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# ENGLISH PROCEEDINGS

# US GAAP VS IFRS: AN OVERVIEW AND A REVISIT OF LIFO

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## ABSTRACT

*Generally Accepted Accounting Principles (GAAP) and International Financial Reporting Standards (IFRS), share many qualities such as creating a framework for accounts to record financial information within. However, they differ in inventory recording, measurement of certain asset classes, property, plant and equipment, impairment losses, certain non-financial liabilities, development costs, and income taxes. (Harris and Stahlin, 2018, 6). Due to its more logical and widespread use, IFRS is the more compelling treatment.*

**JEL:** M40

**KEYWORDS:** GAAP, IFRS

## INTRODUCTION

GAAP is the required U.S. accounting treatment for publicly traded companies. It was developed using a rule-based framework in which there is a list of explicit rules that companies must abide by that encompass a variety of accounting situations. The creators developed it in this way to reduce the chances of impropriety. The U.S. Generally Accepted Accounting Principles (GAAP) are set forth by the Financial Accounting Standards Board (FASB). The Financial Accounting Standards Board is overseen by the SEC. Generally Accepted Accounting Principles are exclusively used in the United States (Ross).

The International Financial Reporting Standards (IFRS) are used in all other countries in the world where there is an organized stock exchange. IFRS accounting treatment is used in one hundred and forty four countries worldwide. It was developed using a principle-based framework in which there is ample room for accountants to interpret the guidelines if they abide by the general principles. The International Financial Reporting Standards (IFRS) are set forth by the International Accounting Standards Board (Ross). With companies having international operations and reporting in the U.S., using both GAAP and IFRS for different requirements has become more common.

The main differences between GAAP and IFRS were outlined in an SEC report authored in July, 2012. These include valuation of inventory, measurement of certain asset classes, property, plant and equipment, impairment losses, certain non-financial liabilities, development costs, and income taxes. (Harris and Stahlin, 2018, 6). Various treatment methods will result in differing outcomes on financial statements and resulting financial ratios used in evaluating liquidity, solvency, and profitability (Harris and Stahlin, 2018, 6). Understanding the accounting method used by a company is important when reviewing financial statements and ratios to determine business health. Different valuations will result in varying key metrics such as income before taxes, net income, liquidity ratios, solvency ratios and profitability ratios.

Exploring inventory valuation in more detail showcases the impact of the accounting method most clearly. Inventory valuation differs between GAAP and IFRS because LIFO procedures are not permitted when abiding by IFRS (Harris and Stahlin, 2018, 6). Last-In, First-Out (LIFO) and First-In, First-Out (FIFO) are two different accounting treatments used to record and track inventory. The LIFO inventory accounting technique assumes that the last inventory received will be the first one to be used or sold. The FIFO

inventory accounting technique assumes that the first inventory received will be the first one to be used or sold. IFRS only allows the use of FIFO reporting procedures, but GAAP allows for the use of either LIFO or FIFO.

When using opposing techniques for inventory, the same changes in volume of inventory can yield different financial outcomes (Tardi, 2022). These changes include common financial analysis metrics such as liquidity ratios, solvency ratios, and profitability ratios. This occurs because the value of the product purchased to sell or use in manufacturing changes, thereby changing cost of goods sold (COGS), net income, and gross income. Assuming older inventory was purchased at a lower price, FIFO treatment results in a lower COGS, higher income, and higher income tax expense. With the same assumption that prices increase over time, LIFO treatment of inventory will result in higher COGS, lower income, and lower income tax expense. The ending valuation of the inventory asset on the balance sheet will be higher with FIFO than with LIFO treatment assuming costs increased over time.

COGS is directly impacted by inventory accounting treatment, evident by the formula to calculate COGS.  
COGS = Beginning Inventory + Purchases During the Period – Ending Inventory.

LIFO or FIFO can be utilized to achieve the desired outcome. The lowest possible COGS will directly increase the reported gross profit. Conversely, higher COGS may be preferred to reduce gross profit resulting in a lower income tax expense. Gross profit is then used in the calculation of income from operations, income before income taxes and net income. This is achieved by subtracting all other expenses from gross profit, such as selling and administrative expenses, interest expense, income tax expense, and other expenses as applicable.

Ratio analysis are standard measures used to analyze a company's performance. Comparisons can be made between the two inventory treatments and their impact on those ratios. Liquidity, solvency, and profitability ratios are regularly used to compare business performance across different companies. They're used to measure performance of the same company over time and against industry averages standard measurements. This analysis can be used to determine the strengths and weaknesses of a business.

Solvency ratios measure the ability of the company to survive over a long period of time (Weygandt, Kimmel, and Mitchell, 2020). The three solvency ratios are the debt to assets, times interest earned, and free cash flow. When FIFO is used, times interest earned will directly increase from a larger net income resulting from lower COGS. Moreover, the debt to asset ratio will be lower, indicating a better result as inventory will have a higher cost on the balance sheet. For this reason, liabilities will be a lower percentage or rate of total assets. Free cash flow is the same between FIFO and LIFO because it doesn't account for income tax expense.

Liquidity ratios "measure short-term ability of the company to pay its maturing obligations and to meet unexpected demands for cash" (Weygandt, Kimmel, and Mitchell, 2020). Liquidity ratios are the current ratio, inventory turnover, days in inventory, accounts receivable turnover, and average collection period. Inventory turnover is directly increased when using LIFO because of the higher cost of goods sold. The higher cost of goods sold and the average value of inventory on the balance sheet will lower the older cost. A higher rate of inventory turnover is a positive indicator. Similarly, days in inventory is a more positive result with LIFO as the inventory value is lower. This makes it seem inventory is being turned into sales quickly. FIFO results in a higher current ratio due to the increased value of inventory.

The profitability ratios include return on common stockholders' equity, return on assets, profit margin, asset turnover, gross profit rate, earnings per share, price-earnings ratio, and payout ratio. With FIFO, the return on common stockholders' equity, return on assets, profit margin, gross profit rate, and earnings per share will all directly increase because of a higher net income with a lower COGS. The asset turnover ratio is

favored by LIFO treatment due to the lower cost of inventory in relation to net sales. The payout ratio is also higher with LIFO.

Key performance metrics will vary between LIFO and FIFO accounting treatment. FIFO results in lower COGS and higher valued inventory while LIFO results in higher COGS and lower valued inventory. Knowing how a particular company values inventory is important when analyzing their financial statements. GAAP allows a choice while IFRS does not.

GAAP allows accountants to determine which treatment a company will use to achieve the desired outcome. Either higher net income and appealing profitability and solvency ratios or lower net income and lower income tax expense. It is more difficult to compare one company to another under GAAP as companies can choose varying treatments. IFRS does not allow LIFO treatment, so there will be less variation between companies during periods of quickly rising prices. This makes financial statement analysis more straightforward and consistent across companies under IFRS.

Additionally, IFRS is the better way to report accounting records because it is more logical and principle based. If treatment aligns with the prescribed principles across all companies, there will be less complexity around financial interpretation and analysis. While GAAP may have established rules for a vast number of scenarios, this may create unnecessary complexity and unplanned incorrect valuation results.

IFRS is used in several countries throughout Asia, Europe, and South America. The widespread use of IFRS makes it a more consistent treatment that can be used and understood by most companies worldwide. This allows for an ease of sharing financial information. If IFRS were used by every country, this would also allow for easy financial comparisons between international companies and U.S. companies. All businesses preparing financial statements using IFRS would be more efficient compared to those preparing financial statements using both GAAP and IFRS.

Furthermore, IFRS is more investor friendly than GAAP because it provides a more expansive picture in a shorter time frame. Investors are also able to easily compare companies in the rest of the world using IFRS. When trying to compare international companies with U.S. companies, it requires more time and resources to recalculate them (Ross, 2022).

In addition to this, IFRS allows for a quicker recognition of losses. This is beneficial for lenders, stakeholders, and investors of a company. Providing rapid information about losses will increase trust between the company and its stakeholders as well as increase transparency. This allows investors and stakeholders to have recent information to reach decisions faster (Jordan, 2013).

Another benefit of IFRS is that it allows for the revaluation of assets, which is another area that differs greatly between GAAP and IFRS. Assets that a company owns can decrease in value due to market and technological fluctuations. An impairment loss occurs when the fair value of a product decreases below the carrying amount. Companies are then allowed to write off the amount of the impairment loss. GAAP states that the value of the same asset eventually increases, and accountants are not allowed to record it and update the impaired loss. IFRS states that after an impairment loss has occurred, if the value of an asset increases the account is allowed to revalue the asset up to the original cost and adjust for depreciation (Gavin, 2019).

Whilst individuals could use the flexibility of IFRS accounting to artificially strengthen a company's financial statements, this could also occur when using GAAP. IFRS is a more flexible approach, allowing accountants to record financial information to report financial results in alignment with IFRS principles. When accounting for the benefits of IFRS, they far outweigh the potential pitfalls. IFRS has a much broader use, is more logical, allows for revaluation of assets and is more investor friendly, therefore it is a stronger approach to accounting than GAAP.

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# COMMERCIAL BANKS: STRATEGIES TO MITIGATE DEFAULT RISK

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## ABSTRACT

*The study aims to identify how commercial banks identify and mitigate the risk of borrower getting default and how Covid-19 affected the commercial banks. Commercial Banks/Institutions use credit risk models to determine the PD – probability of default of a borrower. Basel Committee has designed policies as per industry specific standards which every bank must adhere to, and additionally, banks have their own internal credit policy which they follow before sanctioning loans to borrowers.*

*Analyzing customer credit history involves analyzing the 5 C's. The first is Capital, which translates as to how much capital does a business have, the overall strength of borrower; a large capital decreases the chance of borrower getting default. A good Capital shows lender how serious and committed the borrower to the credit they are seeking. For business loan, it shows how much money the borrower has invested into their business. The more equity borrower has the more favorable loan conditions will be. The second C is Character which means the credit history of the borrower, if the borrower has repaid the loan previously. Credit history shows all the debt you have taken personally or for business and if they have been paid n time during the previous 5-10 years or from the time business started. Usually, lenders ask permission from borrower to review personal & business credit reports and will also ask for verifying your checking accounts and existing loans. Character reflects your ability to borrow for your business. The third C is Capacity, it measures the entity's ability to repay new debt based on current obligations. Bank wants to know how much entity's owe Vs how much they own. The fourth C is Collateral, Banks want to make sure borrower have proper collateral, in case the borrower fails to repay the loan or upon default, the bank can sell the property and recover the invested money. The last, fifth C is Conditions, it is very important for the borrower to determine the purpose of the credit that is being requested, it includes external environment forces like macroeconomic factors as well as industry specific risk and opportunities.*

*The main business of a commercial bank is to provide funding to businesses and support a growing economy while earning a profit. Banks need to make sure they are receiving flows of credit with the real returns. Sanctioning a loan goes through a process of effective credit management identifying the risk, controlling it and managing the risk, setting up payment terms and conditions with the customer to timely pay the bills, ensuring the borrower will comply with the company's credit policy. But despite a strict credit management there is a risk, Risk can be liquidity risk, market risk, operational risk and a risk of customer default.*

*The Study aims to understand reasons why borrower's default on commercial loans, the types of default and other risks., by the use of the available data in the US market. Also, we will examine how commercial bank have been impacted due by Covid -19, as it depressed customer spending and business investment and pushed millions of people out of work and into poverty. We will also study the effects of the Payroll Protection Program and whether it was a success or a failure I the US economy.*

**JEL:** M40

**KEYWORDS:** Covid-19, Commercial Banks

# DIFFERENCES BETWEEN THE IFRS AND U.S. GAAP

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## ABSTRACT

*Fraud will maneuver itself into every company's life. If a company does not directly encounter an act of fraud, then they are constantly on alert - watching, monitoring, recording, and decreasing the opportunity for the threat to occur. Out of all aspects of the fraud triangle, pressure/incentive, opportunity, and rationalization, the company only has control over opportunity. How the company maintains control and decreases opportunity lies within the internal auditing department and will rely heavily on their accounting principles. Well maintained books are essential for adequate, trustworthy, and transparent records. It is crucial for a company to follow their accounting principles precisely; however, when multiple companies have various accounting principles in which they use, the comparison can get more complex. The Generally Accepted Accounting Principles ("GAAP") used in the United States and the International Financial Reporting Standards ("IFRS") are two of the most well renowned accounting standards. When studying these two principles, one must be well versed in both sides and develop an understanding of their differences in order to not lose any key components of transactions or perception of future projections during the translations of standards.*

**JEL:** M40

**KEYWORDS:** GAAP, IFRS

## INTRODUCTION

While versing oneself in the standards, conventions, and rules of the GAAP, one will learn that the Securities and Exchange Commission ("SEC") established the GAAP for use in the United States. Historically, the SEC allowed private sectors to establish their guidance. That changed with the establishment of the Financial Accounting Standards Board (FASB). The FASB has set accounting standards for purposes of federal securities law. Companies now use the GAAP to measure their final results, such as net income, assets, and liabilities. The primary mission of the U.S. GAAP is to protect investors, "maintain fair, orderly, and efficient markets and to facilitate capital formation" (SEC, 2021).

Even though the IFRS was established with a similar mission in mind as the GAAP, it was developed by a different group of accounting experts for a different group of companies and investors. The IFRS was issued by the International Accounting Standards Boards (IASB) in order to specify precisely how accounts should be maintained and reported. The IASB is an "independent group of experts with an appropriate mix of recent practical experience in setting accounting standards, in preparing, auditing, or using financial reports and accounting education" (IFRS, 2022). The IASB not only requires a diverse educational and experiential history, but also geographical diversity. The goal of using this group of mixed accounting experts was to generate a common accounting language not only across companies, but also countries. 87% of jurisdictions require IFRS standards for most of their domestically accountable companies. 144 jurisdictions require IFRS standards for all or most companies. Examples of countries using the IFRS include Canada, Mexico, Australia, almost the entirety of Europe, Russia, Saudi Arabia, Yemen, and South Korea (IFRS, 2018).

The vast number of countries who use IFRS in which the U.S. has trade agreements with, common shareholders, and mutual interest in mergers and acquisitions yields the question, why hasn't the United

States adopted IFRS too? The SEC has commented on the “development of a single set of high-quality, globally accepted accounting standards multiple times since 2002”; however, it is a slow work in progress in which the Memorandum of Understanding (MOU) is still working on.<sup>8</sup> What the SEC has done is put together a Work Plan to make it easier for a U.S. issuer to incorporate IFRS into their reports. The Work Plan is essential because there is a great deal of understanding about the two programs that is needed for proper incorporation, especially if a company is using the standards for the first time.

A U.S. company may decide to use International Financial Reporting Standards for a variety of purposes. One aspect to keep in mind when deciding to incorporate IFRS into the company’s practices, is who the other non-IFRS major capital markets are. Of course, there is the United States, followed by Japan who has a voluntary adoption, and then China whose accounting standards have converged with IFRS to some extent.<sup>7</sup> This means that the rest of the major capital markets in the world are using IFRS. A U.S. company may desire access to international capital markets that require financial statements prepared in accordance with IFRS. Think about mid-sized firms who may not be capable of attracting sufficient investor interest in the U.S. and want to look elsewhere or larger foreign firms who may have viewed the U.S. market as untapped. To this extent if a U.S. company adopts IFRS it will open them up. Additionally, a U.S. company with foreign investors can attract foreign capital providers and/or use significant foreign operations. Furthermore, in regard to mergers and acquisitions, the likelihood that a foreign company which wants to acquire a U.S. company uses IFRS is relatively high. For the U.S. company to have already incorporated IFRS, it would make the acquisition much more easy and therefore desirable (Bogle, 2017).

In light of these considerations, the pertinent question becomes: what differentiates the IFRS from the U.S. GAAP? What changes would a company expect to see if they decide to incorporate the other set of standards? One way of analyzing the key differences requires an understanding of the 5-step model of determining what is recognized as revenue in the eyes of the IFRS. The first step is to identify the contract(s) with a customer. Second, identify the performance obligations in the contract. Third, determine the transaction price. Fourth, “allocate the transaction price to the performance obligations in the contract”. Finally, one must recognize revenue when, or as, the company satisfies a performance obligation (Bogle, 2017). The IFRS focuses heavily on the obtainment and fulfillment of the contract to decide what requirements are going to be.

When comparing this IFRS model to the U.S. GAAP, one stumbles upon their first difference in the second step, “performance obligations in the contract”, meaning shipping and handling. The IFRS states that “shipping and handling activities undertaken after the customer has obtained control of the related goods may represent a separate performance obligation” (Bogle, 2017). Therefore, some revenue must be allocated to shipping activity, because it will be deferred until shipping and handling occurs. The IFRS considers the shipping and handling to be a separate performance obligation from obtaining the goods. On the other hand, the U.S. GAAP does not treat shipping and handling as separate performance obligations. Instead, there is a policy election to treat shipping and handling done by the company after the customer has received their goods as part of the fulfillment of that good. All of the revenue and costs are recognized upon transferring control of the goods to the customer (Bogle, 2017).

Moving to the third step, “determination of the transaction price.” There is once again disagreement between the IFRS and the U.S. GAAP. The IFRS has looser guidance in regards to the measurement date for non-cash consideration. It is up to the company to use their judgment and available facts to determine if they are going to measure the non-cash consideration based on “the date on which the contract is entered into, the date it is received or the date the performance obligation is satisfied” (Bogle, 2017). However, the U.S. GAAP does not have a definitive measurement for non-cash considerations. They will use the date of contract inception for these measurements. Even though both the U.S. GAAP and the IFRS are capable of using the date of contract inception for measurement of non-cash considerations, it is the only way the U.S.

GAAP is allowed to. As for the IFRS, it is just one option. Both groups also differ in the means of determining if sales taxes are going to be included in the transaction price recorded on a net or gross basis. Once again, the IFRS are seen not having a definitive policy election. “They determine whether to include sales taxes or duties in the transaction price based on an analysis of state or local tax authority requirements” and whether the obligation for payment of the tax is on the customer or on the company. The GAAP has a more definitive and simple approach where they do not include taxes in the transaction price because the company is simply collecting the tax from the customer to be given to the governmental authority (Bogle, 2017).

Furthermore, in regard to differences related to asset cost, the IFRS is required to have a reversal of previously impaired assets “arising from costs to obtain or fulfill a contract, when the impairment conditions cease to exist” (Bogle, 2017).<sup>1</sup> The GAAP does not. A loss of impairment is when an asset has a reduction in value because of market or technological factors. The loss of impairment causes the asset to drop below its value in the company’s account. Often the impairment is permanent; however, there are instances where the asset’s value can increase again. The IFRS will allow for the revaluation of the asset to its original cost, whereas the GAAP will not allow for this revaluation post-impairment (Gavin, 2019).

A continuing trend that is seen in comparing the IFRS and the U.S. GAAP is when specific services are recognized as revenue. This is seen with the licensing of intellectual property. The renewal of an existing license agreed before the start of the renewal period can be recognized as revenue at different points in time. Once again, the IFRS is observed not following a specific guideline, where the GAAP does. The IFRS says that the renewal of the existing license can be recognized as revenue either when the renewal is agreed upon or when the renewal period starts. The argument for this is that recording it as revenue when the renewal is agreed upon would make sense because it can be regarded as a modification to the contract that already exists. The argument for the recording of revenue for when the renewal period starts is that this is when the customer can use and benefit from the renewed license (Bogle, 2017).<sup>1</sup> The GAAP only recognizes the latter as being sound and has a definitive guideline that the company will not recognize the renewal of an existing license as revenue until the start of the renewal period (Bogle, 2017).

Since the recognition of what is considered, revenue is heavily dependent on contracts, the disclosure that is involved in the development of the contract is another essential element of the accounting system used. The IFRS offers disclosure relief in two situations, whereas the GAAP offers disclosure relief in four situations. Disclosure regarding the transaction amount of unsatisfied or partially satisfied performance obligations and when to expect to recognize the revenue is not required by the IFRS in the case that the contract is less than one year or the company “qualifies for the practical expedient to recognize revenue in the amount that it has the right to invoice” (Bogle, 2017). The GAAP agrees with the IFRS with regards to the two cases of disclosure relief; however, it adds an additional two cases. The first being, if the situation involves a “sales or usage-based royalty for a license of intellectual property.” (Bogle, 2017). The second case being, that which “meets the criteria to be allocated entirely to a wholly unsatisfied performance obligation, or to a wholly unsatisfied distinct good or service that is part of a single performance obligation under the series guidance” (Bogle, 2017). Since the IFRS has fewer cases in which they are allowed disclosure relief, they may still need to disclose information even if it may not be recognized as revenue.

Further proving that the IFRS has less strict guidelines, is what is required to be disclosed for interim financial reporting. The IFRS is required to disclose how economic factors will affect the nature, amount, timing, and uncertainty of revenue and cash flows. They also require information about the relationship between disaggregated revenue and reportable revenue. The U.S. GAAP has different guidelines for non-public and public entities. Where non-public entities are allowed to select what is disclosed, public entities do not have that privilege. They must disclose disaggregation of revenue, “opening and closing balances of contract assets, contract liabilities and receivables, revenue recognized in the current period that was

included in the opening contract liability balance, revenue from performance obligations satisfied in previous periods, and information about the company's remaining performance obligations" (Bogle, 2017).

Not only are there differences in what and when items are recorded as revenue, there are also differences in how the books are physically kept. The U.S. GAAP lists current assets first because they list in order of liquidity, how quick the asset can be converted to cash. The most liquid is listed first, meaning the order is as follows: current assets, non-current assets, current liabilities, non-current liabilities, and owners' equity. The IFRS lists non-current assets first. The order appears almost inverse to the GAAP's. The least liquid assets are listed before the most liquid, meaning the order is as follows: "non-current assets, current assets, owner's equity, non-current liabilities, and current liabilities" (Gavin, 2019).<sup>2</sup> The GAAP once again shows more strict guidelines when it comes to cash flow statements. The IFRS has more flexibility with organization. They allow interest paid, dividends paid, interest received, and dividends received to all either be in the operating or financing section. Whereas the GAAP is more strict with their organization, requiring interest paid, dividends paid, and dividends received to all be in the operating section. This leaves dividends paid to be found within the financing section (Gavin, 2019).

Even though there are many differences between these two accounting practices, the last being mentioned is the variation in inventory valuation. The IFRS will only allow for either first in, first out (FIFO) or weighted inventory to value their inventory. The GAAP allows for FIFO, weighted inventory, as well as last in, first out (LIFO). FIFO follows the natural flow of inventory and sells the oldest inventory first, where LIFO does the opposite and sells the newest inventory first. Using weighted inventory requires looking at the weighted average costs of items remaining in inventory at a specific time. According to Credit Suisse Group AG though, as of 2021, only about 15% of companies in the SEC used LIFO as their primary inventory and over 50% used FIFO (Jenkins, 2022). Even though the U.S. GAAP allows for LIFO and the IFRS does not, not many SEC companies are choosing to use LIFO.

In terms of loss contingencies, the IFRS and the US GAAP have different wording on what is considered to be "probable". They both state that a contingency loss must be recorded when the liability is considered probable, but there is a question as to what is probable or not. The IFRS defines probable as "more likely than not to occur" whereas the US GAAP defines probable as "the future event or events are likely to occur". "Likely to occur" carries more weight than "more likely than not". More likely than not infers 50% or more, but to be likely is for something to occur with a lot more certainty than 50%. This means that IFRS is going to record contingency losses much earlier than the US GAAP.

Incorporating the IFRS into a company regulated by the SEC who uses U.S. GAAP is a tedious process. However, after analyzing the differences between the systems, the IFRS seems to be a more encompassing and adaptable process making the switch from IFRS to GAAP much more seamless than the other way around. Often the IFRS has more loose guidelines which the U.S. GAAP already seems to fit into. For example, with disclosure relief the GAAP is already doing the maximum of the IFRS requirements. Furthermore, in regard to licensing intellectual property, the IFRS has the decision of when to record the renewal of existing licenses, one of these times being what the GAAP already requires. The same is true for deciding when to record noncash considerations and determining the inclusion of sales tax into the transaction price. One aspect that would possibly have to change for GAAP companies is for those who use LIFO; however, as stated before this is only 15% of all SEC companies. The organization of spreadsheets is ultimately preference. Furthermore, while recording contingency losses earlier under IFRS may cause an expense to the income statement, the losses would have eventually been recorded on GAAP records in the long term as well. While the difference in organization makes the transition more complicated, it is not a reason to say one policy is superior to the other.

The MOU has already set guidelines for a company who is preparing to use IFRS financial statements for the first time by developing the IFRS (Bogle, 2017). This tells the company what to include and be ready

for, including: all assets and liabilities which the IFRS requires, excluding any assets and liabilities that IFRS does not permit, classifying all assets, liabilities, and equity in accordance with IFRS, measuring all items in accordance with IFRS, and being prepared and presented within an entity's first IFRS financial statement (PwC, 2022). Even though this is a time-consuming and extremely detailed process, there are factors to help one succeed. These factors include developing a realistic timeline and clear accountability; developing a project management office to oversee the team who is assigned to help with the transition; and incorporating senior management and members of the audit committee at the very beginning, since they are the ones who have experience looking over all records in tremendous detail. Furthermore, it would be prudent to involve an external auditor who is versed in IFRS and capable of implementing IFRS 1 for the first-time adoption process (Bogle, 2017). It will be necessary to acknowledge that this is going to be a timely process which requires tailored training, careful management, and being proactive.

Long term effects of the differences between the U.S. GAAP and the IFRS are minimal. The differences lie mostly in the timing of when an act is recorded as revenue and when a loss is recorded. In the greater scheme of things, the lifespan of the company, it would be more beneficial to incorporate IFRS. Bookkeeping has stayed constant for so long because people have learned the SEC guidelines, become comfortable with them, and do not want to undergo a tedious change. However, the preference for one style over another is simply that, a preference. Changing to the standards which most of the global market is using will allow the United States companies to open up to more mergers and acquisitions and make financial information more readily available to non-US stakeholders.

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# DIGITALIZATION AND INNOVATION: DYNAMIC CAPABILITIES OF MEXICAN SMES

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## ABSTRACT

*The purpose of this research at first is to analyze the direct effect that digitalization has on the management of innovation and on the corporate performance of Mexican SMEs. In a second moment, the moderating effect that technological barriers have on digitization, innovation and the results of the corporate performance of Mexican SMEs is examined. The study compiles information from a sample of 4,121 managers of SMEs in the service, trade and manufacturing sector. The information collection technique was through a personal interview (online questionnaire) addressed to the owner and/or manager of the SMEs through the LimeSurvey Professional platform. The field work was carried out during the months of January to July of the year 2022. Structural Equations Model (SEM) was used for data analysis, specifically with the statistical technique of analysis of variance through the Partial Least Square (PLS). The findings have revealed that digitization has positive and significant effects on innovation management and corporate performance. The study contributes to the development of dynamic capabilities theory.*

**JEL:** M1, M15

**KEYWORDS:** Innovation (INN), Corporate Performance (COP), Small, Business Enterprises (SMEs).

## INTRODUCTION

The current situation that society is going through on the planet is extremely complex, economic crises, technological advances, environmental problems and global diseases have caused exponential chaos (Alcalde-Heras et al., 2019; Lee & Trimi, 2021). For this reason, companies and more Small and Medium Enterprises (SMEs), are facing great challenges and struggling in an uncertain and increasingly changing scenario, which are attributed to the appearance of megatrends (Elhusseiny & Crispim, 2022; Vargas et al., 2022) and the COVID-19 disease caused by the new coronavirus known as SARS-CoV-2 (World Bank, 2021b). The technological revolution based on digitization is changing the daily life of people, the internal processes of companies (remote work, humanization and dehumanization of employees and organizational resilience) (Khurana et al., 2022; World Bank, 2021a; Zighan & Ruel, 2021), the ways to market your products and/or services with customers (use of digital platforms and social media) (Caballero-Morales, 2021; Effendi et al., 2020), relations with other companies and commercial transactions with suppliers (Tian et al., 2022; Ulas, 2019). In today's highly competitive market, SMEs seek to take advantage of opportunities through the use of technologies to strengthen their business models and achieve exponential changes through creative destruction that leads them to higher levels of innovation (Teece, 2018). However, due to the multiple limitations that SMEs present, digitization and innovation practices have been underdeveloped, becoming a pending task and a latent priority for managers. In accordance with Hussein Magdy Elhusseiny & Crispim (2022), the main challenges and barriers faced by SMEs for digitization are: 1) Technical, 2) Organizational, 3) Technological and 4) Legal. Regarding the barriers to the development of innovation in SMEs, scholars such as (Al-Hanakta et al., 2021; Indrawati et al., 2020b; Jensen et al., 2007; Teece, 2018) have shown that the main obstacles are: 1) lack of government support, 2) lack of sufficient financial capital, 3) little investment in the development of innovation, 4) lack of commitment from managers and employees. The purpose of this research at first is to analyze the direct effect that

digitalization has on the management of innovation and on the corporate performance of Mexican SMEs. The research has a notable relevance from two perspectives, 1) we emphasize that the topics under study are highly important for the development and growth of SMEs in an emerging economy, given that most of the studies exposed by the literature focus on large organizations, developed economies and in high technology sectors; 2) the variables under study are analyzed from the perspective of the Theory of Dynamic Capabilities (TDC) as reconfiguration strategies in a highly complex scenario due to the implications and consequences of COVID-19. This article has been structured as follows: The first part presents the theoretical review, the empirical review, and the development of the hypotheses. Second, the methodology used, the sample and its characteristics are explained, as well as the justification of the variables under study. Finally, the results, discussions, conclusions, and future lines of research are shown.

## LITERATURE REVIEW AND HYPOTHESIS STATEMENT

The literature has shown that the evolution and growth of organizations has been analyzed from different theoretical currents, mainly from the factors and/or internal and/or external resources that affect the competitiveness of companies. The dynamic capabilities theoretical approach brings together the two perspectives, thereby filling a gap in the literature (Farzaneh et al., 2022; Jafari-Sadeghi et al., 2021; Rindova et al., 2016). In accordance with Teece (2007a), capabilities can be leveraged to create, extend, update, protect, and maintain business assets on an ongoing basis. For analytical purposes, dynamic capabilities can be classified into the ability: 1) to detect opportunities and threats; 2) take advantage of opportunities and (3) maintain competitiveness by improving, combining, protecting and, when necessary, reconfiguring the intangible and tangible assets of the organization (Brink, 2018; Newey & Zahra, 2009; Teece, 2007a). Some of the key resources within the theoretical model of dynamic capabilities are technology and innovation. These capabilities are essential in the reconfiguration of strategies in business models, which are focused on creating value for customers, improving the designs of the products and/or services offered by the company and the efficient definition of market segments (Bogers et al., 2019; Teece, 2010). Digitization is part of an organizational information system where the company's technological capabilities are used.

### Digitization and Innovation in Smes

The incorporation of digitization into daily life has been gradual since its inception. As technology has innovated the way people get information, communicate, interact and do business, its use has increased globally, contributing to the development of society (Salcedo et al., 2018). Katz & Koutroumpis (2013), They agree that digitalization simplifies the social transformation produced by the massive adoption of digital technologies that generate, process and transfer information. According to Nambisan et al., (2017), digital innovation and digital technologies form an inherent part of a new idea, its development, and diffusion. Digitization is a driver of innovation in the development of business models and a key factor in facilitating sustainable economic success. For this, it is necessary to understand the current business and identify the drivers of digital innovation (Bleicher & Stanley, 2016). Creating a cycle of business innovation, through the network, allows to measure, predict and understand the ability of a company to create value for the customer through the commercial use of digital networks (Wheeler, 2002). Digitization is a factor that strongly influences the implementation of innovation processes, SMEs must be aware of how digital transformation affects their environment (Hosan, Karmaker, Rahman, Chapman & Saha, 2022). Digitization enables effective business decisions and optimization of business processes (Valiyev et al., 2022).

*Hypothesis 1 (H1): A higher level of digitization generates an increase in innovation activities in Mexican SMEs.*

### Digitization and Corporate Performance in SMEs

Enterprise digitization has become an important topic in management practice. How a digital business strategy translates into performance depends on additional factors internal and external to the company (Leischnig et al., 2016; Wang & Kim, 2017), hence, a digital strategic plan allows to create a clear trajectory for SMEs in achieving performance and maintaining sustainability (Doz & Kosonen, 2010). Companies that primarily serve business customers, and that operate in a technological environment, should engage in the use of social media to access relevant information as much as possible, thus achieving improved marketing performance and effectiveness and efficiency of management decisions (Leischnig et al., 2016; Alonso-Dos-Santos et al., 2020; Rozak et al., 2021). Better measurement of digitization will enable clearer analysis of the performance implications of digitization (Ritter & Pedersen, 2020). Lai et al. (2010) y Syam & Sharma (2018) they affirm that digitization has a positive impact on logistics performance, just as artificial intelligence has on sales practices. A company's digital strength should be harnessed in digital innovation which, in turn, could drive company performance (Khin & Ho, 2019).

*Hypothesis 2 (H2): A higher level of digitization generates an increase in innovation activities in Mexican SMEs.*

### Innovation and Corporate Performance in SMEs

Innovation can improve firm performance by producing a better market position that conveys a competitive advantage (Ferreira & Coelho, 2020), likewise, it is important to highlight that innovation impacts not only the functional performance of a good or service, but can also influence intellectual performance (Stoneman, 2010). According to Pil & Holweg (2003), and Ramaswamy & Prahalad (2004), innovation is the key driver of modern companies to achieve growth, development, business efficiency, and performance, as well as a system that enables successful organizations to learn how to meet customer demands and improve performance. Digitization is an important driver of the innovation management process, providing a competitive advantage, higher productivity and better rates of return, as well as a faster response to changing customer needs (Del Vecchio et al., 2018; Łobacz & Tylżanowski, 2022). In most emerging economies, the digitization process is advancing rapidly, the economy is accelerating, and economic performance is being boosted (Hosan, Karmaker, Rahman, Chapman & Saha, 2022). The adoption of digital technologies is positively associated with the strategies of SMEs to respond to public crises, such as the COVID-19 outbreak. This indicates that having a higher degree of digitization is more likely to adopt effective response tactics and achieve better performance (Guo et al., 2020).

*Hypothesis 3 (H3): A higher level of innovation management generates an increase corporate performance results in Mexican SMEs.*

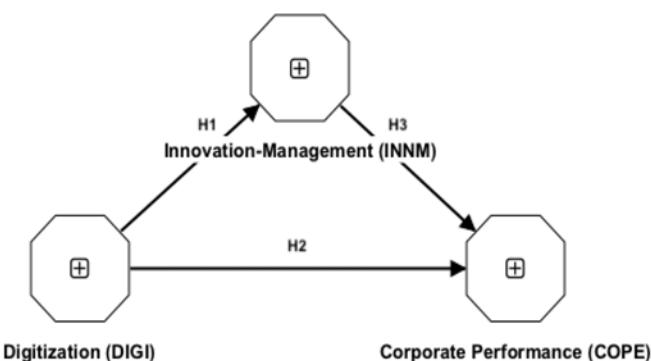


Figure 1: Theoretical research model, in this monogram the three hypotheses developed in the research are observed.

## METHODOLOGY

The study is of a quantitative type and with a predictive approach in which companies are analyzed according to the activity sector and size. The companies selected for the study are geographically established in the northern, central and southern regions of Mexico. According to the national statistical directory of economic units INEGI (2019) in these regions there are approximately 1,445,803 companies ranging from 5 to 250 employees. The information collection technique was through a personal interview (online questionnaire) addressed to the owner and/or manager of the SMEs through the LimeSurvey Professional platform. The field work was carried out during the months of January to July of the year 2022. Finally, a sample of 4,121 answered surveys was obtained, see Table 1.

Table 1: Sample Characteristics

Sector	Frecuencia	Micro	Small	Medium	Total	%
Services	1628	1082	335	211	1628	39,5%
Trade	1373	834	381	158	1373	33,3%
Manufacture	1120	338	358	424	1120	27,2%
Total	4121	2254	1074	793	4121	100%

### Digitization (DIGI)

Considering previous studies, this construct was measured in a second-order multidimensional way, divided into: 1) digitization strategies (measured with 7 items), and 2) use of digitization (measured with 7 items). For this, the studies developed by Alt (2018), Vagadia, (2020) and Schuh et al. (2020). For the correct assessment and measurement of the items, a 5-point Likert-type scale was used: 1= not very important and 5= very important in the last 2 years

### Innovation Management (INNM)

Considering previous studies, this variable was measured in a unidimensional way of first order. Innovation management is composed of: 1) product innovation, 2) process innovation, and 3) organizational innovation (measured with 7 items). For its correct measurement, the Oslo manual (OECD, 2018) and the DUI model (Jensen et al., 2007) were taken as reference. For the correct measurement of the elements, a 5-point Likert-type scale was obtained: 1= not very important and 5= very important in the last 2 years.

### Corporate Performance (Cp)

Considering previous studies, from a theoretical-conceptual point of view, this variable was a first-order unidimensional measure. In our study we have considered the managers' perception of the results that emerge from financial performance in the last 2 years. This variable was measured with 6 elements considered the studies developed by Aras et al. (2010) and Quinn & Rohrbaugh (2011). For the measurement, a 5-point Likert-type scale was obtained with 1 = poor performance and 5 = high performance in the last 2 years.

## RESULTS

### Measurement Model

To analyze the statistical data of the proposed theoretical model, the method based on covariance has been used through the Structural Equations System using partial least squares (SEM-PLS). The SmartPLS Professional version 4 software was used to analyze the measurement model and the structural model. In

addition to the individual reliability of the items, which were presented in the previous section and which showed to be very close to or above the value of 0.707 (Chin & Dibbern, 2010; Cohen, 1988). This section shows the internal consistency of the model through the reliability of the constructs, the Cronbach's alpha values, the composite reliability and the value of rho\_A, values that are above the value of 0.7 according to what is recommended (Cronbach, 1951; Henseler et al., 2015) (see Table 2).

Table 2: Reliability and Validity by Construct

Construct	Alfa de Cronbach	Rho_A	Rho_C	AVE
COPE	0.873	0.874	0.904	0.612
DIGI	0.942	0.944	0.950	0.593
DIGB	0.913	0.913	0.929	0.622
DIST	0.942	0.942	0.953	0.742
DIUS	0.910	0.915	0.929	0.652
INNM	0.930	0.931	0.944	0.706

Source: Own elaboration

The convergent and discriminant validity are shown in the following tables. The data indicate that the mean variance extracted (AVE) explains at least 50% of the variance of the indicators analyzed in the model. In the same way the discriminant validity indicates that the square root of the AVE (values in the diagonal), is greater than the values of the correlations of the constructs (Chin, 1998; Hair, 2016) (see Table 3).

Table 3: Discriminant Validity

Construct	COPE	DIGI	DIST	DIUS	INNM
COPE	0.782				
DIGI	0.274	0.770			
DIST	0.302	0.937	0.861		
DIUS	0.184	0.880	0.664	0.808	
INNM	0.514	0.432	0.462	0.313	0.840

Source: Own elaboration. COPE: Corporate Performance; INNM: Innovation Management; DIGI: Digitization.

### Structural Model

At first, the evaluation of the algebraic sign (+, -), the magnitude (value of the coefficient and value t) and the statistical significance of the path coefficients are shown, this analysis is carried out through the bootstrapping technique with 5000 samples. This analysis was performed under a 1-tailed Student's t distribution with n-1 degrees of freedom (Table 4).

Table 4: Hypothesis Test Results

Hypothesis	Path Coefficient	SD	T Value	P Value	F <sup>2</sup>	Percentil 5% (CI)	Percentil 95% (CI)	Bias-Corrected 5% (CI)	Bias-Corrected 95% (CI)	Result
H1: DIGI INNM	0.330***	0.016	20.961	0.000	0.102	0.304	0.356	0.304	0.356	Confirmed
H2: DIGI COPE	0.035**	0.017	2.001	0.023	0.001	0.006	0.064	0.006	0.064	Confirmed
H3: INNM COPE	0.476***	0.020	23.853	0.000	0.209	0.444	0.510	0.444	0.510	Confirmed

Source: Own elaboration, \*:  $p < 0.05$ : \*\* $p < 0.01$ \*\*\*:  $p < 0.001$

The results of the hypotheses built in the proposed model show that H1, H2 and H3 have positive and significant effects at 99%, 95% and 99% respectively. This shows that these hypotheses have empirical support (see Table 4).

## DISCUSSION AND CONCLUSION

This section discusses the findings derived from testing the hypotheses of the research model under study. From the perspective of dynamic capabilities, the empirical evidence is revealed to fulfill the research objectives. In a first scenario, the results reveal that digitization has positive and significant effects on innovation management and corporate performance. The exposed findings derived from the verification of the H1, are aligned with the TDC and with recent empirical studies. There is no doubt that digitization is a factor that increases innovation practices in organizations, including SMEs. In our study we have revealed that digitalization has a moderate, significant and positive effect on the management of innovation that is manifested in Mexican SMEs. Hosan, Karmaker, Rahman, Chapman & Saha (2022), they have stated that technological capabilities help business digitization and that they are also engines that drive innovation for digital transformation. Combining intangible resources with technological capabilities can propel SMEs to a higher level of innovation (Teece, 2018; Valdez-Juárez & Castillo-Vergara, 2021). The vast majority of SMEs in Latin America during the COVID-19 pandemic were resilient and allocated their financial resources to investing in technological innovation (Khurana et al., 2022; Vargas et al., 2022). These innovative companies managed to promote the use of digital platforms to meet the needs of their customers, increase market shares and stay in the competitive fight (Caballero-Morales, 2021; Lee et al., 2022). With respect to H2, the results express that digitalization has a small, significant and positive effect on the corporate performance results of Mexican SMEs. However, the result of this relationship, despite being significant, is not strong and not very decisive to achieve an ideal corporate result and performance for Mexican SMEs. Therefore, the effect of the efficiency and performance of digitization on corporate performance depends on additional internal and external factors of the company (Leischnig et al., 2016; Wang & Kim, 2017). The TDC and some classic studies developed by Jensen et al. (2007) Teece (2010) and Harry ; Bouwman et al. (2019), They have declared that information systems and the use of technology are the right path for digitalization, technological innovation, competitiveness and sustained corporate performance. This section summarizes the findings of the study through a series of theoretical and practical conclusions and implications. According to the results obtained in our study, it follows that Mexican SMEs are exploring the use of new technologies and innovation management to survive and in a certain way improve their corporate performance results. The results of the study have concluded that Mexican SMEs are on the right track and in a constant competitive struggle. We have observed that digitization has had positive and significant effects on innovation management. In addition, it has been shown that innovation management has a positive and significant influence on corporate performance. The discussion of our findings has allowed us to visualize and expose the following practical implications for the technological development and growth of Mexican SMEs. 1) It is important that there are clear and effective public policies on digital transformation (Ulas, 2019). Despite the existence of international organizations that

promote these initiatives, the results are not very significant. In particular, Mexico is among the 5 countries in the Latin American region with a higher level of digitalization and business innovation (CEPAL, 2020). The truth is that many of the companies with these capabilities are foreign capital and medium to large. Therefore, SMEs are still unprotected and with a significant digital and technological gap; 2) Within SMEs, a corporate philosophy based on collaborative work and digital transformation is required (Khurana et al., 2022; Warner et al., 2019). The lack of financial capacity and lack of strategic plans have led Mexican SMEs to a status quo; 3) SME managers should place great emphasis on permanently and continuously interacting with their different interest groups (customers, suppliers, employees, other companies in the sector, universities, government and research centers).

With this, they would not only be able to develop incremental innovation, but also radical changes through open innovation (Carayannis et al., 2012, 2018); and 4) the current challenges and will continue to be faced in the future by SME managers are incalculable, so it is important that they develop emotional (resilience) and cognitive (creativity) capabilities that allow them to remain in the changes of the environment (economic, technological, political and cultural). Finally, since many investigations have limitations, in this section we describe some of the main limitations that have emerged during this investigation. The first limitation is the sample explored in the study, since it involves SMEs from different regions of Mexico, with different characteristics ranging from the economic to the cultural, given that Mexico is a country with a very wide territorial extension. In addition, it is important to explain that in Mexico there are no organizations that collect public information from SMEs on the current state of technology and innovation practices. The second limitation refers to the answers obtained in the study, since they are subjective opinions of the directors of SMEs. In Mexico it is very difficult to obtain hard data on the current status of companies in technology, digitalization level, innovation actions and economic indicators, for this reason the FAEDPYME network of researchers was used to collect data in the regions with presence of the red. Regarding the third and last limitation, we believe that in the future the SEM technique, based on covariance, will be able to be used and also to be able to make contrasts with multigroup analyzes with regions of other countries. On the other hand, to continue analyzing the behavior of SMEs and give continuity to the proposed model, the most relevant future lines of research for the reality of these companies are: the incorporation of open innovation and industry 4.0, in addition to verifying the effects Futures of human, technical, technological and legal barriers, which indicate the digital transformation of Mexican SMEs. All this in a post-pandemic framework, global economic crisis and war (political) conflicts.

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# THE IMPACT OF CEOS' SOCIAL MEDIA MANAGEMENT ON THE COST OF DEBTS

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## ABSTRACT

*The purpose of this study is to what extent CEOs' social media management affects the cost of debts. From a sample of 8,392 United States listed companies and delisted companies during the period from 2011 to 2020. We manually collected the account number of CEOs' social media to determine whether the CEO was using social media, as this study's independent variables. The empirical results show that there is a significant negative correlation between CEOs' social media management and the cost of debts, indicating that the use of social media by CEO effectively reduces the cost of debts.*

**JEL:** M37, M41

**KEYWORDS:** Cost of Debts, CEO, Social Media

## INTRODUCTION

The rise of social networks (social media) in the past ten years has gradually integrated into the lives of the masses, arousing many scholars at home and abroad to invest in research on social networks. In order to maintain a sound operation, an enterprise needs to obtain funds to maintain its smoothness. The main source of obtaining funds is not only the cash originally owned by the enterprise or earned through the industry, but financing is also an indispensable part. The financing sequence theory mentions that enterprises will give priority to the use of the least problematic internal funds, and then they will seek external financing, such as debt or equity financing (Myers and Majluf, 1984). The cost incurred in the process of obtaining funds is called capital. The cost of equity capital can be divided into the cost of equity capital and the cost of debt capital. Cheng, Collins, and Huang (2006); Chen Ruibin, Xu Chongyuan (2008) and other scholars have done in-depth research on the cost of equity capital. In addition, the cost of debt capital has Li Yongquan, Ma Dai (2006); Chen Zhaoyu (2006); Liao Peijun (2009) and other scholars conducted discussions. Previous studies have found that increasing the degree of information disclosure by enterprises can indeed reduce their information asymmetry and reduce the risks that borrowers should bear. Therefore Borrowers are also willing to demand less risk premium, making the cost of debt funding for the enterprise less.

