

- Negocios Inclusivos (2008). *Los Negocios Inclusivos en Colombia*. Bogotá: SNV-CECODES.
- SNV & World Business Council for Sustainable Development [WBCSD] (2008). *Inclusive Business profitable business for successful development*. Quito: Authors.
- Soler, M. (2002). *Capítulo 12: Coevolución. Evolución: La base de la biología*. Coord. Manuel Soler. Ed. Proyecto Sur.
- Šorm, E., & Steen, G. J. (2013). Processing visual metaphor: A study in thinking out loud. *Metaphor and the Social World*, 3(1), 1-34. <https://bit.ly/35RyIHS>
- Thompson, J. N. (2010). Four central points about coevolution. *Evolution: Education and Outreach*, 3(1), 7-13. <https://bit.ly/3hAuI13>
- Trivelli, C. (2020). *Acciones para la reducción de la pobreza rural en América Latina y el Caribe en el contexto de la pandemia de la Covid-19*. <https://bit.ly/3MjHnDL>
- Ubaque, N. M. (2022). *Encadenamientos productivos del sector agropecuario en Colombia*. <https://bit.ly/3pGcT4X>
- UNDP & Deloitte (2016). *Uncharted waters: blending value and values for social impact through the SDGS*.
- Universidad de los Andes, Corpoica, & Corocora (2018). *Modelo de Agronegocios Sostenible en el Meta- MAS Meta*.
- USAID Programa MIDAS, Fedepalma, & CECODES (2010). *De las alianzas productivas a los Negocios Inclusivos: Guía de Mejores Prácticas para la Implementación de Negocios Inclusivos en Palma de Aceite*.
- Useche-Aguirre, M. C., Pereira-Burgos, M. J., & Barragán-Ramírez, C. A. (2022). Retos y desafíos del emprendimiento ecuatoriano, trascendiendo a la pospandemia. *Retos. Revista de Ciencias de la Administración y Economía*, 12(23), 271-286. <https://bit.ly/3CgTNrq>
- Wilson, E. (2002). *Sociobiology, The new synthesis*. 25Th Anniversary ed. Harvard Collage.