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## Management of intangible aspects considering agricultural business development

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ABSTRACT: This paper identified the intangible aspects (IA) that generate impacts in companies of the agricultural sector in the different stages of the companies life cycle. This paper is based on a systematic review methodology to identify intangibles in the agricultural sector. Studies on the life cycle of companies were analyzed to classify the impact of intangible aspects according to the reality of companies. Identify the intangible aspects that impact the agricultural sector through a review of the scientific literature. How intangible aspects affect each stage of the life cycle of companies in the sector shows that they have a different impact depending on the period in which the company is located. Although, much of the previous literature has suggested that intangible aspects have positive effects on a variety of performance variables, there are no scientific studies that specifically address the importance of these intangible aspects in the life cycle of companies in the agricultural sector.

Key words: intangible indicators, company life cycle, performance, competitive advantage.

## Impacto dos aspectos intangíveis no ciclo de vida de companhias do setor agrícola

RESUMO: O objetivo deste trabalho é identificar os aspectos intangíveis (AI) que geram impactos nas empresas do sector agrícola nas diferentes fases do ciclo de vida das empresas. Para isso, utilizamos a metodologia de revisão sistemática para identificar os intangíveis no setor agrícola. Foram analisados estudos sobre o ciclo de vida das empresas para classificar o impacto dos aspectos intangíveis de acordo com a realidade das empresas. A forma como os aspectos intangíveis afetam cada fase do ciclo de vida das empresas do setor mostra que estes apresentam um impacto diferente consoante o período em que a empresa se encontra. Embora grande parte da literatura anterior tenha sugerido que os aspectos intangíveis têm efeitos positivos em diferentes variáveis de desempenho, não existem estudos científicos que abordem especificamente a importância destes aspectos intangíveis no ciclo de vida das empresas do setor agrícola.

Palavras-chave: aspectos intangíveis, ciclo de vida de companhias, setor agrícola.

## INTRODUCTION

Competitive advantage in the industry depends on the formulation of appropriate strategies and the continuous effort to manage performance based on these strategies (HARIYATI & TJAHJADI, 2018). In the context of the Covid-19 pandemic, while Industry and Services numbers shrank, agriculture's share of GDP in most countries increased (FAO, 2022). This factor intensifies competition among organizations in the agricultural sector, making the evaluation and monitoring of performance indicators a differentiation and survival strategy for these organizations (GUNAWAN & WIDODO, 2022).

Intangible Aspects (IA) - or intangible indicators - are the most valuable non-monetary assets

of an organization, as they are difficult for competitors to replicate and provide important information for decision-making (ZHANG & WANG, 2022). Thus, identifying and measuring IA helps companies to create value and achieve competitive advantage (KHAN et al., 2019; WANG, et al., 2019). Although, much of the literature suggested that IA has a positive effect on a number of performance variables, such as return on investments (OMODARA et al., 2021), profitability (HANSON et al., 2022), value creation (XU & LIU, 2021), or technical efficiency (NGUYEN-ANH et al., 2022), there are no scientific studies that specifically address the importance of these IA in the life cycle of companies in the agricultural sector.

In the law of the market economy, the potential for survival of the fittest depends on

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understanding the process of sustainable development and the stages of the company life cycle, which have effects on the business model and considerable weight in strategic management, which reflects in business performance (MARRUCCI et al., 2022; ZHANG & WANG, 2022). According to MICHELIN et al. (2022), the stages of the company life cycle have well-defined characteristics that interfere with the development of organizations. The stages in the company life cycle present different opportunities and obstacles, so the aspects that impact each stage can also diversify. According to MORETTI & BIANCARDI (2020), the companies' configurations influence the IA, such as the period that the company is experiencing.

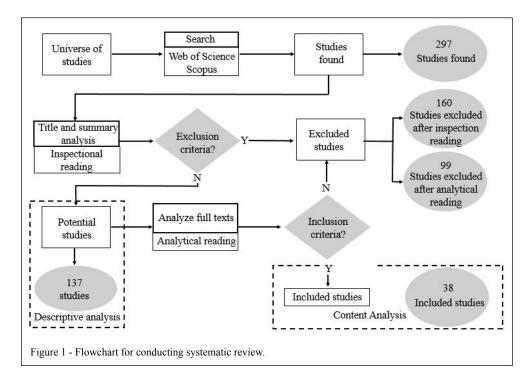
Given the increasing competitiveness in the agricultural sector and the importance of managing IA according to the life cycle stages of companies, this paper seeks to answer two questions: (i) what are the IA that impact the performance of companies in the agricultural sector? (ii) how do IA impact the life cycle stages of agricultural sector enterprises? This paper identified the IA that generate impacts in companies of the agricultural sector in the different stages of the life cycle of the companies. Besides the introductory chapter, this paper contains the research methodology, the results obtained, the theoretical and practical implications, and the final considerations.

## MATERIALS AND METHODS

The method used to analyze the articles was the systematic review, which presents a research protocol that allows the identification, selection and extraction of the studies (DRESCH & LACERDA, 2016). In addition to enabling an orderly searching that encompasses materials related to the topic, the systematic review facilitates the analysis of the content of the articles. Figure 1 shows the steps of the systematic review.

To encompass the impact of intangibles on the agricultural sector in general, the keywords used to develop the search string were "intangible" and "agriculture". According to the keywords, the search string encompasses the scientific articles that in some way cite the performance of IA in the agricultural sector. The search string used was: ("intangible aspect\*" OR "intangible indicator\*" OR "intangible asset\*" AND (agric\*). The search string assists in identifying the intangible aspects that impact companies in the agricultural sector, as presented by different authors.

The scientific articles explored by the systematic review covered all years of research, as all areas of study. The search does not limit the research and covers all scientific studies that can contribute to the theme. For the quality of the articles identified, the search included only complete studies published



in periodicals and events. Only English, Spanish and Portuguese languages were considered.

The search string was applied to the Scopus database (SCOPUS, 2022), which has the largest number of peer-reviewed abstracts and citations, and to the Web of Science, which has full texts available in more than 45,000 periodicals (Web of Science, 2022). In applying the string, the systematic review identified 297 articles. The Mendeley software (Version: 1803) helped in the organization and analysis of the 297 articles found, besides allowing the identification and exclusion of duplicate articles. In addition, the software contributed to inspectional reading, including reading the titles and abstracts of the selected materials. Mendeley software features the ability to build a library of articles that facilitates the investigation of scientific literature.

The first filter of articles is called inspection reading. In this step of the systematic review, the titles and abstracts of the articles were analyzed. As exclusion criteria, articles that did not present a title or abstract identifying any IA of impact for the agricultural sector were excluded. After the inspectional reading, 160 articles did not have any relationship with the research theme in the title or abstract; therefore, they were excluded. The inspectional reading allowed the exclusion of 160 articles, selecting 137 as potential contributors to the paper.

The analytical reading constituted the complete reading of the 137 selected scientific articles. The thorough reading of the articles clarified which articles were related to the topic of the study. As an exclusion criterion, articles that did not present any citation of IA impacting companies in the agricultural sector anywhere in their study were excluded. Thus, 99 articles were excluded in the analytical reading stage. A total of 38 articles that presented the analysis of IA related to the agricultural sector were selected.