Many studies in the past have aimed to explore the impact of managers' social activities on social networks. People have more and more links and interactions with managers through social networks, and managers' every move has attracted much attention. Therefore, this study refers to many domestic and foreign literatures, in order to better understand the level of activity of managers using social networks. Managers operate social networks and publish information through online platforms. The public will want to know more about the content of the information, and managers will pay more attention to the public's attention. In order to maintain their personal reputation so that the company's reputation can maintain a good image, managers will be concerned about the impact of personal reputation on the company, if the company's reputation remains good, creditors will also be willing to believe that the company's default risk is relatively small, and they are more willing to lend funds to the company and require a lower risk premium, which in turn can be used the cost of debt funds of enterprises is reduced. This study has made the following contributions. First, it is about the social network. There have been many studies in the past that have explored the impact of corporate operations through social networks or the status of managers on social networks. Therefore, this study intends to extend domestic in addition to other literatures, conduct more in-

depth research on the use of social networks by managers. Through the information released by managers to understand their behavior, we can see the potential situation of the company, and the performance and disclosure of managers will also affect the company. The public will be willing to believe that when the manager has a better performance, the company's operating conditions will also be good. In addition, there are too many related studies on the cost of debt funds. In-depth discussion of the influence of social networks. This study correlates the activity of managers in social networks with the cost of debt funds. It is found that the higher activity of corporate managers in social networks can reduce the cost of debt funds of enterprises. This study the empirical results can provide reference for business operations and creditors.

## LITERATURE REVIEW

### Social Networking

In the past, people used letters and emails to communicate, often needing to spend a lot of time waiting for information. However, the rapid changes in technology today have brought people a more convenient life and changed the mode of communication. It is already an indispensable part of life (Jiang Yiping, Lai Xinyi, 2014). It has become a daily routine for people to log in to social platforms to share or browse various information, and it has become a habit to use social networks to follow friends or public figures. People often use social platforms to communicate with others and share their personal lives, the social network has become inseparable from the lives of the masses and has become the trend of the present generation. The content update frequency on social networks is fast, every day or even every hour. Compared with traditional media, social networks can disseminate information faster (Gallaugher and Ransbotham, 2010). The research of Luo, Zhang, and Duan (2013) also mentioned that because the content of social networks is more contagious and has stronger social influence than traditional media, investors may have a stronger reaction to social networks. One of the characteristics of social media is conversational communication, and research related to communication and public relations has also shown that this characteristic is beneficial to companies and their investors (Park and Reber, 2008; Rybalko and Seltzer, 2010; Taylor, Kent, and White, 2001), more and more companies use social networks to improve their visibility. When corporate brands enter the market of social networks, they can borrow Since a large number of people on the social network achieve considerable business opportunities (Liu Jiayan, 2009), the public will pay more attention to the managers' use of the social network, because the public expects to find available information from the information published by the manager.

### Credit Risk and Cost of Liabilities

In order to maintain the operation of enterprises, capital is an indispensable element. In addition to using the cash owned or earned by the company itself, financing is also the main source of funds for enterprises. The financing sequence theory proposed by Myers and Majluf (1984) is Enterprises will give priority to the use of internal funds of the company, followed by external financing of debt, and finally use equity financing, because if there is information asymmetry between managers and investors, it will likely lead to agency problems, which will lead to investors' interest in external equity. The required risk premium is relatively high. Therefore, for the company, the preference for using funds will start with internal funds that are less likely to cause information asymmetry problems, and then debt or equity financing to avoid sharp fluctuations in stock prices. The impact on shareholders' rights and interests. The way for companies to borrow externally is to raise funds from banks or shareholders. However, the process of raising funds will incur costs, and companies must bear the cost of funds. The level of capital costs will affect the company's investment decisions and financing capabilities., which will also affect the success or failure of business operations (Chen, Chen, and Wei, 2003; Chen, Chen, and Wei, 2004). The cost of capital can be roughly divided into the cost of equity capital and the cost of debt capital. The research results of Chen Ruibin and Xu Chongyuan (2008) found that the increase in the level of corporate information disclosure can enable the company to obtain a lower cost of equity capital, because more information disclosure can reduce the cost of information. Asymmetry, thereby reducing the information and agency risks that investors should bear, and investors are willing to demand less necessary rate of return. In addition, the research of Cheng

et al. (2006) also found that the better the protection of shareholders' rights and the more transparent the degree of financial disclosure, the lower the cost of equity capital will be. All in all, the more information a company discloses, the more it can reduce its cost of equity capital; on the other hand, Hong Ronghua, Cai Yingru, Guo Yiping, and Jiang Jiani (2013) mentioned that in the case of high information transparency, family businesses will have lower external financing costs. And they are more willing to seek external financing (Liu Zhenghuai, Liu Ruolan, Cai Jingjie, 2016). When companies increase information disclosure and improve the quality of disclosure, they can reduce the cost of debt funds (Yu, 2005). However, if there is a conflict between shareholders and creditors, The resulting costs will lead to an increase in the cost of debt funds (Li Yongquan, Ma Dai, 2006). Huang Shaoyan, Huang Yuting, Xu Meiman, and Lin Jiahui (2020) found that if a company uses more positive words when actively conveying information at legal person briefings, creditors will believe that the company will continue to operate steadily in the future, and the company's future operations or planning has a comparative advantage. Appropriate information disclosure can reduce the information asymmetry between creditors and enterprises, thereby reducing the credit risk premium (also known as risk premium) required by creditors, thus reducing the cost of debt funds of enterprises. Past studies have pointed out that the more a company has external financing needs, the higher the degree of voluntary disclosure is required. Improving the level of information disclosure can lower the cost of capital obtained by the company (Francis, Khurana, and Pereira, 2005).

### The Influence of Social Network on Credit Risk

How to view the top leader of a company will affect the perception of the company (Love et al., 2017). In the era of rapid development of social networks, users of social networks communicate with company managers through online platforms. More interactions shorten the distance between each other (Bai et al., 2019). The reputation of managers will affect the financial performance of the company. If the company has a better reputation, its financial performance will also be better (Chen Wanyi, 2015). If The managers of the company have a negative impact on the company, and it will be easier to spread quickly in the social network that people are used to (Gallaugh and Ransbotham, 2010), which will cause the company's image to be hit to a considerable extent. When managers use social networks, they will attract the attention of the public. The behavior of managers is easily magnified and inspected by the public, and their actions also attract attention. Therefore, managers will care about the quality of their personal reputation. Having a pivotal role, its reputation will affect the company's strategic choices and performance (Huang Yujie, 2007).

As mentioned earlier, a good manager's reputation can indeed reduce the company's debt capital cost (Zeng Qianti, 2011). Financial institutions or creditors may use this as an assessment of the company's default risk. It can be speculated that if the manager's image is good, the company's image will be relatively good, which may lower the company's credit risk and reduce the cost of debt funds. The level of capital cost will affect the company's external financing ability and also affect the company's operation (Chen et al., 2003; Chen et al., 2004), the better the degree of internationalization or corporate governance of enterprises, the lower the cost of debt funds of enterprises (Liao Peijun, 2009), the research results show that the more voluntary disclosures of enterprises, the higher the cost of debt funds less (Guidara, Khlif, and Jarboui, 2014), increased information disclosure by enterprises can reduce the cost of debt funds (Sengupta, 1998; Yu, 2005), so if the overall degree of information disclosure of enterprises is higher, their credit risk will be lower, The cost of debt funds that companies need to bear is also lower. Based on the above-mentioned literature discussion, this research makes the following inferences, whether the manager's use of social network will bring good influence to the company and meet the company's goals; in addition, whether the company's use of social network strategy can enable the company to reduce its credit risk, so that the company's debt capital cost is lower, and the research hypothesis of this paper will be put forward in the next chapter.

### Hypothesis Development

Business leaders are like the face of the company. Through social networks such as LinkedIn, Facebook, and Twitter, business managers can not only establish contact with the public, but also create a sense of

community (Gonzales and Hancock, 2011). With the development of social networks, managers have established more and more connections and interactions with social network users, and the distance between them has been shortened a lot (Bai et al., 2019). In order to maximize the benefits, managers will try their best to maintain their personal reputation (Liu Hailong, 2011) and make their own image perfect. The manager's personal image will affect the overall image of the company, which in turn will affect the credit risk of the company. If the manager's reputation is good, the company's debt capital cost will also be reduced (Zeng Qianti, 2011). A better reputation can reduce the company's credit risk, making creditors willing to demand less risk premium, and making the company's debt capital cost lower. It can be reduced. Past research results have shown that the degree of disclosure of a company will affect the amount of its debt capital cost, and the degree of voluntary disclosure of a company is important in obtaining a lower cost of capital (Francis et al., 2005). When a company voluntarily discloses the more it is, the cost of debt funds can be reduced (Guidara et al., 2014). The amount of information disclosure will affect investors or creditors' views on the company, and the improvement of information asymmetry will make investors or creditors require. If the risk premium is lower, the cost incurred by the company in the process of obtaining funds will be less, reducing the company's cost of capital. Therefore, this study infers that if the manager's business activity on the social network is better, the creditor will Managers' dissemination of information, willingness to believe that they are performing well and the requirement to reduce the risk premium, has a positive impact on the firm's cost of debt funding. Accordingly, this study established the following hypotheses:

*Hypothesis 1:* Managers operating social networks will reduce the cost of debt funds of enterprises.

## METHODOLOGY

In order to verify whether the use of social networks by managers can reduce the cost of corporate debt funds, this research uses a simple least squares regression model (OLS) to establish, and controls the fixed effects of industry and year to analyze the empirical results. The empirical model is as follows:

$$COD_{i,t} = \alpha_0 + \alpha_1 NET_{i,t} + \alpha_2 ROA_{i,t} + \alpha_3 LEV_{i,t} + \alpha_4 TIE_{i,t} + \alpha_5 CURRATIO_{i,t} + \alpha_6 SIZE_{i,t} + \alpha_7 SGR_{i,t} + \alpha_8 DUAL_{i,t} + \alpha_9 BIGFOUR_{i,t} + \alpha_{10} IND_{i,t} + \alpha_{11} YEAR_{i,t} + \varepsilon_{i,t} \quad (1)$$

After counting the activity of these social platforms, the highest activity of the company managers in the social network is 4, and the lowest is 0. The data in this research shows the level of activity or inactivity of managers based on the year. Twitter can directly judge the year of user joining from the account page, but LinkedIn, Facebook and Instagram all judge the manager from the year of the manager's post. It is impossible to determine the year when the manager joined the community. This study defines this situation as regardless of the year, assuming that the Account is inactive every year. This study refers to the practice of Gao (2019). The source of the sample data of managers is taken from the executive compensation database (Compustat and ExecuComp databases), and the data in this database are provided by the U.S. Commission, SEC). The senior executive salary database contains the historical salary and current salary of executives, and the database data will be updated in January, April, May, June, August and October every year, a total of six updates a year Second-rate. Panel B in Table 1 shows the industrial distribution of the research sample companies. This study uses the Standard Industrial Classification (SIC) in the Wharton Research Database (WRDS) as the standard, and the first two codes represent the main industry category, to classify the industries in the sample. It can be seen from the table that the largest proportion of sample observations is the manufacturing industry (50.48%), which is close to half of the total observations, and the second highest is the service industry (19.73%). Panel C shows the annual distribution of samples in this study.

Table 1: Sample Screening Process and Company Industry and Annual Distribution Status

<b>Panel A : Sample Screening Process</b>			
Initial sample of S&P 1500			105,754
Minus : Sample of non-managers			(86,163)
Minus : Sample of finance, insurance and real estate			(574)
Minus : Samples with missing data on relevant variables during the study period			(10,625)
<u>The final effective number of samples</u>			<u>8,392</u>
<b>Panel B : Industry Distribution of Sample Companies</b>			
Industry name	Industry Code	Number of	Percent of total sample
Agriculture, forestry, fishery and animal husbandry	01 ~ 09	20	0.24%
Mining Industry	10 ~ 14	816	9.72%
Construction Industry	15 ~ 17	102	1.22%
Manufacturing	20 ~ 39	4,236	50.48%
Transportation, water and electricity, sanitation	40 ~ 49	828	9.87%
Wholesale Industry	50 ~ 51	282	3.36%
Retail business	52 ~ 59	436	5.20%
Service Industry	70 ~ 89	1,656	19.73%
Government Department	91 ~ 97	0	0.00%
Other Industry	99	16	0.19%
Total		<u>8,392</u>	<u>100.00%</u>

## RESULTS AND DISCUSSIONS

### Descriptive Statistical Analysis

This study aims to explore the influence of corporate managers' activity in using social networks on the cost of debt funds. This study considers the impact of extreme values in the sample on the analysis results, and all continuous variables are minorized for analysis, the numbers before 1% and after 99% of the research variables were replaced by the 1st percentile and 99th percentile respectively.

Table 1: Sample Descriptive Statistical Analysis (N=8392)

	Minimum Value	Medium Value	Maximum Value	Average	Standard Deviation
Strain number					
<i>COD</i>	0.000	0.068	0.747	0.113	0.133
Independent variable					
<i>NET</i>	0.000	0.000	4.000	0.212	0.561
Control variable					
<i>ROA</i>	-0.481	0.046	0.325	0.032	0.112
<i>LEV</i>	0.133	0.579	1.552	0.598	0.248
<i>TIE</i>	-82.535	5.952	1582.833	42.480	191.005
<i>CURRATIO</i>	0.372	1.778	8.480	2.122	1.380
<i>SIZE</i>	1.704	3.396	5.178	3.434	0.695
<i>SGR</i>	0.002	0.092	1.425	0.163	0.217
<i>DUAL</i>	0.000	1.000	1.000	0.962	0.190
<i>BIGFOUR</i>	0.000	1.000	1.000	0.892	0.311

### Regression Analysis

This study takes US listed companies as a research sample to explore the impact of managers' social network operation on the cost of debt funds. From the empirical results in Table 4, it can be found that the activity of managers using social networks (NET) has a significant negative correlation with the cost of debt (COD). In the part of the control variables in Table 4, the return on total assets (ROA) and the cost of debt funds

(COD) show a significant negative correlation (estimated coefficient = -0.094; p value < 0.01), which means that the company's profitability is relatively good, and the default risk is reduced, and creditors are willing to demand less risk premiums, reducing the company's debt capital cost. In addition, the debt ratio (LEV) is significantly positively correlated with the cost of debt funds (COD) (estimated coefficient = 0.216; p value < 0.01), indicating that the possibility of corporate bankruptcy is high and there is a financial crisis, so creditors will require more risk premiums to increase the company's cost of debt funds.

Table 4 :The Influence of Managers' Community Network Operation on the Cost of Debt Funds

Dependent Variable = Cod				
Variable	Expected sign	Coefficient	t-statistic	p-value
Intercept		-0.079	-4.920	0.000***
NET	—	-0.007	-2.990	0.003***
ROA	—	-0.094	-6.540	0.000***
LEV	+	0.216	25.590	0.000***
TIE	—	-0.001	-10.060	0.000***
CURRATIO	?	0.023	14.650	0.000***
SIZE	—	-0.007	-3.650	0.000***
SGR	?	0.020	2.950	0.003***
DUAL	?	-0.015	-1.770	0.076*
BIGFOUR	+	0.001	0.300	0.763
Adj. R <sup>2</sup>		0.527		
N (1)		8,392		

Note : Variable definition is the same as Table 3. The significance is a two-tailed test; \*\*\*, \*\*, and\* represent the significance level of 1%, 5% and 10% respectively. VIF values are all less than 3.

### Sensitivity Test

1.The impact of managers' social network operation on the capital cost of secondary liabilities. The previous empirical study explored the influence of current managers' use of social networks on the current cost of debt funds, and the empirical results in Table 5 show that managers operating social networks will indeed significantly reduce the current year's cost of debt funds.

Table 5: The Impact of Managers' Social Network Operation on the Capital Cost of Secondary Liabilities

Variable	Expected sign	Coefficient	t-statistic	p-value
Intercept		-0.078	-4.440	0.000***
NET	—	-0.005	-1.950	0.051*
ROA	—	-0.100	-5.950	0.000***
LEV	+	0.206	22.600	0.000***
TIE	—	-0.001	-8.380	0.000***
CURRATIO	?	0.026	14.620	0.000***
SIZE	—	-0.009	-3.980	0.000***
SGR	?	0.023	3.320	0.001***
DUAL	?	-0.010	-1.050	0.295
BIGFOUR	+	0.006	1.240	0.217
Adj. R <sup>2</sup>		0.538		
N		7,185		

Note : (1) Variable definition is the same as Table 3. (2) The significance is a two-tailed test; \*\*\*, \*\*, and\* represent the significance level of 1%, 5% and 10% respectively.

2. Using two-stage regression to examine the endogenous correlation of independent variables – the impact of manager characteristics on the cost of debt funds In this study, the independent variable (NET) of this study was measured by whether the manager's social network account posted a post. However, in addition to observing the manager's use of the social platform, creditors may also measure the manager's characteristics after considering the manager's characteristics. The research establishes the following equation to estimate the regression model of managers' social network operation:

$$NET_{i,t} = \alpha_0 + \alpha_1 SALARY_{i,t} + \alpha_2 PERIOD_{i,t} + \alpha_3 PAGE_{i,t} + \alpha_4 GENDER_{i,t} + \alpha_5 IND_{i,t} + \alpha_6 YEAR_{i,t} + \varepsilon_{i,t}$$

3. The impact of managers' social network operation on the cost of corporate debt funds – differentiating between social network platforms This study intends to further explore whether the impact of various social networking platforms (LinkedIn, Facebook, Twitter, Instagram) on the cost of corporate debt funds is different, and regression analysis is performed on each platform.

## CONCLUSION

Nowadays, people are inseparable from social networks. We live in an era where information can be obtained at any time. Enterprises have also begun to use social networks to promote their images and strive to increase their visibility, there are also many business managers who start to operate their own social accounts, posting information related to the company or their own arguments on social platforms, and the words and deeds of business managers will affect the company's image and maintain a better corporate reputation It may make creditors willing to believe in the company. This study infers those creditors can reduce the information asymmetry between them and the company by observing the manager's community dynamics, so that creditors are willing to believe that the company's credit is good, which will reduce the required risk premium. Through the empirical results of the sensitivity test, it can be found that in addition to affecting the company's current debt capital cost, the manager's social network will also reduce the company's debt capital cost in the next period. Furthermore, this study only discusses the managers of listed companies in the United States as the research object. It is suggested that future research can further explore the use of social networks by managers in my country or other countries.

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# THE ADDITION OF UNIQUE PRODUCT OFFERINGS AT DILLARD'S, INC.

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## ABSTRACT

*This descriptive case study examines the 282-location department store Dillard's, Inc., highlighting the product-line additions of James Avery jewelry and preowned Louis Vuitton handbags. In the retail department store industry, Dillard's boasts a 2021 market cap of \$5.38 billion and annual revenue of \$4.4 billion (Caldwell, 2021). This case focuses on the relationship that Dillard's has fostered with the artisan jeweler James Avery, who reached annual revenue of \$580 million in 2021 and, since 2014, has collaborated with Dillard's as it has expanded its distribution from 115 company-owned storefronts to 250 (Caldwell, 2021). The global personal luxury goods industry, including jewelry and women's handbags, is the second most valuable luxury market behind luxury cars. Accessories are among the most important segments, holding about 36% of the global luxury goods market share, while U.S. sales of women's accessories generate over \$30 billion annually (Smith, 2022). This case study identifies and summarizes the differentiation and niche strategy employed by Dillard's through selling luxury goods from James Avery and Louis Vuitton.*

**JEL:** M1, M2, M3

**KEYWORDS:** Branding, Luxury Goods, Niche Strategy, Sales, Profitability, Marketing.

## HISTORICAL BACKGROUND

Based in Little Rock, Arkansas, Dillard's, Inc. (Dillard's) focuses on delivering style, service, and value to its shoppers by offering compelling apparel and exceptional customer care (Dillard, 2021). With more than 40,000 employees in stores and operation centers, Dillard's views "diversity as a key part of creativity, innovation, and competitive advantage" (Dillard, 2021) in the rapidly changing retail environment. Moreover, Dillard's stores offer a broad selection of merchandise: handbags, shoes, clothing, accessories, and feature products from national and exclusive brand sources. In the increasingly competitive upscale retail industry, Dillard's (Dillard's) marketing strategy focuses on selling unique luxury goods to a specific target market of middle and upper-middle-class women. After completing college at the University of Arkansas in 1935, Mr. Dillard attended graduate school at Columbia University School of Business in 1937. After graduation, Mr. Dillard began working as a management trainee for Sears, Roebuck & Company. Shortly after finalizing the training course in only seven months, he left Sears and opened his first store (Dillard's, 2021). In 1938, he started Dillard's with \$8,000 borrowed from his father in his wife's hometown of Nashville, Arkansas. By then, he had gained 12 years of part-time and summer experience working in his father's Mineral Springs store.

Dillard's went public in 1969, making its Class A Common Stock available to eager savers for the first time. By the early 1970s, the chain progressed into Louisiana, Missouri, and New Mexico and had expanded its presence in Texas, Arkansas, and Oklahoma. In 1974, purchasing five stores from Tandy's Leonard's Division gave Dillard a solid position in the Dallas/Fort Worth market (Dillard's, 2021). Dillard's budgets for vendor allowance for advertising, margin maintenance, and payroll are a strategic part of their operations. Dillard's also depends upon its ability to adjust accurately to changes in fashion trends and customer preferences. According to the Los Angeles Times (2002), *Fortune* magazine in 1989 named Dillard's chain "a quiet superstar family run, highly computerized, extremely competitive and great for

investors" (page 1). In building one of the country's most cultivated department store chains, William Dillard used a computer network to track what was selling and to keep his racks full when an item became a hot seller (Los Angeles Times, 2019). Dillard's profited from selling high-design fashion items at accessible prices, with the help of computers to keep inventory, sales, and consumer database information. Social media and electronic technology have allowed the company to interact with customers, advertise new products, and keep up with the fashion season.

Dillard's perspective embraces respect for its customers and enduring relationships to offer an enticing customer experience (Dillard Department Stores, 2021). Emphasis on consumer satisfaction has accounted for its steady growth and financial success since the company employed this strategy (Dillard Department Stores, 2021). Due to the company's debt-to-capital ratio being lower than that of competitors, interest did not limit Dillard's growth. By 1993, sales at Dillard's had grown to \$5.13 billion, a six-fold increase over ten years, while profits were also multiplying from \$34.1 million to \$241.1 million. Dillard's focuses on growing its market by tapping into different marketing sectors, using a centralized computer system, which allows the company to deploy all central services, computing resources, management, and administration (Burns, 2019). The key advantages of using a centralized computer system are efficiency and affordability in handling management and data functions. Dillard's stocks are registered on the New York Stock Exchange under the symbol DDS (Nasdaq, 2022). The company's Common Stock (DDS) reflects the results of the previous strategies mentioned, allowing the company to increase sales. Dillard's revenue for the quarter ending July 31, 2022, was \$6.62 billion, a 49.42% increase from 2021 (Macrotrends, 2022).

Dillard's had a strong ambition and vision for the future of retailing, creating one of the most successful family-run department store chains in America. Today, the company remains a competitive player in the industry, both within its stores and by escalating into e-commerce (Caldwell, 2021). William Dillard frequently said, "Business without integrity is not good business and in the long run will not be successful" (Caldwell, 2021). According to Caldwell (2021), integrity is one of the many values passed down to Dillard by his ancestors, an essential key to the company's continued success and the type of foundation future generations can build on for years to come. The company emphasizes bringing maximum fashion and value to its customers by offering compelling clothing lines for every social occasion, various sizes, seasonal styles, home furniture, decorations, and accessories complemented by excellent customer care. Dillard's stores sell a broad selection of merchandise and feature products from national and exclusive brand sources. Dillard's conducts retail merchandise business using competitive conditions, including location, reputation, merchandise assortment, advertising, price, quality, mass merchants, and online mail orders, operating approximately 282 stores throughout 29 states.

### Competitive Advantages

A SWOT Analysis helps management benchmark its business performance and be aware of the competition and weaknesses the company might face. In addition, it is a tool that can assist an organization in better understanding how to successfully develop or strengthen a strategic plan based on the outcomes of the Analysis. It can also discover areas of the business that are creating issues that can harm the company. The brand discovers internal and external factors that can affect management operations with the SWOT Analysis. Top Dillard's threats include target market, segmentation, positioning, and unique selling proposition (USP) (Caldwell, 2021). Dillard's brand falls under the department stores sector, "lifestyle and retail" slogan "The Style of your Life." In addition, Dillard's offers its consumers a wide variety of multi-brand accessories. Its target groups are "middle and upper-middle-class women," segmentation is "clothing and fashion accessories retail store," and positioning as a leading department store chain in the United States (Dillard Department Stores, 2021). Dillard's strengths, weaknesses, opportunities, and threats show internal factors as strengths and weaknesses and external factors as opportunities and threats.

Table 1: SWOT Analysis

<b>Strengths</b>	<b>Weakness</b>
Track record of innovation	Declining market share
Talent management	Niche markets and local monopolies
Market leadership	Gross margin and operating margins
<b>Opportunities</b>	<b>Threats</b>
Increasing government regulations	Changing demographics
Customer preferences are fast changing	Distrust of institutions
Local collaboration	Competitive pressures

Pro, E. M. B. A. (2022). *Dillard's (United States) SWOT analysis / SWOT matrix*. embapro.com. Retrieved October 21, 2022, from <https://embapro.com/frontpage/swotcoanalysis/26937-dillards>. A SWOT analysis of Dillard's examines the brand by its strengths, weaknesses, opportunities, and threats. In Table 1, the strengths and weaknesses are the internal factors, while opportunities and threats are the external factors. SWOT Analyses enable companies like Dillard's to benchmark performance and business.

A SWOT Analysis helps assess Strengths, Weaknesses, Opportunities, and Threats. Dillard's SWOT Analysis help evaluate where the company stands in a competitive market and what steps need to be taken for strategic planning. It lets us understand and identify internal and external factors and negative and positive impacts on the business (Distributed Ledger Technology, 2022). It is vital to anticipate threats in advance and take necessary precautions. A strong business continuity plan minimizes weaknesses and threats to Dillard's upcoming performance. According to Young (2021), fashion demand helped department store retailers increase net income six times between the years 2020 to 2021. This greatly benefits the economy because of the number of jobs it generates and the amount of money it produces. Young compares the pre-pandemic year 2019 to the current period when sales of juniors' and children's apparel and men's apparel and accessories "expressively outperformed the other categories" (page 2), which reflected an increase in sales. During this period, Dillard's focused only on men's, junior's, and children's apparel, leaving behind women's apparel and shoes.

Dillard's gross margin for the year 2021 third quarters, not counting CDI Contractors, grew 46.7%. According to Young, management attributed the substantial development in gross margin to "continued strong consumer demand and better inventory management leading to decreased markdowns" (page 2). To continue monitoring this situation, "Management is monitoring the continuing supply chain issues, particularly concerning shipping delays and disruptions in the global transportation network" (page 4). This will assist Dillard's supply chain management in delivering on time to ensure the supply chain department continues to meet customers' needs across the United States. Net income went from \$197.3 million to \$31.9 million in 2019. Wall Street informs earnings per share of \$5.52 million on revenue of \$1.45 billion. At the end of 2019, net income was \$541.2 million, or \$25.76 million, a diluted share, against a net loss of \$138.7 million, or \$6.05 million, in the year 2020 (Young, 2021). According to Young (2021), Dillard's CEOs declared: "We are pleased to report another record quarter. Continued strong sales combined with record gross margin and expense control produced \$197 million of net income" (page 5). Dillard's CEO, William T. Dillard II, explained their positive increase between quarters to continue strong sales.

According to Hayes (2021), Dillard's has taken care of its liquidity needs for the next five years, amending and extending its \$800 million senior secured revolving credit capability, consistent with its liquidity needs. Dillard's said it could tap into the \$800 million to keep business going, using the funds to finance working capital, issue letters of credit, facilitate capital expenditures, and repay current debts. In 2020, during the COVID-19 pandemic, Dillard's operated by managing inventory and expenses to preserve its cash and ended its 52-week period on January 30, 2021, with \$360 million in cash. Inventory levels were reduced by 26%, and operating expenses were reduced by \$123 million (Hayes, 2021). Dillard's has obtained \$95.6 million, or 2.2 million shares, of Class A common stock under its \$500 million- share repurchase program. At the end of the year, authorization of \$173.1 million remained under the program. Furthermore, 22 million shares remained at year-end, versus 24.2 million at the end of the prior fiscal year (Hayes, 2021)). According to Vice President of Merchandising, Alexandra Dillard Lucie, since their success in 2021, the

company established a tremendous new handbag selection for the “highly engaged audience” (Alexandra Dillard Lucie, 2021). “This effort represents everything we are trying to accomplish for our clients at Dillard’s, providing newness and freshness in fashion with the high-quality standards they have come to expect from us,” the merchandising V.P. added (Hayes, 2021).

Dillard’s merchandise business is conducted under highly competitive conditions. Dillard’s competitors at the national level include Costco, Rakuten, Burlington Industries, and Macy’s. The local level competes with Dillard’s individual stores, including specialty, off-price, discount, and Internet retailers (Macrotrends, 2021). Competition is characterized by many factors: location, brand reputation, merchandise assortment, product quality, advertising and social media marketing, operation efficacy, and credit availability. As they constantly advocate for new customers, Dillard’s competitors might be perceived by potential customers as being “better aligned” with their personal preferences (Smith, 2014). Dillard’s believes their stores are “in a strong competitive position,” knowing each trade area and store customer base (Alexandra Dillard Lucie, 2021) Exclusive brand merchandise is offered to provide the benefits of private label merchandise. Unlike national brands, Dillard’s customers receive fashionable, higher-quality products at a discount. A private label merchandise program allows Dillard’s to ensure the company’s high standards while minimizing costs. In addition, Dillard’s invests in the trademark and license portfolio, having control of the design function, advertising quality control, and response to market trends. Every trademark registration is maintained for as long as Dillard’s has the exclusive right to use the trademarks on every listed product. Sales promotion, merchandising, and store operating functions are conducted from corporate headquarters. Regular store visits by senior management and merchandising personnel support product development, store planning, and information technology (Young, 2021).

### Strategic Merchandising

In 2014, James Avery announced a new business relationship with Dillard’s Inc. Selling goods from different and third-party vendors could increase the supply of merchandise available for Dillard’s customers (Investors, 2005). The inability to mitigate or pass cost increases on to customers or change the merchandise mix due to such cost increases can impact overall profitability. This is why vendors and suppliers of different companies merge to sell goods by selling the same products at lower costs to customers. External companies use raw materials, fuel, and labor to reduce availability, increase the cost of goods, and impact financial results (Hlavaty, 2017). James Avery Artisan Jewelry is a private company that manufactures and sells Christian-themed jewelry. The business started in 1954 in Kerrville, Texas, led by founder James Avery, who started with \$250 (Hlavaty, 2017). Since 1954, the business has expanded, and today there are 50 stores in Colorado, Georgia, Louisiana, Oklahoma, Tennessee, North Carolina, Missouri, Kansas, Arkansas, Alabama, and Texas. In its initial year of business, 1954, Avery sold \$5,500 in jewelry and \$7,500 the following year. He eventually moved his business to a studio he built in his house. In 1957, Avery created his first catalog, consisting of 16 pages and 39 items for sale (Hlavaty, 2017). Today, the business continues to spread throughout Texas, with items being retailed in clothing boutiques and church gift shops. James Avery is a family-owned jewelry retailer who collaborated with Dillard’s at 43 department stores within 15 states and online at [www.dillards.com](http://www.dillards.com). James Avery offers a collection of unique jewelry designs for women and men constructed in sterling silver, gold, and gemstones. Avery is highly recognized for inspiring collections, new designs, and a variety of options. Chris Avery, President and CEO stated: “As we enter our 60th year, we are very pleased to be entering this relationship with Dillard’s, a company that shares our values of integrity, ingenuity, and a commitment to genuine, caring customer service. We are looking forward to working with the Dillard’s team to offer customers a nice selection of artfully crafted James Avery designs” (Smith, 2014).

James Avery Jewelry has grown over the past 60 years from being a small shop run by one man to over 2,000 employees. These employees include designers, craftspeople, sales associates, and external support staff. All the designs are created by artisans in the James Avery design studio and later produced by

employees at the company's workshop. The company's business is dependent upon attracting and retaining quality employees. Maintaining quality employees can help expand the business and save the organization from productivity losses. Dillard's values having luxury items in their inventory when the retail industry is facing slower production lines. The proper selection of brand sources depends upon the ability to acquire appealing products from several suppliers. In this case, we focus only on James Avery and Louis Vuitton. The valuation of merchandise inventories and return assets on exclusive brand merchandise for fiscal years 2021, 2020, and 2019 was 22.7%, 20.4%, and 21.1% of the total net sales (Investors, 2005). Dillard's works to attract and retain compelling vendors, production facilities, and seasonal influences (Investors, 2005).

### Measured Success

In this section, we analyze Dillard's revenue, including sales from James Avery and Louis Vuitton, and Dillard's annual/quarterly revenue history and growth rate from 2018 to 2022. Revenue can be defined as the amount of money a company obtains from its customers in exchange for the sales of goods or services (Macrotrends, 2021). Revenue is the top-line income entry on an income statement, subtracting all costs and expenditures to reach net income (Macrotrends, 2021).

Table 2: Dillard's Balance Sheet 2018-2022

Balance Sheet	(In Thousands) (Usd)					2018
	2022	2021	2020	2019	2018	
Total Assets	\$ 3,245,557.00	\$ 3,092,515.00	\$ 3,430,257.00	\$ 3,431,369.00	\$ 3,673,169.00	
Current Assets	\$ 1,914,651.00	\$ 1,661,940.00	\$ 1,848,082.00	\$ 1,770,532.00	\$ 1,729,851.00	
Total Liabilities	\$ 1,794,339.00	\$ 1,651,507.00	\$ 1,806,998.00	\$ 1,752,988.00	\$ 1,965,014.00	
Long Term Debt	\$ 521,247.00	\$ 565,849.00	\$ 566,404.00	\$ 567,235.00	\$ 568,309.00	
Stockholders' Equity	\$ 1,451,218.00	\$ 1,441,008.00	\$ 1,623,259.00	\$ 1,678,381.00	\$ 1,708,155.00	
Total Assets per Share	\$ 172.41	\$ 140.47	\$ 141.77	\$ 130.23	\$ 130.69	
Current Liabilities	\$ 966,186.00	\$ 772,877.00	\$ 930,820.00	\$ 933,535.00	\$ 1,039,701.00	
Net Assets per Share	\$ 77.09	\$ 65.46	\$ 67.09	\$ 63.70	\$ 60.77	

Table 2 explains the number of key indicators of financial condition and operating performance used to evaluate the business from fiscal years 2018 to 2022 (Smith, 2014). The company's total assets at the end of 2022 were \$3,245,577 (in Thousands). Net assets per share in 2022 was 77.09, while current liabilities were \$966,186. This was used for the purchase of property and equipment, and software. The company strategy involved knowledge of each of its trade areas and customer bases for its stores Mergent, (2019).

Dillard's operations impact vendors' advertising, payroll, and margin maintenance allowances. These are crucial for the strategic part of Dillard's operations. Reducing the number of cooperative advertising allowances would cause them to reconsider other advertising methods, like social media. The volume and frequency of product advertising will increase/decrease expenditures and revenue (Investors, 2005). On the other hand, according to William T Dillard, CEO of Dillard's (2021), a cash flow decrease could limit the ability to fund operations. Dillard's depends on operations to generate strong cash flow and capital, supporting operating activities, interest, and debt repayments. Table 2 reflects the merchandise assortments to deliver seasonally appropriate inventory. Overall, reducing the demand for or supply of seasonal merchandise or declining sales due to reduced consumer traffic in stores could harm inventory levels. This can also decrease Dillard's gross margin and impact operations from different departments (Macrotrends, 2021). Changes in economics, political conditions, and financial situations impact consumer confidence and spending (Smith, 2014). Risks related to consumer demand could harm business operations. The retail merchandise business is susceptible since it is affected by the overall economic and political conditions, affecting consumers' disposable income to spend on luxury goods (Smith, 2014). Inflation, interest rates, taxation, the availability of consumer credit, and general business conditions can affect a company's sales.

Table 3: Cash Flow Statement

Cash Flow Statement	(In Thousands) (Usd)					
	2022	2021	2020	2019	2018	
Cash from Operations	\$ 1,280,020.00	\$ 252,946.00	\$ 365,074.00	\$ 367,288.00	\$ 274,285.00	
Cash from Investing	\$ (69,788.00)	\$ (48,380.00)	\$ (68,092.00)	\$ (127,749.00)	\$ (110,207.00)	
Cash from Financing	\$ (853,812.00)	\$ (121,304.00)	\$ (143,414.00)	\$ (303,058.00)	\$ (324,035.00)	
Capital Expenditures	\$ 104,360.00	\$ 60,453.00	\$ 103,383.00	\$ 137,064.00	\$ 130,464.00	
Cash Flow per Share	\$ 62.16	\$ 11.14	\$ 14.39	\$ 3.45	\$ 9.30	
Cash & Cash Equivalents, Beginning of Year	\$ 360,339.00	\$ 123,509.00	\$ 123,509.00	\$ 187,028.00	\$ 346,985.00	
Cash & Cash Equivalents, End of the Year	\$ 716,759.00	\$ 360,339.00	\$ 277,077.00	\$ 123,509.00	\$ 187,028.00	

Table 3 demonstrates the cash flow and financial performance for 2018 to 2022. The company's cash from operations in 2022 was \$1,280,020, a 51% increase from the previous year's cash flow per share of 62.16. In 2022, the company had cash and cash equivalents, end of year 716,759, compared to 360,339 in 2021 (Mergent, 2019).

Dillard's private label merchandise program benefits from selling Louis Vuitton and James Avery. Offering customers quality products at competitive prices and a high level of customer service can result in customer loyalty. Customer loyalty depends on Dillard's ability to respond to rapid changes in trends. The value of Dillard's reputation is based on the quality offered in their merchandise selection. Information is available to customers about the lines of exclusive brand merchandise via social media platforms. Any adverse publicity or governmental investigation involving the company can rapidly harm the company, diminish customer trust, and generate negative sentiment (Meller, 2021). Usually, forecasts cover a five-year period, which may be extended in the case of luxury brands. The capitalization in perpetuity of cash flows arises from the previous year's plan. Overall, every business with the premium risk of forecasting cash flows estimates the rate of return. Fixed assets for intangible or tangible goods are subject to impairment testing. According to Meller, a number of assets that contain indefinite useful lives have a higher value in the market. Value is based on the presence of cash flows that anticipate generating assets. Revenue comprises retail sales through agents in distributors' stores in fashion, leather goods, jewelry, and perfumes (Meller, 2021). Luxury goods shares were raised after Louis Vuitton recorded revenue of \$16.8 billion in the first quarter, making 2020 up by 32% on previous years (Meller, 2021). Notably, revenue was higher by 8% compared to the first quarter of 2019. Consumers are seeking out luxury bags, despite the uncertain economy. Analysts recommend buying Louis Vuitton shares since this brand remains a high-quality name with unique portfolio diversification.

Table 4: Dillard's Competitors

Company	Sales	Net Income (Million)	Employee Count
Belk, Inc.	\$ 1,043,409,668.00	\$ -	24350
Bj's Wholesales Club	\$ 16,667,302,000.00	\$ 426.70	32000
Burlington Stores Inc.	\$ 9,322,256,000.00	\$ 408.80	62395
J.C.Penny Corporation, Inc.	\$ 1,996,438,735.00	\$ -	15500
Lowe's Companies, Inc.	\$ 96,250,000.00	\$ 8,442.00	340000
Mattress Firm Holding Corp.	\$ 1,837,101,544.00	\$ -	10552
Ross Stores, Inc.	\$ 18,916,244,000.00	\$ 1,722.60	100000
Sears, Roebuck, And Co.	\$ 2,022,946,395.00	\$ -	89000
Target Corporation	\$ 106,005,000,000.00	\$ 6,946.00	450000
The Bon-Ton Stores Inc	\$ 2,674,351,000.00	\$ 63.40	23300
Von Maur, Inc.	\$ 563,827,159.00	\$ -	4500
Walgreen Co.	\$ 5,044,759,701.00	\$ -	210500
Walmart Inc.	\$ 572,754,000,000.00	\$ 13,673.00	2300000

Retailers seek to merchandise diverse luxury brands to gain better positioning in high-fashion retail markets. This is expressed in terms of activity, international presence, and notoriety, Net Sales from Dillard's Competitors by sales, net income, and employee count (Meller, 2021).

## CONCLUDING COMMENTS

Dillard's business depends on the operational process of receiving and distributing merchandise, which relies on shipping schedules and effective distribution management. Dillard's believes that its distribution processes are efficient and the appropriate contingency plans are working. However, operations due to fire and severe weather conditions, labor disagreements, or shipping problems might result in the loss of inventory or delays in the delivery of merchandise across stores. Overall, stores benefit from anchor tenants and areas of attraction to generate consumer traffic (CCN Money, 2022). Dillard's depends upon operations to generate more significant cash flows compared to previous years, availability of financing sources, and interest and debt repayments. Dillard's net profit margin as of October 31, 2021, is 10.22%, which is higher than the current and historical operating margins for Dillard's Department Stores (DDS) over the last ten years. The current operating profit margin for Dillard's as of October 31, 2021, is 10.04% (Smith, 2021). Profit margin can be defined as the percentage of revenue that a company retains as income after the payment of expenses. Gross margin improved significantly in fiscal 2021 compared to fiscal 2020 and 2019 due to more robust consumer demand combined with continuous efforts to control inventory. Dillard's continues to improve performance by cutting operating costs, average gross margin, and interest expense (CCN Money, 2022). Mr. William Dillard built one of the fastest-growing department stores in the United States. Providing a range of high-end products directly to consumers across multiple product categories. Including apparel, home furnishings, luxury handbags, accessories, and jewelry. Further work involves value propositions to its customers in the following ways: broad catalog, providing a wide range of high products, and accessibility. The company provides customers with self-service online and mobile sales (Smith, 2021).

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## BIOGRAPHY

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# REGULAR ECONOMIC ERA AND PANDEMIC ERA: ACCOUNTING QUALITY IMPACT ON COMPANIES' STOCK PRICES, BANKRUPTCY FILING, AND FINANCIAL STATEMENT MANIPULATION

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## ABSTRACT

This study employed auditing and accounting quality measures that impact stock prices, firms' ability to manipulate financial statement reporting, and bankruptcy filing. The study analyzes the impact of these factors during regular economic times compared to pandemic times to determine the variances in the significant variables that impact the three selected study areas. The study also ranked the significant variables to determine which measures should prioritize for both firms and auditors to consider in decision-making during stable economic and pandemic environments to avoid financial statement manipulation, bankruptcy filing, and maintain and improve stock prices. The study also simultaneously tested the measures for the three study areas to rank the significant variables. This study confirms that the significant measures during the regular economic times differed from those during the pandemic, impacting stock prices, financial reporting manipulation, and bankruptcy filing. The study also confirms that the ranking of the variables in the economic times differs from the ranking in the pandemic times, except for the impact bankruptcy filing that showed a trend of the top five and the last three variables being similar. The study employed the dominance analysis to determine the ranking of the financial and nonfinancial measures; overall, the nonfinancial measures outranked the financial measures. Prior research has examined various measures that predict accounting quality measures that impact stock prices, manipulation of financial reporting, and bankruptcy filing. This study considered the relative importance of the economic era, the simultaneous occurrence of the study area, and the ranking of the financial and nonfinancial measures essential as audit firms endeavor to manage client relationships and management enhances accounting quality in financial reporting.

JEL: M410

**KEYWORDS:** Financial Reporting Manipulation, Bankruptcy Avoidance, Nonfinancial, Going-Concern Issues, Stock Prices, Dominance, Internal Control, Audit Fees, Benford's Law, Illegal Activities, Litigation, Disclosures.

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# THE SOCIAL IDENTITY DYNAMICS OF THE EUROPEANIZATION OF BULGARIA: RECONSTRUCTING GRAMSCIAN HEGEMONY IN A POST-NEOCOLONIAL BALKAN NATION-STATE

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## ABSTRACT

This analysis proposes that a significant source of the systemic sources of so-called grand corruption and strategic corruption in Bulgaria lies in its long-term history of imperial and colonial subordination. It raises the epistemological issues of the perceptual basis for the identification of corruption. Corruption is a weaponized political label favoring particular political topographic characteristics and trends that support a regional international political hierarchical order, in this case American hegemony. The Bulgarian national community's complex component community identity profile is a product of generations of external domination which this analysis highlights. This legacy includes authority legitimization challenges that contradict establishment authority claims that their domination and control provides an invisible public good in terms of social order. Institutionalized habituated attitudinal predispositions among the public emphasize functionally the state authority as self-serving in its domestic control. The national state authority represents the control interests of an external hegemony. This domestic control ultimately serves the hegemonic interests of an external power, e.g., the Ottoman sultanate, the Soviet Union, or NATO/EU. Bulgarian constituency group and individual acquisition of greater social status via social creativity in relation to the state authority displays orientations towards serving the domestic national representative of the alien external Other.

**JEL:** D73, F54, H11, H41, H56, H83, H87, M48, N44

**KEYWORDS:** Bulgaria, Corruption, European Union, Hegemony, Imperialism, Social Identity Theory, Soviet Union, United States

## INTRODUCTION

This paper critiques the de facto equation of Europeanization with submission to American hegemony. It asks, what choices were made that allowed the EU to be equated as one of side of the same coin with NATO. France's rejoining the NATO command structure in 2009 encouraged this perception. It comports with the claim that American liberal hegemony made the European integration process feasible. It highlights the consequences for national conflict resolution of the Europeanization process being equated with attitudinal orientation towards accepting American hegemony. Bulgaria is a case study of this process on the level of indirect conflict and influence competition between Moscow and Washington, with each seeking to contain the other. The outbreak of this competition into violence is occurring in Ukraine. Independent variables in this case study include Bulgarian nationalism. The attitudinal institutionalization of Bulgarian nationalism through the Bulgarian state despite frustrated irredentism acquired predominance under the Communist regime. Shifting this orientation towards the North Atlantic Community is problematic in that the EU functionally favors stability and stabilization to maintain existing borders.

European integration's focus on developing vested economic and bureaucratic interests has tied it to American hegemony. The source of the anti-Moscow influence tendency institutionalized in European integration is to be found here. Challengers to these vested interests include Russia, stereotyped by

Washington as the threatening rogue headquarters of so-called strategic corruption. It reflects a mirror image of neo-Stalinist stereotyping in Moscow of Washington and London as the imperial headquarters or heartland of threatening global capitalism. Communist Bulgaria was the most loyal ally of the Soviet Moscow, closely modeling and integrating its economic institutions with those of the USSR (Spennner and Jones, 1998). Becoming European means becoming coopted into the Washington-centric international political economic system (Vassilev, 2006). It is an intergenerational challenge in Bulgaria, with so many generations socialized into Russophile attitudes. Bulgarian defense minister Stefan Yanev lost his post after publicly rejecting the “war” label for the Russian February 2022 invasion of Ukraine. He advocated instead the term “military operation,” echoing Moscow’s rhetoric (Euronews, 2022).

For some national constituencies, to be European incorporates a drive functionally equated with a claim to entering a supraordinate status category (Jugert and Stollberg, 2019). Being a European Bulgarian is significantly a desire to achieve individual social mobility. How to achieve this mobility in terms of how one ought to behave, i.e., what is ethical, is at the foundation of Bulgarian societal dissonance and dissensus. To be a European means to tolerate the traditionally derogated Other in Bulgaria, i.e., Greeks, Turks, Roma, Macedonians. “Cardinali et al. (2015) defined ethics as a moral code of norms that exist in society externally to a person, depending on culture and time, while ethical decision making is considerably challenging and complex (Spector, 2016)” (Dimitrios and Stavros, 2021, 1103). “European identity and attachment seem to satisfy a fundamental psychological need for people to be associated with positive identity” (Hadler, Chin and Tsutsui, 2021, 4). Being publicly acknowledged as a moral actor is equated here with acquisition of comparatively greater social status in the subjective actor’s social self-perception.