The development of the systematic review was essential to identify and analyze the IA that generate impact in companies in the agricultural sector presented in the scientific literature. It was possible to diagnose that the scientific literature identifies the importance of IA in different fields that contribute to the agricultural sector. Upcoming chapters highlighted how IA impact the agricultural sector, as other information was diagnosed by the systematic review.

## RESULTS AND DISCUSSION

The systematic literature review enabled the identification of the IA that generate

impact on companies in the agricultural sector. The table 1 presents all the intangibles identified as the authors define their characteristics and impact on organizations.

In order to diagnose in which stages of the company's life cycle the intangible aspects generate impact, this research uses the model by MICHELIN et al. (2022), shown in figure 2.

MICHELIN et al. (2022)comparisons between several company life cycle models proposed by authors in the scientific literature and the model proposed by FISK (2009). FISK (2009) uses easy vocabulary to understand for managers present in industries. The author works heavily with consultancies, literary works, and appearances at events. The authors' main insights and awards are available on their website. FISK'S (2009) model identifies seven stages in the life cycle of companies: Create, Launch, Stabilize, Extend, Mature, Evolve and Exit. Analyzing these stages helps managers understand the company's context and is essential to overcoming challenges and seizing market opportunities (MICHELIN et al., 2022).

The division of the next subchapters follows the life cycle stages of companies. The designation of the stages follows the suggestion of FISK (2009), but the characteristics of each stage include the comparison of MICHELIN et al. (2022). Thus, this research analyzes different factors within each stage of the companies. In each subchapter, the IA that affect the respective life cycle stages of the companies are presented.

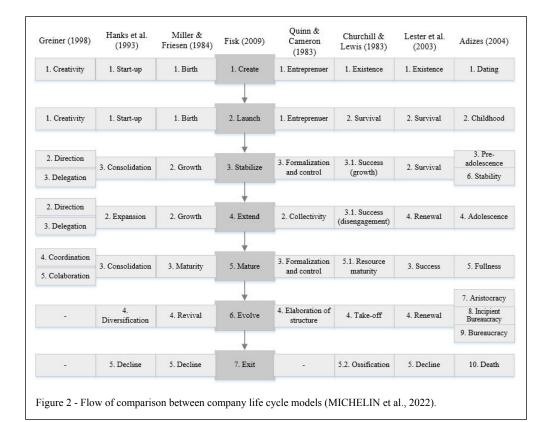
#### 1.1 Create

The first stage in the life cycle of companies is called "Create" (FISK, 2009). The analysis of the best market opportunities and the initial structuring of the company are the focus of the initial stage. Business founders must develop an initial plan that considers available financial resources, target audience, and costs for their first products (FISK, 2009).

MICHELIN et al. (2022) compares the Create stage (FISK, 2009) with the "Existence" (LESTER et al., 2003) and "Dating" (ADIZES, 2004) stages. In both stages, the key competencies required for business creation, entrepreneurial skills and creativity, prove essential for market knowledge and solution development. Business conception requires clear ideas and good communication with partners, and the create stage requires inspiration from the founders and investigation of market conditions. Table 2 contains the IA that affects the Create stage.

Table 1 - Intagible assets and authors.

Intangible aspects	Authors
Human Capital	CASTILLA-POLO& SÁNCHEZ-HERNÁNDEZ, 2020; KHAN et al., 2016;; SUGIARTO et al., 2019; TEJADA-MALASPINA& UN JAN, 2019; VARGAS-CONTRERAS et al., 2018
Intelectual Capital	ABRUDAN et al., 2022; CASTILLA-POLO; SÁNCHEZ-HERNÁNDEZ, 2020; KHAN et al., 2016; NGUYEN-ANH et al., 2022; PIROGOVA et al., 2020; SUGIARTO et al., 2019; SVISTUNOV et al., 2019; TICHÁ, 2008; VARGAS-CONTRERAS et al., 2018; ZHANG & WANG, 2022
Social Capital	MOYO et al., 2017
Structural Capital	MORIGGI, 2020; SUGIARTO et al., 2019; TEJADA-MALASPINA; UN JAN, 2019
Organizational Capital	VARGAS-CONTRERAS et al., 2018; WANG, et al., 2022
Relational Capital	KHAN et al., 2016; SUGIARTO et al., 2019; TEJADA-MALASPINA& UN JAN, 2019; VARGAS-CONTRERAS et al., 2018
Member involvement	HAMMAD AHMAD KHAN et al., 2016
Pro activity	BASELICE et al., 2021
Resources	ROSA et al., 2004
Values	GRUBBSTRÖM & SOOVÄLI-SEPPING, 2012
Tradition	GRUBBSTRÖM & SOOVÄLI-SEPPING, 2012
Knowledge transfer (farm specific capital)	GRUBBSTRÖM & SOOVÄLI-SEPPING, 2012
Characteristics of entrepreneurs	MORIGGI, 2020
Professional qualification	WANG, X. et al., 2022
Know How	ANDONOVA & RUÍZ-PAVA, 2016
Knowledge	WANG, X. et al., 2022
Connections with the place	TREJO et al., 2020
Computer applications	ARIAS-ROBLES & ALARCÓN, 2021
Technological Capital	VARGAS-CONTRERAS et al., 2018
Patent	ANDONOVA & RUÍZ-PAVA, 2016; PATTERSON& HAYENGA, 1995
Industrial property	ARIAS-ROBLES & ALARCÓN, 2021
Intelectual property	NGUYEN-ANH et al., 2022; VIEIRA et al., 2012
Innovative Property	OCAK & FINDIK, 2019
R&D	ARIAS-ROBLES & ALARCÓN, 2021; AZIN & BT ALIAS, 2019; NGUYEN-ANH et al., 2022; WANG, et al., 2022
Innovation capital	ZHANG & WANG, 2022
Innovation	ALONSO et al., 2019
Administrative concessions	ARIAS-ROBLES & ALARCÓN, 2021
Finance strategy	ZAKIROVA et al., 2020
Databases	OCAK &FINDIK, 2019
Social services	BASELICE et al., 2021
Brand	ANDONOVA & RUÍZ-PAVA, 2016; BEVERLAND, 2007; PATTERSON & HAYENGA, 1995; SPORLEDER & LIU, 2007; WANG, 2018; WANG, et al., 2022
Economic competence	OCAK & FINDIK, 2019
Skills	ZHANG& WANG, 2022
Time	GUSEV et al., 2021
Costumer behavior	MCNEILL& HALE, 2016; ROSA et al., 2004
Development	RUIZ GUERRA et al., 2018
Goodwill	AZIN& BT ALIAS, 2019; KEDRON, 2020; PATTERSON& HAYENGA, 1995
Confidence	ZHANG & WANG, 2022
Cooperativism	CASTILLA-POLO& SÁNCHEZ-HERNÁNDEZ, 2020; MOYO et al., 2017
Animal welfare	JERLSTRÖM et al., 2022
Reputation	GRACA& ARNALDO, 2016
Market research	WANG,. et al., 2022
Publicity	WANG, et al., 2022
Natural Capital	MOYO et al., 2017



## 1.2 Launch

The "Launch" stage is the second stage of the companies' life cycle and focuses on building brand equity (FISK, 2009). The most important goals for the company are knowledge transfer, initial sales, promised delivery, and maximizing the impact of the launch with the goal of building awareness of the new brand, affinity partners, and delivery of products and services. It is important for managers to understand the obstacles that need to be overcome to take the business to a higher level (MICHELIN et al., 2022).