Medarov places the current Bulgarian struggle over historical narratives regarding totalitarian Communism within the context of the global passage of so-called memory laws. “Although memory laws have different political motivations (left, right, conservative, liberal or nationalist), what they share, paradoxically, is the common attempt to overcome the rise of diverging identities (ideological, ethnic, religious or others). They are all provoked by the states’ inability to contain their symbolic monopoly over national memory” (Medarov, 2020, 37). Diverging historical narratives reflect differing perceptions of the relative significance of historical experiences as contributive to contemporary national identity. They are selectively perceived to justify a particular vision of the most ethically proper authority norm system today and tomorrow.

## LITERATURE REVIEW

### Social Identity Theory

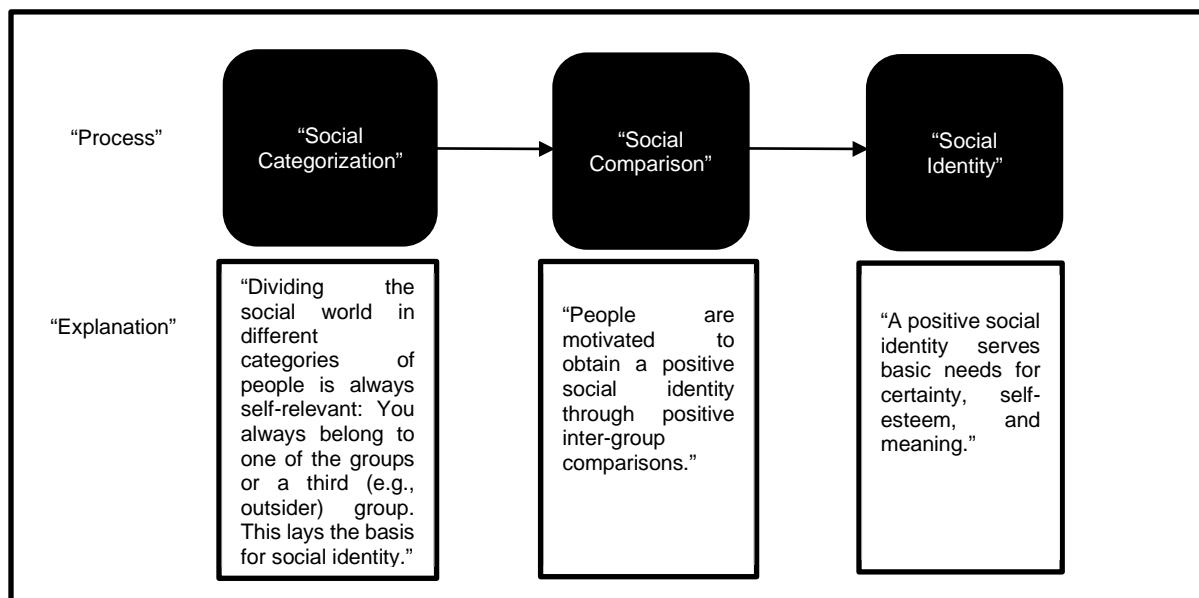
Social identity theory highlights a critical societal process in the evolution of “imagined communities” (Anderson, 1983). Legitimate authorities oversee the construction and elaboration of complex infrastructure to facilitate functional pursuit of group social creativity and individual social mobility acquisition. They respond to the functional exploitation of expanding perceived transnational interdependency. It thus lays the foundation for elaboration of awareness of global interdependency and the construction of global infrastructure as a public good.

*In Weberian ideal-typical, so-called developed nation states, the authorities are hegemonic. The modal citizenry functionally grants, if not necessarily consciously acknowledges, that the authorities have the moral and ethical right to be the authorities. They regulate the institutions for managing social identity creation and evolution.*

*Figure 1 shows the basic principles of social identity theory. Social identity theory underlines processes of societal change in terms of perceptions, attitudes and values of self and other amidst social interaction. Social identity theory is the theoretical foundation for the analysis in the paper. It highlights the significance of human in-group vs. out-group formation as actors strive via social*

*interaction to satisfy their evolving motivations and needs. These needs include positive self-esteem through identity affirmation. In response to a negative comparison of one's self-identity in-group with a relevant out-group, the individual perceiver manages their social identity through management strategies. They include 1) competing with the out-group, i.e., social competition; 2) attempting to join the superior out-group if feasible, i.e., social mobility, and 3) reevaluating the in-group along alternative criteria, i.e., social creativity" (DeDominicis, 2023, 2).*

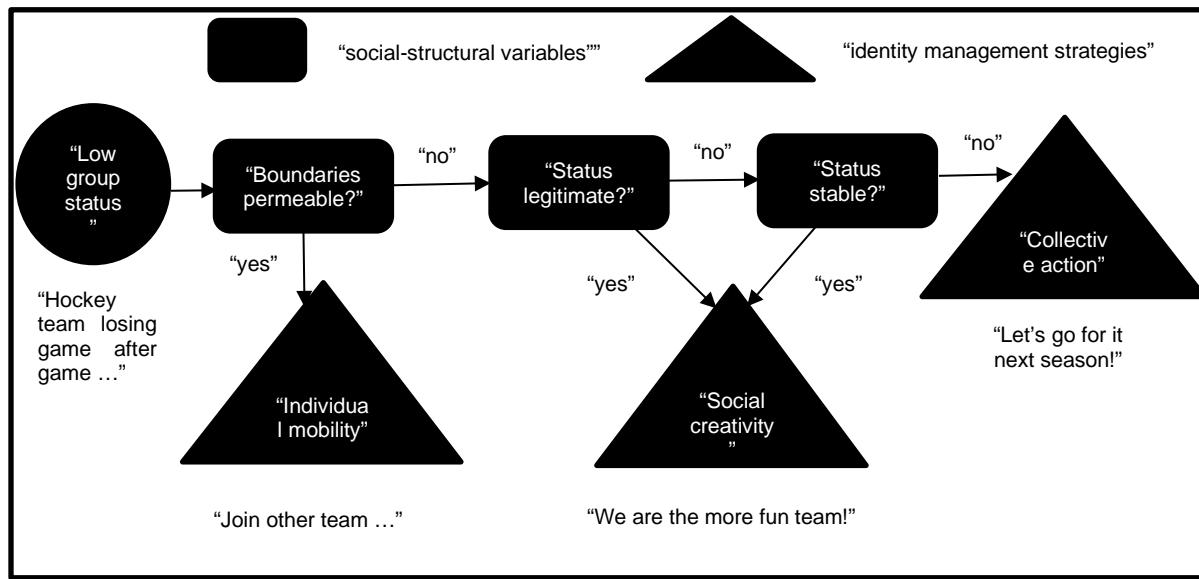
Figure 1: "Social Identity Definition"



*"Social identity theory's foundational motivational principles are that 1) an innate drive of the individual is to maintain a positive self-image, 2) individuals form ingroups versus outgroups, 3) individuals comparatively evaluate the social status of their ingroups with salient outgroups, 4) individuals tend to equate the comparative status of their ingroup with their self-image. If and when individuals comparatively evaluate themselves negatively within their societal contexts, then they will respond psychologically and socially, individually and collectively (see figure 2). Individuals have varying intensities of self-identification with a multitude of ingroups, but self-identification with a national ingroup is prevalent among homo sapiens and social competition can lead to violence (Fig. 1 from Scheepers and Ellemers, 2019, 8)." [sic] (DeDominicis, 2021, 40).*

*"Upon comparing one's ingroup with another and perceiving one's own status as inferior and therefore one's self-image as negative, the perceiver can respond with three psycho-behavioral strategies. One strategy is social mobility, i.e., attempt individually to join the perceived superior status group. A second strategy is social creativity, i.e., the perceiver compensates by changing the evaluation criteria, selecting those on which the perceiver views their ingroup as superior over the outgroup. A third strategy is open intergroup conflict, i.e., social competition, in which the ingroup perceiver views the relationship with the outgroup as zero-sum. Any gain by the outgroup is perceived as coming at the cost to the ingroup. National self-determination movements by definition seek to break the relationship through secession to form their own sovereign community (Cottam and Cottam, 2001). Figure 2 [...] schematically summarizes a presentation of social identity theory precepts." (DeDominicis, 2021, 41).*

Figure 2: “Social-Structural Variables And Identity Management Strategies”



*“Upon perceiving an ingroup negative social status self-evaluation, an individual member may choose three different response strategies. Individual social mobility seeks to join the superior status group if the boundaries are permeable, e.g., “in the United States, [...] classes are permeable but races, in most cases, are not” (Cottam and Cottam, 2001, 92). Social creativity involves compensatory reconfiguration of the comparison criteria to reconstitute the individual perceiver’s positive self-identity ingroup evaluation. If dynamic interactive contexts destabilize social-structural features of intergroup status relations, then social competition, i.e., collective action by the ingroup to supersede the outgroup along the same status evaluation criteria, may be the social strategy response (Fig. 2 from Scheepers and Ellemers, 2019, 12).” [sic] (DeDominicis, 2021, 41).*

*“This study elaborates on the identity management strategy of collective action as a form of political integration. In addition to collective action being employed in social competition, the collective action may be in the form of additional social creativity. Collective action may seek to supersede the relationship evaluation criteria upon which the zero-sum evaluation is based by fortifying new evaluation criteria. This new evaluation criteria may supplant the status quo institutional context by exploiting dynamic political opportunities.” (DeDominicis, 2021, 40).*

Professional ethics codes for the legal system as the core of the state are attempts to institutionalize social status through perceived rule of law to define and regulate social deviance. Parochiality is here conceptualized as pursuing so-called clique ingroup interests at the expense of a supraordinate community identity public good (Abrams and Vasiljevic, 2014). Authorities perceiving a challenge to their supremacy from such behavior label it as corruption through institutionalization of ethics via these professional codes of ethics. Those who fight corruption ideally rise in social status through relatively effective societal enforcement of this “frame” (Bartoszewicz and Eibl, 2022, 3). It should be institutionalized, i.e., the realization of the rule of law, to provide this substantive benefit. Social deviance transforms into social creativity through perceived success in global competition on behalf of the primary terminal self-identity community, i.e., the nation. These perceived challengers to national development may include internal and external sources.

### US National Security and Corruption

The Biden administration’s focus on corruption and the “international rules-based order” has its foundation in American post-Cold War hegemony legitimization (Garamone, 2022, para. 1). This legitimization lies in the belief that American global leadership provided the political resources for freedom and prosperity against the Soviet Union, viewed as a totalitarian imperialist power. Moscow’s current attempts to disrupt this system, according to this worldview includes corruption, i.e., the undermining of the global public good for

illegitimate parochial imperial political gain by Moscow. This worldview emphasizes the necessity of the stability of its foundational institutional order under American postwar hegemony that has expanded globally. For example, money laundering, namely international money laundering, is the essence of the subversion of this system, which alleges facilitates terrorist funding.

### The European Union: American Hegemony's Subaltern

Degenhardt (2020, 140) observes that the label of "criminality" is "applied selectively as a result of the GN [Global North (BD)] preoccupation with security and stability." The antipode to Europeanization is corruption via Russian actors and influence. Bulgarian Prime Minister Kiril Petkov equated fighting corruption in Bulgaria with resisting illegal foreign influence, particularly Russian foreign influence in the country (Kotseva, 2022).

### Conceptualizing Corruption

This study suggests a focus on regime legitimacy as the perspective to analyze corruption. It specifically focuses on how Gramscian hegemony is constructed to generate the public's willingness to grant legitimacy to the authority of the ruling class. It is essential for the perception of corruption to emerge, or not to emerge within a national polity that displays full adult political awareness. The nature of this acceptance can be comparatively evaluated and measured in terms of mobilization base of the authorities regarding the public. A ruling elite that the modal citizen in a nation state perceives as foreign-imposed, i.e., a quisling regime, will display less mobilizational power potential *ceteris paribus* (Downes, 2009). The collapse of the American client regime in Afghanistan in 2021 illustrates the delegitimizing impact of foreign installation of a ruling elite (Moldovan, 2021). Foreign-imposed regime change creates daunting obstacles to the creation of a collective prevailing view that the state authorities represent the Gramscian "national-popular" will (Monshipouri and Dorraj, 2021, 204). -In such an ideal-type polity, participatory, autonomous public opinion formation among the citizenry displays corruption's existence as a normatively negative, politically weaponized label for behavior. As such, the relative pervasiveness of corruption equates with the relative degree of normative dissensus on norms and values within a national polity.

### Corruption and Imperialism

Table 1 highlights the history of Bulgarian national identity community development. It reflects the impact of extended periods of external imperial domination of Bulgaria from its ancient foundation as a polity by the Thracians. Early medieval period migrations culminated in the establishment of a recorded medieval state under the Proto-Bulgarian khans that eventually adopted Byzantine Christianity. The early medieval Bulgarian state was a first-rank power in Europe, evident in the creation of the Cyrillic alphabet and the translation of the Bible into Old Church Slavic. Bulgaria eventually alternated between direct control by and vassalage towards Constantinople. The Ottoman Muslim conquest in the late medieval period would not end until the latter half of the nineteenth century along with imperial Russian direct military intervention. The latter claimed hegemonic leadership of the Slavic and Orthodox communities (Tumanova, 2014, Miller and Resnick, 2003, Gorun, 2015).

Table 1: Imperialism and Colonialism in Bulgaria

	<b>Formal</b>	<b>Informal</b>
<b>Direct</b>	1) Macedonians/Greeks 2) Romans 3) Byzantines I 7) Ottomans	4) Slavs 5) Proto-Bulgarians
<b>Indirect</b>	6) Byzantines II 8) Russians	9) Soviets

*Post-World War II Communist Bulgarian incentives to acknowledge and exploit Soviet Russian claims to hegemony include frustrated Bulgarian irredentism. The obstacles to Sofia's unification of the so-called Bulgarian lands lie in Cold War de facto or de jure alliance of Belgrade, Athens and Turkey with NATO. The resurgence of EU/NATO conflict with post-Soviet Moscow has intensified Bulgarian national component community identity evolution to channel Bulgarian irredentism into EU mediation channels. Russian influence is therefore informal and to the extent it undermines pro-Euro-Atlantic policy and orientation, it is labeled as corrupt and a threat to Europe more broadly. Democratization permits expression of Bulgarian irredentism but Bulgaria's collective self-awareness of its minor power status constrains it.*

For this study, neo-colonialism consists of informal-indirect control. In sum, the nationalist subject perceives the imperial power concealing its control through utilizing local collaborators who maintain the public image of representing the sovereign authority of the nation. Historically, it typically involves working through a local ruling family dynasty, e.g., the Shah's regime in Iran (US) and the Zhivkov regime in Bulgaria (USSR). Since 1989, Bulgaria is a post-neo-colonial nation state.

### Nationalism and Corruption

A standard, general definition of corruption is the “abuse of public office for private gain” (Asencio, 2019, 263). Ideally, institutions of democratic political participation invest this public authority into individuals and groups acting as agents of the liberal democratic state. Liberal democracy is not an essential requirement for legitimacy in the collective view of some segment of the public. Charismatic authoritarian populists may be viewed as representing the will of the nation in the eyes of many, if not most. An actor not perceived as acting in their private interest is not corrupt even if terribly cruel. In Communist Bulgaria, the public interest became associated with the Party’s nomenklatura monopolization of traditional control of the state via patronage. Post-Communist democratization “did little to curb the tradition of packing public administration with public supporters” (Spirova, 2012, 54). The disintegration of this control means lack of consensus today on what is the public interest because of the decaying authority norms system inherited from Soviet-imposed Communism. Creating a new public interest means creating a national community consensus on new community/statewide institutions of public authority generation. Euro-Atlantic hegemonic authorities label it corruption if it does not conform with Euro-Atlantic regional strategic foreign policy objectives. One comparative study of populist versus technocratic rhetoric in Serbia and Bulgaria highlights how Europeanization has been a vehicle for the concentration of power in the national executive (Domaradzki and Milosavljević (2021). A consequence has been the weakening of anti-corruption reforms through their rhetorical trivialization as EU conditionality serves as a vehicle for personal authority legitimization by ambitious state leaders.

### Social Deviance

Victimization strengthens ingroup formation through displacement of aggression and the sacralization of the victim and its ritualization. Amidst modernity in which the ingroup members award status through achievement rather than through ascription by birth, the scapegoat is the internal collaborator with the source of the external threat. Amidst intense mobilization to exploit a perceived marvelous opportunity through external target perceived degeneracy, internal enemies are traitorous degenerates to be sacrificed for the common public good of national ascendancy. Against external threats, internal enemies are traitorous demons to be sacrificed for the common public good of national security. The shift from ascription to achievement for acquiring social status is intimately connected to perceived cultural

differences that become national and automatically competitive. This consequent tendency to form ingroups was the theme of Sheriff's studies of the boys at Robbers Cave. "In this case, the boys in the camp quickly coalesced into competing factions and initial outliers in the groups conformed out of a desire to win competitions (i.e., be right)" (Mallinson and Hatemi, 2018, 3). The clash of civilizations expands this tendency beyond nation states.

## DATA AND METHODOLOGY

### Bulgarian Law and Policy

In the Bulgarian case, modern nation-statewide institution building accelerated under Communism (Mevius, 2009). With post-1989 liberalization, traditional behavioral attitudes of clientelism within the formal framework of Marxist-Leninist democratic centralism disintegrated into competitive patronage systems. Moral and ethical inhibitions become weak without effective belief that a significant likelihood exists that violators of formal regulations seriously risk being identified and prosecuted. The quest for social mobility to lead a safe, secure and dignified individual and family life incentivizes relying on these parochial structures to pursue personal material goals. They manifest as "established corruption channels" as well as "clientelism and favouritism" [sic] (Center for the Study of Democracy, 2014, 73).

### Russia versus Europe

One anonymous Bulgarian analyst interviewed by a Slovak research institute highlighted the comparatively strongest pro-Russian attitudes in Bulgaria. Yet a strong majority of Bulgarians favored EU membership. "Similar proportion of those seeing a compatibility with both the EU and Russia can be attributed to the Bulgarians' historically and geopolitically ambivalent position between East and West. An emotional-cultural affinity to Russia is mixed with an aspiration for emulating the Western economic and political model of success and prosperity, which results in broadly positive attributes towards both" (Milo, Klingova and Hajdu, 2019, 9).

## RESULTS AND DISCUSSION

### Legacies of Imperialism in the Balkans

Bulgarian state institutional internalization of the colonial self-image contributes to so-called corrupt behavior as a form of parochialism that undermines so-called professional ethics and ethical codes. Specifically, implementing them, complete with grievance procedures supported by a national legal system is the substantive challenge. These ethical codes are something relatively new. They have not been supported by the notion or illusion of the rule of law based upon the institutionalization archetypes/stereotypes of ideal self-image of the citizen. The Communist citizen obeys the party and its leadership. For example, it does not obey the church and its dictates as an alternative source of ethical behavior. The party becomes the new church, i.e., state theory is the secularization of theology as Schmitt pointed out and highlighted by Agamben (Pan, 2009). The church obeys and serves the state in the form of the authority, and so does the secular citizen. The state leadership declares the state of exception.

## A PATH FORWARD

Corruption in Bulgaria and the Balkans more generally highlights the lack of a societal consensus on the norm ideals regarding differentiation of the personal from professional obligation. This lack of consensus of how one satisfies one's obligations to the public, i.e., non-private, arena, is the issue focus. Maribel (2021, 283) surveys the literature's findings on professional socialization: [A] "robust professional identity is usually considered essential in assuring responsible professional behavior." Professional socialization is

the foundation of ethics. Maribel continues, “[t]aken together, these cognitive and cultural dimensions may be said to constitute prototypes, following social identity theory, which disciplinary in-group members use to represent themselves and distinguish themselves from others” (Maribel, 2021, 284).

The importance of disciplinary specialization creates social opportunity structures for engaging in individual social mobility and ingroup social creativity. Professional socialization is a critical component of globalization for the state in its functional focus on developing its power potential base. Developing a professional consensus within the profession in the nation state creates potential for professional adaptation and societal control. Maribel’s utilization of social identity theory highlights the importance of generating consensus, i.e., the construction of institutions, in the minds and actions of people. Those who view themselves in terms of their status under threat from this diversification of norms while lacking the skills to exploit them, i.e., multi-lingualism, will increasingly perceive a threat, contributing to societal polarization.

In the relative absence of such institutionalization, individuals degenerate into anomie behavior. The ability to award and acknowledge social status degenerates into materiality, i.e., simply material wealth. As Trompenaars and Hampden-Turner (2020) note, norms and values within a community must be shared to evolve and develop. The imposition of European standards implies the importation of globalization standards for status acquisition both for group social creativity and individual social mobility. Without these standards, consensus on how a good Bulgarian national citizen should act does not exist.

## CONCLUDING COMMENTS

The theme of the Europeanization of Bulgaria requires a conceptualization, if not a definition, of Europeanization. In 2022, several weeks after the renewed invasion of Ukraine earlier in the year, Europeanization appears to have developed to become coterminous with Atlanticism. The normative issues within this conceptualization for this paper revolve under its implications for the European Union as a postwar peace strategy for Europe, if not for the world. In this regard, Europeanization as coterminous with Atlanticism has arguably been tragic. An explanation for Russia’s 2022 invasion of Ukraine necessarily incorporates Russian responses to the integration of Ukraine with the so-called West. This so-called West is what Bulgarians label as so-called Euro-Atlantic structures. Europeanization of Bulgaria equates here with development of a societal consensus to pursue integration in these structures. Those Bulgarian post-communist constituencies that transition towards acceptance of the inevitability of this integration, either acquiesce to it, if not accommodate to it. The costs of this integration include accommodation of Bulgarian Turkish minority political and civil rights.

The collective West’s response to the Russia’s 2022 invasion of Ukraine has made these Europeanization political debates very loud. The response also explicitly framed Europeanization as opposition to Russian influence. This motivation for European integration’s broadening had precedent during and after the Cold War. Bulgaria gained admission into the EU in 2007 despite doubts about its preparedness to support its EU obligations in response to rising Russian influence there.

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# HIGHER EDUCATION FUNDING AND GRADUATION RATES: SHOULD THE FEDERAL GOVERNMENT INCREASE FUNDING?

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## ABSTRACT

*This study focused on funding availability to higher education and allocating resources to rebuild the workforce by focusing on higher education graduation rates. The study used data from four-year higher education institutes in the U.S., grouped at the state level. 6,123 higher educational institutes' data average at the state level was used to analyze the impact of funding and student housing costs on undergraduate graduation rates. Three categories of graduation rates (four, six, and eight-year) were analyzed, first focusing on the Pell grant and other funding sources. Employing a regression modeling with a VIF of 10, the Pell grant and Other federal grants awarded to students were found to have an inverse relationship to all three categories of graduation rates. State and local grants awarded to students had a positive relationship with the six-year graduation group, but it was not statistically significant for the four and eight-year graduation. Federal student loans had a positive impact on student graduation rates. The overall total capital appropriations to an institution positively impacted all graduation rates; however, other funding, such as gifts, grants, local educational appropriations, and local private grants, had an inverse relationship with graduation rates. The study reviewed student housing costs as part of expenditures to impact graduation rates; six categories were identified, and two impacted graduation rates in the same direction for all three categories. The in-state students living on campus positively impacted graduation rates, while out-of-state students living on campus had an inverse relationship with graduation rates. The study also simultaneously tested the measures for the categories (student funding resources, institution appropriation from all sources, and student housing costs) to confirm the directions and impact of the graduation rates. Our study confirmed that the significant measures for direct student funding of tuition, institution appropriations, and student housing impact do not differ when all three categories are happening simultaneously.*

## JEL M410

**KEYWORDS:** Federal Funding, Graduation Rates, Higher education, State funding, grants, IPEDS,

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# CIRCULAR ECONOMY – A KEY ELEMENT OF SUSTAINABILITY

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## ABSTRACT

*In a world where linear economies follow a careless approach, circular economies create salvation. The image of ecological impeccability is perpetually combating wasteful guidance over the course of a single lifetime. The circular economy brings to light environmental approaches such as managing plastic, electronic, and textile industry waste. As we know, most resources are becoming scarce due to the exhaustion of the planet's resources. Therefore, a rigorous solution is required to diminish the footprint of the products at a global level. This piece of work intends to raise awareness regarding the incomparable pollution difficulties that our planet is currently going through, let alone over-exploitation, the loss of biodiversity, and deforestation. Education is essential in generating change, and change is the only hope for our future safety.*

**JEL:** P42, P43, O3, O5, Q5

**Keywords:** Industry Waste, Economy, Sustainability, Recycling, Education, Circular Economy, Pollution, Future.

## INTRODUCTION

A circular economic system relies on extending the life cycle of products and their component parts (MacArthur, 2013). After the manufacturing process completes and the product is finished circulating the market, it can and should be either repurposed to create a new product or reutilized in the same niche to supplement the user's needs. To achieve minimum waste and maximize value from all parts of the product, we must ensure it stays in use for as long as possible. In essence, this recycling mechanism initiates the reduction of pollution and the extraction of raw materials. Efficient repurposing of goods has to be emboldened as it might be the only avoidant of an unhealthy environment.

The development of a circular economy in the digital and strategic space is one of the main pivot points in furthering ecological concepts and their applicability within established standards (Savaresi, 2016). This process is meant to allow the worldwide economy to recover many valuable necessities and extend the life of goods without encouraging the acceleration of manufacturing. Nowadays, digitalization is an imperative influence in every area of daily life, including the environmental technology sector. Furthermore, the reliance on technology is proven to deliver more efficient solutions in relation to waste reduction and the investigation of any item's ancestors. As a result, digital tracking and cyberspace have come into existence. Due to the fact that companies have become more technologically mature, the need for international expansion triggers many unfavorable effects: large numbers of old equipment leaving, electronics, clinical, washroom, food, and paper waste, and even desertification (Sturdy, 2004).

One meaningful strategy based on circular economy principles is the use of remote server-based software, which allows global employees to work from home and contribute to Earth's salvation (Bozga, Mateescu

& Bozga, 2018). This innovative plan not only commits to a significant decrease in all forms of waste but also supports the workers through freedom, flexibility, greater productivity, and less stress, to name a few.

### Sustainability: Embracing Change

Sustainability is the gift of living within the limits of nature's resources (Bonviu, 2014). The breathing system that humans are aging into drives us to put effort into caring for it. Extraordinary groups of mindful people have been gathering to work towards a healthier world. Their involvement makes the absolute difference, despite the fact that their motivations are complex beyond imagination. This leads us to the certitude that sustainability is a fundamental value clear to individuals and organizations who incorporate it into their daily lives, demonstrating it through their policies, activities, behaviors, and even decisions. The people of today and future generations must create solutions and adapt wisely. Green policies' guidelines assure that the future of not only human life and business but also ecosystems and the wider economy will be luminous. However, the conflicting possibility of consistent ignorance predicts a limited existence unless significant changes are made.

One of the first changes was that individuals were more concerned about climate change, biodiversity loss, and pollution (MacArthur, 2013). An important voice for the environment at the moment is Greta Thunberg, a Swedish environmental activist who is known for demanding world leaders take urgent action for climate change mitigation. At 15 years old, she started protesting in front of the Swedish Parliament to call for more effective measures to save our world and demonstrated a willingness to do things differently. Since then, information has spread rapidly, and the world has embraced more and more sustainable practices, which outlines the remarkable quotation: "Change comes from within".

Displaying open-mindedness to new ideas and proposals is the key to circulating mindfulness. Persistently, natural resources are transformed into valued products and then disposed of. A sustainable alternative to this sequence is upcycling, which is the perfect blend of "upgrading" and "recycling," as to upgrade is to add value, and to recycle is to reuse that same value (Rodriguez-Anton et all., 2019). Both of the terms are sometimes used interchangeably, even if they are unrelated and very different from each other. Recycling, as we all know, is an industrial process that concludes with transforming objects (Fishbein, 1996). They are melted, ripped, or disassembled and then used to make either the same product again or another completely different product. In the simplest terms, "upcycling is the practice of taking something that is disposable and transforming it into something of greater value. Therefore, when we upcycle, we create something better out of what is already at hand instead of giving up on an item because of its imperfections" (Wegener, 2016). Reusing apparent trash reduces the volume of materials classified as waste. However, it is not just a design approach. The products demonstrate the interrelation between old and new and even disband "old" and "new" as distinct categories in a way that is relevant to our general understanding of creativity (Wegener, 2016).

### Dissimilarity in Europe: a Comparative Analysis

Each year, the amount of plastic waste produced in Europe increases. Only 32 percent of the 29 million is recycled, and almost 40 percent is burned to generate energy (Rodriguez-Anton et all., 2019). A further quarter of over 7 million metric tons ends up in landfill sites, containing precious resources that can no longer be used. Moreover, they are hardly biodegradable and highly dangerous to the environment. Since 2004, the amount of waste recovered has risen significantly (from 870 million t in 2004 to 1221 million t in 2020). This means that the recovery portion of total waste treatment has increased significantly (from 46% in 2004 to 60% in 2020). Disposal via landfills and others was the apparent solution for many other countries, such as Romania (93% landfill, 5% recycling). The advancement of sustainability is unrivaled. It brings the ideal balance between the needs of the current and future generations. The concept is deeply

rooted in European policies. Over the past 40 years, Europe has established some of the world's highest environmental standards and most ambitious climate policies (Bonviu, 2014).

Furthermore, the desire for both expansion and unification materialized in the Paris Agreement on climate change, which meant minimizing carbon dioxide emissions. One of the most important impacts on society was made by EU member states in 2019 with the "Sustainable Development Goals" for 2030. The list of EU green principles not only illustrates sustainable development as a horizontal priority in the EU but also translates the UN's Sustainable Development Goals (SDGs) into concrete policies that can improve the well-being of people. However, even though change affects all of us as the community that we truly are, we deal with it differently (Bonviu, 2014). Innovation is being absorbed according to the cultural heritage each of us has developed into. According to studies, the more diversity a community faces, the more welcoming it will be to variation and transition. Romania, for example, has suffered many changes during the past 50 years, but in spite of the abrupt path it has walked on, Romanians are often reserved about conversions. It takes small steps to make such ends meet.

From the once small factory with a capacity of 12,000 metric tons of plastic recycling per year, a modern business group has developed. As Romania needed an adapted national strategy to match its economy's reality, a project to stimulate the industry into transitioning was established. In 2003, a strategy known as "GreenTech" was developed in Romania, specifically in the northeast of the capital (Savaresi, 2016). The project is in line with specific UN requirements because it contributes to local environmental sustainability by increasing the plastic recycling capacity. Since it encourages recycling instead of using raw materials, it reduces the amount of energy used, CO<sub>2</sub> emissions, and damage to the environment that comes from extracting natural resources. With a capacity of 100,000 metric tons per year, GreenTech produces recycled PET flakes, strapping, and granulation, which are used in the construction sector and the manufacture of hygiene products and filters. The company has grown to be the biggest employer in its hometown, Buzau, which is still not very developed despite having a lot of potentials.

Apart from the development of sustainability, this company has also contributed to the region's social and educational growth. It has been running campaigns and spreading awareness about recycling not only all over the streets of Buzau but also all over the schools since students have been going on trips with their classes to learn more about sustainability and the progress of the world. To date, there have been more than 50,000 children in such workshops, and the most important thing they have learned is that the world they live in is fragile and in need of their support and action. When it comes to renewing goods, the Romanian community has focused on the segment of restoration. There are many companies in this country that are dealing with one of the most toxic wastes that has ever existed: electronic waste. A marketplace for refurbished phones called Flip.ro inspects and repairs the phones it receives from sellers before offering to negotiate a price with a future client. The company can receive its money in one or two days, rather than waiting for the phone to be sold and receiving it in a maximum of nine days. This way, they are ensuring the extended life of phones, laptops, and many other electronics and reducing waste.

Another company, Recommerce, is a business that refurbishes high-end electronics. Through the acquisition of Fenix. eco, a company that provided similar services, Recommerce hopes to generate EUR 10 million in revenue across Eastern Europe, including Romania, over the next three years. Partnerships have been made, and teams have been created to ease access to second-hand electronics. Germany, however, has always provided new solutions and innovations, paving the way for other countries to develop greener waste disposal and collection procedures since the appearance of this so-called waste revolution. Additionally, the German government has implemented several methods over the past 20 years that have considerably improved its waste management and raised its recycling rates, such as required garbage sorting laws and a highly effective deposit refund program. In Germany, it is highly forbidden to sort trash in the wrong bins and throw garbage where there are no specially arranged bins, as the Green Dot system imposes (Fishbein, 1996). There are six different bins in different colors, which guide the user to sort the trash

according to the material, and the avoidance of them means the inevitable crash with a fine. It is safe to say that this country's contribution to the global battle for the environment has been highly successful. Also, an unexpected action made a huge difference: raising the fee for the packaging, which resulted in less paper, less waste, less glass, and less metal. Overall, it created a minimum number of wasted products, and more than a ton of garbage was reduced annually. When it comes to larger items of garbage, such as old sofas, broken chairs, and used mattresses that do not fit in a yard sale, a specially designated truck must be called.

Germany also instituted the "Energiewende", a plan for the transition to low-carbon and renewable energy sources that aims to influence public opinion on the significance of environmentally responsible waste management (Bonviu, 2014). Germany's actions have inspired Europe, and the Green Dot system has been adopted by more than half of the European countries in similar projects. Clearly, the approach has been highly successful as well as flawed, and every system has imperfections. Nevertheless, the effort to develop a whole project to support the environment has to be praised. After all, it has not only been implemented in Germany since then, but it has also positively influenced many other countries, including Romania. The movement towards sustainability has influenced Romanians too, and they have started implementing more recycling solutions into their daily lives: sorting garbage into different colored bins, building machines that collect plastic waste, and encouraging individuals to start small creative businesses that turn trash into stunning pieces. In fact, thousands of small businesses in Romania promote recycling plastic and clothes, either by melting the plastic and creating jewelry or cutting the fabric and sewing it into something new. One thing is sure: even small steps are better than none.

## CONCLUSIONS

On a final note, the circular economy is a new production and consumption model that ensures sustainable growth over time. With the circular economy, we can optimize resources, reduce the consumption of raw materials, and recover waste by recycling it or giving it a second life as a new product. Moreover, this model is not just about fixing environmental issues. It can also bring significant opportunities and positive impacts across industries, jobs, and lives. As a result, the circular economy proposes a business model in which economic sectors retain ownership of their goods and act as service providers, selling the use of products rather than the products themselves. This method makes the manufacturers think about the design from the start so that it meets the requirements of being long-lasting, reusable, and safe for the environment.

In accordance with the previous mentions, sustainability's main goals reside in protecting the planet, ceasing climate change, and promoting social development without endangering life on Earth. This concept, apart from promoting the well-being of the environment, also focuses on politics, economics, philosophy, and other sciences. It seeks to cover our present needs without compromising resources for future generations, which can be done through various means such as upcycling or recycling. Lastly, the government's initiatives regarding the circular economy have every chance of being successful. "They aim at assisting a process already initiated and partially implemented by significant representatives of the business sector. At the same time in resonance with other strategies" (Bonviu, 2014), such as "a sustainable Europe by 2030", not only awakens the competitiveness between environmental initiatives but also improves individuals by offering them a healthier and greener ecosystem. Furthermore, widespread public support for the environment promotes environmentally friendly and sustainable development.

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# RENEWABLE ENERGY - IMPLICATIONS IN TODAY'S ECONOMY

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## ABSTRACT

*Energy is a fundamental resource in economic development because it contributes to the generation of capital, but it also brings with it the side effects of industrialization, such as the contamination of ecosystems and air pollution. Thus, the benefits need to be balanced with the negatives by reinvesting the gains brought on by development into further combating the environmental threats created. The role of energy in development is positive in all spheres, including livelihoods, access to water, agricultural productivity, health, population levels, education, and gender issues. Every country in the world values energy resources because of these characteristics. Renewable energy sources are emphasized in this paper in terms of their economic benefits for sustainable development as well as their impact on the environment, including global warming and intense pollution growth. A key objective of this project was to analyze different quality strategies and provide information that would contribute to society. Our vision includes increased productivity, improved nutrition, higher incomes, and climate-resilient food systems.*

**JEL:** O2, O3, Q2, Q4, P28

**KEYWORDS:** Energy, Sustainability, Renewable, Economy, Natural Resources, Energy Transition, Industry, Environmental Impact, Global Warming

## INTRODUCTION

Sustainable development depends on energy, the driving force behind all the discoveries and innovations of the last few decades (Güney, 2019). It is responsible for providing the level of comfort we have grown accustomed to in our everyday lives, whether at home, work, or while traveling. There is no doubt that energy consumption worldwide continues to grow annually, which is a steadily increasing issue. In addition to increasing electricity utilization, a considerable boost in population is raising individuals' vital needs. That is to say, dramatic impacts on global climate and ecosystems continue to accumulate as the community enlarges. The fuels that have sustained us for hundreds of years have demonstrated their impact on the environment. Coal, oil, and other fossil fuels have been used as sources of power for homes, factories, and vehicles. When these materials are burned, greenhouse gases are produced, which are considered a major contributor to climate change and global warming. It is imperative that we develop alternative energy sources, as it is a challenge that we must overcome. Inexhaustible energy sources represent the remedy for these harmful effects while preserving our comfort and the resources we need (Demirbaş, 2006). Another key thing to remember is the vitality of energy, which maintains the convenience of our survival (Dincer, 2000). An energy system based on renewable energy could provide electricity in a more economical, sustainable, long-term, non-polluting way and could ensure a healthier and more elongated life on Earth. In greater detail, the term "renewable energy" refers to sources of energy that can replenish themselves, such as the sun, wind, rivers and oceans, hot springs, tides, and biomass. People have created different ways to obtain energy from these renewable sources: the sun (photovoltaic cells), the wind (wind turbines), and biomass (burning wood), to name a few ideas (Kaltschmitt et al., 2007). Electricity is all around us, not to mention that every type of sustainable source of energy has unique characteristics and benefits, such as the

advantage of being stored, the lack of pollution, cleanliness, efficiency, reducing energy poverty, and even the creation of jobs.

### Transitioning to Green Energy: Desirable or Necessary

As natural resources are replenished at a greater rate than they are consumed, renewable energy can be described as energy derived from them (Güney, 2019). In contrast, fossil fuels such as coal, oil, and gas take hundreds of millions of years to form and emit harmful greenhouse gases when burned. However, a significant reduction in greenhouse gas emissions can be achieved by developing alternative energy sources, which are even cheaper in most countries and generate triple the amount of energy than fossil fuels. Thus, solutions for energy regeneration are the key to averting a climate disaster. Wood is globally known as one of the cheapest and most reliable materials. It has been used for thousands of years in many manufacturing processes, as this raw material can be easily transformed to satisfy human needs: shelter, by building homes made of wood, and warmth, by burning wood and generating heat (Pacesila, Burcea & Colesca, 2016). Not too long ago, it was discovered that wood is an amazing energy generator. The first idea for working with wood was to burn it in a boiler, which could easily heat water and produce steam. Next, the existing steam would be used to power machines and create heating systems in buildings. Gasification of wood was then invented by using high heat and pressure in the absence of oxygen. These are just two of a plethora of renewable energy strategies that could be easily implemented and contribute to environmental conservation.

Every resource of energy has become more and more imperative for our daily survival, as humans depend on them so greatly (Tugcu, Ozturk & Aslan, 2012). The weakest element of the dependence that we have is the fact that, although we rely on them, we cannot trust them for the future. As mentioned below in the paper, energy sources have an effect on the environment in some way, regardless of their sustainability or their beneficial effects. To keep these effects from getting worse, steps need to be taken right away to find the greenest, cheapest, and most reliable source of energy. One of the most popular green alternatives to energy is generated by the sun. Solar energy is the fossil fuel substitute, which is known as being a "never-ending source" (Güney, 2019). As the sun has existed since the beginning of time and every aspect of our lives is in some way guided by it, we can surely consider it a permanent element of our existence. The Earth generally absorbs solar energy at a speed that is almost impossible to imagine: 10,000 times greater than the rate at which people use its energy (Barnett et all., 1993). It is safe to say that the sun produces more energy than humans could ever use. The first place in accessibility and frequency is occupied by solar panels, meant to capture the sun's energy and generate electricity.

Oftentimes, the wind is used as an alternative solution. In addition, due to the lack of pollutants emitted into the air, it is sure that the wind is a sustainable source of energy. Be that as it may, the wind cannot be used to provide electricity for any type of need, and its speed changes constantly, even in zones with continual breezes. This is precisely why natural energy generators are considered avoidant fixes. Despite the observable benefits, they are not reliable on their own, and they might function only in certain seasons and on uncertain days (Güney, 2019). Around the world, the pressure for environmental safety has started. The exploration of smaller carbon footprints and cleaner energy sources has moved up the priority lists of many companies. It is in the interests of energy companies to lead the transition to a greener and more affordable fuel combination, but to do so they need to develop new technologies and infrastructures. For the transition to occur, providers plan to invest in new renewable energy companies and low-carbon technologies using a diversity of sources of funding, including their own private equity (40%), the existing balance sheet (32%), and bank loans (28%) (Brown et all., 2016). The solution may be beneficial to the environment in that it promotes cleanliness and safety, but it is risky due to the possibility of future financial problems. It is undoubtedly important to switch from fossil fuels to renewable energy, but the only strategy that might work is to convince everyone to change at the same time.

The future's positive probability is increasing as more people make green adjustments to their lives. One approach stands out: the one that shapes the need for mass transformation and ensures that each and every individual brings the world closer to its healthier goal. As highlighted beforehand, there are many opportunities and obstacles when it comes to using nature's energy resources, as they revolve around the understandable idea of unpredictability, but it is beyond doubt that they are the only key to a safer and healthier future. People should look into new ways to use these energy sources and invest in new green technologies, especially if they live in a place where natural elements can be used to make energy.

Solar panels, which are highly used in rural communities, require a substantial capital investment up-front, but after installation, they are relatively inexpensive to operate, which goes beyond the obvious economic benefits. The cost of producing electricity is lowered by the lack of fuel consumption. In more detail, unlike the price of gas or coal, the price of electricity is no longer variable, as the price of solar energy remains constant while the price of fossil fuels fluctuates. In addition, apart from the long-term financial reward, one's decision represents progress in moving forward and brings the pride and joy of participating in such an impactful global movement. Thousands of people have already switched from fossil fuels to solar panels, and to persuade even more people to make the change, green companies have come up with brilliant ideas. They made websites that calculated energy bills with the use of solar energy and then compared them to the clients' actual ones. The idea has been so ingenious that more than 1000 people a week decide to make the change after visiting the website and seeing the benefits with their own eyes. Other individuals have made the transition not as an aftereffect of the movement's expansion but as an exclusive decision. There are a large number of environmentally conscious people who have been living in a nature-friendly manner for a long time before learning about the troubling issue of fossil fuels. After that, natural resources were used. It is undoubtedly challenging to switch from your daily routines to a completely new way of life, but there is no need for abrupt changes. The users of renewable energy resources, in fact, strongly suggest a more relaxed approach.

Firstly, they advise investing in solar energy equipment since the sun is a daily element of everyone's lives and is conveniently the easiest to capture energy from. As solar energy is an unpredictable solution, green users suggest taking a step back and getting the overall picture of the surroundings that the building.

The wind's energy, for example, can be a great source of energy, especially when alternated. Because the sun and wind do not exist at all times of the day, they can be used interchangeably to power buildings. Interestingly, wind energy, in spite of its lack of regularity, has gained many fans because of its lack of investment whatsoever. People have learned to build their own wind turbines at home, which profitably generate the needed kinetic energy to generate electricity. It can be very efficient, especially in places like the Midwest and along coasts where the wind is usually strong and constant, and it can even be used alone without another natural generator's help. In such places, cheap and reliable electricity is provided through this clean substitute.

## CONCLUSIONS

Nature provides people with ample possibilities and resources to live in harmony with the environment without harming it. People can also industrialize their way to a comfortable standard of living while doing this, which shows that our needs, conservation, health, and reliability are all goals that can be met. The majority of forms of renewable energy can generate large amounts of electricity at the same time as being safe for all living creatures. Even though some renewable energy options are expensive, utilizing them can be an important step in safeguarding global resources and lowering greenhouse gas emissions that have a negative impact on the environment. World leaders should actively consider and encourage renewable energy sources such as hydropower, biomass, geothermal, solar, and wind energy since they might be our only escape. Not only are they natural resources that the Earth will never run out of, but they are also the cleanest and most environmentally reliable. Lastly, it is important to use sustainable energy systems and

projects to protect natural resources and stop environmental effects that could hurt the growth of future generations.

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# OPPORTUNITIES AND LIMITS OF STRATEGIC IT MANAGEMENT

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## ABSTRACT

*Until now, IT management, more related to technology and projects, has been limited to increasing the effectiveness and efficiency of IT, with the focus being on the planning and timely development of the necessary applications. Instead, modern IT service management tries to look more comprehensively at the provision of IT services. The vertical integration of IT service providers should be optimized, the provision of IT services to customers at optimal cost, quality, and time should be promoted, and above all, the capabilities of proactive conceptualization and implementation of innovative IT services on the part of IT service providers should be promoted. The company's overall goals are to provide IT services (internal). This study provides an overview of the essential opportunities and limits of strategic IT management.*

**JEL:** L21, L86, M15

**KEYWORDS:** IT Service Management, Strategy, Security Risks

## INTRODUCTION

Management is a phenomenon that is not only found in companies. Whenever people come together to accomplish a common task, management can be observed—be it in public administrations, associations, or companies. The role of management is always to coordinate the actions of the people involved in such a way that the common task can be accomplished in the best possible way. To implement them, the structures and systems of the entire company must be designed in accordance with the strategy (Giovinazzo, 2002). Therefore, it is also the task of strategic IT management at the company level to develop the overall structure of the company and provide the systems that are necessary to manage the company from an overall perspective. Lean digitization uses easy-to-use tools to develop smart products and services in a lean and efficient manner (Purohit, 2015). An important principle is to resort to readily available and therefore effort-saving basics, including in IT. In general, digital data processing has opened up great opportunities to deal with our world in new and different ways (Kanellopoulos & Sharma, 2022). The job of IT in the company is to support business processes by using, configuring, maintaining, and repairing hardware and software so that the company can run its business safely and smoothly.

In turn, strategic management also influences the development of normative management tasks (Giovinazzo, 2002). In this sense, there are also reverse causality relationships that go from strategic management in the direction of normative management. Ultimately, all strategic action must be measured by whether it contributes to the achievement of the corporation's fundamental objectives and the fulfillment of regulatory requirements. If they are omitted outright, this may, of course, be due to insufficient management and employee performance. Strategic IT planning was the answer to these new demands. It represented a sudden change in planning thinking, as planning activities were no longer directed only at the company but more towards its surroundings—and here, especially the markets. Her goal was to systematically record the opportunities and risks of strategic IT management and develop strategies to help a company succeed in these environments. The level of complexity is already high, and when driven even

further by production systems of digital and permanently connected products not only reaches a level where the big picture is lost but also creates significant security gaps (Ozkan, 2016).

### Opportunities and Limits of it Services

The decisions that determine the direction of corporate development and create the most important bases and tools for controlling the use of resources within the company in such a way that the work can be carried out in the desired direction are thus the objects of strategic management (Winkler, 2010). The company's future actions are guided by its strategies ("management"), while the systems and structures help to make sure that the company's actions are in line with the strategy ("coordination"). This process structure expresses the basic idea that, among the objects of strategic management, IT strategy is the original element. It sets the direction for strategic action, and the other elements—structures and systems—are meant to help ensure that this direction is followed and that the strategy is ultimately implemented. In strategic IT management, there is also talk about how structures and systems must be made "strategically appropriate" so that the coordination effects that direct actions in the company flow toward strategic goals (Coltman, Tallon, Sharma & Queiroz, 2015).

In reality, different strategic decision-making processes are always at work in what IT sends, and unsatisfactory results of strategy implementation trigger new strategic considerations, which can lead to a shift in the company's direction (BartonTejay, Lane & Terrell, 2016). In addition, IT strategy implementation determines a company's market position and resource base, and thus the content-related starting point from which subsequent strategic considerations must proceed. In this sense, past strategic IT decisions also shape a company's future strategic options for action. Ideally, strategic IT management is interpreted as a process that leads to a fundamental reorientation of a company (Cullen & Willcocks, 2003). In this sense, a fundamental change in strategic direction is likely to be rare. It also often happens that a company only decides to gradually change its strategic direction in this process against the backdrop of its current IT strategy. On the one hand, it may be that the strategy process itself allows only gradual change, as managers in this process tend to maintain the basic direction of a strategy that was once considered correct, generally only making changes to it. minor and gradually testing the strategic adjustments that become necessary.

Requirements from specialist departments, IT processes, application architectures, data and security architectures, development, maintenance, and migration projects, service management, license and quality management, IT control, and departmental organization and management all must be managed and integrated into a single IT strategy that supports the corporate strategy (Coltman, Tallon, Sharma & Queiroz, 2015). Thus, one of the strengths of lean digitization is the continuous search for ways to make your life easier by building on solutions that have already been developed. The opportunities to build on the achievements of others are immense, especially in digitization projects. From small snippets of code and detailed descriptions of possible solutions in Internet forums to extensive cloud platforms and semi-finished embedded systems (IoT boards), much can be done quickly and cheaply (Kanellopoulos & Sharma, 2022). More and more system vendors provide business IT platforms that contain different, significantly connected components. This makes it easy to set up consistent business IT, and changing requirements can be implemented quickly and nimbly. The seamless integration of a wide range of services, like big data, social connectivity, analytics, and customer engagement management, makes it easier for the different parts to work together and also improves the way employees work.

For several years now, companies targeting a mass audience have been connecting big data with the expectation of better understanding customers and placing offers in a more targeted way. Big data also plays an important role in Industry 4.0. Machine and sensor data can be processed in real-time. But these are not the only areas of application. For example, big data also provides valuable help when it comes to detecting attacks on computer systems.

## CONCLUSIONS

Strategy implementation is the last step in the IT strategic management process. In fact, one might think that the process of strategic IT management ends with the selection of the strategy, and once it has been found, it is only a matter of acting as the strategy demands. However, the biggest problem turned out to be that companies pay too little attention to implementing an IT strategy. In addition to an effective strategy, which as a result of strategic IT planning aligns the company with its markets, the main principles and internal tools without which the strategy cannot be realized must be dealt with. This has given the design of organizational structures and management systems, as well as issues related to corporate culture and human resource management, an independent, strategic importance. Strategic IT planning has evolved into strategic IT management. Synthesizing an IT strategy becomes a reality only when all areas of a company participate in it. The margin of freedom that exists in the basic framework for the action to be completed in operational management is created through a variety of decisions that trigger short- and medium-term actions in the different areas of the company.

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# THE INNOVATIVE POWER OF IT FOR BUSINESS DEVELOPMENT

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## ABSTRACT

*IT is evolving from a simple support function to a strategic business resource. For IT to be able to fulfill this task, a paradigm shift based on a clear strategy must take place. Technology drive refers to the increased pressure on IT architectures due to technological advances. The task of service management is to develop a clearly defined and manageable portfolio of professional services and to keep it stable. The prerequisite for this transformation is an optimization of business processes, which can be achieved almost entirely without considering IT, and an improvement of the semantic interface between business and IT. This paper captures the role of IT services as a mediator that must be performed consistently in order to implement the transformation into a business.*

**JEL:** L21, L86, M15

**KEYWORDS:** Business Processes, IT Service Management, Organizational Structure.

## INTRODUCTION

Dependence on IT is increasing in all sectors (Kenfield, 2017). More and more fields are driven by IT, and business development is only possible with the support of IT. Because of the necessary step of removing IT's special role and better understanding IT as a business, IT is now viewed with suspicion and reduced as a requirements provider. IT services have a broad and very detailed knowledge of company processes, and it is not unusual for information technology to open up new business opportunities and provide more efficiency or a competitive advantage in processes. If departmental expectations cannot be met, then IT must first use communication measures to ensure that expectations are within a realistic framework. The use of IT to add value is by no means a by-product or limited to particularly IT-savvy industries (Coltman, Tallon, Sharma & Queiroz, 2015). On the contrary, successful companies that create value through IT have established a strategic IT management system that ensures that IT is used in a value-enhancing manner. Such companies have an IT strategy that is geared toward the company's goals and IT governance, which is the organizational structure that helps IT be used in a way that adds value.

Assuring the future viability of your IT, and the ability to deliver tomorrow is an intermediate step on the way to growing your IT business. To do this, one must know in which direction the industry and one's own company will develop. This is a first step towards understanding the business and enables IT to be prepared for future demands. Consequently, the demands on IT and IT visibility in the company are very high and consistent. Every decision-maker comes into contact with IT in many different ways. Too often, IT services dictate the course of business processes through their technical specifications instead of implementing what the company needs as an internal service provider (Purohit, 2015). As a successful company is constantly improving its processes, flexible IT support is needed. Ideally, IT strategy is derived from corporate strategy, and the business is the driver and designer of IT services. Ultimately, any worthwhile IT investment must be well understood in terms of its contribution to the company's potential to increase value and build shareholder value.

## A Pragmatic Approach to Strategic It Management

Business leaders, typically concerned with growth and winning the race for markets and customers, have high expectations for the next innovative and value-added use of IT (Hong, Kim & Cho, 2010). The perils of managing large portfolios of existing applications and day-to-day IT operations, largely seen as a cost-and resource-intensive legacy, are left to the IT department. And yet, many companies fail to address these issues—either because they don't see enough upside potential or because their IT leadership is too entrenched in getting the economics of IT right and not focused enough on innovation.

Strategic competitive advantages are distinct, that is, they represent special resources when we examine IT services from a resource-based perspective (Weill & Woerner, 2015). The higher the evolutionary stage of a distinctive resource, the greater the flexibility that can be derived from the distinctive resource in terms of strategic positioning options. Following the conception of a resource-based strategic competitive advantage, this advantage is to be positioned in the markets under consideration with the help of strategic competitive positioning. As a result, it should also be noted that every company has distinctive resources, regardless of whether it is aware of this, knows what the distinctive resources are, or whether the company in question uses these distinctive resources in accordance with the resource-based view approach. Core competencies make it possible to open the doors to entirely new markets and, consequently, have the potential for exponentially increasing flexibility in terms of competitive strategy. Only through individual customization and individual human-machine dialogue can a distinct, networked resource emerge from standard business software in a path-driven manner.

IT services must provide the required performance at a reasonable price. Like any other business area, IT is also understood and managed as a business. The essential requirement for IT is to gain the technical understanding to understand where the challenges are for departments, where the path is going, and simply how the business can be maintained or expanded (Purohit, 2015). Consequently, the dialogue with specialized departments in particular must be intensified. This must be reflected in the organization, in the processes, and, of course, in the management. In addition to this internal view, IT must also gain a view of the market so that it can verify whether current IT innovations can help scale the business. Analysts, and especially dialogue with representatives of internal departments, can help here. Intensive customer or relationship management has a supportive effect on all levels of internal customers. In addition to technical understanding, professional understanding and customer orientation are also tools of the trade. It is essential that this change be viewed and approached holistically.

IT management can be both a passive implementer and an active initiator in the system-theoretic cyber context (Kenfield, 2017). IT management roles can change over time. IT management can independently determine competitive strategy or, together with other areas of the company, realign strategic competitive behavior. In this regard, IT management must demonstrate maximum effectiveness and efficiency. Unfortunately, only a tiny number of companies maintain a system-theoretic-cyber-evolutionary management style, and not only from the point of view of IT management. Many business intelligence and analytics applications still operate in narrow, siloed domains of information and data, using various systems that are not integrated to interoperate on a common basis and with business processes that are deeply embedded in most current systems and difficult to use. Future-oriented IT investments must be directly driven by corporate strategy objectives (Lee, Kao & Yang, 2014). The task of the IT strategy is therefore to identify innovative projects that will strengthen the company's long-term competitiveness and increase its value. Companies that successfully use IT to add value systematically align their IT strategy with corporate goals and use IT governance to create an organizational framework to ensure that IT is used to add value. Those future-oriented and competitively critical IT components that promise the greatest added value for the company are identified in a systematic process jointly by specialists and IT departments as part of a value-oriented IT strategy.

## CONCLUSIONS

To implement the business process in a customer-oriented manner, it is necessary for the specialized departments to coordinate the process together. This means that the IT service is put in place as a result of a process carried out by specialized departments. This business process is configured in such a way that it is based as closely as possible on the actual service and can be continuously improved. This has far-reaching effects on IT services, which must provide data and information for business processes and therefore the customer offering. IT services have to meet a lot of requirements because of how flexible they have to be in helping clients. In conclusion, the high dependence of business activities on IT and the almost exponential increase in reported vulnerabilities and incidents require conscious IT risk management. They are a subset of operational risks and are defined as the risk of losing money because of attacks that take advantage of a vulnerability and break one or more protection goals of the multilateral security concept. Despite an enormous deluge of information, the information management capabilities of many firms today are still in their infancy, given the large amount of internal and external, structured and unstructured data that individuals and firms face. Today, the success of companies and individuals depends on their ability to locate, filter, analyze, and use information skillfully and appropriately. However, a company's ability to generate tons of information per day has largely outstripped its ability to relocate, review, and interpret that information at the speed of generation, let alone react to external information flows.

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# CORPORATE COMMUNICATION IN THE DIGITAL AGE

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## ABSTRACT

*Corporate communication in social media has developed so dynamically in recent years that it is now an integral part of the customer's decision-making process. Due to their interactivity strengths, social media offer advantages for corporate communication aimed at reaching potential customers at every stage of their decision-making process and providing them with content and information relevant to the target group while supporting branding. The goal of this paper is to show how key people can use social networks to align and control corporate communication.*

**JEL:** L22, M11, M16, O31

**KEYWORDS:** Corporate Communication, Business Strategy, Digital Transformation

## INTRODUCTION

The term digitalization refers to the adoption or increased use of digital and information technology by an organization to improve the way it works (Cummings & Worley, 2009). Over time, more and more interactive offerings have joined the predominantly simple website presences of the early days of the Internet. Companies have their own blogs, use platforms to share photos and videos, and are present on many social networks (Sagapova, Dušek & Pártlová, 2022). Despite the established importance of social media in daily communication, a lot of firms confront the problem of remaining up with the rapid growth of digital technologies and network functions (Depaoli, Za & Scornavacca, 2020). The two-way communication process made possible by the true interactivity of social networks allows more direct and personal means of addressing consumers than more conventional forms of public relations.

An important objective of communication is therefore to react to developments at the macro level in order to ensure the profitability and legitimacy of the company in society. Among the corporate actors who can make a significant contribution to economic success are, of course, customers, shareholders, employees, and suppliers. Even more, people could be added to the list of relevant actors (Cormick, 2022). However, large and different groups of stakeholders have something in common: companies must have long-term relationships with them based on trust. Corporate communication is strategic when it supports overall corporate goals and contributes to performance success or the development and maintenance of intangible assets such as a company's image (Depaoli, Za & Scornavacca, 2020). Strategic corporate communication makes a big difference by building and keeping long-term relationships with important groups of people.

On the other hand, even though social media provides a variety of key figures that are supposed to measure success, they must be supplemented and benchmarked before they can indicate communication successes or the need for action (Baldus, Voorhees & Calantone, 2015). Choosing and giving each touchpoint its own task takes care of the confusing variety of this data.

### The Need for a Corporate Governance System for Communications on Social Networks

It became clear that the challenge of virtual communication is not primarily a technical problem that can be solved with the right tools (Sagapova, Dušek & Pártlová, 2022). Social systems manifest themselves through communication, and the concept of communication is very broad because, in addition to direct personal communication, it includes all symbols that can convey messages. Social media refers to all the constantly evolving and differentiating platforms in Web 2.0, which are based on the interactive exchange of information. On the platforms, users have the option to create individual profiles and self-disclose information. Users network with each other, communicate with each other and share content. In this way, individual users build relationships with each other.

Corporate culture consists mostly of concrete behavior, communication, and interaction; it is transmitted and bypasses direct design (Cormick, 2022). Every organization has a corporate culture, and this is usually transferred to digital environments as well. The digital sphere has many design parameters, but the digital work environment allows the introduction of new standards, expectations, and forms of collaboration. The importance of corporate culture for corporate success is widely recognized. However, there is a lack of knowledge about what corporate culture would be appropriate, how it can be developed, and how it can be anchored in everyday life. Very few companies know their own corporate culture, and very few employees feel that the prevailing corporate culture is of any importance to them in their day-to-day work.

The company's success in social media communication can also influence important success factors in relation to brand awareness in other communication media (Sagapova, Dušek & Pártlová, 2022). The goal of communicators in this phase is to lead the customer to a sustainable online engagement with the brand and, if necessary, transparently support the customer with their product concerns to show how well the company is doing. Customer satisfaction is usually measured by trying to find out the likelihood of recommendation, based on the assumption that only truly satisfied customers are willing to recommend the company's offering (Cummings & Worley, 2009). The higher the likelihood of a referral, the higher the customer satisfaction. Ideally, the satisfied customer becomes a brand ambassador and share their positive experiences within the network or on rating platforms.

On the other hand, messages are not only spread by companies but are also shared and disseminated by the community, which can lead to viral marketing. It is important to note that consumers with positive brand experiences are much more likely to recommend the brand than consumers with poor or negative brand experiences (Baldus, Voorhees & Calantone, 2015). Thus, continuous activity on the corporate channel is essential; it is a prerequisite for the interaction between the brand and its community. To create interaction, a continuous communication channel must be established between the brand and the user. The starting point can be a post about a new product, a special offer, or even a customer complaint.

The daily challenge of corporate communication in social media is to adapt the content offered to users' interests and thus increase the resulting attention and engagement of users as much as possible (Cormick, 2022). Direct exchange with potential customers also gives companies the opportunity to better understand their target group. Ideally, companies can learn about issues or requests that contribute to quality improvement or product development through direct dialogue with customers. Social media allows companies to develop or adapt products according to customer requirements through direct contact with customers.

## **CONCLUSIONS**

Corporate communication refers to all controlled communication processes that contribute to the definition and performance of tasks in profit-oriented economic units and that contribute in particular to the internal and external coordination of actions and the clarification of interests between companies and their reference

groups (stakeholders). Internally, corporate communication tasks are mostly about integrating people within the company, and externally, they are mostly about integrating the company into the market and society. Digital communication and collaboration require a conscious choice of the appropriate means of communication for the task at hand. Social presence must increasingly be sought through digitally mediated forms of communication to ensure sustainable and successful working relationships. It requires both emotional intelligence and social intelligence. Emotional intelligence is becoming more and more important. From a strategic point of view, having your own social media presence has become indispensable, as it gives you a direct line to relevant parts of the audience, such as customers or critics. Companies and their strategic communication must deal with these problems, which are made easier by the growth and logic of social media if they want to keep up with how media works.

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# THE ASSOCIATION BETWEEN CITY WALKABILITY AND CITIZENS' HEALTH, SAFETY, AND THE ECONOMY

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## ABSTRACT

*A correlation exists between human physical activity and the environments they inhabit. To better understand this connection, examining the approach of municipalities toward pedestrians and the mechanisms that influence the development of pedestrian infrastructure is necessary. According to a United States Census, San Antonio, Texas, is the seventh largest city in the U.S., with more than 1.4 million residents. Apart from its 15-mile-long River Walk, more than 140 miles of existing pedestrian trails, and \$477 million reserved for transport infrastructure, San Antonio obtained an overall walk score of 36.9 out of 100, which makes it a car-dependent city. This study uses a single case study methodology to examine the broad mix of factors that influence active transport within North American cities and the consequent outcomes manifested in municipalities with varying rates of community walkability. The study aims to identify points of agreement and disagreement regarding the perception and physical status of walkability in San Antonio. This city, similar to many North American ones, is car-dependent. It is dependent on unsustainable growth to fund essential operations. As a result, pedestrian infrastructure and connectivity between communities lack prioritization. Moreover, active transport varies among communities and adversely influences many social and economic factors. The perceived walkability of San Antonio threatens the health and safety of its citizens and its economy. The unsustainable growth strategy of the city increases its fiscal liabilities and consumes resources better reserved for the development of the existing infrastructure. Instead of retrofitting old infrastructure across mature and typically declining communities, much of the current focus centers on new development that fosters the inequitable distribution of resources.*

JEL: R40, R41

**KEYWORDS:** Pedestrian Infrastructure, Walkability, Active Transport, Walkable Cities, Pedestrian Safety, Car-dependent Cities

## INTRODUCTION

San Antonio, Texas, is a car-dependent city disguised by its 34 million visitors to its River Walk per year as a pedestrian-friendly metropolis (Visit San Antonio, 2019). However, it lacks the necessary infrastructure or basic tenets associated with a walkable urban environment. (Walk Score, 2022 d). The benefits of pedestrian infrastructure include increased active transportation, less traffic congestion, fewer pedestrian and cyclist injuries, reduced obesity, decreased stress levels, improved aesthetics, and positive user perceptions of space (Street Smart, 2020). Notably, the absence of leading pedestrian intervals (LPIs), a no-cost and additional measure that can significantly reduce pedestrian-vehicle collisions at traffic crosswalks illustrates the lack of priority by the city's leadership. A study conducted by the National Association of City Transportation Officials (NACTO) notes that "LPIs have shown to reduce pedestrian-vehicle collisions by as much as 60% at treated intersections" (Fayish and Gross, 2010). Developing and improving pedestrian infrastructure entails a planned environment with a network of structures that promote walking and cycling as viable modes of travel. Moreover, this initiative requires ensuring pedestrians' safety and ease of use. This approach promotes health by providing additional opportunities for physical activity from active transport. The U.S. Department of Transportation (2019) notes that "this strategy is related to and supportive of the Safe Routes to School, Complete Streets, and Encouraging Bicycling and Walking

programs.” Notably, managed pedestrian infrastructure is a mature and proven concept used with significant effect throughout European cities to promote a balanced and inclusive mix of transportation methods reflective of the population. Similar to much of North America, San Antonio is an automotive-centric municipality, which unfortunately translates to few options apart from driving for daily tasks or participating in leisure activities. Horrox (2021) notes that “where walking, cycling, and other active modes of transport are an option, the auto-centric design of our streets can make these forms of transport unappealing at best, and at worst, lethal.”

## STATEMENT OF THE PROBLEM

Walking is associated with healthy populations because it contributes to decreased obesity, diabetes, and cardiovascular disease incidences (Baobeid et al., 2021; Centers for Disease Control and Prevention, 2021). Specifically, overwhelming evidence demonstrates that active transport, enabled by planned pedestrian infrastructure, is the most practical method for improving public fitness and health. The National Library of Medicine (2016) notes that “physical inactivity is a global pandemic responsible for over 5 million deaths annually through effects on multiple non-communicable diseases.” Furthermore, the failure of municipalities to adopt low or no-cost traffic solutions, such as LPIs, which are proven to save lives from preventable vehicle versus pedestrian collisions, illustrates a lack of prioritization. There were 6,721 national pedestrian fatalities in 2020 – a 4.8% increase from the 6,412 reported by State Highway Safety Offices (SHSO) during the previous year (Governor’s Highway Safety Association, 2021). Factoring in a decrease of 13.2% in vehicle miles traveled (VMT) for 2020, the pedestrian fatality rate reached 2.3 fatalities per billion VMT, representing a 21% increase from the previous year, notably the most significant increase in the history of the Fatality Analysis Reporting Systems’ (FARS) (Governor’s Highway Safety Association, 2021). Finally, municipal decision-makers routinely ignore the economic value of a walkable city and, by extension, the financial cost of car-dependent cities because pedestrian activities are frequently insufficiently weighted in the planning process. This tendency to undervalue nonmotorized travel is particularly harmful because transportation decisions involve tradeoffs across travel modes. Wide roads, traffic speeds, and parking facilities create barriers to walking; therefore, evaluation practices that undervalue walking lead to automobile-dependent communities (Litman, 2022).

### San Antonio

According to the U.S. Census (2020), San Antonio, Texas, is the seventh-largest city in the Nation and encompasses 505 mi<sup>2</sup> of landmass. As of 2022, the population in San Antonio is 1.4 million, an increase of 1.9% from 2021 and an average annual increase of 2.2% since 2018 (Macrotrends, 2022). San Antonio comprises ten districts with corresponding city council representations (City of San Antonio, 2022). However, six distinct neighborhoods broadly include the metro area: Downtown, Eastside, North-Central, Northwest Side, Southside, and the Westside.

### Downtown

Downtown San Antonio represents the urban hub of the city and includes several celebrated attractions, structures, and establishments that welcome 34 million visitors per year (Visit San Antonio, 2019). In 2018, the revitalization of the downtown area shifted into overdrive, marked by the opening of the 23-story, eight-sided Frost Towers in 2019. It is the Downtown’s first new office building in more than 30 years (Sisson, 2021). Commonly referred to as the central business district, the northern portion of downtown San Antonio borders Cesar Chavez, which was formally Brooklyn Avenue, to the south and I35 to the North (Google Maps, 2022 a). The downtown corridor in San Antonio is the exception to the city’s lack of walkability, given the value of the River Walk towards active pedestrian transport. However, considering the city’s significant size and historical horizontal development, its downtown area represents less than one percent of its total landmass.

### Eastside

Home to the Freeman Coliseum and the AT&T sporting and event center, the Eastside predominantly consists of residential and industrial infrastructure. The largest concentration of Black and African American residents is in the Eastside (Salas, 2018). Moreover, the Eastside was the first Black and African American settlement in San Antonio after the emancipation of enslaved people (National Association for Latino Community Asset Builders [NALCAB], 2021). Economic development, specifically pedestrian infrastructure, is perhaps the most arguable use case that continues to severely lag other communities in San Antonio (NALCAB, 2021).

### North-Central

With a population of 27,000, numerous parks, above-average schools, high-density suburban amenities, and predominantly individual homeownership, North-Central in Bexar County ranks among the 11 best neighborhoods in San Antonio (Bungalow, 2022). Despite being home to multiple upscale enclaves, such as Castle Hills, Elm Creek, Rogers Ranch, and Stone Oak, North-Central fails to meet essential walkability criteria such as pedestrian safety, comfort, and reliability of active-transport infrastructure (Biediger, 2022).

### Northwest Side

Formerly home to agriculture, forestry, and open prairies, Northwest Side experienced tremendous growth and development over the past decade (Keller-Williams, 2022 a). It is situated along U.S. Highway 281, just north of Loop 1604, and features well-sought-after mature and developing communities. It is also home to numerous universities, company headquarters, and healthcare activities. These include the main campus of the University of Texas at San Antonio, the University of Texas Health Science Center San Antonio, the University of the Incarnate Word Northwest Campus, the Medical Center District, NuStar Energy, and Valero (Keller-Williams, 2022, a).

### Southside

Just south of downtown San Antonio lies the historic King William district, a subdivision in the Southside art-laden community with diverse mixed-use residential and business housing. Predominantly characterized by its Latino and Hispanic neighborhoods, the Southside underwent significant growth in 2006, when Toyota selected the Southside for its \$391 million manufacturing plant (Mendoza-Moyers, 2020). Texas A&M University-San Antonio, Palo Alto College, and the Blue Star Contemporary Art Center are among the numerous institutions located on the Southside.

### Westside

The Westside represents a significant part of the identity of the city as a center for Hispanic heritage (San Antonio Historic Preservation, n.d.) Although the community has deep ties with its culture, and pockets of wealth exist in the Northwest and far west regions, it struggled economically in recent years (Suta, 2021). Moreover, the 78207-zip code of the community remains one of the poorest in the area, ranking among the country's highest unemployment and poverty rates (Texas Appleseed, 2019). In early 2019, the community observed significant gentrification, which eroded deep cultural ties within the community and remained one of the biggest fears of many people, where the average income is less than \$14,000 per year (Knapp, 2021). Major thoroughfares intersecting with the Westside include U.S. Highway 90, Loop 410, Loop 1604, and State Highway 151 (Google Maps, 2021 b).

Apart from the demographics of each community, such as economic forecast, population, or industry, their shared attributes are car-centric transport and the absence of active pedestrian transport design. The quality

and availability of pedestrian infrastructure may differ across neighborhoods (Keller-Williams, 2022 b; San Antonio Area Foundation, n.d.). However, San Antonio is known more for its high pedestrian fatality rates than its walkability (Rivard, 2020). Although the city has improved tremendously, much improvement remains necessary regarding the prioritization of active pedestrian transport, funding, execution, and ongoing maintenance.

### Comparable Municipalities

In terms of population, Phoenix, AZ (1.6 million), Philadelphia, PA (1.6 million), San Diego, CA (1.4 million), and Dallas, TX (1.3 million) have the most comparable population to the 1.4 million citizens in San Antonio. However, given their total landmass, Phoenix, AZ (516.7 mi<sup>2</sup>), Houston, TX (640 mi<sup>2</sup>), and Los Angeles, CA (502 mi<sup>2</sup>) are the only metropolitans in the U.S. apart from San Antonio that fall under the top 12 ranks of both categories (World Population Review, 2022 c). The average walk score of 114 U.S. cities with a population exceeding 200,000 is 48, where a higher number correlates with increased walkability. San Antonio, TX, ranks significantly lower than the national average at a walk score of 36.9. In contrast, the three comparable cities (Phoenix, Houston, and Los Angeles) score near average or above par at 41, 47, and 68, respectively (Walk Score, 2022 a).

### Phoenix

Similar to San Antonio, Phoenix is historically one of the least walkable cities in America (Hendley, 2014). In recent years, however, the city embarked on measures to improve the pedestrian experience in its downtown corridor (Sandoval, 2018). Past projects include widening sidewalks, installing shade trees, and narrowing two-lane streets to one-lane thoroughfares. These actions are examples of a few completed projects of a much broader plan toward improving the city's walkability. As a result, it gained safety, appeal, and increased revenue due to increased foot traffic. On July 1, 2015, the Phoenix city council adopted ordinance G-6047 as part of the Reinvent PHX project to improve the broad pedestrian experience and incentivize neighboring communities to adopt similar practices (City of Phoenix, 2022).

### Houston

Houston, TX, on average, is a reasonably walkable city per standards in the U.S. (Walk Score, 2022 b). With more than two million residents, Houston ranks as the 24th most walkable city in the U.S. (Walk Score, 2022 b). However, like most North American communities, Houston is car-dependent, which Litman (2002) defines as "high levels of per capita automobile travel, automobile-oriented land use patterns, and reduced transport alternatives." Walk Score (2022 b) rates Houston's walkability as 47, slightly above the national average of cities in the Nation. Charles Lettering noted, "A problem well stated is half solved." Notably, Houston's planning and development department opens with, "Houston is an auto-centric city; we drive to work, eat, shop, and even to the convenience store two blocks away" in its 2020 user guide (Houston Planning & Development, 2020). Specifically, the guide identifies the Code of Ordinances in Houston as the primary culprit of its propensity toward rigid auto-centric accommodation. Moreover, the guide expands on planned strategies and measurable actions to encourage increased density and walkability. The plan includes the following:

*Adopting policies that enable a combination of living, work, and play options;  
Coordinating transit with supporting land development;  
Encouraging development that considers all modes of transportation;  
Promoting a compact, pedestrian-friendly development around transit; and  
Developing a transportation network that includes transit, bicycle, and pedestrian options.*

Although the plans of the city to improve broad active transport are a promising start, whether the proposed strategies will come to fruition remains questionable. For now, Houston's bid to retrofit its hodgepodge of transportation structures rests with citizens and decision-makers facing different realities (Olin, 2021).

### Los Angeles

Los Angeles is a city built for cars; however, a better pedestrian-focused environment emerges as previous investments pay off (Leinberger & Lynch, 2014). According to Walk Score (2022 c), Los Angeles is 21 points above the national average with a score of 69; moreover, the broader pedestrian transport of the city, such as transit and cycling, enjoys similar ratings. The majority of the transportation efforts of the city revolve around Downtown; however, neighboring communities, such as Koreatown, Westwood, and Hollywood, also boast an urban density that promotes enjoyable and active pedestrian transport (Walk Score, 2022 c). The city's move toward becoming a more pedestrian-friendly city began in 2012 with the transit neighborhood plan by the Los Angeles Department of City Planning (2017) to encourage the development of livable and multi-accessible communities and employment centers. Similar to other U.S. cities in the U.S. who are exerting efforts to improve the pedestrian infrastructure, Los Angeles first focused on its code and zoning regulations (Los Angeles Walk, 2014). Its goal was to establish mixed-land use, incentivize overall transport development, and adopt flexible/decreased parking requirements (Los Angeles Department of City Planning, 2017). Although realizing its collective transport potential may take time for Los Angeles, witnessing citizens and decision-makers moving in the same direction regarding active pedestrian transport is encouraging.

### Characteristics of Good Cities

Cities, not only downtown areas, are defined as places where density facilitates interaction among inhabitants for commercial, cultural, leisure, administrative, or religious purposes (Leinberger & Lynch, 2014). Not all cities are created equally; however, good cities' shared qualities include mixed-use neighborhoods, community density, and walkable streets (Garvin, 2016). These attributes form the basis of the framework of a city for urbanization and enable the surrounding development to continually evolve to meet the current needs of the public without impairing the ability of future generations to continue doing so (Garvin, 2016). With a population of more than 1.4 million, San Antonio spans more than 485 sq mi with 3,001 residents per sq mi (World Population Review, 2022 b). In contrast, the population density in Los Angeles, CA, which spans only 469 sq mi, is nearly triple that of San Antonio at 8,359 people per sq mi (World Population Review, 2022 a). Despite an earlier history of mixed neighborhood use in many North American cities, including San Antonio, the city currently employs a strict zoning regulation that restricts and, in the case of established neighborhoods, typically prohibits such practices (MC-San Antonio, 2021). In comparison, its neighbor, Houston, TX, historically employed area land use instead of a citywide comprehensive zoning ordinance, which provides increased flexibility toward land use and neighborhood design (City of Houston, 2022). Finally, walkability is becoming a fashionable term employed by urbanists, developers, and city planners, among others, to communicate the necessity and tangible benefits of enabling active transport in cities of all sizes and compositions. The notion of transportation corridors built at the human scale and designed to work in tandem with multiple conveyance platforms stems from a much earlier history of North America. Southworth (2006) notes that "walkability was essential in cities before the automobile era. Streets of the preindustrial city by necessity occupied only 300 acres yet housed 30,000 people." From a literal standpoint, walkability implies that the environment supports foot travel in the sense that readability indicates the capability of being read (Price, 2018). However, walkability denotes different levels of walking that range from being the most efficient means of transport to a physically impossible or dangerous mode of travel. Unfortunately, San Antonio favors the latter as extensive reporting and documentation exist regarding the poor pedestrian infrastructure of the city.

### Texas Public Radio

“San Antonio walkability is not improving – it’s getting worse” (Texas Public Radio, 2017).

### San Antonio Reporter

“Even with these improvements, San Antonio still has a long way to go. Too many current development efforts lack corresponding public investments to safely connect neighborhoods, streetscapes, and urban mixed-use zones” (Rivard, 2020).

### San Antonio Reporter

“When it comes to San Antonio residents using their own two feet with a destination in mind, getting from place to place on foot is difficult in many parts of the city” (Biediger, 2022).

### SA Tomorrow

Current development patterns make walking or biking within and between neighborhoods difficult, increasing reliance on the automobile. An analysis of housing preferences and existing housing conditions shows an unmet demand for walkable neighborhoods. Only 14% of San Antonio neighborhoods have Walk Scores that indicate it's a very or somewhat walkable location, and most of those are in our historic districts (SA Tomorrow, 2022 a).

### Pedestrian Safety

Individuals who seek to cross a street at a busy four-way traffic intersection are familiar with the frustration of motorists turning right and rushing to beat pedestrians that travel through the intersection once the green universal walk symbol displays and the yellow caution arrow blinks. According to the Federal Highway Administration (FHWA) [2022], this scenario and other similar ones, which facilitate the simultaneous movement of motorists and pedestrians at or near intersections, account for more than 50 percent of fatal crashes per year. As quoted by Schultheiss (2018), a 1980s study by the Insurance Institute for Highway Safety found that permitting righthand turns on red increases pedestrian and bike crashes by 60 and 100 percent, respectively. In other words, the legal right-turn-on red policy implemented in San Antonio places walkers and cyclists at a 60/100 increase of potential injury or fatal crashes involving motor vehicles. Even if San Antonio holds a legitimate reason for putting its citizens at significant risk of injury or death through the legal right-turn-on-red policy, its failure to employ alternatives, such as LPIS, illustrates an inconsistency with public safety. An LPI is a no-cost measure that provides pedestrians with increased visibility by giving a head start on turning motorists; however, municipalities can utilize numerous safety devices, procedures, and designs that value the safety of all citizens. In terms of walkability, safety is the currency of pedestrians. Without safety and ongoing measures that maintain and continually improve the intersection between pedestrians and their well-being, walkability will suffer despite all other efforts. The FHWA maintains a publication called the Manual on Uniform Traffic Control Devices for Streets and Highways, which defines nationwide standards for installing and maintaining traffic control devices on public streets, highways, bikeways, and private roads open to public travel.

### Community Health and Fitness

Walking is the most common and readily available form of physical activity (Baobeid et al., 2021). Although individuals can decide whether to participate, municipalities can influence this decision and promote healthy and active lifestyles among constituents. Designing and retrofitting environments to render engaging in active pedestrian transport easy for citizens is an approach that not only helps encourages

physical activity but also makes communities more enjoyable places to live (Centers for Disease Control and Prevention, 2020). Given all the reasons people opt to walk, such as for leisure, work, or school, health and fitness are key advantages for municipalities because the lack of physical activity is a primary factor in obesity (Baobeid et al., 2021). Heart disease, strokes, type-two diabetes, and certain types of cancer are conditions linked to obesity; they are among the leading causes of preventable and premature death (Centers for Disease Control and Prevention, 2021). Analysis conducted by the San Antonio Metropolitan Health District (2014) illustrates that 78% of adult men and 65% of adult women in San Antonio were overweight or obese. Furthermore, an exit report revealed disparities among communities, with Blacks and Hispanics experiencing significantly higher rates of overweight and obesity than Whites (San Antonio Metropolitan Health District, 2014). The findings correlate with the availability, condition, and linkage of pedestrian infrastructure across various communities, particularly because obesity tends to thrive in underserved communities such as the 78207 Westside zip code in San Antonio (Wagner, 2021). Children are particularly susceptible to overweight and obesity and a myriad of associated health problems. Thus, the compounding effect of communities that do not support adult physical activity on the well-being of younger citizens is unsurprising. In the U.S., one in five children/adolescents is overweight or obese (Centers for Disease Control and Prevention, 2022). In San Antonio (Bexar County) alone, 27% of Hispanic children are affected by overweight or obesity (University of Texas Health Science Center at San Antonio, 2021). Given that an active lifestyle, such as a regular walking regimen, is proven to exert positive effects on obesity and weight reduction, the choice of municipalities not to encourage active transport defies logic. Like many large cities, San Antonio faces numerous challenges that vie for attention and resources (SA Tomorrow, 2022 a). Nevertheless, in contrast to those leading the charge in this epic health crisis, San Antonio continues to prioritize its vehicles' movement over its citizens' health.

### City Appeal

The majority of cities in the U.S. were incorporated during the preindustrial period (Winberg, 2019) and, hence, designed based on active pedestrian transport. A good chance exists that, similar to San Antonio, they will have “good bones” on which to improve. Overwhelmingly, the design of North American thoroughfares caters to automobiles. Therefore, a built-in spatial bias creates an imbalance between other forms of conveyance, such as public transit or active pedestrian transport (C40 Knowledge, 2021). Moreover, the majority of cities in the U.S. similarly address all public thoroughfares, that is, to facilitate maximum traffic throughput. In other developed countries, the terms road, street, avenue, and boulevard, among others, prescribe different traffic capacities, velocities, and even directions (Edwards & Barton, 2016). Winberg (2019) notes that William Penn directed the construction of Philadelphia, PA, in 1682 to adhere to five guiding principles, namely

- Build on the grid system;
- Include a civic square;
- Ensure appropriate width of streets;
- Include public parks; and
- Allow for future development.

Surprisingly, Penn’s philosophy toward municipal space and scale is as relevant today as it was 340 years ago. According to the intended traffic role of a thoroughfare type, Penn employed varying widths to regulate speed and capacity (Winberg, 2019). Thus, Penn’s design language intended to reconcile the needs of pedestrians, the community appeal, and the prevailing conveyance of the period. He understood that a city’s appeal relies on the feel and function of its spaces and not only its aesthetics. A contemporary perspective of Penn’s design philosophy may advocate automobiles as a sensible or prescribed option for transportation between cities. However, walking and cycling would be the default modes of travel within cities. Leinberger & Lynch (2014) take a similar view in noting that “a far more useful understanding of metropolitan America is “walkable urban” and “drivable suburban” development. Whereas, “in Europe, cities are widely

appreciated and embraced and have turned into high-quality environments of inclusive and sustainable living" (Jaegerhaus, 2022).

### Economic Considerations

Improved community health and fitness, basic mobility, household savings, efficient land use, reduced external cost, community sustainability, and community equality are important reasons for improving the walkability of a city (Litman, 2022). However, economic significance is a frequently overlooked benefit of mobilizing the potential value of fostering a walkable, well-connected city. Leinberger & Lynch (2014) note that "walkable urban office space in the 30 largest metros commands a 74% rent-per-square-foot premium over rents in drivable suburban areas." The correlation between foot traffic and sales is a well-documented metric that businesses of all sizes seek to leverage (Kenton, 2021; Leinberger & Lynch, 2014). Nevertheless, San Antonio remains bound to capitalize on this immense potential for a city with more than 1.4 million residents (U.S. Census, 2020). Other scholars argue that the River Walk generates enormous business income and, by extension, city tax revenue from more than 34 million visitors per year who predominately travel by foot. However, its entire 15-mile length (SA.gov., 2022 a) flows through the downtown district, which accounts for less than one percent of the total landmass of the city. Furthermore, out of the 558 regionally significant, walkable urban places in the 30 largest cities in the U.S., San Antonio only accounts for two compared with 66 for New York (Leinberger & Lynch, 2014).

Aside from being an added amenity, a walkable city directly impacts home values. Homes in walkable neighborhoods command a price premium over similar homes in less walkable areas (Cortright, 2009). Redfin found that "one Walk Score point can increase the price of a home by an average of \$3,250 or 0.9 percent" (Sheharyar, 2020). This figure suggests that the difference between the current Walk score of San Antonio at 36.9 and the national average at 47, Walk Score (2020 a) represents a loss in the resale value of nearly \$30,000 on a home that cost \$320,000. Finally, a walkable urban environment accommodates more significant economic potential for less landmass utilization compared to urban automotive-centric environments. Walkable urban developments exhibit higher density, leverage multiple forms of transportation to move people and goods across a planned network of walkable environments and integrate various real estate products in the same footprint (Leinberger & Austin, 2016).

### Barriers to Walkability

The barriers to walkability include a comprehensive list of natural and manufactured hurdles that hinder or preclude active pedestrian transport. The priority of leaders in San Antonio regarding their responsibility and their constituents' fundamental rights should include omitting such barriers and promoting city walkability through funding, legislation, education, and community input. Instead of specific barriers, many studies related to the topic weigh the factors that influence walkability, such as accessibility, comfort/use, environmental aesthetics, safety/security, and connectivity (Tulin et al., 2018). In various communities, both physical and demographic, sub-groups of the population will experience a considerable impact stemming from walkability compared with others (Clark & Scott, 2016). Thus, understanding the perceived barriers and the affected individuals can assist policymakers in equitably targeting populations that require increased walkability.

### Discussion

A study by George Washington University found that the most walkable cities exhibit significantly higher GDPs per capita and percentages of college graduates over the age of 25 (Leinberger & Lynch, 2014). However, instead of a holistic approach to municipality management, the majority of North American cities, including San Antonio, are built on an illusion that shares similarities with Ponzi schemes. In this case, unsustainable growth represents the asset that funds the illusion of the health and prosperity of a city

(Pattison, 2020). Such a mechanism benefits the city through increased revenue-associated growth; however, the city incurs the liability of maintaining the new infrastructure in the long run. Hence, the Ponzi scheme is the city's exchange of short-term gain for long-term liability (Marohn, 2011). The effect of unsustainable growth on city walkability stems from funding, planning priorities, and the lack of understanding regarding the impact of walkability and the city's total value. As the growth scheme ensues, less appetite exists among leaders to funnel tax dollars toward projects that exceed the immediate growth objective. The inherent problem with financing city operations through unsustainable growth is that it inevitably ends, similar to the Ponzi scheme. Meanwhile, the missed opportunities of facilitating a well-connected, walkable city tend to leverage consequences, such as the strain on health systems, migration of tax dollars, decreased tourism revenues, associated low-density costs, and inability to attract new residents. Although growth is periodically a natural and necessary occurrence, it should happen in response to the trajectory of the population instead of the opposite. North American cities do not collect sufficient tax revenues to sustain their obligations (Marohn, 2017). Furthermore, the growth approach as a solution is neither sustainable nor equitable across communities (Marohn, 2017). While increasing the walkability of a city is not a silver bullet for curtailing its woes, it is a proven strategy for transforming and sustaining a city in ways that cannot be achieved by pursuing a growth strategy.

On a positive note, like many North American cities, San Antonio features several key points in its favor regarding its potential for walkability. First, the city adheres to three of the original principles by Penn, 1682, as cited by Winberg, 2019 for city construction in that it is built on a grid system and includes civic squares and public parks. Second, although San Antonio holds a justifiable reputation as one of the least walkable cities, various communities within the greater metropolitan area boast Walk Scores that exceed the aggregated Score of the city (Redfin, 2022). Combined with the River Walk, an extensive trail network, and a proposed sidewalk initiative, the city can increasingly focus on connectivity, expanding best business practices, and equitable distribution among communities.

## CONCLUSION

The perceived walkability of San Antonio threatens its economy and the health and safety of its citizens. Except for a few outlier communities, the greater San Antonio metropolitan irrefutably and justifiably ranks among the least walkable, most pedestrian-unfriendly, vehicle-centric cities in the U.S. (San Antonio Area Foundation, n.d.; Bungalow, 2022; Walk Score, 2022 a; Rivard, 2020). The city's landscape is frequently incorrectly categorized as a walker's paradise through the lens of more than 34 million visitors per year (Visit San Antonio, 2019; Law, 2021), who limit their activity in and around the downtown corridor (Walk Score, 2022 d). Unsurprisingly, visitors who venture beyond the downtown central business district promptly learn that much improvement is required. Encouragingly, the current leadership in San Antonio recognizes the benefits of a walkable city, which entails increased social and economic equity performance (Nowlin, 2022; SA.gov, 2022 b; SA Tomorrow, 2022 b). However, a viable plan with clear and measurable objectives for increasing walkability within the city's current infrastructure remains unaddressed. Instead of retrofitting old infrastructure across mature and frequently in-decline communities, much of the current focus centers on new development (SA.gov, 2022 c), which predictably fosters an inequitable distribution of resources (Sabawi, 2020; Bexar.org, 2022).

For example, suppose that the goal is to build a fuel-efficient vehicle. In this case, starting with a first-generation Honda Civic is more practical than a new military tank because no level of modification of the tank would result in fuel efficiency (Fisher, 2021). Similarly, systematically improving the existing infrastructure in established neighborhoods in San Antonio, instead of pursuing outward growth and expansion, would result in a more significant impact and return on taxpayer dollars.

A link exists between walkability and the matrixes by which the success of a city is measured. Walkability is good for society through social bonds, the economy via economic productivity, health through physical

activity and exercise, the environment via decreased pollution, and resilience due to versatility and reliability. Moreover, active pedestrian transport is equitable because it is accessible and available to everyone (Institute for Transportation and Development Policy, 2020). Moving forward, San Antonio must adopt a holistic, long-term strategy where regional-serving and local walkable urban spaces underpin and guide future planning and development. Addressing challenges ahead through appropriate policies and supportive responses towards a long-term horizon before realizing fundamental changes in the existing walkable status of the city is incumbent on lawmakers and the public sphere. Connectivity and supporting transit hubs that enable active transport should be prioritized because unreliable access due to economically influenced fragmentation represents a significant pedestrian barrier. Lower economically performing communities may require additional infrastructure mitigation to achieve essential consistency across areas. Finally, a different construct of financing development is warranted. The reason is that the strategy of unsustainable growth is the principal culprit behind the failure of San Antonio to invest in its economy and the health and safety of its citizens via active transport infrastructure. Instead of upfront subsidies, long-term public investments are more effective for addressing specific projects that support and extend the immediate walkability infrastructure. A public investment approach can help a project obtain financing as productively as a subsidy. Nevertheless, public investment also carries a hoped-for return of capital and profit from the investment, which the city can re-invest (Leinberger & Austin, 2016).

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## BIOGRAPHY

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# A BRIEF HISTORY OF FINANCIAL AUDIT

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## ABSTRACT

*During the time, audit has gained more and more importance due to its public interest role. Audit activity is an activity on which a wide community of individuals and institutions rely. Nowadays, the activity of a statutory auditor or of an audit firm is a key activity that can contribute to improving the integrity and efficiency of entities' financial statements, this implies an improvement of investor confidence in financial statements, an essential ingredient for future investments and for economic growth. The goal of this paper is to show the evolution of financial audit during the time and the evolution of its role in market economies.*

**JEL:** M42

**KEYWORDS:** Financial Audit, History of Audit, Public Interest Role, Auditors

## INTRODUCTION

The term audit is widely used, often to express very different things. Examples include the audit of situations related to compliance with environmental regulations, the audit of situations regarding compliance with quality standards, and, of course, the annual independent audit of accounts. In each case, the term audit is used to express a process that provides assurance, but its nature and extent may not be very clear. Auditing accounts means different things to different people, not least due to the fact that much of the general public does not have sufficient knowledge of what an independent financial auditor does and the role of the accounting profession.

Based on these elements, and from the very essence of the activity, the audit is defined as a professional examination of some information in order to express a responsible and independent opinion, by relating them to a criterion (standard). The word audit was popularized on the European continent in the 60s by Anglo-Saxon financial audit firms. Later, the audit made its entry from the desire to connect the regulations of the market economy with similar regulations on the international and European levels.