At the beginning of the stage the company develops its first transactions and contacts in the market, shows signs of behavioral change and begins to use methods to develop its processes in a standardized and efficient way (FISK, 2009). Compare "Launch" stage with the life cycle studies of other authors, MILLER & FRIESEN (1984) with the growth stage and HANKS et al (1994) with the expansion phase. Both authors argued that a company should ascend to increase its market volume and conquer the competitive space. Table 3 contains the IA that affects the Launch stage.

## 1.3 Stabilize

The third stage of the company life cycle is referred to as stabilization and focuses on the consolidation of the firm in the marketplace (FISK, 2009). MILLER & FRIESEN (1984) assumed that the third stage refers to the stability of a company, which determines its growth and development. The organization has already reached a certain level of behavior and knows the resources and requirements of the specific market.

The main actions in the stabilize stage encompass the formation of a niche in the market and customers, along with growth strategies to improve efficiency in processes (FISK, 2009). Marketing, sales and outsourcing actions should be maintained to create value for the company. Authors MILLER & FRIESEN (1984) define company stabilization as a stage of market consolidation, but also an opportunity to create business expansion strategies. Table 4 contains the IA affecting the Stabilization stage.

## 1.4 Extend

"Extend" is the fourth stage of FISK'S (2009) life cycle, also referred to as the collective

Table 2 - Impact of the Intangible aspects in "Create" stage.

Intangible aspects	Impact of the Intangibles aspects in the "Create"
Human Capital	Skills and knowledge for business planning and structuring, taking into account market constraints and opportunities.
Intelectual Capital	Ability to use creativity to produce innovation. Difficult-to-replicate asset that can develop unique solutions for business creation.
Pro activity	Pro activity to put planning into practice and carry out actions to create the company.
Characteristics of entrepreneurs	Entrepreneurial characteristics that drive innovation, planning, and business structuring.
Professional qualification	Techniques and skills developed in professional qualification that helps in the development and implementation of solutions.
Know how	Intuition and the knowledge of how to implement ideas to start a business.
Finance strategy	Resource planning for building the business. Analysis of future costs and revenues.
Confidence	This stage requires the confidence of the founder who is creating a new company. Important for the development of innovation.
Animal welfare	Aspect characteristic of the agricultural sector. The initial structuring already considers how the processes will be constituted so that the animal does not suffer during its development.
Natural Capital	Planning and initial structuring of the business consider the natural capital, which covers the quality of soil, water, temperature, and environmental factors.

stage (QUINN & CAMERON, 1983), success (LEWIS & CHURCHILL, 1983), growth (MILLER & FRIESEN, 1984), expansion (HANKS et al., 1994), delegation and direction (GREINER, 1997), renewal (LESTER et al., 2003), or adolescence (ADIZES, 2004), according to MICHELIN et al.

(2022). For a firm to expand, it must innovate through market development activities, product development activities, or both, and thus strategies such as mergers and acquisitions or hiring employees for support activities are common in this stage (FISK, 2009; MICHELIN et al., 2022).

Table 3 - Impact of the Intangible aspects in "Launch" stage.

Intangible aspects	Impact of the Intangibles aspects in the "Launch"
Human Capital	Development of employees to improve their knowledge and experience and increase the competitiveness of the company.
Intelectual Capital	The team's knowledge of the market and how to make the most impact when launching their products or services.
Organizational Capital	Tools to support employee technical development, promote higher productivity, and ensure effective innovation.
Relational Capital	Build and strengthen relationships with key stakeholders.
Member involvement	Discipline and commitment to the company to formulate effective management for the organization.
Values	Clarity of the company's values to the public at the business launch stage.
Know How	Experience and understanding of the business and market the company is entering. Important for the implementation of the introductory measures.
Technological Capital	Technological expertise to support brand launch activities.
Innovative Property	It builds strong relationships with the organization's creative and has a direct relationship with media channels and the marketing team.
R&D	The ability of a company to discover and produce new resources to provide superior goods and services to the competition.
Brand	Represents the culture and the products or services offered by the company. Important for the phase in which the company introduces its business to the market.
Confidence	Managerial confidence is important for the stage that gives the public's first impression of the company.
Advertising	Characteristic development capability of marketing products and services. Purpose of effective dissemination development.

Table 4 - Impact of the Intangible aspects in "Stabilize" stage.

Intangible aspects	Impact of the Intangible aspects in the "Stabilize"
Human Capital	Ability of managers to analyze the main positive points and structure new steps for the development of the company.
Intelectual Capital	Knowledge developed within the company that should be used to identify market niches and strategies to exploit opportunities.
Social Capital	Relationships between employees that create internal stability.
Structural Capital	Create a strong culture to develop processes and routines, promote innovation, intellectual property, and good organizational practices.
Organizational Capital	Increase internal productivity of employees by stimulating creativity and encouraging communication in solving problems. This leads to internal growth of the organization.
Relational Capital	Establishing connections with key stakeholders solidifies partners in the development of the organizational structure.
Member involvement	The active participation of members in internal events has an impact on corporate culture, strengthens bonds and creates value.
Values	Emotional relationship associated with the success of the company. Dependent on the owner's emotional attachment to the company.
Know How	Understanding the result of experience in relation to the company's processes and planning new steps.
Customer behavior	Stage in which the company tries to find a gap in the market. It is important to know the behavior of the target audience.
Technological Capital	Mastery of technology to determine the most important points of the company. Negative factors can also be examined using technology.
Innovative property	Innovative property defines the values of capitalized research and development. Stage that enables research for growth.
R&D	The company's ability to develop studies of defined performances in order to promote new strategies.
Finance strategy	Data organization for the management of financial flows. Important to keep the company on the road to prosperity.

Satisfying customers and achieving operational excellence are the priorities of expansion, but the investment costs in physical structure and sales promotion, as well as the high bureaucratic burden, must be closely monitored and managed in the best possible way (MICHELIN et al., 2022). Table 5 summarizes the main IA and their impact on the "Extend".

#### 1.5 Mature

In the "Mature", the most important word is concentration on the most important resources, products and customers (FISK, 2009). Since market demands and changes, as well as investment priorities, must be carefully analyzed, indicator management is of paramount importance in this stage to make the best decisions by using the most important internal characteristics of the company (MICHELIN et al., 2022).

If they have no interest in moving forward, a mature company is already consolidated, and companies can be content to remain at that stage (MICHELIN et al., 2022). Maturity, according to

Michelin et al. (2022), can also be referred by other terms such as formalization and control (QUINN& CAMERON, 1983), resource maturity (LEWIS& CHURCHILL, 1983), consolidation (HANKS et al., 1994), coordination and collaboration (GREINER, 1997), success (LESTER et al., 2003), and abundance (ADIZES, 2004). The IA and their respective effects on Mature stage are listed in table 6.