## THE BEGINNINGS AND EVOLUTION OF AUDITING

Auditing has been present since ancient times. The control of the patrimony from the ancient Egyptians, Greeks and Romans was carried out by auditing the accounts of the public institutions of that time. Auditing was done by clerks or priests and the main purpose of checkings in those days was to identify fraud and determine whether receipts and payments were being recorded correctly. Until the industrial revolution, auditing appears as a necessity of kings, churches and the state to control various accounting records for that time

During the Industrial Revolution, from 1750 to 1850, auditing was developing and it is seen as a method of detecting fraud and financial accountability. During this period, a series of discoveries are made such as: the boiler with steam under pressure, the steam engine, automation in the textile field, and discoveries in the field of metallurgy. These discoveries determined development of factories and plants, and therefore in many areas, manual work was replaced by mechanized one.

Along with industrial development, the need for companies with more evolved structures is created, and thus joint stock companies appear. The shareholders participate through resources in the capital of the companies but are no longer involved in its current activity, the management function is performed by employed persons. Obviously, in these situations, investors need to know if the company is managed correctly and if the financial statements of the company are correct. This created the need for a person independent of the firm to check the accounts in the interest of the shareholders and to report to them the accuracy of the accounts and the safety of their investments. The people performing this check were selected from among the best accountants. The main activities were those of fraud identification but also finding solutions to preserve the integrity of the state's patrimony or of public or private entities.

At the beginning of the 20th century had been defined the distinction between accountants and auditors, but the audit is still carried out by both auditors and accountants. The audits are ordered by the state and the shareholders. The audit involves the submission of reports on their assignments and findings, the result of the checking appears in the form of an "Independent auditor's report".

After the two World Wars, respectively in the second half of the 20th century, when the European Union begins to take shape, the audit activity had expanded on engagements for banking , and financial institutions. This extention of the scope of the audit is basically due to the development of the capital markets and of social development. The audit is still carried out by both auditors and accounting specialists. The evolution of the audit during this period consists in the evolution of the way of guaranteeing the accuracy of the financial statements.

Audit activity in the Anglo-Saxon area takes shape more strongly and influences the democrat European continent including through the conceptual accounting framework. In the period 1970-1990 - the objectives of the audit are confirmation of the functionality of the internal control, compliance with the conceptual accounting framework and audit norms. Those who requested audit services are: the public state, shareholders, banks and companies. Auditors are professionals with economic or legal backgrounds, mainly, their role being of assurance but also of advising the management of public or private companies regarding the internal control system and the accuracy and fidelity of the prepared financial statements, the identification of errors and deficiencies, as well as providing solutions and recommendations necessary to improve management and internal control systems, to correct errors and prevent damage of any kind.

In the period after 1990 and until now, the audit activity is seen and recognized as an important tool in the management activity of public and private entities. A new concept is emerging, that corporate governance. The concept is taken from the Americans and introduced into public and private entities in Europe. It is the beginning of the implementation of the concepts of control, audit and risk. Audit is concentrating on risk analysis. Now is recognized the differences between the internal and external audit, the delimitations of the two activities are clear and the same time people understand the importance of collaboration between those two activities in order the control of the companies to be more efficient.

The increase in the number of commercial companies has led to an increase in the demand for audit services. The evolution of companies leads to the development of the testing process. Thus, in 1977 was established the International Federation of Accountants (IFAC - International Federation of Accountants), and in 1978 within IFAC is formed the IAASB (International Auditing and Assurance Standards Board), called at that time the International Auditing Practices Committee (IAPC) – Existence of IFAC and respectively the IAASB is a big step in the standardization and development of audit procedures at European level. The standards set out a way to strategically select key items in financial statements. Also, the procedures for authorizing auditors are standardized and the minimum knowledge required for financial auditors is established. It is the period when clear rules are drawn regarding independence in particular, but also ethical competence in general for the auditors. Within IFAC, a distinct structure is being developed for the

standards of professional ethics for professional accountants (including the audit professional), the International Code of Ethics for Professional Accountants (IESBA).

According to the specialized literature (<https://www.iedunote.com/auditing-origin-evolution>), a brief history of the financial audit would include:

Period	Audit Solicitants	Auditors	Audit Objectives
Up to 1700	Kings, emperors. Churches and the state	People of the state or scribes	<ul style="list-style-type: none"> <li>– The punishment of the thieves for the funds changing direction.</li> <li>– Protecting assets.</li> </ul>
1700 – 1850	States, Courts, and shareholders	Accountants	<ul style="list-style-type: none"> <li>– Repressing fraud and punishment of the authors.</li> <li>– Protecting the assets.</li> </ul>
1850 – 1900	The state and the shareholders	Professional accountants or lawyers	<ul style="list-style-type: none"> <li>– Avoiding fraud and errors and attesting to the viability of the balance sheet.</li> </ul>
1940 – 1970	The state and the shareholders	Professionals in audit and accounting, and counseling	<ul style="list-style-type: none"> <li>– Attesting the honesty and regularity of the historical financial data/</li> </ul>
1970 – 1990	The state, the third, and the shareholders	Professionals in audit and counseling	<ul style="list-style-type: none"> <li>– Attesting the quality of the internal control and respecting the accounting norms and the audit norms.</li> </ul>
1990+	The state, the third, and the shareholders	Professionals in audit and counseling	<ul style="list-style-type: none"> <li>– The protection against international fraud</li> </ul>

## CONCLUSIONS

During the time, auditing has evolved significantly. If at the beginning it focused more on verifying the correctness of the accounting records, over time the complexity of the verifications increased and today the audit involves a very complex analysis which begin with identification of significant risks. In his work, the auditor makes a complex analysis and starts from an understanding of the client activity, its organizational culture, evaluation of its key employees, effectiveness of internal control within the company, etc. in order to identify the risks of material misstatement which could influence the audit report.

In the near future, the audit will increase its area by expanding its analysis on sustainability reports issued by the principal public interest entities. Investors, including asset managers, want to better understand the risks of, and opportunities afforded by, sustainability issues for their investments, as well as the impacts of those investments on people and the environment. The auditor takes the responsibility of assuring the correctness of the information presented by companies.

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Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL amending Directive 2013/34/EU, Directive 2004/109/EC, Directive 2006/43/EC and Regulation (EU) No 537/2014, as regards corporate sustainability reporting

# THE AMERICAN CORPORATION AND LEARNING ORGANIZATIONS

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## ABSTRACT

The purpose of this academic presentation is to depict the importance of the inclusion of social sciences learning into the management and organization structure. Essence, and process of American business organizations in order for such organizations to acquire holistic learning that will satisfy both their internal and external environmental developmental needs. Learning organizations are viable and vital means for developing a corporate culture of high performance learners who become transformed people much better adapted to get results that affect the bottom line and the quality of life in their organizations (Kline & Saunders, 1998). Learning organizations are of tremendous importance in nations with advanced social, technological, and economic systems because they possess all the factors of production in abundance and thus operate under economies of scale. This is especially true for American organizations that play a paramount economic and business role in today's global economy. Laconically stated, learning organizations are the most advanced structures because they learn and practice continuous organizational development on an action orientation basis (Vieira, Valcanover, Potrich, & Cavalheiro, 2020).

**JEL:** M00

**KEYWORDS:** Learning Organization, Global Economy

# MUTUAL FUND HERDING AFTER 13D FILINGS

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## ABSTRACT

*Using a hand collected dataset consisting of all toehold acquisitions reported to the SEC through 13D filings from 1995 to 2015, the study documents a strong herding reaction of active equity mutual funds after toehold announcements by institutional investors. This herding reaction is twice stronger than other mutual fund herding events reported by previous literature. The results support the informational herding cascade hypothesis.*

**JEL:** G11, G14

**KEYWORDS:** Mutual Funds, Herding, 13D Filings, Hedge Funds

## INTRODUCTION

Sometimes, investors exhibit behavior of buying or selling the same securities at around the same time. This mimicking behavior is called herding. Literature documents herding by institutional investors after certain events like quarterly holding publications or analyst stock revisions (Brown et al, 2014; Jiao and Ye, 2014; Lakonishok, Schleifer, and Vishny, 1992; Wermers, 1999). One event that could potentially be used for herding, but has not been carefully studied in a view of herding behavior is the announcement of a toehold. A toehold is a position of 5% or more of the total shares of any public company. Whenever any investor acquires a toehold, the investor is obligated to publicly report the position to the SEC within 10 days of the acquisition. Previous literature documents significant positive abnormal returns surrounding toehold announcements (Brav et al, 2008; Holderness and Sheehan, 1985; Klein and Zur, 2009; Mikkelsen and Ruback, 1985). The positive market reaction to a toehold position suggest that these announcements contain information that can be exploited by other investors (Brav et al, 2008; Gillan and Starks, 2007; Gueguen and Ramon, 2015). In other words, investors, including active equity mutual fund managers, could use toehold announcements as information events and herd after them.

Using a hand collected dataset consisting of all toehold acquisitions reported to the SEC through 13D filings from 1995 to 2015, the study documents a strong herding reaction of active equity mutual funds after toehold announcements. Employing Lakonishok et al. (1992) (LSV) herding measure, we find that 6.2% of mutual fund portfolios buy stocks that appear on a toehold filing. This percentage implies that around 460 mutual fund portfolios more of what would be expected herd after toeholds every quarter. This percentage is large when compared to mutual fund herding after other events: for example, 2.98% to analyst earnings revisions (Brown et al, 2014) or 3.4% to quarterly holdings reports (Wermers, 1999). To the best of our knowledge, this is the first study to document herding after toehold announcements.

## LITERATURE REVIEW

Herding refers to investors' behavior of mimicking each other's trades by buying or selling the same security or the same type of securities. Herding does not necessarily imply that investors trade at the same time, as trading can happen sequentially, or that herding is always based on information (Sias, 2004). Informational cascade herding occurs when some investors infer information from other investors' trades and act on the information they learn. With costly information search, some investors may be more informed than the others, creating information asymmetry in the markets. Barring liquidity concerns, informed

investors only trade when they have unpriced information about the traded stock, and, thus, their trades contain information. Uninformed investors can benefit from observing the informed investors' trades as the trades signal the informed investors' beliefs that the stock is currently mispriced. Thus, uninformed investors can learn from the informed investors' trades when the trades are publicly disclosed. Informational cascade herding implies that at least certain trades made by informed investors are observable and that uninformed investors decide to incorporate the new information and mimic these observed trades (Banerjee, 1992; Bikhchandani, Hirshleifer, and Welch, 1992).

Informed investors do not have an incentive to disclose their trades, but they may be forced to disclose them under certain circumstances, e.g., through a Schedule 13D filing. Evidence shows that mandatory public reports contain useful and tradable information, and that the market responds to their publication (Barclay and Holderness, 1991; Brav et al., 2008; Collin-Dufresne and Fos, 2015; Frank et al, 2004; Verbeek and Wang, 2013). In particular, if uninformed investors can observe the trades of other investors, especially investors they believe are more informed than themselves, they have an incentive to herd after their trades (Banerjee, 1992; Bikhchandani, Hirshleifer, and Welch, 1992). Overall, empirical suggests that herding is a relatively common occurrence (Choi and Sias, 2009; Sias, 2004; Wermers, 1999). Falkenstein (1996) shows that mutual funds prefer similar stocks, i.e., highly-volatile stocks and tend to avoid low-priced stocks, small-company stocks, and stocks that have only recently been exchange listed. These preferences are evidence of characteristic herding.

Even though there is a consistent evidence of institutional investors' herding behavior, including mutual funds' herding, most of these studies focus on quarterly holdings of these investors. While quarterly holdings are informative, the release of holdings' information happens with a lag of up to 135 days (if a trade happened at the beginning of a quarter and the holdings reported 45 days after the quarter end). Use of an informative event that is reported within a short period of time allows more precise identification and measure of herding. In this study, we use announcement of more than 5% acquisition of any class of a company's shares reported in 13D filings (required to be filed within 10 days after the establishment of the position) to identify and measure herding behavior of mutual funds. A toehold position is accumulation of less than five percent of a target firm's outstanding shares by another firm or investor with a specific goal in mind, such as takeover bid or tender offer, or specific demands by activist investors with an intent to increase shareholder value of the firm (Investopedia). It is not the size but the intent of the initial position that defines it to be a toehold position. Toehold positions are believed to be an effective tool to solve agency problems and to facilitate control transfers. In general, the market receives the news of toehold positions positively (Brav et al, 2008; Clifford, 2008; Gueguen and Ramon, 2015; Klein and Zur, 2009; Mikkelsen and Ruback, 1985). Thus, toehold positions contain valuable information about the firms' future returns that can be used for trading. If the toehold position increases above five percent, the acquirer must file a Schedule 13D with Security Exchange Commission (SEC) and must report the transaction within 10 days. However, investors may decide to purchase a large number of share for variety of reasons, such as an activism strategy, belief that the stock is underpriced, or proxy contest. The main purpose of a 13D filing is to inform the market of new block owners and their intentions behind owning the stock. Thus, a Schedule 13D requires to provide a reason for taking a significant stake in the company.

## DATA AND METHODOLOGY

We obtain all 13D filings from the SEC EDGAR database for the period of January 1, 1994 to December 31, 2015 for a total of 296,167 filings. From each filing, we extract the filer's and target's identity and the size of the position reported as a percentage and as the number of shares bought. We also obtain the date when the 13D was filed and the date when the 5% threshold was crossed. The identity of the filer is reported as the name of the person or organization that purchased the shares. The identity of the target is reported as a Committee on Uniform Security Identification Procedures (CUSIP) number. After cleaning the data and eliminating duplicate observations, our final sample contains 38,062 toehold filings for the 11 year span.

There is an average of 1,700 filings per year with a median toehold position of 12.1%. In any given year, the median investor initiates toeholds with a position in the lower teens. The standard deviation indicates that this initiating positions are not uniform and that variability is large. The average value is substantially larger at 19.4%. The interquartile range is large, hovering around 19% with the first and third quartiles having respective values of 6.4% and 25.1%. This means that most of the toehold filers do not generally acquire controlling positions, at least at the time of the filing. Only 17.8% of filers acquire positions larger than 30% and 10% file positions above a 50% stake.

In order to be able to compare our results with other studies, we limit our analysis to actively managed equity mutual funds. We exclude all close-ended and non-managed funds, i.e., index funds, exchange traded funds, exchange traded notes, bond funds, and preferred stock funds. We also exclude all initial public offerings (IPO) from our sample. The domestic mutual funds holdings data come from the CRSP Mutual Fund Portfolio Holdings database. The sample period is from January 1, 2001 to December 31, 2015. The data include all the quarterly holdings of each mutual fund as reported in its 13F filings, with identifiers and the size of each of the holdings. Company and return data come from the Compustat and Center for Research in Security Prices (CRSP) databases, respectively. Cumulative abnormal returns surrounding 13D filings are computed using Eventus. As a herding measure, we choose the commonly used Lakonishok et al. (1992) (LSV) empirical herding measure (e.g., Brown et al, 2014; Wermers, 1999). The general intuition of the LSV metric is that if fund managers are buying or selling an individual stock above and beyond of what would be expected, then herding can be concluded. The LSV herding measure by actively managed equity mutual funds for stock  $i$  in quarter  $t$  is defined as:

$$H_{it} = |p_{it} - E[p_{it}]| - E|p_{it} - E[p_{it}]| \quad (1)$$

where  $p_{it}$  is the total number of actively managed equity mutual funds buying a particular stock divided by the total number of trades for that stock in the quarter.  $E[p_{it}]$  is the expected portion of buys by active equity mutual funds.  $E[p_{it}]$  is calculated by dividing the aggregate of stock purchases across all stocks by the total number of active equity mutual fund managers.  $E[p_{it}]$  changes every quarter and is constant across all stocks. These two terms imply that  $|p_{it} - E[p_{it}]|$  measures the divergence between the expected level of purchases on a particular stock by active equity mutual fund managers and the actual number of purchases. This difference needs to be adjusted for the random variation in stock purchases that occur in any given quarter. The adjustment factor  $E|p_{it} - E[p_{it}]|$  accounts for this variation around the number of purchases. The LSV herding measure is given as a percentage and is interpreted as the percentage of funds that unexpectedly traded on the same side of the market. Greater values indicate stronger herding. For example, if mutual funds are equally inclined to buy and sell a given stock and  $H_{it} = 0.1$ , for every 100 transactions, ten funds are trading on the same side of the market above and beyond to what would be expected and 40% of the funds trade on the other side. Following Wermers (1999), we limit our sample to stocks that are traded by five or more mutual funds. This restriction is imposed to avoid calling two or three managers trading in the same direction a herd.

## RESULTS AND DISCUSSION

In order to test if mutual funds herd after toehold announcements, we use the mutual fund holding data to obtain the LSV herding measure. The mutual fund holding data starts in 2003. Panel A of Table 1 shows the mean LSV herding measure for the years of 2003 to 2015.

Table 1: LSV Herding Measure and Wilcoxon Two Sample Test

Panel A. LSV Herding Measure								
Year	13F Quarterly Reports				13D Toehold Acquisition Reports			
	N	Mean	Median	Std Dev	N	Mean	Median	Std Dev
2003	14653	-0.46%	-2.49%	9.56%	290	2.53%	-1.70%	15.44%
2004	14814	1.35%	-0.94%	11.35%	329	5.40%	-0.71%	17.88%
2005	14308	1.55%	-1.24%	12.40%	384	7.97%	1.58%	18.78%
2006	15809	2.27%	-0.46%	12.25%	476	3.62%	-0.37%	16.06%
2007	16891	1.92%	-0.33%	10.60%	540	3.01%	0.20%	12.93%
2008	16963	2.42%	0.67%	9.15%	485	5.25%	2.69%	12.42%
2009	16526	2.07%	0.37%	9.33%	289	3.99%	0.66%	12.52%
2010	19176	2.84%	0.63%	9.74%	451	6.42%	2.22%	15.06%
2011	18817	2.86%	1.16%	9.80%	351	5.32%	1.82%	14.95%
2012	17705	2.69%	1.00%	9.79%	358	10.68%	4.16%	18.66%
2013	17513	3.37%	1.11%	10.21%	268	12.16%	4.63%	19.27%
2014	17815	3.76%	1.43%	11.17%	307	11.44%	4.99%	19.14%
2015	17070	2.57%	0.48%	10.61%	234	6.71%	2.14%	15.80%
Total	218060	2.31%	0.28%	10.51%	4762	6.20%	1.68%	16.25%

Panel B. Wilcoxon Two Sample Test					
	N	Mean	Std Dev	Minimum	Maximum
		218060	2.31%	10.51%	-30.09%
	4762	6.20%	16.25%	-24.00%	57.81%
Difference	Mean	Std Dev	t-Value	P-Value	
	-3.89%	10.66%	-16.45	<.0001	

Panel C. Outliers					
	Obs Changed	Trimmed		Winsorized	
		Mean	Std Dev	Mean	Std Dev
No 13D	10903	1.28%	0.02%	1.77%	0.02%
13D Filings	239	4.80%	0.25%	6.19%	0.25%

Panel A of this table shows the average LSV measure by year for each stock held by mutual funds. The LSV measure was calculated for each quarter and only the mean yearly value is shown. The herding measure is defined as:  $H_{it} = |p_{it} - E[p_{it}]| / AF_{it}$  and can be interpreted as the percentage of fund managers buying stocks above or below the expected level. For each year, the table shows the mean herding measure for stocks that appeared in a 13D filing and for stocks that did not. Panel B reports the Wilcoxon rank sum test for the differences between the two samples. The t-value and p-value represent the respective values of the Wilcoxon rank sum test. Panel C shows the trimmed and winsorized means for both samples at the 5% level

The average herding measure for the whole universe of active equity mutual funds across all quarters is 2.31%. The median value is much smaller at 0.28%. This herding measure represents that, in any given quarter, about 2% of mutual funds choose to herd after the 13F quarterly reports of other mutual funds. These two values are in line with other studies: for example, Wermers (1999) reports a mean of 3.4% and median of 1% for mutual funds, and Lakonishok et al. (1992) report a mean of 2.7% with a median of 0.1% for pension funds. The large difference between the mean and median implies that on average, mutual funds do not herd after quarterly reports except for a few hot stocks. The yearly mean (median) values range from a low of -0.46% (-2.49%) in 2003 to a high of 3.76% (1.11%) in 2013.

In contrast, the herding after 13D filings is much larger than the herding after 13F reports. The 13D subsample has a mean (median) value of 6.2% (1.68%). Depending on the year, the mean (median) herding measure reaches up to 12.16% (4.99%). This herding measure is large, implying that up to 12% of active equity mutual funds herd after stocks that appear on 13D filings. We find particularly strong results for the three year period of 2011 – 2013. An average of 11.43% more mutual funds chose to purchase stocks that appeared on 13D filings relative to what would be expected. First, we compare the proportion of mutual fund buys on stocks that appeared on 13D filings versus those stocks that did not appear on a filing for each quarter. To compare the proportion of mutual fund buys, we first calculate the proportion of buys across all stocks for every fund and every quarter. In other words, we calculate  $p_{it}$  from the LSV herding measure. For each quarter we then separate those stocks that appeared in a 13D filing at any point in the quarter from those that did not. We then average the herding measure for each group. Finally, for each quarter, we use a t-test to compare the average proportion of buys between those stocks that appeared on a 13D filing and those that did not. To see if the difference between mutual fund herding after quarterly filings and toehold

announcements is statistically significant, we compare the sample means with a two sample t-test. The test results, presented in Panel B of Table 1, show that the difference we find between herding after quarterly holdings and toehold filings is not coincidental. The average difference is close to 4% and is statistically significant at the 0.01% level. This result implies that mutual fund managers pay attention to 13D filings and choose to herd after stocks with new toeholds, even more so than after quarterly holdings filings. The result supports the first two hypotheses that mutual funds herd after 13D filings and they follow 13D filings more strongly than 13F filings.

Furthermore, since 13D filings are timelier than quarterly holdings reports, the previous result hints that it is likely that mutual fund managers are herding because they are intentionally following the toehold acquirers. If this were true, the results would support the informational herding hypothesis instead of the correlated herding hypothesis. To better explore this assumption, we conduct the two sample t-test using only toeholds that were filed within five and ten days of the acquisition. This limitation increases the timeliness of the toehold filings. The mean herding measure for the five and ten day samples are 4.88% and 6.51% respectively. Both measures are statistically larger than the quarterly filing herding measure at the 0.01% level, which is consistent with the informational herding hypothesis.

One thing to note is that the mean herding measure after the 13F quarterly and 13D toehold filings is significantly larger than the median herding measure. Perhaps only a few well publicized or popular stocks appearing in data are responsible for the majority of the herding. If this were the case, our results could be spurious. To test for this possibility of outliers driving our results, we eliminated the top 5% stocks with the largest herding values and tested again for a difference in means between samples. We repeated our analysis winsorizing the data at the 5% level as a control. Table 1 Panel C reports the results. Trimming our data shows that even after accounting for the stocks with the strongest herding, stocks that appear in 13D filings exhibit a stronger herding behavior. If the top 5% stocks with the largest herding measures are eliminated, the mean herding measure for the quarterly is lowered from 2.31% to 1.28%. In contrast, the toehold sample would still have a mean herding measure of 4.80% or almost four times larger than the herding after quarterly results. While it is true that the herding measure after toehold positions is decreased from 6.2%, a value of 4.8% is still higher than any herding value observed in previous literature. Winsorizing the data leads to similar results. After winsorizing at the 5% level, the mean is 1.77% and 6.19% for the quarterly and toehold filings respectively. These results show that outliers are not likely to be responsible for the herding we observe in our data.

## CONCLUDING COMMENTS

Previous herding studies document mutual fund herding using quarterly holding reports. The herding intensity observed in these studies is not very strong and they could not be conclusive as to whether mutual funds simply herded by chance or because they were intentionally following each other. The main problem with these studies is that 13F filings are not very informative and are potentially stale when they are published 45 days after the quarter end. To overcome the shortcomings of 13F filings we used a hand collected dataset of all Schedule 13D filings from 2003-2015. We show that mutual funds have a previously unrecorded strong herding reaction after toehold announcements. The herding reaction of mutual funds after toehold positions is 6.2%. In contrast, previous literature reports an average herding reaction of 3.4% after quarterly reports. The herding reaction after toeholds is particularly strong for certain periods. For example, the herding measure jumps to 11.43% for the period of 2011 – 2013. These results suggest that mutual fund managers are deliberately herding after the trades of other activist investors and are thus consistent with the informational herding hypothesis. The herding reaction to toehold filings reported within 10 days of the toehold acquisition shows a value of 6.5%. This result is consistent across different subsamples and is not driven by outliers.

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# UNITED NATIONS COMMUNICATION ON PROGRESS EMERGES AS THE PRIMARY ENVIRONMENTAL, SOCIAL, AND GOVERNANCE REPORTING CENTER

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## ABSTRACT

### INTRODUCTION

In 2017, the International Business Council (IBC) of the World Economic Forum sponsored The Compact for Responsive and Responsible Leadership, which declared, "society is best served by corporations that have aligned their goals to serve the long-term goals of society." (World Economic Forum, 2017, para. 1). Given the increasing concerns about global warming, and the increasing demands for transparency of business by citizens, governments are now requiring companies to report their goals and progress in environmental, social and governance areas as a means to provide data on how each company is serving "the long term goals of transparency."

The European Commission (EU) "adopted a proposal for a Directive on Corporate Sustainability Due Diligence on February 23, 2022 that requires companies to prevent and account for negative human rights and environmental impacts in their own operations and those of companies in the supply chain". On June 16, 2021 the U.S. House of Representatives passed the Corporate Governance Improvement and Investor Protection Act (H. R. 1187) that includes periodic disclosure of environmental, social, and governance (ESG) goals and progress by publicly traded companies. The SEC has announced rules that require public companies to publish standardized climate-related disclosures. It also now requires that funds identified as ESG (Environmental, Social, Governance) funds commit 80% or more of assets to investments that meet ESG criterial. S&P Dow Jones, Bloomberg, Morningstar, and PwC all have ESG rankings of companies.

Companies use the Global Reporting Initiative (GRI), the Sustainability Accounting Standards Board (SASB), which is now part of International Financial Reporting Standards (IFRS), and Task Force on Climate-related Financial Disclosures (TCFD) to report their ESG performance. However, it is difficult to compare the ESG performance of companies using all three, and completing all three is expensive for companies.

The United Nations Global Compact is launching a new Communication on Progress (CoP) platform 2023 that will allow companies to upload all information pertinent to ESG performance translated into Sustainable Development Goals (SDGs) and how they are included in their business processes. It provides information that will allow companies to be compared by investors, consumers and other stakeholders in terms of their commitment to ESG.

As a special initiative of the UN Secretary-General, the United Nations Global Compact is a call to companies everywhere to align their operations and strategies with Ten Principles in the areas of human rights, labour, environment and anti-corruption. Our ambition is to accelerate and scale the global collective impact of business by upholding the Ten Principles and delivering the Sustainable Development Goals through accountable companies and ecosystems that enable change. With more than 15,000 companies and 3,000 non-business signatories based in over 160 countries, and 69 Local Networks, the UN Global Compact is the world's largest corporate sustainability initiative — one Global Compact uniting business for a better world. (United Nations Global Compact, 2022b, para. 7

The UN Global Compact requires participating companies to produce an annual Communication on Progress (CoP) that details their work to embed the Ten Principles into their strategies and operations, as well as efforts to support societal priorities. (United Nations Global Compact, 2022a) The CoP website provides information, resources and examples of best practice on how businesses of all sizes can align their business strategies with the Ten Principles. It has information on best practices, resources and networking events. It has a list of Global Compact Patron and Sponsor companies that support the initiative through programmatic accelerator programmes, peer learning groups, think labs, and e-learning tools on the UN Sustainable Development Goals: No Poverty, Zero Hunger, Good Health and Well-Being, Quality Education, Gender Equality, Clean Water and Sanitation, Affordable and Clean Energy, Decent Work and Economic Growth, Industry, Innovation and Infrastructure, Reduced Inequalities, Sustainable Cities and Communities, Responsible Consumption and Production, Climate Action, Life Below Water, Life on Land, Peace and Strong Institutions, and Partnership for the Goals. .

The CoP has a new version of its platform for 2023 that will make it easier for companies to communicate their goals and programs by using a standardized questionnaire rather than requiring a narrative explaining what the company is doing. Companies may chose not to address some questions, but the minimum information is:

1. A statement by the Chief Executive expressing continued support for the UN Global Compact and renewing the participant's ongoing commitment to the initiative.
2. A description of practical actions the company has taken or plans to take to implement the Ten Principles in each of the four areas (human rights, labour, environment, and anti-corruption).
3. A measurement of outcomes.

(United Nations Global Compact, 2022a, para 7)

The website provides a list of companies that currently are included on the site. (United Nations Global Compact, 2022c). Companies describe each of sixteen criteria: mainstreaming into corporate functions and business units; value chain implementation; robust commitments, strategies or policies in the area of human rights; effective management systems to integrate the human rights principles; effective monitoring and evaluation mechanisms of human rights integration; robust commitments, strategies or policies in the area of labour; effective management systems to integrate the labour principles; effective monitoring and evaluation mechanisms of labour principles integration; robust commitments, strategies or policies in the area of environmental stewardship; effective management systems to integrate the environmental principles; effective monitoring and evaluation mechanisms for environmental stewardship; robust commitments, strategies or policies in the area of anti-corruption; effective management systems to integrate the anti-corruption principle; effective monitoring and evaluation mechanisms for the integration of anti-corruption; core business contributions to UN goals and issues; and strategic social investments and philanthropy (United Nations Global Compact, 2022c). Each criterion has seven to nine elements.

The list of companies is ordered alphabetically according to the date they joined the Global Compact, and identifies the Type of company: small or medium sized enterprise (SME) or company, and the Sector such as Pharmaceuticals & Biotechnology, Travel and Leisure, Financial Services, Food & Drug Retailers, and Household Goods & Home Construction. It then identifies the Country of the company and the date it joined. When a company name is highlighted on the list, the above information appears. A link leads to the CEO's Statement, another leads to Yahoo and Google Finance information, and another to information from the Business and Human Rights Resource Centre. The earliest date for joining is 2010 when companies such as Unilever, Royal Dutch Shell, Rio Tinto, Nike, Cisco, Tata Steel, DuPont, Deutsche Bank, and Nestlé joined. As of October 2022, over 21,000 companies from 160 developed and developing countries had joined the UN Global Compact. Over 100 of those companies joined in October of 2022; over 3,049 have joined since January of 2022. (United Nations Global Compact, 2022c)

For example Nike is listed as a Company in the United States of America in the Personal Goods Sector. It is Publicly Listed; its Global Compact Status is Active, and it has been a Participant since July 26, 2000. Nike Engagements are CEO Water Mandate, Founding Companies, and SBTi (Approved). It supports SDGs 3, 5, 8, 12, 13 and 17. For each SDG it has links to the SDG website, How Your Company Can Advance Each of the SDGs, which has suggestions for companies. For example, for Goal 12, Ensure sustainable consumption and production patterns, it has links to sites for Why business should support supply chain sustainability, Global Compact Management Model, Global Reporting Initiative, From our library, and Additional Tools: SDG Compass; SDG Matrix. For the Communication on Progress it lists all of its CSR reports from including the 2022 one, Communication on Progress\_Nike FY21 Impact Report. From 2004-2007 it has its CSR reports, but from 2008 to the present, it has CoP reports, with two Grace years during which it did not submit a report.

The new Communication on Progress website is already available but will not be mandatory until 2023. It is the answer to the need for transparency, accessibility, and accountability in the area of company goals, progress, and actions. It already has the majority of global corporations on board, plus small and medium sized enterprises from 160 developed and developing countries. It provides significant amounts of information on companies at the 'click of a mouse,' and thus is easy to use for investors, consumers, researchers, other companies, and stakeholders at large. It is the answer to the need for quality information to improve the responsibility of companies to its stakeholders.

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# DOES ESG AFFECT PERFORMANCE OF EXCHANGE TRADED FUNDS? EVIDENCE FROM ASIA-PACIFIC REGIONS

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## ABSTRACT

*ESG has attracted widespread attention since investment strategies have become increasingly diversified with the continuous development of society and the economy. However, whether it can bring better returns to investors has been controversial. To understand the importance of responsible investment and to identify how it affects the performance of financial securities, this paper examines the relationship between ESG and risk-adjusted returns on exchange-traded funds in the Asia-Pacific regions. We selected 93 ETFs rated by MSCI ESG as research objects. Using each ETF's daily closed price for the period 2021Q1-2022Q3, we calculate the alphas and conduct the empirical study by regression analysis and portfolio sorting. In the robustness tests, the results are still acceptable when we choose alternative ESG proxies and measure the country's moderating effect. Our finding is that, first, the risk-adjust returns of ETFs in the Asia-Pacific region are slightly negative, indicating that ETFs do not outperform the market in the sample period. However, ETFs with better ESG ratings have better performance. Moreover, the risk-adjusted return of ETFs varies among countries, but all fail to beat the market. The positive correlation between ESG and alpha is still significant when we change the measures of ESG. The finding of this study provides insightful guidance for investors' decisions making, especially those who plan to invest in ETFs or make diversification portfolios, and verify the theory that good ESG practices contribute to better investment performance.*

**KEYWORDS:** ESG; Exchange-Traded Fund; Alpha; Sustainability; Asia-Pacific.

**JEL CLASSIFICATION:** G15; G11; G12; M14.

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# CONSUMER CHANGES INDUCED BY THE ADOPTION OF THE INTERNET OF THINGS

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## ABSTRACT

*The Internet of Things is experiencing rapid development in China and has huge market potential. There is little existing literature examining consumer cognitive changes or behavioral changes induced by Internet of Things technologies. This study is the first attempt at exploratory analysis. The purpose of this study is to examine the predicted and influential relationships between value perception change, satisfaction change, privacy concerns, and changes in word-of-mouth and loyalty caused by the Internet of Things. The results imply that customer value perception changes and satisfaction changes predict word-of-mouth changes and loyalty changes, and there is a positive relationship between them. The findings have ramifications for businesses, as well as for theoretical and practical Internet of Things research.*

JEL: 0310

**KEYWORDS:** Cognitive Changes, Behavioral Changes, Internet Of Things

## INTRODUCTION

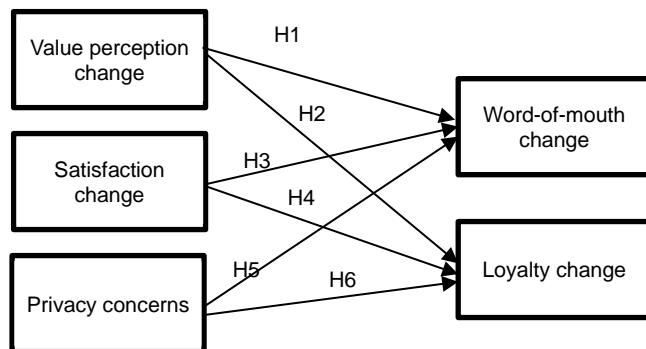
Constantly innovative and evolving technologies are infiltrating all aspects of consumers' lives and influencing their behaviors and decisions (Alimamy & Gnoth, 2022). New technologies have an impact on consumer behavior, and studying consumer behavior is necessary as it helps managers understand customers, and therefore enables managers to choose appropriate technology development strategies (Pillai et al., 2020). The IoT has a wide range of important applications, including in healthcare, smart home appliances, smart factories, smart cities, and aviation. Furthermore, researchers have recognized that research on consumer perception of IoT technologies is still needed (Gao & Bai, 2014), and systematic exploration of IoT from the perspective of consumer perception and behavior is necessary (Benamar et al., 2020). Based on the important role of IoT in industry and academia, and recognizing limits on existing literature, this study analyzes the changes that the application of IoT technology will induce in consumers.

WOM communication is one of the most important roles in marketing, empowered by the various forms of online communication. Therefore, it is essential to understand what factors influence WOM (Cuesta-Valiño et al., 2022). The study of WOM and loyalty have become two important objectives in the discipline of managers and marketing (Cuesta-Valiño et al., 2022). Loyalty is the intention of consumers to return to the retailer (Roy et al., 2017). The previous study focused on the initial stage of customer acceptance of new technology. However, current research on technology-induced changes in WOM and changes in loyalty is inadequate. Therefore, it is necessary to explore which factors can predict changes in WOM and changes in loyalty, and how they are related to each other. To fully understand IoT technology and identify what changes the technology is causing for customers, this study synthesizes the information system (IS), consumer perception, and consumer behavior literature. Based on the above discussion, the objectives of this study are as follows: To analyze how consumer value perception and satisfaction changes are caused by the application of IoT, and how privacy concerns predict and influence the changes in WOM and changes in loyalty. The rest of this study is organized as follows. Section 2 provides an overview of the theoretical background, including framework and hypothesis development; Section 3 is composed of methodology; Section 4 contains the analysis and result in depth; Section 5 presents the discussion; Section 6 presents the implication, and Section 7 provides the limitations of the study and areas for future research.

### Theoretical Background and Hypothesis Development

Against a background of the use of smart home devices, IoT led to changes in two elements: value perception and satisfaction, and privacy concerns. These in turn have led to changes in two constructs: WOM, and loyalty. Based on IS literature, this study explores the relationship between these factors. Figure 1 shows the framework of this study.

Figure 1: Conceptual Framework



Value perceptions are defined as customers' overall assessments of a product, based on opinions about the product that has been provided and acquired (Zeithaml, 1988). Value perceptions are important determinants of purchase behavior (Inman & Nikolova, 2017). Consumers choose a transaction based on the high or low cost of the perception (Williamson & Ghani, 2012). Satisfaction is defined as a measure of the extent to which a product or service meets consumer expectations (Grigoroudis & Siskos, 2010). One of the most crucial challenges for every commercial organization is measuring consumer satisfaction, which is utilized as a benchmark of corporate success and excellence (Grigoroudis & Siskos, 2010). Satisfaction has been an important object of study in the literature examining consumer perceptions. Privacy concerns include the potential loss of personal information and privacy (Kaur et al., 2020), and they represent customers' doubts about the outcome of their adoption decisions (Arslan et al., 2013). An important indicator of resistance to new services or technologies is privacy risk, which is considered a major obstacle to technology adoption (Lin et al., 2014). Based on the above literature discussion, we believe that studying value perception change, satisfaction change, and privacy concerns is novel and important.

WOM is the potential for consumers to promote or speak favorably of a brand to others, and it is one of the elements of consumer loyalty (Tyrväinen et al., 2020). WOM is seen as the most widespread and important channel for consumers to search for information and transfer their knowledge (Özdemir et al., 2016). Market managers are eager to build and maintain positive WOM for a brand because they believe that WOM is closely tied to product success (X. Sun et al., 2021). Existing studies also highlight that WOM can increase consumers' purchase intention and willingness to pay (Ismagilova et al., 2020), and build loyalty (Gauri et al., 2008). Loyalty refers to customers who are faithful to a specific retail store, and this impression influences consumers' future patronage (Yoon & Park, 2018). Furthermore, loyalty is a commitment to repeat purchases or patronage in the future (Oliver, 2014), repeated purchases by consumers have a significant impact on the success and profitability of a company (Razak et al., 2014).

Consumers harvest the information they need during use and will have an overall positive evaluation, in turn sharing positive comments about the experience (M. Talwar et al., 2021). According to Zhang et al.(2017), customers who are both emotionally and cognitively engaged are more inclined to recommend brands. Prior empirical investigations have supported the beneficial influence of perceived value on customers' WOM goals (Mayr & Zins, 2012). In a similar vein, we argue that there is a positive relationship

between IoT-induced changes in consumer perceptions and changes in WOM. Therefore, we propose that: *H1: The change in value perception has a positive impact on the change in WOM.*

Floh et al., (2014) confirmed that value perception is an important factor in determining loyalty. The study by Chen & Quester (2006) also supports this relationship. Retail store loyalty is impacted by how customers perceive their value when buying (Adapa et al., 2020). Perceived value frequently induces recurrent buying habits, and positively affects behavioral intentions and reactions (Sweeney et al., 2015). Affective consumer experiences and cognitive consumer experiences have a direct positive effect on repeat purchase behavioral purposes (Tyrväinen et al., 2020). Consumers complete shopping tasks more efficiently by using IoT technology, therefore consumers will have a higher perceived evaluation of companies that apply IoT, leading to repeat shopping intentions for that retailer. Therefore, we propose that: *H2. The change in value perception has a positive impact on the change in loyalty.*

Customer satisfaction and open communication create WOM intentions (Özdemir et al., 2016). Zhang et al. (2019) examined the impact of customer satisfaction on WOM behaviors and attitudes. The satisfaction factor of the online environment makes customers more likely to make repeat purchases, and customers are also likely to share the experience of purchasing a product or service with others (Safa & Von Solms, 2016). In social commerce, researchers found that customer satisfaction has a favorable impact on WOM ambitions (Cuesta-Valiño et al., 2022). WOM becomes more important in the service context, as WOM is the intangible nature of the service (Roy et al., 2017), and innovative, unique products may attract interest and may lead to better WOM (Berger & Schwartz, 2011). Meuter et al.(2000) found that consumers are more likely to have a positive WOM towards the incidence of self-service technology. Furthermore, research has shown that satisfaction has a positive direct effect on WOM towards technology (Roy et al., 2017). Therefore, we propose that: *H3. The change in satisfaction has a positive impact on the change in WOM*

Consumer store loyalty is a competitive advantage for retailers (Oliver, 2014). Empirical analysis shows that satisfaction and purchasing intent are positively correlated (Tsotsou, 2006). Satisfaction can directly affect e-loyalty and online shopping (Pratminingsih et al., 2013). A study conducted by Lu et al.(2019) proposes that e-loyalty is influenced by e-satisfaction and e-trust through multiple aspects of e-retailing. In the context of online shopping, customer satisfaction is the outcome of customer purchases and can directly influence customers' future shopping behavior (Pham & Ahammad, 2017). Studies have also revealed that in social commerce, customer satisfaction influences the decision to make a transaction (Cuesta-Valiño et al., 2022). In the hospitality domain, empirical findings also support that satisfaction positively influences behavioral purposes, including revisiting and recommending intentions (Namin, 2017)(Huang & Liu, 2014). Based on the above discussion, we propose that: *H4. The change in satisfaction has a positive impact on the change in loyalty*. Studies have shown that cognitive uncertainty is the inability of consumers to accept a new technological innovation (S. Talwar et al., 2020). In the case of mobile wallets, scholars highlight that the cognitive uncertainty regarding the use of mobile wallets belongs to consumers' fear of the security of shared information. M. Talwar et al. (2021) find that cognitive uncertainty and WOM is associated. Technology can have both positive and negative effects on retailers. Retailers can use retail technology to better understand consumers' preferences, interests, and needs, and to provide better products and services. However, innovations and developments in retail technology also increase consumer concerns (Malhotra et al., 2004). If consumers' risk perceptions are high, they may develop dissonance, and tend to spread negative WOM to others (M. Talwar et al., 2021). J. Sun (2014) shows that performance risk harms WOM intention. Roy et al. (2017) found a direct negative effect of perceived risk on WOM intention. Therefore, we believe that: *H5. Privacy concerns have a negative impact on the change in WOM*. Consumers are less likely to recommend their decision to others and are more inclined to switch to other brands when they are unsatisfied with their purchase, according to Grewal et al.(2007). In the context of SRT retailing, Roy et al.(2017) claim that perceived risk negatively influences repeat purchase intention and verifies that perceived risk has a negative direct effect on loyalty. Satisfaction and perceived risk are both seen as major determinants of store loyalty. Therefore, we state that: *H6. Privacy concerns has a negative impact on the change in loyalty*

## METHODOLOGY

To test the framework, we conducted the construct via a self-completion, an online survey administered to the respondents. The survey method was preferred, as the study required us to capture opinions from customers. At the beginning of the questionnaire, we described the IoT technology in detail in the form of pictures and text. As Xiaomi is a leading company in the Chinese market in the field of IoT smart homes, we used the products of Xiaomi's IoT platform as an example to describe in detail the application scenarios and usage of IoT devices, to illustrate the usage and result showcase. In this way, respondents can understand and grasp the technology regardless of whether they have personal experience with the technology or not. In total, 229 completed surveys were returned. There were 96 males (41.92%) and 133 females (58.08%) in the sample population. Respondents were asked to read the description of the technology carefully to ensure that the respondent fully understood the technology. Value perception is measured using two items adapted from (Cronin et al., 2000). Privacy concern is measured using two items adapted from Inman & Nikolova (2017), and van Doorn & Hoekstra (2013). Satisfaction is adapted from III et al. (2003). The two items used to measure WOM are adapted from III et al. (2003). Loyalty is measured using three items adapted from Gao & Bai (2014). Regression analysis is conducted using the multiple stepwise regression method for the retail technologies. The questionnaires for each retail technology are identical in content and on a 10-item scale. All the items were adapted to suit the context and measured using a 7-point Likert scale ranging from strongly disagree (1) to strongly agree (7).

### Analysis and Result

Predictions are frequently made using regression analysis. By fitting a linear equation using observed data, multiple linear regression models the relationship between a dependent variable and explanatory factors (Liu et al., 2021). This study uses stepwise multiple regression analysis to analyze the predictive and influential relationships between privacy concerns, changes in two elements (value perception, satisfaction), and changes in two constructs (WOM, loyalty). From table 1, we identified that the variables (satisfaction, value perception) have significant predictive power for WOM change in the IoT context. Stepwise regression methods involve criteria, such as the F-test, and adjusted R<sup>2</sup>, to choose explanatory variables automatically (Liu et al., 2021). Privacy concern does not reach a significant level and is excluded from the model. The F-values of the overall significance test of the regression model are 627.683 and 414.088, respectively, both of which reach the significance level. The two predictor variables of the model (satisfaction, value perception) explained a total of 78.6% of the variance in WOM change. This provides support for H1 and H3. From table 3, we identified that among the three predictor variables (satisfaction change, value perception change, privacy concern), these variables have significant predictive power for loyalty change in the IoT context. The F-values of the overall significance test of the regression model were 528.899, 327.232, and 225.733, respectively, all of which reached the significance level. The three predictor variables of the model (satisfaction change, value perception change, privacy concern) can explain a total of 75.1% of the variance in loyalty change. This provides support for H2 and H4. Although privacy concerns can predict loyalty change in the IoT context, privacy concerns have a positive impact on loyalty, therefore, H6 is not supported.

Table 1: Regression Analysis Model Summary of Word of Mouth

Model	R square	R square change	F change	Sig. F change	F
1	0.734	0.734	627.683	0.000	627.683
2	0.786	0.051	53.984	0.000	414.088

1 Predictors: (Constant), satisfaction; 2 Predictors: (Constant), satisfaction, value perception; 3 Dependent Variable: WOM

From the standardized regression coefficients (table 2 & table 4), the Beta values of the predictor variables in both the IoT are positive, indicating that the impact of changes in customer perceptions (satisfaction, value perception) triggered by the application of IoT on changes in WOM and loyalty is positive. By

convention, multicollinearity is considered to be excessively high if VIF is greater than 10 (Kutner et al., 2004). In all models, the tolerance value and the VIF value are less than 10, indicating that there is no multivariate collinearity problem. The hypothesis results are summarized in Table 5

Table 2: Coefficients of Word of Mouth Regression Analysis

Model	Standardized coefficients Beta	Sig.	Tolerance	VIF
1 (constant)		0.000***		
satisfaction	0.857	0.000***	1.000	1.000
2 (constant)		0.032*		
Satisfaction	0.564	0.000***	0.374	2.675
Value perception	0.370	0.000***	0.374	2.675

\* $p<0.05$  \*\* $p<0.01$  \*\*\* $p<0.001$

Table 3: Regression Analysis Model Summary of Loyalty

Model	R square	R square change	F change	Sig. F change	F
1	0.700	0.700	528.899	0.000	528.899
2	0.743	0.044	38.407	0.000	327.232
3	0.751	0.007	6.610	0.011	225.773

1 Predictors: (Constant), satisfaction; 2 Predictors: (Constant), satisfaction, value perception; 3 Predictors: (Constant), satisfaction, loyalty; 4 Dependent Variable: loyalty;

Table 4: Coefficients of Loyalty Regression Analysis

Model	Standardized Beta	Coefficients	Sig.	Tolerance	VIF
1 (constant)		0.000***			
satisfaction	0.836	0.000***	1.000	1.000	
2 (constant)		0.005**			
Satisfaction	0.566	0.000***	0.374		
Value perception	0.342	0.000***	0.374		
3 (constant)		0.000***			
Satisfaction	0.559	0.000***	0.373	2.682	
Value perception	0.305	0.000***	0.350	2.857	
Loyalty	0.096	0.011*	0.803	1.246	

Table 5: Summary of analysis result

H	Hypothesized Relationship	Result
H1	value perception change -> WOM change	supported
H2	value perception change ->loyalty change	Supported
H3	satisfaction change -> WOM change	supported
H4	satisfaction change -> loyalty change	supported
H5	privacy concerns -> WOM change	reject
H6	privacy concerns -> loyalty change	reject

## DISCUSSION

This study considers the prediction and impact of two customer changes (satisfaction, value perception) and privacy concerns on loyalty change and WOM change induced by IoT. The empirical results confirm the hypotheses regarding satisfaction and value perception, similar to the results of previous studies (Tyrväinen et al., 2020) (Sweeney et al., 2015) (Roy et al., 2017) (Cuesta-Valiño et al., 2022). Although privacy concerns can predict loyalty change and there is a negative relationship between these factors, the results are contrary to the hypothesis proposed in this study, and it is different from previous research findings. This study is based on the Chinese market, where the application of IoT technology in the smart

home sector is booming and rapidly developing. IoT technology brings great convenience to people's lives, and although people have privacy concerns about the new technology, the value of IoT technology can largely offset the privacy concerns. For companies, it is possible to increase customer loyalty if they adequately protect customer privacy, and further provide explanation to customers of the purpose and security of collecting customer data. Companies can improve customer value perception by adopting IoT, invariably allowing customers to recommend products, services, and brands to other customers, and increasing the company's competitive advantage. Additionally, customer loyalty allows the company to achieve success and profitability (Cuesta-Valiño et al., 2022). Companies can improve customer satisfaction through IoT technologies to influence future shopping behavior, drive repeat purchase behavior, and build long-term sustainable customer relationships.

## IMPLICATION

Previous studies have primarily focused on customer experience, customer perception, loyalty, and behavioral purpose in the context of brick-and-mortar retailing (Roy et al., 2017)(Meilatinova, 2021)(Tyrväinen et al., 2020)(Konuk, 2019). Few studies have focused on the changes in customer perceptions and behaviors due to technology. In this regard, this study expands on previous research by focusing on the predictive and influential relationships between perception changes and behavior changes in China. This study, by integrating information system literature, contributes to the literature by providing valuable insight regarding the predictive analysis of IoT technology. This study provides a beneficial framework for future research in IoT.

IoT-induced privacy concerns can predict loyalty change, and there is a positive relationship between these factors. The results of this study suggest that privacy concerns cannot predict WOM change, which differs from previous findings. Therefore, we believe that there is significant research potential in the field of cognitive changes and behavioral changes, and this study provides new research ideas and directions for the study of customer cognition and behavior under the influence of technology. Finally, our study is based on the Chinese market where IoT is booming and rapidly developing, and provides implications for future research on the development and application of IoT in emerging markets in other countries.

This study found that value perception change and satisfaction change triggered by IoT can predict WOM change and loyalty change, and there is a positive relationship between these factors. IoT is simpler to operate and influential to customers, which is beneficial to a company for a number of reasons. Companies adopting IoT can let customers master the use of IoT devices through simple instructions, which is conducive to the rapid promotion of products or services and can improve customer value perception and satisfaction. Thus, gaining positive WOM, cultivating and consolidating a loyal customer base, while quickly harvesting potential customers, establishing long-term customer relationship management, and gaining long-term benefits. Additionally, the study specifically found that IoT-induced privacy concerns can predict loyalty change and that there is a positive relationship between these factors. These are important factors for company applying IoT. We suggest that companies can enhance customer data security through processes and algorithms, and truthfully explain to customers the security and privacy of their data and how it will be used to increase consumer loyalty. Furthermore, we suggest that companies train their sales staff to make them proficient in using IoT, which is conducive to communication and exchange between sales staff and customers, attracting a large number of customers and gaining more revenue. Companies need to apply IoT according to the different characteristics of their products or services so that they can acquire customers in the short-term time, cultivate customers in the long term, establish perfect customer relationship management, and be in an advantageous position in the fierce market competition.

## LIMITATIONS AND FUTURE RESEARCH

We recognize this study has limitations, for example, this study is investigating the market situation in China and therefore has geographical limitations. Future studies can explore the situation in other cultural contexts. Future research could also focus on other elements such as store reputation, service quality, etc.

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# THE INFORMATION CONTENT OF MUTUAL FUND TRADES

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## ABSTRACT

*I examine the role of mutual funds as producers of information by examining all active US mutual fund holdings through their quarterly 13F filings. I explore the notion that mutual fund trades, as revealed by their quarterly holdings reports, disclose important information to the market and help reduce the information asymmetry of their holdings. My results show that mutual funds do in fact improve the information environment of their firms by attracting more analyst coverage, reducing accruals, inciting management to produce more guidance, increase market cap, and increase stock turnover.*

**JEL:** G11, G14

**KEYWORDS:** Mutual Funds, Information Asymmetry

## INTRODUCTION

According to the World Bank, mutual funds accounted for close to 65% of the total U.S. equity market capitalization in 2014 with 46.3% of all U.S. households having some money invested in mutual funds. The ubiquitous adoption of mutual funds in the U.S. raises interesting questions about the effects mutual funds have on the market. Literature shows that different institutional investors prefer different types of stocks. Given that mutual funds trades represent a large portion of the market volume and that they show a preference for stocks with similar characteristics, it is possible that their trades can affect the characteristics of stocks they trade on (Badrinath, Kale, and Ryan, 1996; Bennett, Sias, Starks, 2003; Del Guercio, 1996; Falkenstein, 1996; Gompers and Metrick, 2001). In this paper, I add to the existing literature that explores the contribution of mutual funds by exploring how their trading affects the information asymmetry of their holdings. I explore the role of mutual funds as facilitators of information by examining how the information content of mutual funds trades affects the information environment of the firms they trade on. In particular, I study how the information asymmetry of firms that are not traded by domestic actively managed mutual funds changes when they are included into a mutual fund portfolio.

Information asymmetry literature has developed models that explain the relation between uninformed traders, informed traders, and market makers. In general, these models have shown that first, when information about a stock enters the market the characteristics of the firm can change, e.g., a better information environment reduces the cost of capital and increases returns. Second, the trades of informed investors reveal some of the information they possess suggesting that the trades of informed investors are informative to market makers (Admati, 1985; Easly and O'Hara, 2004; Wang, 1993). A separate strand of literature has focused on the agents that produce information, e.g., financial analysts, and their ability to provide firm-specific information. This strand of literature has shown that information producing agents can affect the information environment of firms by reducing the information asymmetry between market participants, and therefore both strands of literature are intertwined (Chung et al., 1995; Brennan and Subrahmanyam, 1995; Mahfor et al, 2013; He, Lepone, and Leung, 2013). Since mutual funds are considered informed investors, their trades can help reveal information about the firm's future prospects and reduce the information asymmetry of their holdings. In addition, the law requires mutual funds to make publish their holdings every quarter. Therefore, mutual funds can help reduce the information asymmetry of their holdings through two mechanisms

## LITERATURE REVIEW

In order to make an informed decision, individuals use public information i.e., information that is freely available to anyone, and private information that is costly to obtain and known only by those investors that spend the resources to obtain it. Becoming informed about a particular group of stocks is generally very expensive (Merton, 1987). When information is imperfect, signaling plays an important role in communicating information and plays a fundamental role in reducing information asymmetry (Spence, 1973 and 2002; Ross, 1977). Signaling theory explains a wide range of phenomena in finance but at its core, it helps differentiate between high quality and low quality assets. Spence (1973) spearheaded the theory using education as a way of explaining how job candidates signal their superior quality to potential employers by paying the cost of obtaining a higher education degree.

Signaling has been used to explain debt (Ross, 1973), dividends (Bhattacharya, 1979), quality financial statements (Zhang & Wiersema, 2009) disclosure policies (Welker, 1995), board composition and characteristics (Miller & Triana, 2009; Certo, 2003), top management characteristics (Lester et al, 2006), and other financial behavior. Signaling can be purposely employed e.g., managers trying to signal future prospects by initiating dividend payments, or unintentionally e.g., the negative price reaction during equity issues can be explained by investors anticipating that management is issuing equity because the firm might be overvalued (Meyers and Majluf, 1984). One of the clearest ways that informed investors can signal their trading purposes, intentionally or unintentionally, is to disclose their trades. When uninformed investors are able to observe the trades of informed investors they can generally infer that if the informed investor is buying (selling) an asset, it is likely for the informed investor believes that the asset is underpriced (overpriced). Certain types of institutional investors are also subject to regulation and are forced to disclose their trades. Institutional investors, which are comprised of banks, insurance companies, pension funds, hedge funds, mutual funds, and financial advisors, are typically considered informed traders because of their capacity to gather information from several sources that are not often available to individual investors due to time or expense constraints and because of their ability to process this information. When these institutional investors publish their holdings, they might be unintentionally signaling to uninformed investors some of their information. Institutional investors mainly report their positions through 13F filings. Institutional investors with more than \$100 million in invested assets are required to disclose their holdings in quarterly reports. Because these filings are public information, uninformed investors have access to them and thus can use this information to trade.

Institutional investors, and in particular mutual funds, have certain characteristics that set them apart from retail investors and at the same time make them behave similarly. Mutual funds hold significantly larger portfolios than the average retail investor and are compensated based on their fund's performance. Literature has shown that these shared similarities might influence fund holdings and ultimately affect the market given the large market share mutual funds have. I contribute to this literature by specifically focusing on information asymmetry as a characteristic fund managers are likely to prefer in the stocks they trade. In particular, I explore how mutual fund managers' trading affects the information asymmetry of their holdings. Beginning in 2004, the Securities and Exchange Commission mandated mutual funds to make their holdings public on a quarterly basis. Quarterly holdings publication allows retail investors to see what stocks fund managers believe are worth holding, effectively functioning as a recommendation target akin to those that financial analysts' issue. The function of financial analysts is to analyze securities and issue a recommendation to buy, hold, or sell the stock. When mutual funds add a stock to their portfolio they are likely to have already analyzed the stock and the addition is akin to a buy recommendation by financial analysts. Unlike new additions, deletions, reductions, or position increases cannot necessarily be considered as sell or buy recommendations; these trades could be caused by fund flows or liquidity needs. I therefore expect that mutual funds can help reduce the information asymmetry of their holdings when they disclose their quarterly holdings quarterly.

## DATA AND METHODOLOGY

Existing literature has used different proxies to measure information asymmetry that can be roughly categorized in three groups. The first group of variables is mainly concerned with estimating the adverse selection component of trades and consequently the amount of information asymmetry in a stock. Under this first group of variables, I use the bid-ask spread, the daily turnover ratio, Amihud's illiquidity ratio, and zero trading days. The second group of information asymmetry proxies focuses on firm specific characteristics and argues that firm characteristics directly affect the information environment of a firm. Under this category, I use the accruals to asset ratio, firm size, and the market-to-book ratio. The last group is based on information producing agents that can improve the information environment of firms. These information producing agents can be either external e.g., financial analysts following, or internal e.g., voluntary managerial guidance. I use the managerial guidance, analyst forecast dispersion, analyst normalized forecast error, and the number of analysts following a firm. In order to test if mutual funds can affect the information asymmetry of the firms they add to their holdings, I use the following regression

$$\Delta \text{ASYM}_{i,t} = \alpha + \beta_1 \text{TNA}_{i,t} + \beta_2 \text{PERF}_{i,t} + \beta_3 \text{TRADE}_{i,t} + \varepsilon_{i,t} \quad (1)$$

Where

$$\Delta \text{ASYM}_{i,t} = \text{ASYM}_{i,t+n} - \text{ASYM}_{i,t} \quad (2)$$

Where the dependent variable represents the change in the different information asymmetry variables i.e., the bid-ask spread, the daily turnover ratio, the amount of accruals, firm size, market-to-book ratio, analyst dispersion, guidance, analyst forecast error, and analyst number and are identified as SPREAD, TURN, ACCR, SIZE, MB, GUIDE, ADISP, AERROR, and ANUM respectively. I calculate the change in information asymmetry by subtracting the information asymmetry variable on the quarter the firm was included to the mutual fund portfolio from up to four quarters after the inclusion. I limit the time period for my analysis to four quarters because testing for longer periods might not be adequate as the information asymmetry of the firm can change due to idiosyncratic and not fund inclusion related reasons. TNA, TRADE, and PERF are characteristics of the mutual fund that initiated the trade. Because it is possible that several funds decide to add the same firm during the same quarter, these fund characteristic variables are calculated as an average. TNA represents the average size of the mutual funds that added the firm to its holdings as measured by the logarithm of the mutual funds' total asset value.

Bigger funds tend to have a larger following and thus further reduce the information asymmetry of their holdings. I expect that large funds have a larger impact on the information asymmetry of the firms they trade on. It is likely that fund managers with better investing skills produce higher quality information than managers with worse investing skills. In addition, managers with better investing skills are also more likely to outperform their peers and therefore funds with better performance on their categories should have a larger impact on the information asymmetry of the firms they trade on. I order all mutual funds by performance to measure PERF. I calculate fund performance by grouping funds by investment category and sorting them into quartiles based on each fund's yearly market return. I then assign funds a value depending on their quartile rank i.e., funds in the top performing quartile are marked as a four and bottom performers as a one. PERF is the average of the quartile rank of the funds that included the firm for that year. Literature has shown that the better performing funds also tend to have the largest inflows (e.g Gruber, 1996, and Ippolito, 1992). I therefore expect that top performing funds would further attract flows and be better at reducing the information asymmetry of new holdings when compared to poor performing funds.

Literature has shown that the size of the trade also contains information. Barclay and Warner (1993) find evidence informed investors prefer medium size trades i.e., those between 500 and 9,900 shares, to mask their trades since large trades can reveal more information than desired and small trades can make it too

expensive to trade (Easly et al. 1997; Kyle, 1985). TRADE represents the average logarithm plus one of the dollar value of the initial trade with which a firm was added to the mutual fund universe.

The number of domestic mutual funds and their holdings is collected from the Center for Research in Security Prices (CRSP) Mutual Fund Portfolio Holdings database and covers the period of January 1, 2001 to December 31, 2015. The data includes all the quarterly holdings of each mutual fund as reported in their 13F filings with identifiers and the size of each of the holdings. The size of the fund's positions is reported as a percentage of the fund's total net assets (TNA), as the total number of shares, and as their market value for that quarter. I remove all close end and other non-actively managed funds i.e., index funds, exchange traded funds, exchange traded notes, bond funds, and preferred stock funds, from my sample. I also exclude all IPO stocks. Company and analyst data come from the Compustat and I/B/E/S databases respectively. Return data are obtained from CRSP. I use these data to identify when a new firm is added for the first time to the universe of firms that owned by mutual funds. I designate 2001 and 2002 as the base years to identify all new additions to the mutual fund universe. I use the holdings in 2001 and 2002 to identify new additions in 2003. Then I use all holdings in 2001, 2002, and 2003 to mark all the new holdings in 2004. I continue with this procedure of using all the holdings in the previous years to identify all new positions in the mutual fund universe. After obtaining my sample of first time inclusions, I proceed to merge these data with the different information asymmetry proxies. The final sample is comprised of 2,185,902 observations.

Table 1 presents how information asymmetry changes with inclusions to the mutual fund universe for up to four quarters after the inclusion. In general, the results align with my hypothesis that mutual fund acquisition improves a firm's information environment. ACCR, ANUM, SIZE, SPREAD, AERROR, GUIDE, and MB all show changes that support a reduction in information asymmetry. Share turnover also seems to improve after three and four quarters while the remaining variables remain unchanged.

Table 1: Information Asymmetry Change

<b>ACCR</b>					
	<b>t</b>	<b>t+1</b>	<b>t+2</b>	<b>t+3</b>	<b>t+4</b>
<b>Mean</b>	0.008	0.007	-0.006	-0.009	-0.01
<b>Std Dev</b>	0.187	0.167	0.109	0.109	0.109
<b>Change</b>					-0.018
<b>t Value</b>		-0.002	-0.014	-0.016	
		-0.36	-2.99***	-3.26***	
					3.73***
<b>ANUM</b>					
	<b>t</b>	<b>t+1</b>	<b>t+2</b>	<b>t+3</b>	<b>t+4</b>
<b>Mean</b>	3.055	3.406	5.229	3.563	3.782
<b>Std Dev</b>	2.785	3.024	5.196	3.013	3.199
<b>Change</b>					0.649
<b>t Value</b>		0.351	2.153	0.455	
		4.03***	19.46***	5.16***	7.06***

Table 1: (continued)

	SIZE				
	t	t+1	t+2	t+3	t+4
Mean	11.886	11.947	12.013	12.068	12.11
Std Dev	1.757	1.735	1.727	1.726	1.736
Change	0.061	0.104	0.148	0.162	
t Value	1.9	3.23***	4.52***	4.84***	
	SPREAD				
	t	t+1	t+2	t+3	t+4
Mean	0.05	0.046	0.044	0.042	0.04
Std Dev	0.065	0.062	0.062	0.063	0.063
Change	-0.004	-0.007	-0.008	-0.01	
t Value	-2.86***	-4.64***	-5.43***	-6.41***	
	TURN				
	t	t+1	t+2	t+3	t+4
Mean	0.001	-0.002	-0.004	0.038	0.05
Std Dev	0.996	0.924	0.827	0.825	0.778
Change	-0.002	-0.007	0.035*		0.056***
t Value	-0.14	-0.42	2.02		3.34
	ADISP		AERROR		GUIDE
	t	t+4	t	t+4	t
Mean	0.291	0.303	1.085	0.553	4.286
Std Dev	0.379	0.409	2.828	1.504	3.767
Change	0.012			-0.532	4.368
t Value	0.97			-6.96***	13.01***
	ILLIQ		MB		ZERO
	t	t+4	t	t+4	t
Mean	4.00E-05	2.00E-05	3.143	2.622	0.026
Std Dev	1.00E-03	1.00E-04	8.442	7.269	0.094
Change		-2.00E-05		-0.521	0.001
t Value		-1		-3.18***	0.14

This table reports the change in the information asymmetry variables after they are added to the mutual fund portfolio. The quarter in which the variables are added is represented as t. Subsequent quarters are denoted as t + 1, t + 2, t + 3, and t + 4 respectively. Change reports the difference in information asymmetry between the initial and subsequent quarters. \*\*\*, \*\*, and \* indicate significance at the 1, 5 and 10 percent levels respectively.

The group of variables that changes the most is the firm characteristic group. Once mutual funds add a firm to its holdings, the firm's market capitalization grows in subsequent quarters. This growth appears to be economically significant. The mean change after one quarter, in dollar terms, is \$9.1 million with the average firm size being \$145.2 million. This implies a 6.27% growth. After four quarters, the average change in firm size is \$27.2 million, implying a 17.57% growth. There seems to be an upward trend; the longer the period, the larger the difference in size. Changes in firm accruals also imply a reduction in information asymmetry. Firm accruals diminish after two, three, and four quarters also following a pattern of growing change as time progresses. Because of the way MB is constructed, I can only measure change after four quarters. Regardless, the statistically significant reduction in MB implies an improvement in information environment for firms bought by mutual funds.

In addition to being able to modify firm characteristics, mutual funds also appear to entice managers to provide more disclosure, attract more analyst following, and improve analyst predictions. In particular, firms appear to double the amount of guidance they give one year after purchase. The number of analysts following the firm increases throughout all four quarters and the improved information environment also help the analysts provide more accurate targets. The AERROR mean value changes from 1.09 to 0.56 after one year. Analyst dispersion remains unchanged. The microstructure variables show mixed results. On the one hand, the bid-ask spread shows a consistent and growing reduction over time. After one quarter, the bid-ask mean spread reduces by 8%. After one year the spread diminishes by 20%. Share turnover shows no change in the first six months but then improves considerably. On the other hand, Amihud's illiquidity measure and the number of zero and missing trading days remain unchanged after one year. Overall, my

results show that the information environment of firms improves after inclusion to the mutual fund universe. Firms tend to grow and use less accruals, have more managerial disclosure and analyst following, and have lower bid-ask spreads. It is possible that this reduction in information asymmetry relates to the characteristics of the funds that bought the firm. To test which fund characteristics have a larger impact in improving the firm's information environment, I calculate the change in information asymmetry up to four quarters after the initial inclusion and regress this change on fund characteristics. TRADE is the average dollar size of the initial purchase, TNA is the average fund size, and PERF is the average relative fund performance. PERF is a categorical variable with the value of 0 for the top performing funds and 3 for the worst performing funds and thus a negative coefficient implies an increase. Table 2 shows the regression results.

Table 2: Regression Results

ACCRAULS		1QΔ	0.01	-0.001	0.002	-0.002
ANUM	2QΔ	-0.119**	0.003	0.004	0.059*	
	3QΔ	-0.084	-0.005	0.008**	0.001	
	4QΔ	0.003	-0.014*	-0.001	0.002	
	1QΔ	-1.203***	-0.007	0.107***	0.011	
SIZE	2QΔ	-4.054***	0.08	0.237***	0.086**	
	3QΔ	-3.017***	0.074	0.127***	0.089**	
	4QΔ	-3.355***	0.066	0.153***	0.092**	
	1QΔ	0.438***	-0.022***	0.018***	-0.029***	
SPREAD	2QΔ	0.415***	-0.031**	0.049***	-0.038***	
	3QΔ	0.441***	-0.037**	0.072***	-0.05***	
	4QΔ	0.433**	-0.033*	0.088***	-0.059***	
	1QΔ	0.011**	-0.001*	0.000199	-0.001*	
	2QΔ	0.005	-0.003**	0.000199	-0.00041	
	3QΔ	-0.004	-0.001	-0.001	0.001	
	4QΔ	0.003	-0.002	-0.001*	0.000355	

Table 2:(continued)

TURN	1QΔ	<b>-0.478***</b>	<b>-0.051**</b>	<b>0.013**</b>	<b>0.019***</b>
ZERO	2QΔ	-0.067	-0.069**	0.002	0.006
	3QΔ	0.482*	-0.125***	-0.007	-0.008
	4QΔ	0.597**	-0.113***	0.000291	-0.019*
	4QΔ	0.041	0.001	-0.00018	-0.002*
ILLIQ	4QΔ	0.000185	-7.74E-06	-6.1E-06	-5.7E-06
GUIDE	4QΔ	0.228	-0.406	0.212*	0.074
MB	4QΔ	-1.619	0.195	-0.031	0.056
ADISP	4QΔ	0.316**	-0.001	-0.004	-0.013*
AERROR	4QΔ	1.037	0.149	0.005	-0.08

This table reports the change in the information asymmetry variables after they are added to the mutual fund portfolio. 1QΔ, 2QΔ, 3QΔ, 4QΔ the change after 1, 2, 3 and 4 quarters. TNA represents the average size of the mutual funds that added the firm to its holdings as measured by the logarithm plus one of the mutual funds' total asset value. PERF is the average quartile fund performance after being sorted by category. Lower value denotes better performance. TRADE represents the average logarithm plus one of the dollar value of the initial trade. \*\*\*, \*\*, \* show significance at the .001, .01, and .1 level.

For three variables, MB, ILLIQ, and AERROR, fund characteristics have no impact on the change. None of the coefficients are statistically different from zero. The amount of accruals used and the bid-ask spread show results that are only slightly stronger. Regarding accruals, larger trades and larger funds do seem to decrease accruals in the second and third quarter. Stronger performing funds only seem to have a positive and significant effect in accruals in the fourth quarter. Regarding SPREAD, fund performance has a

diminishing effect but only in the first six months. TNA seems to reduce the bid-ask spread in the first quarter. TRADE has a negative impact in the fourth quarter.

On the other hand, fund characteristics have a significant impact on the change in analyst following and firm size after the purchase. Both the size of the trade and fund size have a significant analyst attracting effect. Larger funds, whose actions are more likely followed by other investors, show coefficients that are highly statistically significant for quarters two, three, and four. In the same vein, the effect of the trade size is significant. For example, the average trade size when buying new previously unowned positions is \$540,364. This figure implies that for every \$1.08 million spent in initiating a position, the change in analyst following in the second quarter is 23.7% larger. Similarly to analyst following, firm size respond positively to both the size of the trade and the size of the fund. In addition, firm size also responds positively to the performance of the fund. Better performing funds are better at increasing the market capitalization of their new holdings than worse performing funds.

Share turnover shows a positive response to fund performance for all four quarters. Trade and fund size also have a positive effect on share turnover but this effect is limited to the first quarter. When larger funds purchase new inclusions, the number of zero and missing trading days seems to diminish. Nonetheless, because of the size of the coefficient and values of ZERO, the reduction is not economically significant. Similarly, TNA also lowers analyst estimate dispersion but the coefficient, while statistically significant, is not economically significant. In summary, mutual funds improve the information environment of their newly acquired holdings. This change also depends on fund characteristics. On average, larger funds, larger trades, and better performing funds tend to have a larger impact on the information environment change. While not mutually exclusive, it is not clear if the change comes from creating additional exposure to the stock or if other investors learn some of the private information managers possess through their trades. Nonetheless, the microstructure variables tend to show a weaker response than the other variables. This difference in strength lends support to the change being driven by additional exposure than through trades themselves disclosing information. The doubling of managerial guidance observed in Table 1 is represented by the large coefficient observed in the TRADE variable.

## CONCLUSIONS

Literature states that new and relevant information improves a stock's information environment. Mutual funds' trades are directly observable after a delay creating information in the process. I examine mutual funds' ability to reduce the information asymmetry of their holdings. My results show that mutual funds do in fact improve the information environment of their firms by attracting more analyst coverage, reducing accruals, inciting management to produce more guidance, increase market cap, and increase stock turnover. While I do show that stocks change after being bought by a mutual fund, my methodology does not allow me to see if the change is driven by the trade itself revealing information, because mutual funds publicize their holdings, or simply because mutual fund trading is large enough to affect its holdings. Studying the underlying causes of the change may be conducive to future research.

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# REDUCING THE FINANCIAL INCLUSION GAP THROUGH DIGITAL TRANSFORMATION

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## ABSTRACT

*In 2010, The World Bank (2022) recognized concerted reform to the global financial industry as more than fifty-five countries committed to leading financial inclusion and institutional reform. This formal pledge served as the official initiation of global collaborative financial reform with efforts to bring more equitable financial solutions to many underserved and unserved communities. Yet a decade of lackluster efforts saw stagnation and, ultimately, a less-than-desired impact on effective financial inclusion. According to Klapper et al. (2022), the pandemic provided evidence of the digital acceleration of financial institutions with the first-time use of digital payments by adults in developing countries. The pandemic was the perfect storm for financial institutions to deliver on their promise of financial inclusion fully. Institutions were compelled to act digitally and become more inclusive because customers could not walk into a brick-and-mortar bank and traditionally access services during the pandemic. This required financial institutions to change and forced them to act, thus enabling real progress (The World Bank, 2022, Klapper et al., 2022).*

**JEL:** D600, D630

**KEYWORDS:** Financial Inclusion, Unbanked, Underbanked, COVID-19, Digital Transformation, Poverty

## INTRODUCTION

According to The World Bank (2022), financial inclusion has been increasingly identified as the path to a positive impact on the poverty gap. Financial inclusion involves fair access to financial services that reach financially excluded and underserved populations with banking solutions in a responsible manner consistent with channels and engagement tools that are readily available in the customer's region. Worldwide financial inclusion efforts gained traction over the past two decades with increasing impact on the financial gap. However, COVID-19 quickly accelerated the need for attention when the pandemic hit. It highlighted the discrimination and exclusion of underserved and unserved populations causing catalysts to enter the market and positively affecting the industry (The World Bank, 2022).

Since 2010, The World Bank (2022) has recognized the need to reform the financial industry and has had more than fifty-five countries commit to financial inclusion. This commitment produced strategies and showed progress in lending institution policy reform, government policy reform, increased usage in mobile applications and services, leveraging of eCommerce and mobile data, development of ecosystem partnerships, and increased awareness of consumer protections and financial services. All those efforts revealed progress and change, but from 2011 to 2017, that financial gap saw stagnation caused by the lack of a catalyst to support the slowing and stagnant accelerator. Moreso, the hardship of financial inclusion and how consumers suffered changed from what many faced pre-pandemic to what people faced post-pandemic. In a pre-pandemic world, financial inclusion promoted fair access to financial products and services but battled against culturally acceptable partiality and selective lending based on physical traits, demographics, and personal bias. This means nothing has changed to disrupt the status quo and enforce financial inclusion. The World Bank (2022) defines financial inclusion as when businesses and individuals have access to the same valuable and affordable financial services and products to help meet their needs. Whether it is transactions, credit, insurance, savings, or payments, all can freely access and use these financial solutions without prejudice and in a sustainable way. This means that everyone should have equal

access to financial services. However, because of the standard approach to banking pre-pandemic, and the data used to make banking decisions, it was easy for financial institutions to be persistent in their methodology and not evolve because nothing had changed fundamentally (The World Bank, 2022).

COVID-19 brought upon industry catalysts and forced the hand of laggard financial institutions to catch up to the digital age and helped increase access to mobile wallets, mobile money accounts, and digital payment systems. Using QR codes and fully automating the application process created the need for new data sources to help determine eligibility. According to Klapper et al., (2022), digital payment solutions and mobile money accounts are the pathways into the digital economy. The Global Findex database, a report on global access to financial services from the World Bank Group (2022), highlights that “39% of adults in developing economies - or more than half of financial institution (excluding mobile money) account owners - opened their first account (excluding mobile money) at a financial institution specifically to receive a wage payment or emergency assistance payment from the government” (Klapper et al., 2022; World Bank Group, 2022).

The pandemic prompted four components of meta-analysis from the drastic rise of mobile financial solutions, fintech, challenger banks, and source data reform. These four components became the catalyst and the driving force of re-stimulated financial inclusion. Those financial institutions that have effectively transformed financial inclusion have listened to consumer's needs and adopted new customer engagement methods, according to Fairchok (2022), have not just re-invested in their technologies but have also integrated modern technologies to complement their legacy systems per Hughes (2021), Pal et al. (2020) acknowledge that a study into mobile payments systems show that mobile usage services hold the key to enabling financial inclusion, and Bataev (2019) discovers that the rise of challenger banks will uncover new sources of data for banking that empowers customer engagement and simplified communication (Fairchok, 2022, Hughes, 2021, Pal et al., 2020, Bataev, 2019).

Literature reviews indicate that the inclusion of these four catalysts is how financial institutions increasingly succeed in transforming their businesses and adopting true financial inclusion. These four post-pandemic catalysts integrated into financial inclusion efforts can help alleviate the common culturally acceptable partiality and selective lending based on physical traits, demographics, and personal bias. In addition, these catalysts are quickly progressing the efforts to reduce the poverty gap and to help support a new cross-border credit economy powered by mobile devices.

### Problem

Financial inclusion efforts have highlighted the poverty gap and inequity in financial resources for the underserved and unserved populations, as well as identified areas of opportunity to transform financial markets to benefit the underprivileged populations and create a level playing field for all seeking financial solutions.

Reviews of current literature indicate that post-pandemic catalyzed financial inclusion is increasingly forcing the hand of laggard financial institutions and creating accelerated progress where stagnation persists through traditional financial reform methods and digital transformation efforts. The review of current literature examined the effects of the relationship between financial institutions and their current digital transformation efforts to reduce the poverty gap, and most have still not made enough progress to warrant a change. However, those financial institutions that have effectively transformed financial inclusion have successfully adopted new customer engagement methods, integrated new technologies, prioritized mobile solutions, and included the utilization of new data sources. Literature reviews indicate that the inclusion of these four catalysts is how financial institutions increasingly succeed in transforming their businesses and adopting true financial inclusion.

## LITERATURE REVIEW

According to Dev (2006), in the early 2000s, financial inclusion was defined as the ability to gain access to institutional banking services for disadvantaged and low-income groups seeking savings, insurance, and possibly payment services. More so than the ability today on how the services are engaged with, in the early 2000s, it was more about getting access for marginalized communities (Dev, 2006).

In research from Sarma, promoting an inclusive financial system is considered a policy priority by many countries (2007). Sarma poignantly states that literature passably discussed the close relationship between financial development and economic growth but fails to confer whether financial development implies financial inclusion and supports an efficient allocation of resources to underserved communities. Sarma's development of a financial inclusion index reveals that literature still failed to demonstrate a comprehensive understanding of the widespread use and implementation of financial inclusion across economies around the world and that there are limitations in the standard index due to a lack of adequate and appropriate data for all countries around the globe (Sarma, 2007).

According to Mas (2010), the availability and relevance of financial services for underserved communities are hindered by the mass-scale delivery of technology-based systems that can enable gains in financial inclusion in developing countries. Mas states that without private investment in technology, it would be up to policymakers to make investments in innovation to help achieve mass-scale financial inclusion. The author asserts that a solution to financial inclusion is to take banking outside banks and make banking services available in every neighborhood. He says that using technology can ensure that banks and customers interact remotely in a trusted way through mobile services, allowing for real-time engagement and transactions with anyone and anywhere. For example, in Africa, Mas (2010) states that fifty percent of the population in 2010 had cell phones, and only twenty-five percent of the population had access to bank accounts (Mas, 2010).

Pandey et al. (2010) state that successful efforts for the proliferation of financial inclusion are beyond the counting of how many more people in a specific country have access to banking solutions and that the idea is to focus on the capabilities of those financial institutions and convenience for the unbanked and underbanked. According to Pandey et al. (2010), it is about introducing and utilizing innovative technologies. They state that these technologies help to lower the cost, reduce the risk, and increase efficiency in rural areas where most underserved and underprivileged communities exist (Pandey et al., 2010).

In an interview with senior executives from Oracle's Financial Services Global Business Unit by Jayaram (2017), the interviewer asks about the future of banking and how it is moving digital where transaction activity becomes a new digital channel. Jayaram asks about the future of banking and learns that purely digital transactions are still in the minority in developing countries but are organically cannibalizing traditional transactional channels. Jayaram also learns through the interview that as banks and financial institutions continue to evolve, to maintain efficiency, reach, and cost-effective outreach, they will need to move to digital channels and focus on process and automation rather than brick-and-mortar foundations (Jayaram, 2017).

According to a study by Bataev (2019), the rise of challenger banks is quickly becoming the new model for banking as it brings together new sources of data with an easy-to-use customer engagement and communication platform and is built on technologies that allow for it to grow and adapt to growing challenges that traditional institutions face. Schepinin and Bataev (2019) find that digital transformation created the rise of challenger banks that focus on the economic efficiency of their financial activities and sees the value of mobile solutions combined with modern technologies, new data sources, and a more efficient way to reach customers (Bataev, 2019, Schepinin & Bataev, 2019).

According to a study by Pal et al. (2020), mobile payment systems in developing countries hold the potential for financial inclusion due to low digital penetration, competitive emerging markets, price sensitivity, and substantial risk of failure. These common characteristics in low-income countries create an environment suitable for the increased adoption of new mobile payment systems through the rapid usage habits of mobile devices (Pal et al., 2020).

Where financial inclusion continues to find consistency through the COVID pandemic, according to a survey by Senyo & Osabutey (2020), is in the access to fintech innovations that provide ease of performance and accessibility to mobile-based financial services the preferred user experience (Senyo & Osabutey, 2020).

Research by Mhlanga (2021) states that as emerging markets and financial channels rise through the changing banking environment post-pandemic, unbanked and underbanked individuals in rural mobile-based markets still cannot access traditional methods to show identification, collateral, and credit risk. This lack of connection using traditional and foundational methods cannot help a rural household determine if they can obtain credit, as there must be an accelerator for change. Mhlanga (2021) writes about the application of machine learning and artificial intelligence systems that use alternative public data sources to address information asymmetry, moral hazard, and adverse selection (Mhlanga, 2021).

As an economic leader and country built for widespread traditional access to financial services, the United States government has recognized that evolving financial inclusion market and that there must be a foundational change to influence the compounding effects of financial inclusion. In April 2022, the Aspen Institute announced, along with dozens of signatory partners, a United States call for a national financial inclusion strategy to support reshaping access to and utilization of financial services that bring together shared policies, products, and business models that generate an inclusive financial environment (Financial Security Program, 2022). Led by the Biden Administration, this recognition of a fragmented financial environment looks to ensure a new design of financial systems that provides safe and affordable financial services, banking methods, credit, insurance, and programs that can be sustained through a global pandemic (Financial Security Program, 2022).

### Challenges

In most economies and traditional institutions across the world, the financial industry is the laggard industry that looks to change when there finally is no other option before getting left behind with declining customer bases and outdated service channels. Market trends and literature identify challenges to adopting financial inclusion, even post-pandemic. According to Fairchok (2022), traditional incumbent banks are quickly being left behind by challenger banks and fintech that fill the gap between what customers expect and what banks can deliver. Fairchok explains that this is due to failing IT infrastructure, lack of sufficient customer data, inconsistent digital offerings, and challenged ecosystems of partners worried about cannibalization. No change will mean no growth and, eventually, no survival for many banking institutions (Fairchok, 2022).

Another challenge facing financial institutions focused on financial inclusion solutions is the choice to build versus buy when they want to digitize and modernize their offerings and experience. According to Hughes (2021), deciding to innovate and digitally transform is not a binary decision to either build in-house or buy from a vendor. Instead, Hughes states that an answer is a mixed approach where financial institutions should continue to invest in their existing infrastructure and build upon it by buying into solutions that can be an accelerator for differentiation and customer-centric solutions that enable financial inclusion (Hughes, 2021).

## RECOMMENDATIONS

The literature identifies a developing trend in how the approach to financial inclusion has evolved over two decades and how the global pandemic exposed the stagnation in the transformation of financial inclusion. The pandemic birthed four components of meta-analysis out of the drastic rise of fintech, challenger banks, mobile financial solutions, and source data reform to help four catalysts become the driving force for effective financial inclusion.

A survey by Fairchok (2022) shows that half of the respondents say their current banking relationships are not rewarding. They are not fun and do not feel emotionally connected to their bank. According to Hughes (2021), it is not just buying or building but an investment into both strategies. Pal et al. (2020) identify that mobile payment usage services are essential to enabling financial inclusion. Finally, Bataev (2019) states that with the rise of challenger banks, new data sources will power the new model for banking as it brings together customer engagement and simplified communication. These four catalysts represent four critical recommendations to further financial inclusion efforts: customer experience, technology, data sources, and mobile (Fairchok, 2022, Hughes, 2021, Pal et al., 2020, Bataev, 2019).

### Customer Experience

The interaction between a financial institution customer and the financial institution through various online and offline channels through all stages of the consumption process, including pre-purchase, consumption, and post-purchase stages. The ability to service a customer on their terms, in their environment, at a convenient time, and in a way that is easy to use and understand.

### Technology

It is not just buying or building but an investment into both strategies. Continue to build upon and enhance your current legacy technologies but focus on bringing them up to date to allow scale and connectivity within an ecosystem. Where there is a need to build new capabilities, then build upon functional legacy systems and build to allow for future growth needs. Replace the outdated and non-compatible legacy technologies that obstruct innovation and implement new technologies that support modernization and growth at scale. Focus on technology utilization driven by the needs of both the financial institution and the customer to enable financial inclusion further.

### Data Sources

Identify existing data sources that are still relevant to today's customers and those that support a broader inclusion of customers. Embrace new publicly available data sources that remove culturally acceptable partiality and selective lending based on physical traits, demographics, and personal bias. These new data sources should consider a data-driven culture that aligns qualification criteria with new data sources, including mobile usage and non-discriminatory data.

### Mobile

Financial institutions should focus on reaching their customers at scale on devices where they spend most of their time, which is on their mobile devices. By building engagement models via mobile, financial institutions can provide and personally make connections with their customers throughout the day, in any location, and in a personalized manner.

## CONCLUSION

Financial institutions have attempted financial inclusion practices since the early 2000s with variable success. They stagnated ideas, but the pandemic created a disruption that forced the digital transformation of financial inclusion strategies and enabled the rise of four key catalysts for successful inclusion: the application and utilization of new data sources, implementation of new and updated technologies, the broad usage of mobile platforms for banking, and new ways to achieve an engaging customer experience.

These four catalysts integrated into financial inclusion efforts help to lessen the common culturally acceptable partiality and selective lending based on personal bias, physical traits, and demographics. The addition of these catalysts into the financial inclusion efforts is already accelerating the reduction in the poverty gap by bringing cutting-edge financial services to underserved and unserved communities and offering solutions to them that make sense, are easy to use, and accessible in their communities at a time that is convenient to them.

Financial institutions that choose not to adapt to the population's changing needs will be left behind and eventually cannibalized by the rising fintech community and challenger banks. Financial inclusion is a recognized and legitimate concern that will continue to grow in its efforts and evolve. Financial institutions that ignore this trend will continue to phase themselves out of the industry and become obsolete.

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# DRIVERS OF UTILITY VIABILITY AND SUSTAINABILITY: DO NONFINANCIAL PERFORMANCE MEASURES MAKE A DIFFERENCE?

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## ABSTRACT

*The study reviews the growth trend for investor-owned utilities (water and wastewater), adopts the National Regulatory Research Institute's financial viability ratios modified by Acheampong et al., and identifies four categories of nonfinancial performance instruments that drive utility abandonments and transfers. The study observed a downtrend of investor-owned utilities from the sample state (Florida). Prior research has concentrated on financial performance measures (Financial ratios) to determine the sustainability and viability of investor-owned utilities. The study concluded that nonfinancial performance measures are significant in determining investor-owned utility abandonments and transfers comparatively to financial performance measures; the drivers for utility transfers are different from utility abandonments, and each utility class should be treated with its own merits.*

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**KEYWORDS:** Abandonments, Financial Performance Measures, Nonfinancial Performance Measures, Sustainability, Viability, Investor-Owned, Authorized Territory

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# SPANISH PROCEEDINGS

# LA GRAN FÁBRICA COLOMBIANA DE CACAO, CHOCOLATE Y CONFITES: EVALUACIÓN DEL DESEMPEÑO FINANCIERO

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## RESUMEN

*El objetivo de este trabajo investigativo es examinar el desempeño financiero de la gran fábrica colombiana de cacao, chocolate y confites en el período 2015-2020 mediante el análisis y comparación de indicadores que miden su crecimiento, eficiencia, eficacia y efectividad financiera para lograr utilidades contables y residuales. Se halla que la gran empresa manufacturera colombiana logra un rendimiento promedio del capital y su comportamiento está alineado con la eficacia en la gestión de costos-gastos; además, en el último quinquenio crea valor económico agregado, haciendo que el valor económico agregado del periodo analizado sea positivo. Estos resultados positivos son semejantes a los hallados en las empresas afines de Europa occidental y de Estados Unidos de América; aunque la fábrica colombiana es menos efectiva y genera menos valor económico agregado por el activo operacional neto invertido, lo que la coloca en una desventaja competitiva.*

**PALABRAS CLAVE:** Valor Económico Agregado, Valor de Mercado Agregado, Indicadores Financieros de Eficiencia, Eficacia y Efectividad, Fábrica Cacao, Chocolate y Confites

## THE GREAT COLOMBIAN COCOA, CHOCOLATE AND CONFECTIONERY FACTORY: EVALUATION OF FINANCIAL PERFORMANCE

## ABSTRACT

*The objective of this research work is to examine the financial performance of the large Colombian cocoa, chocolate, and confectionery factory in the period 2015-2020 through the analysis and comparison of indicators that measure its growth, efficiency, efficacy, and effectiveness financial to achieve profits accounting and residual. It is found that the large Colombian manufacturing company achieves an average return on capital and its behavior is aligned with efficiency in cost-expense management; In addition, in the last five years it creates added economic value, making the added economic value of the analyzed period positive. These results are like those found in related companies in Western Europe and the United States of America; although the Colombian factory is less effective and generates less economic value added for the net operating assets invested, which places it at a competitive disadvantage.*

**JEL:** G10, M40, L66

**KEYWORDS:** Economic Value Added (EVA); Market Value Added; Efficiency, Efficacy, and Effectiveness Financial Indicators; Cocoa, Chocolate, And Confectionery Factory

## INTRODUCCIÓN

Esta investigación tiene como meta evaluar el desempeño financiero de la gran fábrica colombiana de cacao, chocolate y productos de confitería en el sexenio 2015-2020. Se encuentra un crecimiento hasta el penúltimo año del activo neto operacional; igualmente, se logran rendimientos del capital en los últimos

cinco años, que oscilan en casi todos los años, orientación que es afín al del margen de utilidad neta; además, en último quinquenio crea valor económico agregado porque los rendimientos del activo neto operacional exceden a los costos de capital; estos resultados positivos se replican en la empresa semejante en Europa occidental y Estados Unidos de América para todo el periodo, pero que superan los logrados por la fábrica colombiana. La ponencia se ha organizado así: se inicia con la metodología y marco teórico, escogiendo y definiendo los indicadores financieros apropiados para esta evaluación; luego se analiza el ejercicio financiero de la fábrica de este sector en Europa y Estados Unidos de América; después se examina los indicadores de la gran fábrica colombiana de cacao, chocolate y confites; a continuación, se comparan e interpretan los resultados, y para finalizar se presentan las conclusiones.