# 1.6 Evolve

"Evolve" is the sixth stage in the company life cycle and focuses on strategic business innovation (FISK, 2009). Even if the company has already reached the maturity stage and is consolidated in the market, at a certain point managers need to understand that the company needs to evolve and move to a higher level (MICHELIN et al., 2022).

The company that reaches the Evolve stage shows that it adapts to the dynamics of the market and is flexible to find new ways to grow. The main characteristics of this stage include the innovation and the business model, which depend on the energy of the executives and the employees responsible for

Table 5 - Impact of the Intangible aspects in "Extend" stage.

Intangible aspects	Impact of the Intangible aspects in the "Extend"
Human Capital	The ability of managers to use their skills and knowledge to manage complex activities and identify new opportunities.
Intelectual Capital	The ability to work as a team in dealing with bureaucracy and formal control of processes, structures, and customers.
Social Capital	Interpersonal relationship networks help to identify requirements and new ideas and to use internal competencies.
Structural Capital	In the extend stage, process management becomes more important than overall goals and must be well managed.
Organizational Capital	It has a positive impact on the ability to innovate products and processes to grow the business.
Relational Capital	Stakeholder relationships provide a useful macro-environmental analysis for developing strategies to expand the market or product category.
Member involvement	In inter-company collaboration, member participation can influence innovation and expansion opportunities.
Proactivity	Proactivity with regard to new opportunities and the understanding that the organization supports change to expand the business.
Professional qualification	The rate of professional qualification has a positive impact on sustainable growth and is associated with the level of innovation, variables that are essential for the expansion of the company.
Know How	Managers' intuition and accumulated knowledge help manage bureaucracy and determine investment priorities.
Technological Capital	The mastery of technology by managers and employees is directly related to the company's ability to innovate and generate value through new products.
Patent	Patented products or processes can help companies differentiate themselves in the marketplace and gain competitive advantage in new markets.
Innovative property	Knowledge acquired through R&D and creative activities becomes part of corporate culture and employees (see Intelectual Capital and Know How).
Intelectual property	Intellectual property rights for products and processes play a strategic, developmental role that enables companies to expand.
R&D	Expand the technological capabilities and increase other intangibles, as well as determine whether investments improve the company's efficiency and productivity.
Innovation Capital	The ability to innovate and invest in innovation drives the continuous development of expanding companies.
Databases	The information obtained from the databases is valuable for scale-up analyzes.
Brand	Brands help companies position themselves in new markets and give visibility to new products coming out of the extend stage.
Market research	A market-oriented company is able to understand the environment in which it operates and in which it intends to expand and is therefore better able to innovate.
Consumer behavior	Shaping consumer perceptions in a relatively short period of time is an effective strategy for understanding demand and determining which market to expand into.
Goodwill	The reputation acquired with goodwill enhances the company beyond its market value if the company is sold.
Advertising	Investments in advertising have a lasting positive effect on profitability and the value of the company.
Reputation	A company's ability to add value over its competitors gives it a competitive advantage in unknown markets.

the management of the company. MICHELIN et al. (2022) compare the Evolve stage (FISK, 2009) with the stages of the corporate life cycle of other authors, such as the stages of diversification (HANKS et al., 1994) and renewal (LESTER et al., 2003). Both authors argue that this stage represents an expansion of the company so that it can reach its development peak if it is successful in this stage. Table 7 contains the IA that affects the Evolve stage.

## 1.7 Exit

The last stage of the life cycle of companies is called "Exit" and represents the end of the company or the definition of an alternative to the end (FISK, 2009). Authors Churchill and LEWIS (1983), MILLER & FRIESEN (1984), and HANKS et al. (1994) refer to the last stage as decline, where the company finds itself weakened for some reason and must take a new path.

Table 6 - Impact of the Intangible aspects in "Mature" stage.

Intangible aspects	Impact of the Intangible aspects in the "Mature"
Human Capital	Ability of managers to select indicators and resources, products and customers to manage
Intelectual Capital	Team knowledge to simplify the internal structure and strategies.
Structural Capital	Ability to manage the main structures, processes and systems related to the established focus of business optimization.
Organizational Capital	Transformation of individual tacit knowledge into business resources useful for building competitive advantage in the mature stage.
Member involvement	In business-to-business collaboration, the active participation and loyalty of members impacts individual business performance.
Professional qualification	Professional qualification has a positive relationship with enterprise productivity, which depends on the management of indicators in the maturity stage of the enterprise.
Know How	The practical experience gained by managers contributes to making management decisions with more maturity.
Technologial Capital	The better the company masters the technology, the lower the costs of database and web management, which are the most important investments in the mature stage.
Patent	Since a patent can last for several years and it is a profitable product or process, it can be selected as a business focus and generate money for the company's other strategies.
Innovative property	The knowledge acquired through R&D and creative activities becomes part of the corporate culture and the employees (see Intelectual Capital e Know How).
Intelectual property	The intellectual property of products and processes protects the company's other intangible assets and ensures its stability.
R&D	Research and development projects make an important contribution to improving efficiency and productivity in established companies.
Databases	The database is one of the main cost factors in the maturity phase and must be well managed.
Financial strategy	Cash flow management is done through asset valuation and is a critical factor in the success of companies in the mature stage.
Brand	Brands provide differentiation and can be renewed in the mature stage.
Costumer behavior	Understanding customer needs makes it possible to leverage the internal qualities of mature companies.
Goodwill	The reputation acquired with goodwill enhances the company beyond its market value if it is sold.
Animal welfare	Animal-friendly products are perceived by consumers as higher quality, healthier, more hygienic and safer; and may therefore, cost more.
Reputation	A company's ability to add value over its competitors gives it a lasting competitive advantage in the markets in which it operates.

The most important actions in this stage include conducting a retrospective and rational analysis of the company. The options of renewal or closure must be considered as it is an important decision for the future of the company (MICHELIN et al., 2022). A retrospective and rational analysis of the company must be conducted, so the options of renewal or closure must be considered (MICHELIN et al., 2022). The exit stage is characterized by important decisions made by managers, so IA should influence these activities. Table 8 shows the IA that affect the exit stage of companies and the explanation for the caused impact.

## **CONCLUSION**

The IA present in the stages of the life cycle of the rural company can affect the competitiveness of the business in the agricultural market in different

ways. For example, Human Capital, Intellectual Capital and Know How are present in all stages of the agricultural companies' life cycle, which demonstrates that intangible aspects related to people tend to influence the performance from the beginning to the end of their development business process. Trust, on the other hand, is more important in early stages (Create and Launch) and final stages (Evolve and Exit) of the business cycle. IA such as Innovative Property and Member involvement are concentrated in the intermediate phases of the cycle, like Stabilize, Extend, Mature and Evolve.

So, the study brings a new contribution by bringing together the intangible aspects present in rural activities and relating them to each stage experienced by the company. This can help entrepreneurs understand what to look for and where to invest when it comes to intangible resources, aiming to increase business performance in relation to the

Table 7 - Impact of the Intangible aspects in "Evolve" stage.