## METODOLOGÍA Y MARCO TEÓRICO

El proceso metodológico de esta investigación es adaptado de Rivera (2022), cuyo enfoque es cuantitativo y el método es el de análisis de tendencias de indicadores contables (Zutter & Smart 2019) y de gerencia del valor, que unidos “proporcionan una herramienta más poderosa para evaluar el desempeño” (Obaidat, 2019, p. 66). Con estos indicadores se evalúa el crecimiento, la eficiencia, la eficacia, la efectividad, el valor económico agregado que se genera cada año y en el sexenio. El crecimiento es medido por la tendencia del activo neto operacional, *ANO*. “La eficiencia con la cual una empresa utiliza sus recursos, en especial los activos operacionales, según la velocidad de recuperación del dinero invertido en cada uno de los mismos” (Ortiz, 2018, p. 223) se calcula con la rotación de activos. La eficacia en el control de los costos y gastos de la fábrica y su secuela sobre la utilidad se mide con los márgenes de utilidad (Rivera, 2017). La efectividad en la obtención de utilidades a sus dueños por sus recursos invertidos se calcula con el rendimiento del capital, *ROE*. En el sistema Dupont ampliado, el *ROE* resulta del producto de la rotación de activos, el margen de utilidad neta y el apalancamiento financiero, este último surge de dividir el activo sobre el patrimonio (Ross, Westerfield & Jordan, 2019). La evaluación del desempeño financiero mediante indicadores contables, incluidos el *ROE* y los márgenes de utilidad, ha sido cuestionada, entre otros, por no tener en cuenta el costo de capital propio, ni el riesgo (Stern & Willette, 2014), por estar influenciado por la políticas contables adoptadas (Atrill, 2017) y por ser cortoplacista (Arnold & Lewis, 2019), restricciones que parcialmente han sido corregidas por los indicadores de gestión de valor, entre los que sobresalen el *EVA* y el *VMA*, que se tratan a continuación. El *EVA* es el beneficio residual que resulta de la diferencia entre la utilidad operacional después de impuestos (*UODI*) y el cargo de capital (Stewart, 2000):

$$EVA_t = UODI_t - \text{Cargo de capital}_t, \quad (1)$$

El cargo de capital surge del producto del activo neto operacional (*ANO*<sub>t</sub>) por el costo de capital (*Ko*<sub>t</sub>) en el del año *t*:

$$\text{Cargo de capital}_t = (\text{ANO}_t)(\text{Ko}_t), \quad (2)$$

El *ANO*<sub>t</sub> es igual a la suma del activo fijo neto operacional (*AFNO*<sub>t</sub>) y el capital de trabajo neto operativo (*KTNO*<sub>t</sub>). El *AFNO*<sub>t</sub> surge de la diferencia entre el activo fijo operacional y la depreciación, en tanto que el *KTNO*<sub>t</sub> es la diferencia entre el activo circulante operativo y el pasivo corriente sin costo explícito. De acuerdo con Modigliani & Miller (1963, p. 441) el costo de capital(*Ko*<sub>t</sub>) se calcula así:

$$Ko_t = Ke(1 - L) + Ki(1 - t)L, \quad (3)$$

Donde *Ke* representa el costo del capital propio, *L* la estructura de capital que resulta de dividir la deuda con costo explícito entre el activo neto operacional y *Ki* el costo de la deuda, que una vez es deducida su protección fiscal (*t*) queda como *Ki*(1 - *t*). Stewart (2000) muestra otra forma de calcular el *EVA*:

$$EVA = [ANO_t] [(UODI_t / ANO_t) - (Ko_t)] \quad (4)$$

Donde  $UODI_t / ANO_t$  representa la rentabilidad después de impuestos del activo neto operacional, que siguiendo la estructura del sistema Dupont es igual al producto del margen de la utilidad operacional después de impuestos ( $UODI_t / Ventas_t$ ) por la rotación del activo neto operacional( $Ventas_t / ANO_t$ ):

$$UODI_t / ANO_t = (UODI_t / Ventas_t) (Ventas_t / ANO_t) \quad (5)$$

La expresión  $[(UODI_t / ANO_t) - (Ko_t)]$  representa el porcentaje de utilidad o pérdida residual. El valor de mercado agregado  $VMA$  del período se determina sumando el valor presente de los  $EVAs$  de varios años; que se puede enunciar matemáticamente así:

$$VMA = \sum_{j=1}^{j=n} EVA_j / (1 + Ko_j)^j \quad (6)$$

Para conocer el  $EVA$  que genera el activo neto operacional, se utiliza la siguiente relación:

$$EVA_t / ANO_t \quad (7)$$

## MARCO DE REFERENCIA

Los indicadores de desempeño financiero en el período 2015-2020 de la empresa procesadora de alimentos en Europa occidental (EPAE) de una muestra promedio de 151 fábricas se presenta en la Tabla 1. El  $ROE$  en los seis años fue positivo y estuvo cercano al 13,5%, producto de la combinación del margen de utilidad neta (7,2%), que siempre fue positivo, de la rotación de activos totales (1,62 veces) y del apalancamiento financiero (115,8%). Los índices de efectividad, eficacia y eficiencia fluctuaron, manteniéndose relaciones positivas entre efectividad y eficacia en todo el período, y entre efectividad y eficiencia a partir del 2017; mientras que el apalancamiento financiero cayó en el primer año y luego creció. En dos años consecutivos se pasó del menor al mayor  $ROE$ : 2019 (11,6%) y 2020 (15,0%); el año de menor efectividad se debió a la menor eficacia y eficiencia del sexenio, y el año de mayor efectividad fue inducida por el mayor apalancamiento financiero del período.

Tabla 1: Indicadores Promedio de la EPAE

Indicador	2015	2016	2017	2018	2019	2020	promedio	$\sigma$
ROE	14,4	12,8	14,8	12,5	11,6	15,0	13,5	1,4
Margen de utilidad neta (%)	8,3	7,1	7,2	6,8	6,3	7,6	7,2	0,7
Rotación de activos totales (veces)	1,55	1,63	1,78	1,59	1,52	1,63	1,62	0,09
Apalancamiento financiero (%)	111,6	111,0	114,5	116,2	120,2	121,5	115,8	4,3
Sistema Dupont ampliado								
EVA (MMU\$)	69	91	115	103	113	129	103	
ANO (MMU\$)	1.096	1.032	1.084	1.268	1.277	1.166	1.154	
UODI/ANO (%)	13,7	15,7	17,3	15,2	14,5	15,4	15,3	1,2
Ko (%)	7,4	6,9	6,7	7,1	5,6	4,3	6,4	1,2
Utilidad residual (%)	6,3	8,8	10,6	8,1	8,8	11,1	9,0	1,7
VMA a 1-1-2015 (MMU\$)	486							
EVA/ANO	0,06	0,09	0,11	0,08	0,09	0,11	0,09	0,02
Número de empresas	156	158	150	141	144	154	151	

Fuente: Elaboración propia a partir de datos de Damodaran (2021). Nota: MMU\$ denota cifras monetarias en millones de dólares

La EPAE generó  $EVA$  cada año de forma progresiva, solo interrumpida por una caída en el 2018, y que dejó como promedio anual \$103 MMUS; inició el período con el menor  $EVA$  en el 2015 (\$69 MMUS) y lo terminó colocándolo en la cúspide en el 2020 (\$129 MMUS). El  $EVA$  mantuvo relaciones directas con el

porcentaje de utilidad residual, con sus crestas más baja y alta en idénticos años: 2015 (6,3%) y 2020 (11,1%), y con el rendimiento después después de impuestos del activo neto operacional, aunque solo coincide en el año el pico más bajo: 2015 (13,7%), ya que el pico más alto fue en el 2017(17,3%); además el *EVA* tuvo una relación inversa con el costo de capital, que presentó porcentajes extremos en los mencionados años: 2015 (7,4%) y 2020 (4,3%), lo que demuestra que el *Ko* fue el principal determinante del comportamiento del *EVA* en cada uno de los años. El valor de mercado agregado del sexenio fue de \$486 MMUS a 1-1-2015. En términos relativos se creó un promedio de *EVA* de \$0,09 US por cada dólar invertido en el ANO; este indicador siguió la misma orientación del *EVA* con sus menores y mayores valores en el 2015 (\$0,06 US) y en el 2017 y 2020 (\$0,11 US). El ANO bajó al inicio y final del periodo y ascendió en los años intermedios, que dejó como resultado un promedio anual de \$1.154 MMUS. Al cotejar los indicadores *UODI/ANO* y *ROE*, se observa que el primero fue superior, excepto en el 2015 cuando fue inferior, con las mismas direcciones a partir del 2017; esta diferencia muestra el efecto de las actividades no operacionales. Los indicadores que dan cuenta del desempeño financiero en el período 2015-2020 de la empresa procesadora de alimentos promedio en Estados Unidos de América (EPAEUA) de una muestra media de 89 fábricas se exhiben en la Tabla 2. El *ROE* fue positivo, y promedió el 11,7%, producto del margen de utilidad neta (6,8%), que, también, fue positivo, de la rotación de activos totales (1,68 veces) y del apalancamiento financiero (103,2%), con orientaciones similares entre la efectividad y la eficacia que oscilaron cada año, salvo en el 2018, que prolongaron la subida del 2017, pero con direcciones diferentes a la eficiencia, que disminuyó, y al apalancamiento financiero, que se redujo hasta el 2017 y después aumentó. El más alto y bajo *ROE* se presentaron en dos años contiguos: 2018 (19,5%) y 2019 (1,9%); el 2018 fue más efectivo por haber sido el de mayor eficacia, en tanto que el 2019 fue menos efectivo por haber tenido menor eficacia. La EPAEUA generó *EVA* año a año, y de forma progresiva, excepto un descenso en el 2019, arrojando un promedio de \$224 MMUS; arrancó el sexenio con el mínimo *EVA* (\$195 MMUS) en el 2015 y lo subió al máximo *EVA* en el 2018 (\$ 249 MMUS), conservando una relación directa con el indicador *UODI/ANO*, excepto en el 2016, y una relación inversa con el *Ko*, salvo en el 2018. En el 2015 se presentó el *EVA* más bajo porque fue menor el ANO (\$ 1.168 MMUS), pese a que se había logrado el mayor el porcentaje de utilidad residual (16,7%), pues la más alta relación *UODI/ANO* (23,1%) excedía al máximo *Ko* (6,5%) del periodo; mientras que el más alto *EVA* del 2018, obedeció a una mezcla de sus inductores, que no fueron ni los mayores, ni los menores del periodo.

El valor de mercado agregado del sexenio fue de \$1.105 MMUS a 1-1-2015. En términos relativos se creó un promedio de *EVA* de \$0,14 US por cada dólar invertido en el ANO. Este indicador siguió una directriz parecida a la del *EVA*, menos en el 2018, pero sin coincidir los años de valores más alto y bajo: 2015 (\$0,17) y 2019 (\$0,10). El ANO ascendió con ondulaciones alrededor de un promedio anual de \$1.637 MMUS. Al equiparar los índices anuales de *ROE* y *UODI/ANO*, se observa que sus directrices son análogas, aunque con una supremacía del segundo, lo que denota las consecuencias de las actividades no operacionales.

Tabla 2: Indicadores Promedio de la EPAEUA

Indicador	2015	2016	2017	2018	2019	2020	Promedio	$\Sigma$
Sistema Dupont ampliado								
ROE	17,6	10,9	11,5	19,5	1,9	10,1	11,7	6,2
Margen de utilidad neta (%)	6,9	6,7	7,4	12,0	1,3	6,4	6,8	3,4
Rotación de activos totales (veces)	2,32	1,67	1,63	1,59	1,36	1,48	1,68	0,33
Apalancamiento financiero (%)	110,5	97,3	95,8	102,0	106,6	107,1	103,2	5,9
EVA, VMA y EVA/ANO								
EVA (MMU\$)	195	226	235	249	201	236	224	
ANO (MMU\$)	1.168	1.649	1.616	1.773	1.975	1.640	1.637	
UODI/ANO (%)	23,1	19,4	19,7	20,2	15,6	17,5	19,3	2,6
Ko (%)	6,5	5,8	5,2	6,1	5,4	3,1	5,3	1,2
Utilidad residual (%)	16,7	13,7	14,5	14,1	10,2	14,4	13,9	2,1
VMA a 1-1-2015 (MMU\$)	1.105							
EVA/ANO	0,17	0,14	0,15	0,14	0,10	0,14	0,14	0,02
Número de empresas	89	87	87	83	88	101	89	
Fuente: Rivera (2022, p.100).								

Nota: MMU\$ denota cifras monetarias en millones de dólares.

#### Desempeño Financiero de la Gran Fábrica Colombiana de Cacao, Chocolate y Confites (Gfcc)

De las bases de datos EMIS professional (2021) y Superintendencia de Sociedades (2021) se consiguieron los estados financieros en el período 2015-2020 de las fábricas de gran tamaño del sector de elaboración de productos de cacao, chocolate y confites que tenían como actividad económica las determinadas en el CIIU 1082 (DANE, 2020). El número de fábricas fueron: 11 para el 2015-2019 y 12 para el 2020. En el anexo se revelan sus números de identificación tributaria (NIT) y sus razones sociales. El *ROE* fue positivo en los últimos cinco años, con un promedio de 5,5%, que resultó del producto del margen de utilidad neta (2,9%), la rotación de activos totales (0,86 veces) y el apalancamiento financiero (231,0%). El *ROE* presentó altibajos hasta el 2019, solo en el 2020 continuo la caída del año anterior, manteniendo una relación directa con el margen de utilidad neta; pero no presentó relación importante con la rotación de activos totales, que varió en algunos años; ni con el apalancamiento financiero que descendió, salvo una subida en el 2019. El menor *ROE* (-2,9%) se presentó en el 2015 debido a que tuvo un margen de pérdida (-1,4%), que fue desmejorado por el mayor apalancamiento financiero (243,1%); mientras el máximo *ROE* (12,4%) tuvo lugar en el 2018, impulsado primordialmente por el más alto margen de utilidad neta (6,8%), puesto que los otros factores fueron los más bajos del periodo: rotación de activos totales (0,84 veces) y apalancamiento financiero (217,6%). Ver Tabla 3.

Tabla 3: Sistema Dupont Ampliado de la GFCC

Indicador	2015	2016	2017	2018	2019	2020	Promedio	$\sigma$
ROE (%)	-2,9	7,2	4,9	12,4	6,6	5,1	5,5	5,0
Margen de utilidad neta (%)	-1,4	3,5	2,5	6,8	3,3	2,5	2,9	2,6
Rotación de activos totales (veces)	0,87	0,89	0,85	0,84	0,86	0,86	0,86	0,02
Apalancamiento financiero (%)	243,1	232,5	227,3	217,6	229,7	235,7	231,0	8,5

Fuente: Elaboración propia con base en EMIS professional (2021), Superintendencia de Sociedades (2021) y Rivera, Cuasquen & Patiño (2022).

Por lo tanto, se puede deducir que el comportamiento de la efectividad está condicionado principalmente a la orientación de la eficacia.

La gran empresa promedio colombiana de cacao, chocolate y confites creó valor económico agregado en los últimos cinco años, pero fluctuando cada año, salvo la subida del 2018-2019; su promedio anual fue de

\$2.011 MM. El *EVA* conservó una relación positiva con la UODI y una relación negativa con el cargo de capital (Tabla 4).

Tabla 4: *EVA* Promedio Por Empresa de la GFCC y sus Inductores

Indicador	2015	2016	2017	2018	2019	2020	Promedio	$\Sigma$
<i>EVA</i> (MM\$)	- 8.982	2.622	92	6.002	7.333	4.998	2.011	
UODI (MM\$)	499	15.756	11.063	17.087	19.190	13.308	12.817	
Cargo de capital (MM\$)	9.480	13.135	10.971	11.085	11.857	8.310	10.806	
			a. Indicadores del inductor UODI					
UAII (MM\$)	665	21.009	16.762	25.503	28.643	19.570	18.692	
Impuestos (MM\$)	166	5.252	5.699	8.416	9.452	6.263	5.875	
			b. Indicadores del inductor cargo de capital					
ANO (MM\$)	129.839	143.664	156.739	176.707	195.747	187.357	165.009	
Ko (%)	7,3	9,1	7,0	6,3	6,1	4,4	6,7	1,6
			c. Inductores del indicador ANO					
KTNO (MM\$)	20.612	7.821	16.811	23.254	41.351	47.677	26.254	
AFNO (MM\$)	109.226	135.843	139.928	153.453	154.396	139.680	138.754	
			d. Indicadores del inductor Ko					
Ke <sup>1</sup> (%)	18,3	13,7	11,4	11,4	12,5	8,4	12,6	
Ki <sup>2</sup> (%)	8,0	11,4	9,8	7,8	7,4	6,3	8,4	
L (%)	89,4	89,0	89,3	83,0	85,5	95,5	88,6	
t (%)	25,0	25,0	34,0	33,0	33,0	32,0	30,3	
			e. Sistema Dupont del índice UODI/ANO					
UODI/ ANO (%)	0,4	11,0	7,1	9,7	9,8	7,1	7,7	3,8
UODI/Ventas (%)	0,1	3,4	2,5	3,7	3,8	2,8	2,7	
Ventas/ANO (veces)	3,29	3,24	2,86	2,59	2,57	2,51	2,84	
			f. Utilidad o pérdida residual					
Utilidad residual (%)	-6,9	1,8	0,1	3,4	3,7	2,7	1,0	4,0
			g. Valor del mercado agregado					
<i>VMA</i> a 1-1-2015 (MM\$)	7.029		h. <i>EVA</i> de la inversión					
<i>EVA</i> /ANO	-0,07	0,02	0,00	0,03	0,04	0,03	0,01	0,04

Fuente: Elaboración propia de acuerdo con Rivera, Cuasquen & Patiño (2022), EMIS professional (2021), Superintendencia de Sociedades (2021) y Damodaran (2021). Notas: MM\$ indica cifras en millones de COP. 1 en Rivera & Alarcón (2012, p. 92) se presenta la información para su cálculo. 2 tasa promedio anual de crédito corporativo de la Superintendencia Financiera de Colombia (2021).

La UODI fue positiva con una dirección afín a la de la utilidad operacional, mientras que los impuestos subieron hasta el 2019, para luego caer. Sus promedios fueron correspondientemente de \$12.817 MM, \$18.692 MM y \$5.875 MM (parte a. de la Tabla 4). El cargo de capital no siguió la orientación de algún inductor en particular, sino una combinación de ellos: El ANO aumentó hasta el penúltimo año, después cayó, mientras que el Ko creció al comienzo de período y luego disminuyó. Los promedios del cargo de capital, ANO y Ko fueron en su orden de \$10.806 MM, \$165.009 MM y 6,7% (parte b de la Tabla 4). El ANO mantuvo una relación inversa con el KTNO y directa con el AFNO. El KTNO y el AFNO representaron el 15,9% y 84,1% respectivamente del ANO; los promedios del KTNO y del AFNO fueron en su orden de \$26.254 MM y \$138.754 MM (parte c de la Tabla 4).

El Ko se alineó con el Ki, mientras Ke disminuyó hasta el 2017, se estabilizó en el siguiente año y luego varió. L se redujo en el primer cuatrienio y creció en el último bienio, entretanto t se mantuvo constante en algunos años y en los otros osciló. El Ko más alto (9,1%) se presentó en el 2016, justo cuando Ki (11,4%) fue mayor y t (25,0%) fue menor; mientras en el 2018 donde se presentó el menor Ko (4,4%), precisamente cuando se presentaron el menor Ki (6,3%) y el mayor L (95,5%). Los inductores del Ko mostraron los siguientes promedios: Ke = 12,6%, Ki = 8,4%, L = 88,6% y t = 30,3% (parte d. de la Tabla 4).

El indicador UODI/ANO mantuvo una relación directa con el *EVA* y siguió la orientación del índice UODI/ventas, pero no la del índice ventas/ANO que decreció; con lo que se puede deducir que el comportamiento de la efectividad de lograr utilidades operacionales después de impuestos tiene una mayor dependencia de la eficacia en el control de costos-gastos operativos que de la eficiencia en la utilización de los activos netos operacionales. En el 2015 se presentó el menor índice UODI/ANO (0,4%), producto del

menor índice UODI/ventas (0,1%) y del mayor índice ventas/ANO (3,29 veces), lo que contribuyó a destruir EVA; mientras en el 2016 se presentó la mayor relación UODI/ANO (11,0%) resultado del tercer mejor indicador UODI/ventas (3,4%) y el segundo mejor indicador ventas /ANO (3,24 veces), lo que contribuyó a pasar a un EVA positivo, aunque no el más alto porque el ANO fue el segundo más bajo del periodo. Los promedios de los indicadores UODI/ANO, UODI/ventas y ventas/ANO fueron respectivamente 7,7%; 2,7% y 2,84 veces (parte e de la Tabla 4). El porcentaje de utilidad residual conservó una relación positiva con el índice UODI/ANO y con el EVA. El porcentaje promedio de la utilidad residual (1,0%) resultó de la diferencia entre los promedios del índice UODI/ANO (7,7%) y del Ko (6,7%).

El menor porcentaje de utilidad residual se presentó en el 2015 (-6,9%), justo en el año donde se destruyó EVA; mientras que el mayor porcentaje de utilidad residual tuvo lugar en el año 2019 (3,7%), cuando se generó el mayor EVA. El valor de mercado agregado de la gran fábrica colombiana de cacao, chocolate y confites fue de \$7.029 MM al 01 de enero de 2015, que ratifica los resultados positivos del desempeño financiero en el sexenio que suministraron los indicadores contables promedios, como el margen de utilidad neta y el ROE (Tabla 3 y parte g de la Tabla 4). El EVA promedio generado por cada COP invertido en el ANO fue de \$0,01, siendo menor en el 2015 (\$-0,07) y mayor en el 2019 (\$0,04), donde precisamente se destruyó valor económico y se tuvo el mayor EVA.

## RESULTADOS

En este apartado se cotejan los más importantes indicadores de desempeño de la gran fábrica de cacao, chocolate y productos de confitería en Colombia (GFCC) con los de la empresa procesadora de alimentos en Europa occidental (EPAE) y en los Estados Unidos de América (EPAEUA).

### Crecimiento

La inversión en ANO creció en los tres grupos de empresas, pero con algunas diferencias: en la GFCC declinó en el último año, en la EPAE decreció al comienzo y final del sexenio, y en la EPAEUA osciló en casi todos los años (Tablas 1, 2 y 4).

### Efectividad

El ROE anual fue positivo en las tres agrupaciones, salvo en el 2015 que fue negativo para GFCC; además el ROE fluctuó de manera más parecida en los países foráneos y de forma contraria en GFCC en casi todos los años. Al cotejar el ROE promedio de la GFCC (5,5%) con el de la EPAEUA (11,7%) y el de la EPAE (13,5%), y la dispersión del ROE de la GFCC (5,0%) con la de la EPAEUA (6,2%) y la de la EPAE (1,4%), se halló que la efectividad de la GFCC fue menor que los grupos extranjeros y con un riesgo intermedio; en contraste con la EPAE que fue la más efectiva y con menor riesgo, mientras la EPAEUA mantuvo una efectividad intermedia, pero con mayor riego. Al separar los componentes del ROE se encontró una mayor semejanza de su comportamiento con el margen de utilidad neta en los tres grupos (GFCC, EPAE y EPAEUA), que, igualmente, fue positivo cada año, salvo en el 2015 en la GFCC. Al confrontar el promedio del margen de utilidad neta de la GFCC (2,9%) con el de la EPAEUA (6,8%) y el de la EPAE (7,2%), y la desviación estándar de este margen de la GFCC (2,6%) con la de la EPAEUA (3,4%) y la de la EPAE (0,7%) se halló que la eficacia de la GFCC fue inferior, pero con un riesgo intermedio, seguida de la EPAEUA, aunque con el mayor riesgo, en tanto que la EPAE fue la más eficaz con el menor riesgo. De otro lado, la rotación de activos totales fue en promedio de 0,86 veces en la GFCC, de 1,68 veces en la EPAEUA y de 1,62 veces en la EPAE, y con una desviación de 0,02 veces en la GFCC, de 0,33 veces en la EPAEUA y de 0,09 veces en la EPAE; lo que significa que la eficiencia fue menor en la GFCC, pero más estable, seguida de la EPAE, con una estabilidad intermedia, quedando la EPAEUA como la más eficiente, pero más inestable. Mientras que el apalancamiento financiero estuvo en torno a un 231,0% en la GFCC, de un 103,2% en la EPAEUA y de un 115,8% en la EPAE, con una desviación estándar de 8,5% en

la GFCC, de 5,9% en la EPAEUA y de 4,3% en la EPAE, revelando que la GFCC usa una mayor ponderación de deuda, pero con una dispersión más alta, seguido de la EPAE, que tiene la dispersión más baja, y de la EPAEUA con una su dispersión intermedia (Tablas 1, 2 y 3).

### Valor Económico Agregado

La empresa promedio de los tres grupos: GFCC, EPAEUA y EPAE generó *EVA* cada año, excepto en el 2015 en la GFCC; la oscilación del *EVA* de la GFCC fue diferente a la orientación creciente de la EPAE y de la EPAEUA, que solo declinaron en un año (Tablas 1, 2 y 4); además, el VMA en el sexenio con valores a 1-1-2015 fue positivo para los todos los grupos: GFCC (\$7.029 MM), EPAEUA (\$1.105 MMUS) y EPAE (\$486 MMUS). Al repasar los inductores del *EVA* se halló que el promedio del índice UODI/ANO de la GFCC (7,7%) fue inferior al de la EPAE (15,3%), y al de la EPAEUA (19,3%), si bien con una mayor dispersión para la GFCC ( $\sigma = 3,8\%$ ), seguido de la EPAEUA ( $\sigma = 2,6\%$ ) y de la EPAE ( $\sigma = 1,2\%$ ); mientras que el promedio del Ko de la GFCC (6,7%) fue mayor que el de la EPAE (6,4%) y que el de la EPAEUA (5,3%), pero con una mayor dispersión en la GFCC ( $\sigma = 1,6\%$ ) en comparación al promedio de los dos grupos extranjeros ( $\sigma = 1,2\%$ ). Lo que evidenció que la GFCC fue la menos eficaz e inestable en el control de costos operativos y financieros. Por tal motivo, el porcentaje de utilidad residual promedio en la GFCC (1,0%) fue menor al de la EPAE (9,0%) y al de la EPAEUA (13,9%); además de una mayor dispersión en la GFCC ( $\sigma = 4,0\%$ ) contrastado con la de la EPAE ( $\sigma = 1,7\%$ ) y la de la EPAEUA ( $\sigma = 2,1\%$ ). De otro lado, se halló que el *EVA* promedio que creó el activo neto operacional invertido fue de \$0,01 en la GFCC, que estuvo por debajo de las creadas por la EPAE (\$0,09) y por la EPAEUA (\$0,14).

## CONCLUSIONES

De la pesquisa realizada a la gran fábrica colombiana de cacao, chocolate y productos durante el periodo 2015-2020 se halló un acrecentamiento del ANO hasta el penúltimo año, luego cayó; mientras que las empresas afines en Europa Occidental y de Estados Unidos de América, también, crecieron, con fluctuaciones diferentes. El *ROE* anual de GFCC fue positivo en los últimos cinco años, y en todos los años en las fábricas equivalentes en Europa y Estados Unidos de América; su promedio fue inferior al mostrado en los países foráneos; y con una desviación estándar intermedia por arriba a la de la EPAE, pero por abajo a la de la EPAEUA; con lo que se señala su menor y más inestable efectividad en lograr utilidades para los inversionistas, contrario a la mayor efectividad y estabilidad presentada por su homóloga europea.

El comportamiento del *ROE* de la gran fábrica de cacao, chocolate y confites en Colombia quedó más atado a la alineación del margen de utilidad neta, lo mismo que las empresas análogas foráneas, si bien su eficacia fue inferior. El apalancamiento financiero afectó su efectividad en una proporción mayor que en las fábricas extranjeras. Mientras que la rotación de activos influyó en menor medida la orientación del *ROE*, y su promedio fue menor que la de los pares foráneos, revelando su más baja eficiencia en el uso de los activos totales. La gran fábrica de cacao, chocolate y confites en Colombia creó *EVA* en los últimos cinco años, y en todos los años en las empresas análogas en norteamericanas y en europeas; esto condujo a que el VMA en el sexenio fuera positivo en los tres grupos. El comportamiento del *EVA* de la GFCC sostuvo una relación directa con el rendimiento después de impuesto del activo neto operacional; aunque su promedio fue inferior al reportado por las empresas análogas del exterior; además su más alto promedio del costo de capital llevó a que el promedio del porcentaje de utilidad residual fuera menor de los tres grupos. El *EVA* promedio que generó el ANO invertido por parte la gran empresa de productos de cacao, chocolate y confites en Colombia fue de \$0,01, menor a los mostrados por sus referentes del exterior. Este estudio puede complementarse con exploraciones en grupos de fábricas parecidas en sus edades, estructura jurídica, etapas de su ciclo de vida y localidades.

## Anexo. Grandes Fábricas Colombianas de Cacao, Chocolate y Productos de Confitería

Nit	Razón Social	Nit	Razón Social
890301884	Colombina S.A.	800096040	Comestibles Aldor S.A.S.
900087414	Riopaila Castilla S.A.	860049042	Comestibles Íalo S A
811036030	Cía. nacional de chocolates S.A.S.	860524750	Dulces La Americana S.A.S.
890800718	Sucesores de José Jesús Restrepo & Cía. S.A.	900079775	Golosinas Trululu S.A.
890300686	Mondelez Colombia S.A.S	890805267	Super de alimentos S.A.S.
800195190	Confiteca Colombia S.A	890209498	Grupo alimenticio Alba del Fonce S.A.S.

Fuente: Elaboración propia con base en Superintendencia de Sociedades (2021) y Rivera, Cuasquen & Patiño (2022).

Nota: Se tomó las empresas con activos con superiores a los 30.000 salarios mínimos legales, conforme al artículo 2 de la Ley 905 de 2004 (Congreso de Colombia, 2004).

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## BIOGRAFÍA

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# GESTIÓN FINANCIERA DE LA GRAN EMPRESA DE LA INDUSTRIA DE HIERRO Y ACERO EN COLOMBIA

Jorge Alberto Rivera Godoy, Universidad del Valle

## RESUMEN

*La evaluación de la administración financiera de la gran empresa de la industria de hierro y acero en Colombia en el sexenio 2015-2020 mediante el análisis y cotejo de indicadores que dan cuenta de la efectividad financiera en el logro de beneficios contables y residuales, es el propósito de esta investigación. Se halla que la gran empresa de esta industria tiene una pérdida promedio anual sobre el capital invertido y su comportamiento mantiene un estrecho vínculo con la eficacia en la gestión de costo- gastos; asimismo, como el rendimiento pretendido por los dueños no sobrepasa el rendimiento de los activos netos operacionales, destruye valor de mercado agregado en el sexenio. Estos resultados no fueron del todo semejantes a los mostrados por compañías de este mismo sector en entorno global y en Estados Unidos de América en cuanto a que estas dos últimas presentaron rentabilidades sobre el capital, y que su orientación también depende de eficiencia en el uso de activos; sin embargo, la empresa internacional de este sector también destruyó valor económico agregado en el sexenio, aunque en términos relativos a su inversión fue mayor el detrimento en la gran empresa colombiana. Sería oportuno complementar este trabajo con investigaciones focalizadas a grupos de empresas homogéneas en cuanto a su estructura jurídica, edad, etapa de su ciclo de vida y localidad.*

**PALABRAS CLAVE:** Valor Económico Agregado, Valor de Mercado Agregado, Indicadores Financieros de Eficiencia, Eficacia y Efectividad, Industria de Hierro y Acero

## FINANCIAL MANAGEMENT OF A LARGE COMPANY IN THE IRON AND STEEL INDUSTRY IN COLOMBIA

## ABSTRACT

*The evaluation of the financial administration of the large company of the iron and steel industry in Colombia in the six-year period 2015-2020 through the analysis and comparison of indicators that account for the financial effectiveness in achieving accounting and residual benefits, is the purpose of this research. It is found that the large company in this industry has an average annual loss on invested capital and its behavior maintains a close link with the efficiency in cost-expense management; likewise, as the return sought by the owners does not exceed the return on net operating assets, it destroys market value added in the six-year period. These results were not entirely similar to those shown by companies in this same sector in a global environment and in the United States of America in those the latter two presented returns on capital, and that their orientation also depends on efficiency in the use of assets; however, the international company in this sector also destroyed added economic value in the six-year term, although in relative terms to their investment the detriment was greater in the large Colombian company. It would be opportune to complement this work with research focused on groups of homogeneous companies in terms of their legal structure, age, stage of their life cycle and location.*

**JEL:** G10, M40, L61

**KEYWORDS:** Economic Value Added (EVA); Market Value Added; Efficiency, Effectiveness and Efficacy Financial Indicators; Iron and Steel Industry.

## INTRODUCCIÓN

Esta investigación logra el objetivo de evaluar el desempeño financiero de la gran empresa de la industria de hierro y acero en Colombia en el período 2015-2020. Se halla un crecimiento del activo neto operacional, que varía en dos instantes; pero con rendimientos del capital negativos en cuatro años, que también oscila en dos momentos, comportamiento que es parecido al del margen neto; además, destruye valor económico agregado en todos los años porque los rendimientos de la inversión no compensan lo requerido por los inversionistas; estos resultados son comparados con los de las empresas homólogas externas, encontrándose la gran empresa colombiana en una posición desfavorable cuando se analiza su efectividad, eficacia, eficiencia y utilidad residual. La ponencia sigue este orden: primero, la metodología y marco teórico, donde se presentan y definen los indicadores financieros aplicados; segundo, se examina el comportamiento financiero de la empresa afín en el entorno global y en Estados Unidos de América; tercero, se analizan los indicadores de la gran empresa de la industria colombiana de hierro y acero; cuarto, se cotejan los resultados, y se termina con las conclusiones.

## METODOLOGÍA Y MARCO TEÓRICO

El enfoque de la investigación es cuantitativo, y la metodología es el estudio de tendencias de indicadores contables (Zutter & Smart 2019) y de administración del valor, que de manera complementaria “proporcionan una herramienta más poderosa para evaluar el desempeño” (Obaidat, 2019, p. 66). Con los indicadores seleccionados se busca evaluar el crecimiento, la eficiencia, la eficacia, la efectividad, el valor económico agregado y el valor de mercado agregado. Con la tendencia del activo neto operacional se determina el crecimiento. “La eficiencia con la cual una empresa utiliza sus recursos, en especial los activos operacionales, según la velocidad de recuperación del dinero invertido en cada uno de los mismos” (Ortiz, 2018, p. 223) se mide con la rotación de activos. La eficacia en el control de los costos y gastos de las empresas y su efecto sobre la utilidad se mide con los márgenes de utilidad (Rivera, 2017). La efectividad en el logro de beneficios a sus propietarios por la inversión realizada se mide con el rendimiento del capital propio, *ROE*. En el sistema Dupont ampliado, el *ROE* es el resultado de multiplicar la rotación de activos, el margen de utilidad neta y el apalancamiento financiero, este último es el cociente de la división del activo sobre el patrimonio (Ross, Westerfield & Jordan, 2019). La evaluación del desempeño financiero mediante indicadores contables, incluido el *ROE* y los márgenes de utilidad, ha sido debatida por no considerar el costo de capital propio, ni el riesgo (Stern & Willette, 2014), por estar influenciado por la políticas contables adoptadas (Atrill, 2017) y por ser cortoplacista (Arnold & Lewis, 2019), limitaciones que parcialmente han sido mejoradas por los indicadores de gestión de valor, entre los que se destaca el *EVA* y el *VMA*, que a continuación se explican. El *EVA* es la utilidad residual que resulta de restar el cargo por el uso del capital a la utilidad operacional después de impuestos (UODI) (Stewart, 2000):

$$EVA_t = UODI_t - \text{Cargo de capital}_t, \quad (1)$$

El cargo de capital resulta de multiplicar el activo neto operacional ( $ANO_t$ ) por el costo de capital ( $Ko_t$ ) en el año  $t$ :

$$\text{Cargo de capital}_t = (ANO_t)(Ko_t), \quad (2)$$

El  $ANO_t$  es igual a la suma del activo fijo neto operacional ( $AFNO_t$ ) y el capital de trabajo neto operativo ( $KTNO_t$ ). El  $AFNO_t$  surge de la diferencia entre el activo fijo operacional y la depreciación, en tanto que el  $KTNO_t$  es la diferencia entre el activo operativo circulante y el pasivo corriente sin costo explícito. Conforme a Modigliani & Miller (1963, p. 441) el costo de capital ( $Ko_t$ ) se calcula así:

$$Ko_t = Ke(1 - L) + Ki(1 - t)L, \quad (3)$$

Donde  $Ke$  representa el costo del capital propio,  $L$  el nivel de endeudamiento que resulta de dividir la deuda con costo explícito entre el activo neto operacional y  $Ki$  el costo de la deuda, que después de descontar su protección fiscal ( $t$ ), queda como  $Ki(1 - t)$ .

Stewart (2000) presenta otra forma de calcular el EVA:

$$EVA = [ANO_t] [(UODI_t / ANO_t) - (Ko_t)] \quad (4)$$

Donde  $UODI_t / ANO_t$  representa el rendimiento del activo neto operacional después de impuestos, que siguiendo la estructura del sistema Dupont es igual al producto del margen de la utilidad operacional después de impuestos ( $UODI_t / Ventas_t$ ) por la rotación del activo neto operacional ( $Ventas_t / ANO_t$ ):

$$UODI_t / ANO_t = (UODI_t / Ventas_t) (Ventas_t / ANO_t) \quad (5)$$

A la diferencia entre el rendimiento después de impuestos del activo neto operacional y el costo de capital, se le denomina el porcentaje de utilidad o pérdida residual. La suma del valor actual del EVA de varios años es equivalente al valor de mercado agregado VMA del período; que se puede expresar de la siguiente forma:

$$VMA = \sum_{j=1}^{j=n} EVA_j / (1 + Ko_j)^j \quad (6)$$

El EVA que produce cada unidad monetaria invertida en activo neto operacional se determina así:

$$EVA_t / ANO_t \quad (7)$$

El proceso metodológico es adaptado de Rivera (2022).

### Marco de Referencia

Los indicadores de efectividad y EVA de la empresa de acero promedio en el contorno global (EAG) correspondiente al período 2015-2020 se enseñan en la Tabla 1, con sus componentes, considerando 720 firmas en promedio. El  $ROE$  fue negativo los dos primeros años, luego fue positivo y estuvo alrededor del 3,1%, resultado del producto del margen neto promedio (1,9%), que, también, fue negativo los dos primeros años y positivo los siguientes, y de la rotación de activos (1,07 veces) y del apalancamiento financiero (156,2%); observándose una caída de la efectividad, salvo en el 2017 donde subió, una fluctuación bianual de la eficacia a partir del 2017, una variación de la eficiencia en casi cada año, y un aumento del apalancamiento financiero al inicio y final sexenio, con caída en los años intermedios. La efectividad la eficiencia, la eficacia, presentaron similitudes en sus orientaciones en varios años. El menor y mayor  $ROE$  tuvo lugar en dos años consecutivos: 2016 (-4,2%) y 2017 (9,6%); la menor efectividad se debió a la menor eficacia y eficiencia, amplificada por el mayor apalancamiento financiero, que fue negativo; y la mayor efectividad fue impulsada por la mayor eficiencia, la segunda mayor eficacia y el tercer mayor apalancamiento financiero del período. La EAG destruyó EVA en cuatro años, pasando de destruir el mayor valor en el 2015 (\$-63 MMUS) a crear el mayor valor en el 2017 (\$8 MMUS), y oscilando entre valores positivos y negativos en el segundo trienio, lo cual dejó un promedio anual de \$-21 MMUS. Mantuvo una relación directa con el porcentaje de utilidad o pérdida residual que tuvo sus picos más bajo y alto en esos mismos años: 2015 (-5,2%) y 2017 (0,8%), una relación inversa con el  $Ko$ , salvo en el 2020, con porcentaje extremos en el 2020 (5,8%) y 2018 (8,7%), asimismo, una relación positiva con el indicador UODI/ANO, salvo en el 2019, con picos extremos en el 2015 (2,3%) y 2017 (8,9%); lo que muestra que tanto la orientación del  $Ko$  como de UODI/ANO influyeron en el comportamiento del EVA. En el sexenio se destruyó valor de mercado agregado por \$-110 MMUS a 1-1-2015, produciendo un EVA promedio de \$-0,02 US por cada dólar invertido en el ANO; que fue más bajo en el 2015 y 2016 (\$-0,05 US) y más alto en el 2017 (\$0,01 US). El ANO osciló cada dos años hasta el penúltimo año, y su promedio anual fue de

\$1.258 MMUS. Al comparar los indicadores *ROE* con UODI/ANO, se nota que el segundo fue superior, salvo en el 2017-2018 cuando sucedió lo contrario, manteniendo las mismas direcciones a partir del 2017; esta diferencia muestra el efecto de las actividades no operacionales.

Tabla 1: Indicadores Promedio de la EAG

Indicador	2015	2016	2017	2018	2019	2020	Promedio	$\Sigma$
ROE	-3,2	-4,2	9,6	8,6	5,2	2,4	3,1	5,8
Margen de utilidad neta (%)	-1,9	-2,5	4,6	5,8	3,8	1,4	1,9	3,5
Rotación de activos totales (veces)	1,00	0,99	1,28	1,03	0,99	1,14	1,07	0,12
Apalancamiento financiero (%)	168,6	171,3	164,8	144,4	138,6	149,4	156,2	13,8
EVA, VMA y EVA/ANO								
EVA (MMU\$)	-63	-50	8	-5	0,3	-16	-21	
ANO (MMU\$)	1.212	1.104	1.002	1.435	1.554	1.243	1.258	
UODI/ANO (%)	2,3	2,8	8,9	8,3	6,4	4,5	5,5	2,8
Ko (%)	7,5	7,3	8,1	8,7	6,5	5,8	7,3	1,0
Utilidad o pérdida residual (%)	-5,2	-4,5	0,8	-0,3	0,0	-1,3	-1,8	2,5
VMA a 1-1-2015 (MMU\$)	-110							
EVA/ANO	-0,05	-0,05	0,01	0,00	0,00	-0,01	-0,02	0,03
Número de empresas	732	737	735	701	695	718	720	

Fuente: Elaboración propia a partir de datos de Damodaran (2021). Nota: MMU\$ denota cifras monetarias en millones de dólares

Los indicadores de efectividad y *EVA* en el período 2015-2020 de la empresa de acero promedio en Estados Unidos de América (EAEUA) se muestran en la Tabla 2, con sus componentes, considerando un promedio de 35 compañías. El *ROE* fue negativo en los dos primeros y último años, arrojando un promedio anual de 2,7%, producto del margen neto (0,9%), que, igualmente, fue negativo en los mismos años, de la rotación de activos (2,08 veces) y del apalancamiento financiero (150,0%), con orientaciones similares de la efectividad, la eficacia y la eficiencia, que fluctúan cada bienio a partir del 2017, después de haber caído en el 2016, y con un apalancamiento financiero que se redujo desde el 2017, después de haber aumentado en el 2016. El menor y mayor *ROE* tuvieron lugar en el 2016 (-17,2%) y 2018 (27,1%); el 2016 fue menos efectivo por ser menos eficaz y el segundo año menos eficiente, y con el mayor apalancamiento financiero, que tuvo impacto negativo; en tanto el 2018 fue más efectivo por haber sido el más eficaz y eficiente. La EAEUA creó *EVA* en cuatro años, pasando de la mayor destrucción en el 2015 (\$-218 MMUS) a la mayor creación de valor en el 2018 (\$140 MMUS) a un descenso del valor creado en los dos últimos años, lo cual dejó como promedio anual \$7 MMUS de *EVA*. Se mantuvo una relación directa con el porcentaje de utilidad o pérdida residual, con crestas baja y alta en los mismos años: 2015 (-15,0%) y 2018 (13,1%), una relación directa con el UODI/ANO con picos bajo y alto en idénticos años: 2015 (-8,2%) y 2018 (22,4%), y una relación positiva con el Ko, excepto en el 2018, con porcentajes extremos en el 2020 (3,8%) y 2018 (9,3%); lo que muestra una mayor afinidad del comportamiento del *EVA* con el indicador UODI/ANO. En el sexenio se destruyó \$-32 MMUS de valor de mercado agregado a 1-1-2015, generando un *EVA* promedio de \$0,01 US por cada dólar invertido en el ANO, cuyo valor más alto fue en el 2018 (\$0,13 US) y el más bajo en el 2015 (\$-0,15 US). El ANO cayó en el primer bienio, luego creció, llegando a un promedio anual de \$1.266 MMUS. Al cotejar los índices *ROE* y UODI/ANO de cada año, se nota que el segundo fue superior, salvo en el 2018-2019 cuando pasó lo contrario, pero siguiendo orientaciones similares a partir del 2017; esta diferencia se explica por el efecto de las actividades no operacionales.

Tabla 2: Indicadores promedio de la EAEUA

Indicador	2015	2016	2017	2018	2019	2020	Promedio	$\Sigma$
Sistema Dupont ampliado								
ROE	-14,1	-17,2	12,2	27,1	18,4	-2,8	2,7	18,1
Margen de utilidad neta (%)	-4,6	-5,7	3,5	7,3	6,0	-1,3	0,9	5,5
Rotación de activos totales (veces)	1,82	1,72	2,31	2,61	2,29	1,70	2,08	0,38
Apalancamiento financiero (%)	167,4	174,8	150,9	141,9	134,5	130,8	150,0	17,8
EVA, VMA y EVA/ANO								
EVA (MMU\$)	-218	-89	62	140	121	29	7	
ANO (MMU\$)	1.457	1.185	1.009	1.072	1.422	1.451	1.266	
UODI/ANO (%)	-8,2	1,0	15,7	22,4	16,3	5,8	8,8	11,4
Ko (%)	6,8	8,5	9,5	9,3	7,8	3,8	7,6	2,1
Utilidad o pérdida residual (%)	-15,0	-7,5	6,2	13,1	8,5	2,0	1,2	10,6
VMA a 1-1-2015 (MMU\$)	-32							
EVA/ANO	-0,15	-0,08	0,06	0,13	0,08	0,02	0,01	0,11
Número de empresas	36	38	37	37	32	32	35	

Fuente: Elaboración propia a partir de datos de Damodaran (2021). Nota: MMU\$ denota cifras monetarias en millones de dólares

### Desempeño Financiero de la Gran Empresa de la Industria de Hierro y Acero en Colombia (Ghac)

De las bases de datos EMIS professional (2021) y Superintendencia de Sociedades (2021) se consiguieron los estados financieros de un promedio de 23 empresas de gran tamaño de la industria de hierro y acero en Colombia con código industrial internacional uniforme CIIU 2410 (DANE, 2020) en el período 2015-2020, distribuidas así: 22 para el 2015; 21 para el 2016; 23 para el 2017 y 2019; 24 para el 2018 y 22 para el 2020. En el anexo se muestran el número de identificación tributaria (NIT) y la razón social y de cada una de ellas.

### Evaluación de la Efectividad

El *ROE* promedio del sexenio fue de -0,09%, que resultó del producto del margen neto (-0,04%), la rotación de activos totales (0,90 veces) y el apalancamiento financiero (239,7%). El *ROE* fue negativo en los primeros y últimos dos años, manteniendo una relación positiva con el margen neto, mientras que la rotación de activos y el apalancamiento financiero variaron, en direcciones diferente entre sí, en casi todos los años. La menor efectividad (-3,8%) se presentó en el 2015 porque fue el año menos eficaz (-1,7%), el tercero menos eficiente (0,88 veces) y el segundo de mayor apalancamiento financiero, que tuvo un impacto negativo; en cambio, la mayor efectividad (4,2%) tuvo lugar en el 2018, porque fue el año más eficaz (1,8%), el segundo más eficiente (0,91 veces), y el de mayor apalancamiento financiero, que tuvo un efecto positivo sobre la efectividad (Tabla 3). Se observa una mayor influencia de la eficacia sobre la orientación de la efectividad, que fue ampliada por el apalancamiento financiero.

Tabla 3: Sistema Dupont Ampliado de la GHAC

Indicador	2015	2016	2017	2018	2019	2020	Promedio	$\sigma$
ROE (%)	-3,8	-2,8	3,3	4,2	-0,1	-1,2	-0,09	3,2
Margen de utilidad neta (%)	-1,7	-1,4	1,7	1,8	-0,03	-0,6	-0,04	1,5
Rotación de activos totales (veces)	0,88	0,91	0,85	0,91	1,04	0,81	0,90	0,08
Apalancamiento financiero (%)	244,6	220,3	233,1	255,9	241,2	242,8	239,7	12,0

Fuente: Elaboración propia con base en Rivera, Martínez y Rodríguez (2023), EMIS professional (2021) y Superintendencia de Sociedades (2021).