Intangible aspects	Impact of the Intangible aspects in the "Evolve"
Human Capital	Managers' ability to use their skills and knowledge to identify opportunities for business expansion.
Intelectual Capital	Innovate to adapt to market dynamics. Use of trade secrets to expand the business.
Social Capital	Interaction with colleagues helps motivate the company's employees. Bonding is important in order to develop.
Organizational capital	It is about developing innovative processes and how the company restructures itself in the face of market changes.
Pro activity	Pro activity to new opportunities and understanding that the organization supports change to grow the business.
Human Resources	Need for qualified professionals for various functions that may be required when changes occur within the company.
Characteristics of entrepreneurs	It influences the managers' perception to understand the moment when the company needs to innovate and can generate positive aspects to stimulate the employees.
Formação profissional	Methods and techniques acquired in professional training can help the business evolve.
Know how	The intuition and analysis of market opportunities resulting from experience help companies in their innovation and flexibility measures.
Financial strategy	Definition of financial resources used for each activity. As a rule, investments are required in the development phase of the company.
Brand	Defining how the brand should manifest itself in a new market or how new products and services should be presented by the brand.
Costumer behavior	Research consumer behavior to understand new demands and market changes. Innovative products and services depend on consumer acceptance.
Confidence	Confidence in the knowledge and skills acquired to change or flex the company's business model. It is about change that must be managed with confidence.
Advertising	Relevant to the dissemination of the company's new actions. The company's expansion can reach new audiences that need information.

Table 8 - Impact of the Intangible aspects in "Exit" stage.

Intangible aspects	Impact of the Intangible aspects in the "Exit"
Human Capital	Individual experiences that provide knowledge and skills to analyze and make rational decisions between renewing or closing the business.
Intelectual Capital	The decision between renewal or closure is influenced by the knowledge developed in the organization. Renewal depends on how innovative the company is.
Proactivity	After recognizing that the company is in decline, one must be proactive in recognizing the need for change and making difficult decisions for the company.
Characteristics of entrepreneurs	The decision between renewing or closing the business depends on the thoughts and attitudes of the business owners.
Know how	Intuitive skills acquired through experience are important to interpret the situation of the company in order to make the most favorable decision.
Financial strategy	Fundamental to the decision of whether or not to cease business activity. Determining the strategy for the use of this capital also determines the future of the company.
Brand	Diagnosing the positioning of the brand and how the company can use it to renew the business. Realizing that the brand is weakening can also determine whether or not to close the business.
Costumer behavior	Observing consumer behavior to understand if the company is aligned with the market.  Renewal can be based on new market demands.
Goodwill	Analyzing the company's goodwill and value in the market to determine the best option between closing or changing the company's strategies.
Confidence	At this stage, important decisions must be made for the company. Confidence in the ability to make the most favorable decision for the company is essential.

stage it is in. The study also generates opportunities for the scientific community. Future applied research can test the model built in business environments that are in different stages of life and compare whether IA impacts organizational performance at different levels.

All this helps to strengthen the interconnection between university, business and society, contributing efficiently to the economic development of the community. We also provide some information that allows rural entrepreneurs to better understand their performance and how their actions are reflected in their behavior. In addition, studies involving the life cycle of companies and intangible aspects help rural companies to position themselves competitively.

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# DECLARATION OF CONFLICT OF INTEREST

The authors declare no conflict of interest.

## **AUTHORS' CONTRIBUTIONS**

All authors contributed equally for the conception and writing of the manuscript. All authors critically revised the manuscript and approved of the final version.

#### REFERENCES

ABRUDAN, D. B. et al. Linking green intellectual capital with green innovation: Examining the roles of green dynamic capabilities and "motivation to achieve legitimacy". **Agricultural Economics** (Czech Republic), v.68, n.7, p.250–258, 2022. Available from: <a href="https://agricecon.agriculturejournals.cz/artkey/age-202207-0002\_linking-green-intellectual-capital-with-green-innovation-examining-the-roles-of-green-dynamic-capabilities-and.php">https://agricecon.agriculturejournals.cz/artkey/age-202207-0002\_linking-green-intellectual-capital-with-green-innovation-examining-the-roles-of-green-dynamic-capabilities-and.php</a>. Accessed: Feb. 14, 2023. doi: 10.17221/97/2022-AGRICECON.

ADIZES, I. **Managing corporate lifecycles**. The adizes institute publishing, 2004.

ALONSO, A. D. et al. Understanding approaches to innovation through the dynamic capabilities lens: a multi-country study of the wine industry. **International Journal of Innovation Management**, v.23, n.6, 2019. Available from: <a href="https://ideas.repec.org/a/wsi/ijimxx/v23y2019i06ns1363919619500543.html">https://ideas.repec.org/a/wsi/ijimxx/v23y2019i06ns1363919619500543.html</a>. Accessed: Feb. 8, 2023. doi: 10.1142/S1363919619500543.

ANDONOVA, V.; RUÍZ-PAVA, G. The role of industry factors and intangible assets in company performance in Colombia. **Journal of Business Research**, v.69, n.10, p.4377–4384, 2016. Available from: <a href="https://www.sciencedirect.com/science/article/abs/pii/S0148296316302673">https://www.sciencedirect.com/science/article/abs/pii/S0148296316302673</a>. Accessed: Feb. 17, 2023. doi: 10.1016/j. jbusres.2016.03.060.

ARIAS-ROBLES, M.; ALARCÓN, S. Economic efficiency of colombian agricultural companies: An empirical study of stochastic production frontiers. **DYNA (Colombia)**, v.88, n.216, p.48–54, 2021. Available from: <a href="https://revistas.unal.edu.co/index.php/dyna/article/view/85925">https://revistas.unal.edu.co/index.php/dyna/article/view/85925</a>>. Accessed: Feb. 12, 2023. doi: 10.15446/dyna.v88n216.85925.

AZIN, N. A. B. N.; BT ALIAS, N. Value relevance of intangible assets before and after FRS 138 adoptions: Evidence from Malaysia. **International Journal of Financial Research**, v.10, n.3, p.267–279, 2019. Available from: <a href="https://ideas.repec.org/a/jfr/ijfr11/v10y2019i3p267-279.html">https://ideas.repec.org/a/jfr/ijfr11/v10y2019i3p267-279.html</a>. Accessed: Jan. 11, 2023. doi: 10.5430/ijfr.v10n3p267.

BASELICE, A. et al. A conceptual framework for the evaluation of social agriculture: An application to a project aimed at the employability of young people neet. **Sustainability (Switzerland)**, v.13, n.15, 2021. Available from: <a href="https://www.mdpi.com/2071-1050/13/15/8608">https://www.mdpi.com/2071-1050/13/15/8608</a>. Accessed: Feb. 04, 2023. doi: 10.3390/su13158608.

BEVERLAND, M. Can cooperatives brand? Exploring the interplay between cooperative structure and sustained brand marketing success. **Food Policy**, v.32, n.4, p.480–495, 2007. Available from: <a href="https://www.sciencedirect.com/science/article/abs/pii/S0306919206001023?via%3Dihub">https://www.sciencedirect.com/science/article/abs/pii/S0306919206001023?via%3Dihub</a>. Accessed: Jan. 19, 2023. doi: 10.1016/j.foodpol.2006.10.004.

CASTILLA-POLO, F.; SÁNCHEZ-HERNÁNDEZ, M. I. Cooperatives and sustainable development: A multilevel approach based on intangible assets. **Sustainability (Switzerland)**, v.12, n.10, 2020. Available from: <a href="https://www.mdpi.com/2071-1050/12/10/4099">https://www.mdpi.com/2071-1050/12/10/4099</a>. Accessed: Feb. 12, 2023. doi: 10.3390/su12104099.

DRESCH, A.; LACERDA, D. P. Apresentação Design Science e Design Science Research: Método de Pesquisa para o avanço da Ciência e da Tecnologia. **Gmap | Unisinos**, p.1–72, 2016. Available from: <a href="https://edisciplinas.usp.br/mod/url/view.php?id=4789786">https://edisciplinas.usp.br/mod/url/view.php?id=4789786</a>. Accessed: Feb. 09, 2023.

FAO. World Food and Agriculture – Statistical Yearbook 2022. Rome: 2022. Available from: <a href="https://doi.org/10.4060/cc2211en">https://doi.org/10.4060/cc2211en</a>. Accessed: Dec. 25, 2023.

FISK, P. Business genius. Bookman, 2009.

GRACA, C. A. M.; ARNALDO, C. The role of corporate reputation on co-operants behavior and organizational performance. **Journal of Management Development**, v.35, n.1, p.17–37, 2016. Available from: <a href="https://www.emerald.com/insight/content/doi/10.1108/JMD-08-2014-0079/full/html">https://www.emerald.com/insight/content/doi/10.1108/JMD-08-2014-0079/full/html</a>>. Accessed: Jan. 15, 2023. doi: 10.1108/JMD-08-2014-0079.

GREINER, L. E. Evolution and Revolution as Organizations Grow. **Family Business Review**, v.10, n.4, p.397–409, 1997. Available from: <a href="https://journals.sagepub.com/doi/10.1111/j.1741-6248.1997.00397.x">https://journals.sagepub.com/doi/10.1111/j.1741-6248.1997.00397.x</a>. Accessed: Feb. 09, 2023. doi: 10.1111/j.1741-6248.1997.00397.x.

GRUBBSTRÖM, A.; SOOVÄLI-SEPPING, H. Estonian family farms in transition: a study of intangible assets and gender issues in

generational succession. **Journal of Historical Geography**, v.38, n.3, p.329–339, 2012. Available from: <a href="https://www.sciencedirect.com/science/article/abs/pii/S0305748812000424?via%3Dihub">https://www.sciencedirect.com/science/article/abs/pii/S0305748812000424?via%3Dihub</a>. Accessed: Feb. 14, 2023. doi: 10.1016/j.jhg.2012.03.001.

GUERRA, I. R. et al. Multidimensional research about oleotourism attraction from the demand point of view. **Journal of Tourism Analysis**, v.25, n.2, p.114–128, 2018. Available from: <a href="https://www.emerald.com/insight/content/doi/10.1108/JTA-06-2018-0017/full/html">httml</a>- Accessed: Dec. 24, 2022. doi: 10.1108/JTA-06-2018-0017.

GUNAWAN, R. M. B.; WIDODO, W. Intellectual Capital and Corporate Governance Affect Organizational Performance through Competitive Advantage: Evidence from Indonesia. Quality - Access to Success, v.23, n.189, p.245–252, 2022. Available from: <a href="https://admin.calitatea.ro/assets/Documents/Archive/PDF/20220806\_cc990102-7262-4737-92f0-d96722a9b99e.pdf">https://admin.calitatea.ro/assets/Documents/Archive/PDF/20220806\_cc990102-7262-4737-92f0-d96722a9b99e.pdf</a>. Accessed: Jan. 19, 2023. doi: 10.47750/QAS/23.189.28.

GUSEV, V. et al. Time as a key resource for the effective operation of the Russian agro-industrial complex in digital transformation context. **IOP Conf. Series: Earth and Environmental Science 937 (2021)**, 2021. Available from: <a href="https://iopscience.iop.org/article/10.1088/1755-1315/937/3/032074">https://iopscience.iop.org/article/10.1088/1755-1315/937/3/032074</a>. Accessed: Feb. 12, 2023. doi: 10.1088/1755-1315/937/3/032074.

HANKS, S. H. et al. Tightening the Life-Cycle Construct: A Taxonomic Study of Growth Stage Configurations in High-Technology Organizations. **Entrepreneurship Theory and Practice**, v.18, n.2, p.5–29, 1994. Available from: <a href="https://journals.sagepub.com/doi/10.1177/104225879401800201">https://journals.sagepub.com/doi/10.1177/104225879401800201</a>>. Accessed: Jan. 18, 2023. doi: 10.1177/104225879401800201.

HANSON, E. D. et al. The adoption and usage of precision agriculture technologies in North Dakota. **Technology in Society**, v.71, 2022. Available from: <a href="https://linkinghub.elsevier.com/retrieve/pii/S0160791X22002287">https://linkinghub.elsevier.com/retrieve/pii/S0160791X22002287</a>>. Accessed: Feb. 12, 2023. doi: 10.1016/j.techsoc.2022.102087.

HARIYATI, H.; TJAHJADI, B. Contingent Factors Affecting the Financial Performance of Manufacturing Companies: The Case of East Java, Indonesia. **Asian Journal of Business and Accounting**, v.11, n.1, p.121–150, 2018. Available from: <a href="https://ajba.um.edu.my/article/view/12151/7928">https://ajba.um.edu.my/article/view/12151/7928</a>. Accessed: Feb. 12, 2023. doi: 10.22452/ajba.vol11no1.5.

JERLSTRÖM, J. et al. A formal model for assessing the economic impact of animal welfare improvements at bovine and porcine slaughter. **Animal Welfare**, v.31, n.3, p.361–371, 2022. <a href="https://www.cambridge.org/core/journals/animal-welfare/article/formal-model-for-assessing-the-economic-impact-of-animal-welfare-improvements-at-bovine-and-porcine-slaughter/D1E3C7BF31A599AEAD07ED31BF6EA9D0>. Accessed: Feb. 11, 2023. doi: 10.7120/09627286.31.4.004.

KEDRON, M. Goodwill and its effect on share price of manufacturing and nonmanufacturing companies. Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis, v.68, n.2, p.373–381, 2020. Available from: <a href="http://acta.mendelu.cz/artkey/acu-202002-0009\_goodwill-and-its-effect-on-share-price-of-manufacturing-and-nonmanufacturing-companies.">http://acta.mendelu.cz/artkey/acu-202002-0009\_goodwill-and-its-effect-on-share-price-of-manufacturing-and-nonmanufacturing-companies.</a> php>. Accessed: Dec. 23, 2023. doi: 10.11118/actaun202068020373.

 $KHAN, \ S. \ Z. \ et \ al. \ Investment \ in \ intangible \ resources \ and \ capabilities \ spurs \ sustainable \ competitive \ advantage \ and \ firm \ performance. \ \textbf{Corporate} \ \ \textbf{Social} \ \ \textbf{Responsibility} \ \ \textbf{and}$ 

**Environmental Management**, v.26, n.2, p.285–295, 2019. Available from: <a href="https://onlinelibrary.wiley.com/doi/10.1002/csr.1678">https://onlinelibrary.wiley.com/doi/10.1002/csr.1678</a>. Accessed: Feb. 8, 2023. doi: 10.1002/csr.1678.

KHAN, H. H. A. et al. Factors affecting performance of cooperatives in Malaysia. **International Journal of Productivity and Performance Management**, v.65, n.5, p.641–671, 2016. Available from: <a href="https://www.emerald.com/insight/content/doi/10.1108/IJPPM-05-2014-0077/full/html">https://www.emerald.com/insight/content/doi/10.1108/IJPPM-05-2014-0077/full/html</a>. Accessed: Feb. 14, 2023. doi: 10.1108/IJPPM-05-2014-0077.

LESTER, D. L. et al. Organizational Life Cycle: a Five-Stage Emperical Scale. **The International Journal of Organizational Analysis**, v.11, n.4, p.339–354, 2003. Available from: <a href="https://www.emerald.com/insight/content/doi/10.1108/eb028979/full/html">httml</a>- Accessed: Jan. 19, 2023. doi: 10.1108/eb028979.

LEWIS, V. L.; CHURCHILL, N. C. The Five Stages of Small Business Growth. University of Illinois at Urbana-Champaign's Academy for Entrepreneurial Leadership Historical. **Research Reference in Entrepreneurship**, 1983. Available from: <a href="https://papers.ssrn.com/sol3/papers.cfm?abstract\_id=1504517">https://papers.ssrn.com/sol3/papers.cfm?abstract\_id=1504517</a>. Accessed: Jan. 16, 2023.

MARRUCCI, L. et al. Using a life cycle assessment to identify the risk of "circular washing" in the leather industry. **Resources, Conservation and Recycling**, v.185, p.106466, 2022. Available from:<a href="https://www.sciencedirect.com/science/article/abs/pii/S0921344922003093?via%3Dihub">https://www.sciencedirect.com/science/article/abs/pii/S0921344922003093?via%3Dihub</a>. Accessed: Feb. 12, 2023. doi: 10.1016/j.resconrec.2022.106466.

MCNEILL, L.; HALE, O. Who shops at local farmers' markets? Committed loyals, experiencers and produce-orientated consumers. **Australasian Marketing Journal**, v.24, n.2, p.135–140, 2016. Available from: <a href="https://journals.sagepub.com/doi/10.1016/j.ausmj.2016.01.003">https://journals.sagepub.com/doi/10.1016/j.ausmj.2016.01.003</a>. Accessed: Feb. 14, 2023. doi: 10.1016/j.ausmj.2016.01.003.

MICHELIN, C. DE F. et al. A Qualitative Review of Market-based Company Life Cycle Models. **Business Perspectives and Research**, p.1–21, 2022. Available from: <a href="https://journals.sagepub.com/doi/10.1016/j.ausmj.2016.01.003">https://journals.sagepub.com/doi/10.1016/j.ausmj.2016.01.003</a>. Accessed: Jan. 15, 2023. doi: 10.1177/22785337221127133.

MILLER, D.; FRIESEN, P. H. A Longitudinal Study of the Corporate Life Cycle. **Management Science**, v.30, n.10, p.1161–1183, 1984. Available from: <a href="https://pubsonline.informs.org/doi/10.1287/mnsc.30.10.1161">https://pubsonline.informs.org/doi/10.1287/mnsc.30.10.1161</a>. Accessed: Feb. 7, 2023. doi: 10.1287/mnsc.30.10.1161.

MORETTI, F.; BIANCARDI, D. Inbound open innovation and firm performance. **Journal of Innovation & Knowledge**, v.5, n.1, p.1–19, 2020. Available from: <a href="https://www.sciencedirect.com/science/article/pii/S2444569X18300295?via%3Dihub">https://www.sciencedirect.com/science/article/pii/S2444569X18300295?via%3Dihub</a>. Accessed: Feb. 8, 2023. doi: 10.1016/j.jik.2018.03.001.

MORIGGI, A. Exploring enabling resources for place-based social entrepreneurship: a participatory study of Green Care practices in Finland. **Sustainability Science**, v.15, n.2, p.437–453, 2020. Available from: <a href="https://link.springer.com/article/10.1007/s11625-019-00738-0">https://link.springer.com/article/10.1007/s11625-019-00738-0</a>. Accessed: Feb. 14, 2023. doi: 10.1007/s11625-019-00738-0.

MOYO, C. S. et al. Perceptions of community-based field workers on the effect of a longitudinal biomedical research project on their sustainable livelihoods. **BMC Public Health**, v.17, n.1, 2017. Available from: <a href="https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-017-4138-6">https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-017-4138-6</a>. Accessed: Jan. 10, 2023. doi: 10.1186/s12889-017-4138-6.

- NGUYEN-ANH, T. et al. Do intangible assets stimulate firm performance? Empirical evidence from Vietnamese agriculture, forestry and fishery small- and medium-sized enterprises. **Journal of Innovation & Knowledge**, v.7, n.3, p.100194, 2022. Available from: <a href="https://linkinghub.elsevier.com/retrieve/pii/S2444569X22000348">https://linkinghub.elsevier.com/retrieve/pii/S2444569X22000348</a>>. Accessed: Feb. 09, 2023. doi: 10.1016/j.jik.2022.100194.
- OCAK, M.; FINDIK, D. The impact of intangible assets and sub-components of intangible assets on sustainable growth and firm value: Evidence from Turkish listed firms. **Sustainability (Switzerland)**, v.11, n.19, 2019. Available from: <a href="https://www.mdpi.com/2071-1050/11/19/5359">https://www.mdpi.com/2071-1050/11/19/5359</a>>. Accessed: Feb. 08, 2023. doi: 10.3390/su11195359.
- OMODARA, O, D. et al. Determinants of Institutional Credit Rationing Impact on the Net Farm Income of Catfish Processors in Nigeria. **Agriculturae Conspectus Scientificus**, v.86, n.4, p.361–373, 2021. Available from: <a href="https://hrcak.srce.hr/267396">https://hrcak.srce.hr/267396</a>. Accessed: Dec. 25, 2022.
- ROSA, M. P. et al. Spanish olive oil sector: Diagnosis and axes of development. **OCL Oleagineux Corps Gras Lipides**, v.11, n.3, p.189–198, 2004. Available from: <a href="https://www.ocl-journal.org/articles/ocl/abs/2004/03/ocl2004113p189/ocl2004113p189.html">https://www.ocl-journal.org/articles/ocl/abs/2004/03/ocl2004113p189/ocl2004113p189.html</a>. Accessed: Dec. 23, 2022. doi: 10.1051/ocl.2004.0189.
- PATTERSON, M. D.; HAYENGA, M. L. Valuing intangible assets: Newark and beyond. **Agribusiness**, v.11, n.4, p.371–381, 1995. Available from: <a href="https://onlinelibrary.wiley.com/doi/10.1002/1520-6297(199507/08)11:4%3C371::AID-AGR2720110408%3E3.0.CO;2-W>. Accessed: Jan. 15, 2023. doi: 10.1002/1520-6297(199507/08)11:4<371::AID-AGR2720110408>3.0.CO;2-W.
- PIROGOVA, O. et al. Intellectual capital of a trading company: Comprehensive analysis based on reporting. **Sustainability** (**Switzerland**), v.12, n.17, 2020. Available from: <a href="https://www.mdpi.com/2071-1050/12/17/7095">https://www.mdpi.com/2071-1050/12/17/7095</a>>. Accessed: Feb. 28, 2023. doi: 10.3390/su12177095.
- QUINN, R. E.; CAMERON, K. Organizational Life Cycles and Shifting Criteria of Effectiveness: Some Preliminary Evidence. **Management Science**, v.29, n.1, p.33–51, 1983. Available from: <a href="https://pubsonline.informs.org/doi/10.1287/mnsc.29.1.33">https://pubsonline.informs.org/doi/10.1287/mnsc.29.1.33</a>. Accessed: Jan. 19, 2023. doi: 10.1287/mnsc.29.1.33.
- SPORLEDER, T. L.; LIU, J. Growth-related measures of brand equity elasticity for food firms. **International Food and Agribusiness Management Review**, v.10, n.1, p.1–15, 2007. Available from: <a href="https://ideas.repec.org/a/ags/ifaamr/8172.html">https://ideas.repec.org/a/ags/ifaamr/8172.html</a>. Accessed: Feb. 19, 2023.
- SUGIARTO, M. et al. Strengthening the Farmers' Intellectual Capital of Kebumen Ongole Grade Cattle Related to Livestock Productions to Face the Industrial Revolution Era 4.0. Institute of Physics Publishing, 2019. Available from: <a href="https://iopscience.iop.org/article/10.1088/1755-1315/372/1/012006">https://iopscience.iop.org/article/10.1088/1755-1315/372/1/012006</a>. Accessed: Jan. 10, 2023.
- SVISTUNOV, O. et al. Strategic management of intellectual capital of the enterprise in the framework of informatization of the economy. **Academy of Strategic Management Journal**, v.18, n.Special Issue 1, p.1–9, 2019. Available from: <a href="https://www.abacademies.org/articles/strategic-management-of-intellectual-capital-of-the-enterprise-in-the-framework-of-informatization-of-the-economy-8921.html">https://www.abacademies.org/articles/strategic-management-of-intellectual-capital-of-the-enterprise-in-the-framework-of-informatization-of-the-economy-8921.html</a>>. Accessed: Feb. 09, 2023.

- TEJADA-MALASPINA, M.; UN JAN, A. An intangible-asset approach to strategic business-it alignment. **Systems**, v.7, n.1, 2019. Available from: <a href="https://www.mdpi.com/2079-8954/7/1/17">https://www.mdpi.com/2079-8954/7/1/17</a> Accessed: Jan. 19, 2023. doi: 10.3390/systems7010017.
- TICHÁ, I. Intellectual capital reporting. **Agricultural Economics**, v.54, n.2, p.57–62, 2008. Available from: <a href="https://agricecon.agriculturejournals.cz/artkey/age-200802-0002\_intellectual-capital-reporting.php">https://agricecon.agriculturejournals.cz/artkey/age-200802-0002\_intellectual-capital-reporting.php</a>>. Accessed: Feb. 25, 2023. doi: 10.17221/270-agricecon.
- TREJO, H. X. et al. Setting the scene for slow fashion: Digital explorations of New York's fibrescape. **Fashion, Style and Popular Culture**, v.7, n.2–3, p.281–295, 2020. Available from: <a href="https://">https://</a> intellectdiscover.com/content/journals/10.1386/fspc\_00019\_1>. Accessed: Feb. 15, 2023. doi: 10.1386/fspc\_00019\_1.
- VARGAS-CONTRERAS, J. A. et al. Trends in knowledge management and competitiveness in the supply chain of the dairy industry. Latin American and Caribbean Consortium of Engineering Institutions, 2018. Available from: <a href="https://laccei.org/LACCEI2018-Lima/full\_papers/FP400.pdf">https://laccei.org/LACCEI2018-Lima/full\_papers/FP400.pdf</a>. Accessed: Jan. 19, 2023. doi: 10.18687/LACCEI2018.1.1.400.
- VIEIRA, A. C. P. et al. Analysis of innovation management and intellectual property for the development of agribusiness. **Espacios**, v.33, n.10, p.12, 2012. Available from: <a href="https://www.revistaespacios.com/a12v33n10/12331012.html">https://www.revistaespacios.com/a12v33n10/12331012.html</a>>. Accessed: Feb. 28, 2023.
- WANG, G. Study on the Brand Construction of Regional Agricultural Products. 2018. p.130–133. Available from: <a href="https://www.webofproceedings.org/proceedings\_series/article/artId/2339.html">https://www.webofproceedings.org/proceedings\_series/article/artId/2339.html</a>>. Accessed: Feb. 2, 2023.
- WANG, X. et al. Innovation, the knowledge economy, and green growth: Is knowledge-intensive growth really environmentally friendly? **Energy Economics**, v.115, p.106331, 2022. Available from: <a href="https://linkinghub.elsevier.com/retrieve/pii/S0140988322004601">https://linkinghub.elsevier.com/retrieve/pii/S0140988322004601</a>>. Accessed: Jan. 29, 2023. doi: 10.1016/j.eneco.2022.106331.
- WANG, Y. et al. Intellectual capital and technological dynamic capability: evidence from Chinese enterprises. **Journal of Intellectual Capital**, v.20, n.4, p.453–471, 2019. Available from: <a href="https://www.emerald.com/insight/content/doi/10.1108/JIC-06-2018-0096/full/html">httml</a>- Accessed: Feb. 19, 2023. doi: 10.1108/JIC-06-2018-0096.
- XU, J.; LIU, F. Nexus between intellectual capital and financial performance: an investigation of Chinese manufacturing industry. **Journal of Business Economics and Management**, v.22, n.1, p.217–235, 2021. Available from: <a href="https://doaj.org/article/7a198758bcdd46b68682d9f6dae5b19b">https://doaj.org/article/7a198758bcdd46b68682d9f6dae5b19b</a>. Accessed: Dec. 25, 2023. doi: 10.3846/JBEM.2020.13888.
- ZAKIROVA, A. et al. Organizational and methodological approach to managing financial flows of agricultural enterprises. In: **E3S web of conferences. EDP Sciences**, 2020. p.10009. Available from: <a href="https://www.e3s-conferences.org/articles/e3sconf/abs/2020/24/e3sconf\_tpacee2020\_10009/e3sconf\_tpacee2020\_10009.html">https://www.e3s-conferences.org/articles/e3sconf/abs/2020/24/e3sconf\_tpacee2020\_10009.html</a>. Accessed: Jan. 11, 2023.
- ZHANG, J.; WANG, Y. How to Improve the Corporate Sustainable Development? The Importance of the Intellectual Capital and the Role of the Investor Confidence. **Sustainability (Switzerland)**, v.14, n.7, 2022. Available from: <a href="https://www.mdpi.com/2071-1050/14/7/3749">https://www.mdpi.com/2071-1050/14/7/3749</a>. Accessed: Jan. 29, 2023. doi: 10.3390/su14073749.