### Evaluación del Valor Económico Agregado

La gran empresa promedio colombiana de la industria de hierro y acero destruyó valor económico agregado en cada año, pasando de un valor negativo en el 2015 (\$-3.286 MM) a destruir el mayor valor en el 2017 (\$-14.396 MM), luego fluctuó la destrucción de valor; su promedio anual fue de \$-8.911 MM. El *EVA* no

mantuvo una relación con la UODI, pero si una relación inversa con el cargo de capital, excepto en el 2019 (Tabla 4).

Tabla 4: EVA Promedio Por Empresa de la GHAC y Sus Inductores

Indicador	2015	2016	2017	2018	2019	2020	Promedio	$\sigma$
EVA (MM\$)	-3.286	-14.295	-14.396	-8.292	-8.670	-4.529	-8.911	
UODI (MM\$)	5.285	1.697	5.658	8.478	8.076	3.258	5.409	
Cargo de capital (MM\$)	8.570	15.992	20.055	16.771	16.746	7.787	14.320	
<b>a. Indicadores del inductor UODI</b>								
UAII (MM\$)	7.046	2.263	8.573	12.654	12.054	4.791	7.897	
Impuestos (MM\$)	1.761	566	2.915	4.176	3.978	1.533	2.488	
<b>b. Indicadores del inductor cargo de capital</b>								
ANO (MM\$)	54.300	113.247	141.713	147.436	137.816	105.786	116.716	
Ko (%)	15,8	14,1	14,2	11,4	12,2	7,4	12,5	3,0
<b>c. Inductores del indicador ANO</b>								
KTNO (MM\$)	13.234	40.898	52.389	63.812	59.791	15.037	40.860	
AFNO (MM\$)	41.065	72.349	89.323	83.624	78.025	90.749	75.856	
<b>d. Indicadores del inductor Ko</b>								
Ke <sup>1</sup> (%)	16,9	18,6	21,7	17,6	17,6	8,2	16,8	
Ki <sup>2</sup> (%)	8,0	11,4	9,8	7,8	7,4	6,3	8,4	
L (%)	10,0	44,7	49,6	50,2	43,3	21,4	36,5	
t (%)	25,0	25,0	34,0	33,0	33,0	32,0	30,3	
<b>e. Sistema Dupont del índice UODI/ANO</b>								
UODI/ ANO (%)	9,7	1,5	4,0	5,8	5,9	3,1	5,0	2,9
UODI/Ventas (%)	3,4	1,1	3,2	4,1	3,4	1,6	2,8	
Ventas/ANO (veces)	2,88	1,40	1,26	1,42	1,72	1,90	1,76	
<b>f. Utilidad o pérdida residual</b>								
Utilidad residual (%)	-6,1	-12,6	-10,2	-5,6	-6,3	-4,3	-7,5	3,2
<b>g. Valor del mercado agregado</b>								
VMA a 1-1-2015 (MM\$)	-34.978							
<b>h. EVA de la inversión</b>								
EVA/ANO	-0,06	-0,13	-0,10	-0,06	-0,06	-0,04	-0,08	0,03

Fuente: Elaboración propia basándose en Rivera, Martínez y Rodríguez (2023), Superintendencia de Sociedades (2021), EMIS professional (2021) y Damodaran (2021). Notas: MM\$ expresa cifras en millones de COP. 1 en Rivera & Alarcón (2012, p. 92) se presenta información para su cálculo. 2 tasa promedio anual de crédito corporativo de la Superintendencia Financiera de Colombia (2021).

La UODI siempre fue positiva conservando una relación directa con la utilidad operacional y el impuesto. Sus medias anuales fueron respectivamente \$5.409 MM, \$7.897 MM y \$2.488 MM (parte a. de la Tabla 4).

El cargo de capital mantuvo similar orientación a la del ANO, salvo 2018, que fue subir en los primeros años y descender en los últimos, pero difiere con el Ko que fluctuó todos los años. Las medias anuales del cargo de capital, ANO y Ko fueron de \$14.320 MM, \$116.716 MM y 12,5% (parte b de la Tabla 4). El comportamiento del ANO fue semejante al del KTNO, pero no al del AFNO, que varió cada dos años hasta el 2019. El KTNO y el AFNO representaron respectivamente el 35,0% y el 65,0% del ANO; las medias anuales del KTNO y del AFNO fueron de \$40.860 MM y \$75.856 MM (parte c de la Tabla 4).

El Ko no siguió la orientación de alguno de sus factores en particular, sino fue una combinación de sus comportamientos. Ke y Ki varían cada bienio, el segundo a partir del 2017; L aumentó hasta el 2018, luego disminuyó; y t varió con diferentes frecuencias y con algunos años estables. El Ko más alto (15,8%) se presentó en el 2015, justo cuando L (10,0%) y t (25,0%) fueron menores; contrario a lo sucedido en el 2020 donde se presentó el menor Ko (7,4%), precisamente cuando Ke (8,2%) y Ki (6,3%) fueron los más bajos del sexenio. Los inductores del Ko presentaron los siguientes promedios: Ke = 16,8%, Ki = 8,4%, L = 36,5% y t = 30,3% (parte d. de la Tabla 4). El indicador UODI/ANO disminuyó al inicio y final del periodo, aumentando en el interludio, sin tener una relación con el EVA; siguió la tendencia del indicador UODI/ventas, pero no la del indicador ventas/ANO, que cayó hasta el 2017, para luego aumentar; mostrando que cuando se examina únicamente las actividades operativas, el comportamiento de la

efectividad en lograr utilidades están más influenciado por la eficacia en el monitoreo de costos-gastos operativos que por la eficiencia en el uso de ANO. El mayor índice UODI/ANO (9,7%) tuvo lugar en el 2015, producto del segundo mayor indicador UODI/ventas (3,4%) y del mayor indicador ventas/ANO (2,88 veces), lo que contribuyó a destruir el menor *EVA* en el período; en contraste, en el 2016 se presentó la menor UODI/ANO (1,5%) resultado del menor UODI/ventas (1,1%) y el segundo menor indicador ventas/ANO (1,40 veces) del período, lo que contribuyó a la segunda mayor destrucción del *EVA*. Los promedios de UODI/ANO, UODI/ventas y ventas/ANO fueron respectivamente 5,0%; 2,8% y 1,76 veces (parte e de la Tabla 4).

El porcentaje de utilidad residual mantuvo una relación directa con el indicador UODI/ANO hasta el 2018, y con el *EVA* todo el sexenio, salvo en el 2017. El porcentaje promedio de la pérdida residual (-7,5%) fue resultado de la diferencia entre los promedios del UODI/ANO (5,0%) y del Ko (12,5%). El mayor y menor porcentaje de pérdida residual tuvo lugar respectivamente en el 2016 (-12,6%) y en el 2020 (4,3%), donde no precisamente se destruyó el menor o menor *EVA*, porque también influyó la inversión en ANO. Además, el mayor porcentaje de pérdida residual estuvo ligado con el menor UODI/ANO, mientras que el menor porcentaje de pérdida residual ocurrió cuando el Ko llegó a su menor valor. La gran empresa de la industria colombiana de hierro y acero a 01.01.2015 destruyó un valor de \$-34.978 MM durante 2015-2020, que corrobora los resultados negativos promedios anuales de los indicadores contables, como el *ROE* y el margen de pérdida neta (Tabla 3 y parte g de la Tabla 4). El *EVA* promedio destruido por cada peso colombiano invertido en el ANO fue de \$-0,08, siendo mayor en el 2017 (\$-0,13) y menor en el 2020 (\$-0,04), como se observa en la parte h de la Tabla 4.

## RESULTADOS

En este apartado se comparan los principales indicadores de desempeño de la gran empresa de la industria de hierro y acero en Colombia (GHAC) con los de la empresa de acero en el ámbito global (EAG) y en los Estados Unidos de América (EAEUA).

### Crecimiento

La inversión en ANO aumentó en la GHAC y en la EAG, mientras en la EAEUA disminuyó, las tres con altibajos, aunque con orientación diferente en la GHAC (Tablas 1, 2 y 4).

### Efectividad

El *ROE* anual fue negativo en cuatro, tres y dos años respectivamente en la GHAC, la EAEUA y la EAG, que oscilaron con orientaciones y frecuencias no tan afines. Al confrontar el *ROE* promedio de la GHAC (-0,09%) con el de la EAEUA (2,7%) y el de la EAG (3,1%), y la dispersión del *ROE* de la GHAC (3,2%) con la de la EAEUA (18,1%) y la de la EAG (5,8%), se encontró que la efectividad de la GHAC fue menor a la de la empresa internacional, pero con menor riesgo, mientras que la efectividad de la EAG fue la mayor, con riesgo intermedio. Al descomponer el *ROE* se halló una mayor afinidad de su comportamiento con el margen neto en la GHAC, pero también con la rotación de activos en la EAG y en la EAEUA. Al comparar el promedio del margen neto de la GHAC (-0,04%) con el de la EAEUA (0,9%) y el de la EAG (1,9%), y la desviación estándar de este margen de la GHAC (1,5%) con la de la EAEUA (5,5%) y la de la EAG (3,5%) se encontró que la eficacia de la GHAC fue inferior, pero con más estable, seguida de la EAEUA y de la EAG que mostraron en su orden una mayor eficacia, aunque con un riesgo más alto en la EAEUA. Entre tanto, la rotación de activos fue en promedio de 0,90 veces en la GHAC, de 2,08 veces en la EAEUA y de 1,07 veces en la EAG, y con una desviación de 0,08 veces en la GHAC, de 0,38 veces en la EAEUA y de 0,12 veces en la EAG; lo que significa que la eficiencia fue más baja en la GHAC, y con una mayor estabilidad, seguida de la EAG, con una estabilidad intermedia, quedando la EAEUA como la más eficiente, pero más inestable. Mientras que el apalancamiento financiero estuvo alrededor de un 239,7% en la GHAC,

de un 150,0% en la EAEUA y de un 156,2% en la EAG, con una desviación estándar de 12,0% en la GHAC, de 17,8% en la EAEUA y de 13,8% en la EAG, mostrando que la GHAC utiliza una mayor proporción de deuda, pero con menor dispersión, seguida de la EAG, que tiene una dispersión intermedia, quedando la EAEUA con un menor uso del pasivo, y de manera menos dispersa (Tablas 1, 2 y 3).

### Valor Económico Agregado

La empresa promedio de los tres grupos destruyeron valor en seis, cuatro y dos años en la GHAC, la EAG y la EAEUA respectivamente; la orientación descendente del primer trienio y fluctuante del segundo trienio del *EVA* de la GHAC fue contraria a la de la EAG y diferente a la tendencia creciente en primer cuatrienio y decreciente en el último bienio de la EAEUA (Tablas 1, 2 y 4); además, el VMA en el sexenio con valores a 1-1-2015 fue negativo para las tres agrupaciones: GHAC (\$-34.978 MM), EAG (\$-110 MMUS) y EAEUA (\$-32 MMUS). Al revisar los inductores del *EVA* se encontró que el promedio del UODI/ANO de la GHAC (5,0%) fue inferior al de la EAG (5,5%) y al de la EAEUA (8,8%), con dispersión intermedia en la GHAC ( $\sigma = 2,9\%$ ), que supera la de la EAG ( $\sigma = 2,8\%$ ), pero que fue superado por la de la EAEUA ( $\sigma = 11,4\%$ ); mientras que el promedio del Ko de la GHAC (12,5%) fue mayor que el de la EAEUA (7,6%) y que el de la EAG (7,3%), pero con una mayor dispersión en la GHAC ( $\sigma = 3,0\%$ ) comparado con la de la EAEUA ( $\sigma = 2,1\%$ ) y con la de la EAG (1,0%), lo que evidenció que la GHAC fue menos eficaz en la gestión de gastos-costos operativos y financieros. Por lo tanto, se presentó un porcentaje de pérdida residual promedio en la GHAC (-7,5%), que fue superior al de la EAG (-1,8%) y solo en la EAEUA (1,2%) se logró un porcentaje de utilidad residual promedio; este porcentaje residual tuvo una dispersión intermedia en la GHAC ( $\sigma = 3,2\%$ ) por encima de la de la EAG ( $\sigma = 2,5\%$ ), pero por debajo de la presentada en la EAEUA ( $\sigma = 10,6\%$ ). Adicionalmente, se halló que la inversión en ANO dejó un *EVA* promedio fue de \$-0,08 en la GHAC, que fue inferior a las obtenidas por la EAG (\$-0,02) y por la EAEUA (\$0,01).

## **CONCLUSIONES**

Entre el 2015 y 2020 la gran empresa de la industria colombiana de hierro y acero incrementó el ANO, como, también, sucedió en la EAG, aunque contrario a la EAEUA, que decreció; las tres con fluctuaciones, pero con sentido diferente en al GHAC. El *ROE* anual de la gran empresa de la industria de hierro y acero en Colombia fue negativo en cuatro años, también fue negativo en tres y dos años respectivamente en las empresas equivalentes en el mundo global y de Estados Unidos de América; su promedio fue negativo, contrario al presentado en el país norteamericano y en el de la economía global que fueron positivos, con superioridad en el último; pero con una dispersión menor a la de la EAG y mucho más baja a la de la EAEUA, con lo que se demuestra su menor efectividad en obtener utilidades para los inversionistas, aunque con mayor estabilidad. El comportamiento del *ROE* de la gran empresa de la industria de hierro y acero en Colombia estuvo más ligado a la orientación del margen neto, mientras que, en las empresas afines foráneas también influyó el comportamiento de la rotación de activos; aunque la eficacia y la eficiencia fueron inferiores en la gran empresa colombiana. El mayor apalancamiento financiero negativo contribuyó a reducir la efectividad de una forma más amplia que las compañías foráneas.

La gran empresa de la industria de hierro y acero Colombia no creó *EVA* en algún año, mientras en las empresas análogas en el medio global y Norteamérica se creó en dos y cuatro años respectivamente; esto llevó a que el VMA en el sexenio de los tres grupos fuera negativo. El comportamiento del *EVA* de la GHAC no mantuvo una relación con el rendimiento después de impuesto del activo neto operacional; el promedio de este rendimiento fue inferior al reportado por la empresa afín internacional, que, además de su mayor del costo de capital promedio, hizo que el porcentaje de pérdida residual promedio fuera más alto que el de la EAG, contrario a la EAEUA que logró un porcentaje de utilidad residual promedio. El *EVA* promedio que dejó cada unidad monetaria invertida en ANO por parte la gran empresa de la industria de hierro y acero en Colombia fue de \$-0,08, inferior a los conseguidos por sus referentes externos. Esta

investigación podría complementarse con grupos de empresas semejantes en cuanto a sus edades, estructura jurídica, etapas de su ciclo de vida y localidades.

#### Anexo. Empresas Grandes del Sector Hierro y Acero

Nit	Razón Social	Nit	Razón Social
800011987	Tenaris tubocaribe Ltda.	860515694	Asociados RC S.A.S.
800021013	Centro aceros S.A.S.	860525547	Proveedores y asesores técnicos Ltda.
800066320	Compañía comunitaria metalmecánica Ltda.	890100814	Impuche S.A.
800240061	Acinox S.A..	890308155	Fundiciones universo S.A.
804008388	Forjados S.A.	890333023	Siderúrgica del occidente S.A.S.
811036755	Laminados y derivados S.A.	890333070	aluminios onava S.A.S.
817002926	Perfilamos del cauca S.A.S.	890804199	Proalco S.A.S.
826002803	Metales y procesos del oriente S.A.	890926580	Productos confort S.A.
830016305	Manufacturas metálicas J & J Ltda.	891800111	Diaco S.A.
830026187	Multimallas Ltda.	891856506	Productora de alambres S.A.
830043252	Sidenal S.A.	900104899	Perfiaceros de Colombia S.A.S.
830071377	Tornillos edual S.A.S.	900174468	Ternium siderúrgica de Caldas S.A.S.
830080779	Mundial de perfiles Ltda	900205377	Comercializadora agrohierros S.A.
830085294	Aceros inoxidables S.A.	900216225	Soldaduras west arco S.A.S.
830098290	Industria colombiana de perfiles metálicos S.A.	900311868	Knight S.A.S.
860000332	Lincoln soldaduras de Colombia Ltda.	900331409	Servimeca industrial S.A.S.
860001899	Corpacer S.A.S.	900362589	Seracer S.A.S.
860002291	Empresa colombiana de cables S.A.S.	900523201	Liners de Colombia S.A.S.
860002459	Consortio metalúrgico nacional S.A.S.	900570383	Aceros turia de Colombia S.A.S.
860007668	Alambres y mallas S.A.	900601327	Grupo siderúrgico Reyna S.A.S.
860066264	Thyssenkrupp steel Colombia S.A.S.	900627121	Deacero colombia S.A.S.
860069182	Compañía general de aceros S.A.	900803732	Mallas tocancipa S.A.S.
900946218	Armetal de colombia S.A.S.	901131909	Ternium del atlántico S.A.S.

Fuente: Elaboración propia con base en Rivera, Martínez y Rodríguez (2023), EMIS professional (2021) y Superintendencia de Sociedades (2021). Nota: Se tomaron las empresas con activos superiores a los 30.000 salarios mínimos legales, conforme al artículo 2 de la Ley 905 de 2004 (Congreso de Colombia, 2004).

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# FACTORES CRÍTICOS DE ÉXITO DE LAS ASOCIACIONES PÚBLICO-PRIVADAS (APP) EN PROYECTOS DE INFRAESTRUCTURA: PERCEPCIÓN DE EXPERTOS

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## RESUMEN

*Las Asociaciones Público Privadas, APP, se refieren a acuerdos legales entre el sector público y privado para la provisión de infraestructura y de servicios públicos (Grimsey y Lewis, 2004). Los Factores Críticos de Éxito son áreas clave de actividad en las que los resultados son esencialmente necesarios para alcanzar las metas (Rockart, 1982). El propósito de este artículo es identificar los Factores Críticos de Éxito que contribuyen a la sostenibilidad de los proyectos de APP en infraestructura desde el modelo propuesto por Li (2003).*

**PALABRA CLAVES:** Asociaciones Público-Privadas, APP, Factores Críticos de Éxito, Proyectos de Infraestructura

## CRITICAL SUCCESS FACTORS OF PUBLIC-PRIVATE PARTNERSHIPS (PPPS) IN INFRASTRUCTURE PROJECTS: EXPERT PERCEPTION

## ABSTRACT

*The Public-Private Partnership, PPP, refers to legal agreements between the public and private sectors for the provision of infrastructure and public services (Grimsey and Lewis, 2004). Critical Success Factors are key areas of activity in which results are essentially necessary to achieve the goals (Rockart, 1982). The purpose of this article is to identify the Critical Success Factors that contribute to the sustainability of APP projects in infrastructure from the model proposed by Li (2003).*

**JEL:** H76; H77; H83; L33; M19; O22.

**KEYWORDS:** Public-Private Partnership, Ppp, Critical Success Factors, Csf, Infrastructure Projects

## INTRODUCCIÓN

La Comisión Económica para América Latina y el Caribe, CEPAL (2016), sitúo la inversión pública en infraestructura de los países de América Latina y el Caribe por debajo del 2% del Producto Interno Bruto (PIB). De igual manera, el Banco Interamericano de Desarrollo, BID (2019) concluyó que es necesaria una inversión mínima del 6% del PIB para solucionar los déficits de infraestructura y de prestación de servicios públicos. Ante este escenario, varios países, entre ellos Colombia, consideró de suma importancia la participación privada en proyectos de infraestructura. Por ello, hace 10 años se creó la Ley 1508 de 2012 que introdujo el régimen de las Asociaciones Público Privadas (APP), la cual ha permitido el desarrollo conjunto de proyectos de infraestructura y como consecuencia, el crecimiento y desarrollo del sector (García-Kilroy y Rudolph, 2017). Numerosas investigaciones en países desarrollados han demostrado que las Asociaciones Público Privadas además de aportar al crecimiento y desarrollo del sector

infraestructura, conlleva otros beneficios tales como: recursos financieros con intereses y plazos muy favorables, el desarrollo de innovaciones tecnológicas y altos retornos financieros para el sector privado, entre otros (Alborta, Stevenson y Triana, 2011).

Dado el auge de las APP en países desarrollados, identificar los Factores Críticos de Éxito (FCE) ha sido de interés creciente en la literatura (Ke, et al., 2009, Tang, et al., 2010). Sin embargo, se evidencian pocas investigaciones que identifican los Factores Críticos de Éxito en América Latina y el Caribe (Osei-Kyei y Chan, 2015). Por lo tanto, el propósito de este artículo es identificar los Factores Críticos de Éxito que contribuyan a la sostenibilidad financiera, social, ambiental e institucional de las APP en infraestructura en Colombia. Inicialmente, se presenta una revisión de la literatura sobre las Asociaciones Público Privadas y sobre los Factores Críticos de Éxito. Luego, se describe la metodología utilizada en esta investigación y se presentan sus resultados. Posteriormente, éstos son comparados y contrastados con los resultados de estudios anteriores realizados en otras latitudes. Finalmente, se presentan las conclusiones de esta investigación.

## REVISIÓN DE LITERATURA

Con el propósito de describir el estado del arte en el área del conocimiento, se presenta a continuación la revisión de la literatura sobre las Asociaciones Público Privadas y los Factores Críticos de Éxito en infraestructura.

### Asociaciones Público Privadas (App)

Numerosos estudios sobre APP se encuentran en la literatura; entre ellos, investigaciones sobre evaluación, gestión y transferencia de riesgos, opciones, principios y modelos de financiación, *Management* y estudios de revisión. Sobre evaluación, gestión y transferencia de riesgos de APP Ameyaw y Chan (2016) describen un marco de análisis para la evaluación y asignación de riesgos; Arve y Martimort (2016) caracterizan lo que consideran “un contrato dinámico óptimo” para un servicio a largo plazo cuando un complemento incierto es requerido más adelante; Cheung (2009) da a entender los riesgos de APP en proyectos de capital; Grimsey y Lewis (2002) y Meidute y Paliulis (2011) resaltan la necesidad de un marco legal apropiado para reducir, entre otros factores, el riesgo contractual en la implementación de las APP; y Li, et al. (2005b) señalan la importancia de la asignación de riesgos en las primeras etapas del proyecto.

Sobre opciones, principios y modelos financieros aplicables a las APP Agrawal, et al. (2011) establecen las causas de los problemas de financiación; Ashuri y Mostaan (2015) señalan los factores sobre los cuales depende la participación del inversionista privado en una APP; Benkovic, et al. (2010) y Chinyere y Xu (2012) exponen las razones que explican el aumento de los gastos de capital y la inversión; De Schepper, et al. (2015) y Deng et al. (2016) ofrecen una evaluación sistemática de la magnitud de los costos de transacción en la entrega de infraestructura pública y del efecto de la transferencia de conocimiento. Grimsey y Lewis (2005) y Siemiatycki y Farooqi, (2012) revisan aproximaciones teóricas y prácticas sobre la estructuración y evaluación de proyectos APP en relación con su *Value for Money*; Martin, et al. (2013) identifican mejores prácticas de financiamiento de proyectos APP en transporte a nivel internacional y Siemiatycki (2009, 2011a, 2011b, 2013) estudia la geografía global de inversión de proyectos APP, la alineación de los beneficios del modelo con las experiencias reales y las relaciones de las redes de negocio entre el sector público y privado.

Sobre *Management* en las APP Cruz y Marques (2011) aportan elementos sobre el concepto de Flexibilidad Contractual en el desarrollo de proyectos APP bajo incertidumbre. Edelenbos y Klijn (2009) establecen la relación entre el estilo de gestión basada en la gestión de procesos y el estilo propio de los proyectos APP. Greve (2007, 2010, 2013) y Andrews y Entwistle, (2015) reflexionan sobre los cambios de modelo en el servicio público, basados en los conceptos de Nueva Gestión Pública, Competencia Regulada y Capacidad

de Gestión. Currie y Teague (2016) analizan los sistemas de gestión de conflictos en la operación de un proyecto de APP en Londres; Greve y Hodge (2011, 2012) realizan observaciones acerca de la implementación del concepto de Transparencia en los proyectos APP. Adicionalmente se encuentran estudios de revisión de literatura en APP como los realizados por Tang, et al. (2010), Osei-Kiey y Chan (2015), ke, et. al., (2009), Bel, et al., (2013). En el caso específico de Tang, et al. (2010) se realiza un estudio de revisión de literatura en las principales revistas académicas de la industria de la construcción, clasificando las investigaciones en APP en empíricas y no empíricas, en los temas de administración del riesgo, *Risk Allocation*, financiamiento y los *Factores Determinantes* de las relaciones entre el sector público y privado.

### Factores Críticos de Éxito (FCE) de APP

El concepto Factor Crítico de Éxito fue utilizado por primera vez en el marco de la gestión de proyectos Rockart (1982), quien los definió como áreas clave de actividad en las que los resultados son absolutamente necesarios para alcanzar las metas. Numerosos estudios sobre Factores Críticos de Éxito, FCE, se encuentran en la literatura; entre los más destacados Hammami (2006) y Sharma (2012) que identifican los factores determinantes del éxito de las APP en países desarrollados a nivel mundial de acuerdo con la base de datos del Banco Mundial; Mota y Moreira (2015) en Europa resaltan la importancia de los siguientes FCE en proyectos de APP: un ambiente macroeconómico y político sólido, un fuerte sistema legal y el conocimiento de experiencias previas. Domínguez y Miranda (2016) y Cruz y Marques (2013a) investigan FCE endógenos relacionados con la renegociación de contratos, por ejemplo, la inclusión de acuerdos de riesgo compartido, cláusulas de terminación y de equilibrio económico e indicadores de desempeño. Franco y Quintela (2013) identifican FCE en el sector ecoturístico en Portugal, como el poder de la verdad y el compromiso de los participantes con los objetivos de la Alianza y la comunicación con los Stakeholders.

Chan et al. (2010) y Meng, et al., (2011), encuentran en China FCE de APP tales como: los tiempos en la negociación, un ambiente macroeconómico, social y político estable, la rentabilidad del proyecto, una distribución justa de riesgos, responsabilidad compartida entre el sector público y privado, procesos de adquisición transparentes y eficientes y un fuerte control y supervisión por parte del sector público. En Australia, según Wilson (2009) un FCE clave es la calidad de las relaciones entre operadores turísticos; para Jefferies, et al., (2002), un sólido consorcio privado con amplia experiencia, alto perfil y buena reputación alineado con lo expuesto por Zhang (2005b), acerca de la importancia de la selección del privado para el éxito de un proyecto APP. En los Emiratos Árabes Unidos, Al-Saadi y Abdou (2016) y Dulaimi, et al. (2010), identifican los FCE como: disponibilidad de marco regulatorio, la distribución justa de riesgos, un resumen ejecutivo claro de proyecto, un sólido soporte político y un fuerte consorcio privado. Hwang, et al. (2013) en Singapur, reconocen a FCE como la organización de la agencia pública, la asignación y distribución de riesgos y un fuerte consorcio privado. En África, Dada y Oladokun (2012) establecen un “gap” entre las percepciones de FCE del sector público y privado en Nigeria. Kahwajian, et al. (2014) subraya el nivel de preparación del sector, la naturaleza del servicio y la disponibilidad de requerimientos de trabajo como FCE para proyectos APP en Siria. Dadas estas investigaciones, es importante resaltar la identificación de FCE como el paso inicial hacia el desarrollo de un protocolo viable y eficiente para proyectos APP (Zhang 2005a). A la fecha, no existe evidencia en la literatura que identifique los FCE que contribuyan a la sostenibilidad financiera, social, ambiental e institucional de los proyectos APP en Colombia, por lo tanto, el propósito de esta investigación es el de identificar estos factores teniendo como referente el modelo propuesto por Li (2003).

### **METODOLOGÍA**

El método de investigación de Li (2003) ampliamente usado en numerosos estudios en distintos continentes se usó como referente para esta investigación en el contexto de los proyectos APP en Colombia. Esta investigación de tipo cualitativa estuvo apoyada en un proceso circular alrededor de la Revisión de la

Literatura existente. Se lograron identificar los Factores Críticos de Éxito (FCE) de los proyectos APP en Colombia a través de la aplicación de entrevistas a 30 expertos de alta responsabilidad directiva y gerencial quienes han participado en distintas fases del ciclo de vida de proyectos APP; entre ellos ponentes de la Ley 1508 de 2012, expertos en APP de la Academia, directores de entidades públicas nacionales y expertos en APP del sector privado, de la banca, de concesiones viales, de entidades gremiales y firmas consultoras. El método de Li (2003) propone un rango de percepción de la importancia de cada factor sobre el éxito del proyecto en una escala de cero (0) a cinco (5), donde 0 “No Aplica”; 1 “No es significativo”; 2 “Poco significativo”; 3 “Significativo”; 4 “Muy significativo” y 5 “Extremadamente Significativo” Luego, aplicando el Índice de Significancia propuesto por Zhang (2005a), se convierte la escala de inicial de 5, 4, 3, 2, 1, 0 propuesta por Li (2003) a otra escala de 100, 80, 60, 40, 20 y 0 por medio de la Ecuación 1.

Ecuación 1: Índice de Significancia

$$S_i = \frac{R_{i0} \times 0 + R_{i1} \times 20 + R_{i2} \times 40 + R_{i3} \times 60 + R_{i4} \times 80 + R_{i5} \times 100}{R_{i0} + R_{i1} + R_{i2} + R_{i3} + R_{i4} + R_{i5}} = \frac{20R_{i1} + 40R_{i2} + 60R_{i3} + 80R_{i4} + 100R_{i5}}{R_{i0} + R_{i1} + R_{i2} + R_{i3} + R_{i4} + R_{i5}}$$

(1)

Fuente: Zhang (2005a)

Donde:

$S_i$  = Índice de Significancia

$R_i$  = Número de percepciones por escala de cero (0) a cinco (5)

## RESULTADOS

27 Factores Críticos de Éxito fueron identificados y valorados por los expertos en Colombia según su grado de percepción y ordenados de mayor a menor en una escala de cero (0) a cien (100) según el Índice de Significancia tal como se ilustra en la Tabla 1.

Los Índices de Significancia ( $S_i$ ) de los FCE en Colombia se ubican en un rango de percepción entre 67,33 y 97,93. La transparencia en el proceso de contratación y la autoridad compartida entre el sector público y privado se consolidan como el FCE de mayor y menor nivel de percepción en Colombia. Los FCE identificados se pueden agrupar en tres categorías: Técnicos, Legales y Financieros, tales como un favorable marco legal y contractual, una rigurosa estructuración técnica y adecuada asignación de riesgos y la disponibilidad de fuentes de financiación. Aparte de estos factores, los expertos entrevistados señalaron también como FCE la necesidad de cambiar la mentalidad en el sector público y privado, pasando de la obra pública tradicional al modelo de Asociación Público Privada, APP, establecer las APP en las regiones y municipios empoderando a las comunidades, dedicar el tiempo necesario a la estructuración de los proyectos, seleccionar un consorcio privado con conocimiento, probo y transparente, fortalecer la supervisión en la ejecución de los proyectos ante los cambios permanentes de funcionarios técnicos en el sector público, distribuir equilibradamente cargas y beneficios entre el sector público y privado y garantizar la sostenibilidad financiera, ambiental, social e institucional de estos proyectos.

En síntesis, los FCE de las APP en Colombia se fundamentan en *la cultura del bien general sobre el particular*, siendo necesarias la rentabilidad económica y social, condiciones necesarias para lograr el apoyo social de los agentes sociales y de la comunidad y así garantizar la sostenibilidad financiera, social, ambiental e institucional de los proyectos.

Tabla 1: Índices de Significancia de FCE en Colombia

No.	FACTORES CRÍTICOS de ÉXITO (FCE)	ÍNDICE de SIGNIFICANCIA S <sub>i</sub>
1	Transparencia en el proceso de contratación.	97,93
2	Un contrato bien definido.	96,80
3	Apropiada asignación de riesgos.	96,67
4	Rigurosa factibilidad técnica del proyecto.	96,00
5	Disponibilidad y efectividad de un marco legal y regulatorio para este tipo de proyectos.	96,00
6	Agencias públicas organizadas y comprometidas.	96,00
7	Mecanismos claros de solución de conflictos.	95,20
8	Mercados financieros disponibles y accesibles.	94,67
9	Compromiso y responsabilidad de los sectores público y privado.	94,67
10	Ambiente macroeconómico estable y fuerte.	94,00
11	Un fuerte estudio de viabilidad de negocio.	94,00
12	Mecanismos claros de terminación anticipada del contrato.	93,60
13	Apropiada gestión de cadena de valor durante las diferentes fases del proyecto.	93,33
14	Buena gobernanza del sector público.	93,33
15	Un fuerte y eficiente consorcio privado.	92,67
16	Apoyo social de los agentes sociales y comunidad.	92,67
17	Una política económica sólida.	91,33
18	Una remuneración justa al privado.	91,20
19	La cultura del bien general sobre el particular.	89,60
20	Una realista evaluación costo-beneficio.	88,00
21	Proceso de contratación con pluralidad de oferentes.	88,00
22	Apoyo y estabilidad política.	84,00
23	Buenas relaciones y entendimiento entre las partes.	81,60
24	Garantías del gobierno al consorcio privado.	80,67
25	Oportunidades para la innovación.	71,33
26	Efectivos mecanismos de transferencia tecnológica.	68,97
27	Autoridad compartida entre el público y el privado.	67,33

En esta Tabla se muestran los 27 factores críticos de éxito que fueron identificados y valorados por los expertos en Colombia según su grado de percepción y ordenados de mayor a menor en una escala de cero (0) a cien (100) según el Índice de Significancia. Fuente: elaboración propia.

Mientras para Colombia la transparencia en la contratación, un contrato bien definido y una apropiada asignación de riesgos son los principales FCE para proyectos APP; para otros países los FCE más importantes son un ambiente macroeconómico y político estable y un fuerte consorcio privado. No obstante, los FCE de proyectos APP en Colombia se asemejan a los de otros países en cuanto a una rigurosa factibilidad técnica y viabilidad de negocio como resultado de un mayor conocimiento y experiencia en preparación y gestión de proyectos, la disponibilidad de un mercado financiero y una efectiva gestión de relaciones entre el sector público y privado con un compromiso decidido del sector público con las distintas fases del ciclo de desarrollo de los proyectos APP. Las percepciones de los expertos de alta responsabilidad directiva y gerencial del sector público y privado de Colombia difieren notablemente. Mientras para los expertos del sector público los FCE se relacionan con la transparencia en la contratación, un contrato bien definido y mecanismos claros de solución de conflictos; para los expertos del sector privado, los FCE son agencias públicas organizadas y comprometidas y disponibilidad de mercados financieros y de un marco

regulatorio para proyectos APP. Solo “una rigurosa factibilidad técnica del proyecto” es considerado por ambos, como un FCE extremadamente significativo para el éxito de los proyectos APP en Colombia. Así mismo, coinciden en señalar las garantías al consorcio privado, la autoridad compartida entre los sectores público y privado, los efectivos mecanismos de transferencia tecnológica y las oportunidades para la innovación como FCE poco significativos para el éxito de proyectos APP en Colombia.

## CONCLUSIONES

La Ley 1508 de 2012 que introdujo el régimen de las Asociaciones Público Privadas (APP) en Colombia, junto con sus decretos reglamentarios, son el marco legal que ha permitido el desarrollo conjunto de proyectos de infraestructura y como consecuencia el crecimiento y desarrollo del sector. Ante el creciente desarrollo y dinamismo de proyectos APP en infraestructura en Colombia, la identificación de los FCE se considera absolutamente necesario para lograr la sostenibilidad de los proyectos APP en el tiempo. Por lo tanto, este estudio pretendió identificar los FCE para proyectos APP en infraestructura teniendo como referente el instrumento de Li (2003), ampliamente utilizado en numerosas investigaciones. Las percepciones de los 30 expertos en APP con alta responsabilidad directiva y gerencial, identifican 27 Factores Críticos de Éxito. De éstos, los de mayor nivel de significancia son: la transparencia en el proceso de contratación, un contrato bien definido, una apropiada asignación de riesgos, una rigurosa factibilidad técnica y la disponibilidad y efectividad de un marco legal y regulatorio.

Mientras en Colombia los principales FCE son: la transparencia en la contratación, un contrato bien definido y una adecuada asignación de riesgos; para otros países los FCE son: un ambiente macroeconómico y político estable y un fuerte consorcio privado. Son FCE comunes tanto en Colombia como en otros países, una rigurosa factibilidad técnica, la disponibilidad de un mercado financiero y el compromiso del sector público en todas las fases del proyecto. Para los expertos del sector público los FCE de proyectos APP en Colombia son la transparencia en la contratación y un contrato bien definido; mientras para los expertos del sector privado, los FCE corresponden a la organización y el compromiso de las agencias públicas, la disponibilidad de mercados financieros y un marco regulatorio.

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## RECONOCIMIENTO

Los autores expresan formalmente su reconocimiento a los expertos y personas claves de los sectores público y privado que participaron en las sesiones de entrevistas para esta investigación.

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# INTERNAL AND EXTERNAL LOCUS CONTROL, FACTORS THAT INFLUENCE UNIVERSITY ENTREPRENEURIAL INTENTION

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## RESUMEN

*El estudio contempla una muestra de 764 estudiantes universitarios del Instituto Tecnológico de Sonora (ITSON) en la región noroeste de México. El objetivo principal del estudio es analizar el efecto directo del locus control interno y externo en la intención emprendedora de los estudiantes universitarios del ITSON. Para la recolección de los datos se utilizó una encuesta estructurada y suministrada a través de google forms (online) durante el periodo de agosto a diciembre del año 2021. La técnica estadística utilizada para el análisis de los datos fue el método SEM (System Equation Model) con la técnica Partial Least Square (PLS-SEM) con apoyo del software SmartPLS versión 4. Los resultados exponen que el locus control interno es el que más influye en la intención emprendedora de los universitarios. Además, se encontraron diferencias significativas en el locus control externo y las intenciones emprendedoras con respecto al género. Estos resultados contribuyen al desarrollo de la teoría social cognitiva y de la teoría del comportamiento planeado.*

**JEL:** M13, B3

**PALABRAS CLAVE:** Locus Control, Autoeficacia, Perfil de Personalidad y Emprendimiento

## EL LOCUS CONTROL INTERNO Y EXTERNO, FACTORES QUE INFLUYEN EN LA INTENCIÓN EMPRENDEDORA UNIVERSITARIA

## ABSTRACT

*The study contemplates a sample of 764 university students from the Technological Institute of Sonora (ITSON) in the northwestern region of Mexico. The main objective of the study is to analyze the direct effect of internal and external locus control on the entrepreneurial intention of ITSON university students. For data collection, a structured survey provided through google forms (online) was used during the period from August to December 2021. The statistical technique used for data analysis was the SEM method (System Equation Model ) with the Partial Least Square (PLS-SEM) technique with the support of the SmartPLS version 4 software. The results show that the internal locus control is the one that most influences the entrepreneurial intention of university students. In addition, significant differences were found in external locus control and entrepreneurial intentions with respect to gender. These results contribute to the development of social cognitive theory and the theory of planned behavior.*

**KEY WORDS:** Locus Control, Self-Efficacy, Personality Profile and Entrepreneurship

## INTRODUCCIÓN

Desde diferentes teorías el emprendimiento ha sido estudiado con mayor fuerza desde inicios del siglo pasado. Por lo general este fenómeno se ha investigado desde la disciplina de la psicología y de negocios

(Drucker, 2014; Schumpeter, 2000). El desarrollo del emprendimiento, tiene retos y obstáculos, siendo los factores internos y externos los que inciden en esta acción humana de manera más determinante (De Carolis & Saparito, 2006). Por lo tanto desde la perspectiva psicológica la Teoría Social Cognitiva (TSC) se ha encargado de analizar los factores internos y externos que afectan el comportamiento y la conducta del individuo, estos factores se han conceptualizados globalmente como el locus control (Bandura, 2001; Brandstätter, 2011). El locus control se caracteriza por ser un factor constante que refleja las creencias individuales sobre el grado en que las consecuencias de un fenómeno está o no incidiendo en las metas y acciones establecidas (Littunen, 2000). En definitiva los factores internos y externos están correlacionados fuertemente. Sin embargo, de acuerdo con la Teoría del Comportamiento Planeado (TCP) expuesta por Ajzen (1991), hace mención que el locus de control es conceptualmente independiente del control conductual percibido, debido a que el locus control, obedece a los rasgos y al perfil de personalidad, mientras que la conducta percibida es solo una percepción. Por otro lado la intención emprendedora, depende de factores intrínsecos como los personales y sociales. Los rasgos de personalidad pueden ser medidos desde diferentes perspectivas conceptuales (Soto-Simeone & Kautonen, 2021). Nuestro estudio tiene como propósito principal analizar el efecto directo del locus control interno y externo en las intenciones emprendedoras de los estudiantes universitarios del Instituto Tecnológico de Sonora (ITSON) en México. Además, se analizan las diferencias significativas existentes entre el género de los estudiantes con respecto al locus control interno y externo, y con las intenciones emprendedoras. La contribución del estudio se centra en el desarrollo de dos perspectivas teóricas complementarias: 1) desde la TSC, el estudio contempla el análisis de los factores internos (autoeficacia y perfil de personalidad) y externos (entorno familiar, sistema educativo y el apoyo docente) que inciden en el emprendimiento universitario, y 2) desde la perspectiva de la TCP se analizan los factores y las motivaciones que inciden en el comportamiento emprendedor universitario. Este estudio está estructurado de la siguiente forma, en un primer momento se desarrolla la perspectiva teórica, las hipótesis, el método, los resultados, discusiones, conclusiones y las líneas futuras de investigación.

## LITERATURE REVIEW AND HYPOTHESIS STATEMENT

### El Locus Control Interno en las Intenciones Emprendedoras

Para este estudio se ha tomado de referencia la TSC y la TCP, debido a los factores internos y externos que contempla el modelo teórico propuesto. De acuerdo con Bandura, (1989, 2001), ha puesto de manifiesto que los procesos de aprendizaje, motivación y comportamiento son el resultado de la interacción recíproca y bidireccional de tres componentes diferentes (insumos ambientales, factores personales y los resultados conductuales). Estudios empíricos como el desarrollado por Rosique-Blasco et al. (2018), han expresado que las habilidades personales y los rasgos como parte del locus control interno, permiten a los estudiantes minimizar los riesgos, derribar los obstáculos para elevar la autoeficacia y, a su vez permite aumentar las posibilidades de emprender en el futuro. Además, Nwosu et al. (2022) ponen de manifiesto que los rasgos de personalidad y la autoeficacia (locus control interno), elevan la creatividad y la intención emprendedora de los estudiantes universitarios. Otro estudio relacionado expuesto por Postigo et al. (2021), mencionan que los rasgos personales, la autoeficacia, la motivación y el enfoque hacia resultados, son los factores que más se presentan en los estudiantes al momento de detectar oportunidades y tomar la decisión de emprender. Desde este contexto surge el siguiente planteamiento hipotético:

*Hipótesis 1 (H1): El locus control interno tiene efectos significativos en las intenciones emprendedoras de los estudiantes universitarios del ITSON.*

### El Locus Control Externo en las Intenciones Emprendedoras

Desde la perspectiva de la TCP se ha concluido que las normas subjetivas (paradigmas) y las normas sociales, como el entorno familiar y el sistema educativo, tienen una fuerte influencia en el desarrollo del

espíritu empresarial y en el fortalecimiento de las intenciones emprendedoras (Al-Mamary et al., 2020; Boubker et al., 2021). La investigación desarrollada por Zollo et al. (2017), explica que los estudiantes universitarios que están en una atmósfera inspiradora con un modelo educativo basado en la competitividad, con relaciones multidisciplinarias, y con el contacto directo de inversionistas, ayuda al desarrollo de la creación de ideas y a la generación de una mayor intención emprendedora. Además el estudio realizado por Asante & Affum-Osei, (2019), analiza el locus control interno y externo en los estudiantes universitarios, en el que pone de manifiesto que estas dos variables influyen y explican el comportamiento y la intención emprendedora. De acuerdo al contexto anterior se han desprendido los siguientes planteamientos hipotéticos:

**Hipótesis 2 (H2):** El locus control externo tiene efectos significativos en las intenciones emprendedoras de los estudiantes universitarios del ITSON.

**Hipótesis 3 (H3):** El locus interno influye significativamente en el locus control externo de los estudiantes universitarios del ITSON.

## METODOLOGÍA

El estudio de corte cuantitativo y explicativo tiene fundamento en el muestreo estratificado considerando la población total de los estudiantes del ITSON. La población total aproximada de esta universidad es de 17,172 estudiantes entre 18 y 29 años de edad inscritos durante el año 2021 (informe del rector 2021) (Hernández-López, 2021). El muestreo probabilístico está fundamentado en la conformación de estratos para analizar de forma más precisa cada una de las categorías en estudio. Para la recolección de los datos se utilizó una encuesta estructurada y suministrada a través de google forms (online) durante el periodo de agosto a diciembre del año 2021, para la recogida de los datos se estableció un proceso aleatorio simple. Finalmente se logró obtener una muestra total de 764 estudiantes. Se desarrolló un análisis factorial exploratorio, con el propósito de fortalecer la validez de los constructos y eliminar el sesgo de no respuesta de las preguntas del instrumento, se realizó un análisis factorial y la prueba de factor único con la técnica de Harman a través del método común de varianza (CMV). Los resultados obtenidos de esta prueba fueron los siguientes: 1) el modelo teórico está agrupado en 6 componentes o factores, 2) el indicador Káiser-Meyer-Olkin (KMO) es de 0.979 y significativo al 99%, y, 3) la varianza total explicada arrojó un valor del 79.45%. Además, la varianza explicada del primer factor (52.62) fue menor que la varianza explicada total descartando con ello la presencia del sesgo de no respuesta.

### Locus Control Interno (LInt)

Este constructo está compuesto por las siguientes dimensiones: 1) *La autoeficacia (AUEF)*, para su medición se consideraron los estudios desarrollados por Mueller & Thomas (2001), Zhao et al. (2005) y Shiguango & Masache (2019), que analizan la relación de la autoeficacia con la intención emprendedora. Esta variable fue medida con 17 preguntas. Estos ítems cumplen con los parámetros de fiabilidad y validez previamente establecidos por los expertos. Las cargas factoriales (CF) de 0.815 a 0.901, fiabilidad compuesta (FC) 0.981, alfa de Cronbach's (AC) 0.981 y varianza media extraída (AVE) 0.749. 2) *Perfil de personalidad (PPER)*, fue medido conceptualmente considerando la teoría de rasgos desarrollada por McClelland (2013), misma que se enfoca en capacidades e ingredientes que posee el individuo para el logro de los objetivos empresariales. Para la construcción de los ítems se consideraron los estudios desarrollados por Zhao & Seibert (2006) y Brandstätter (2011), esta variable fue medida con 6 preguntas las cuales cumplen con los parámetros de fiabilidad y validez previamente establecidos por los expertos. Las cargas factoriales (CF) de 0.910 a 0.938, fiabilidad compuesta (FC) 0.976, alfa de Cronbach's (AC) 0.976 y la varianza media extraída (AVE) 0.870.

### Locus Control Externo (LEXT)

Este constructo está compuesto por las siguientes dimensiones: 1) *El entorno familiar (EFAM)* fue medido considerando los estudios desarrollados por Aldrich (2003) y Hahn et al. (2019) los cuáles se enfocan en analizar las habilidades personales y psicológicas de tipo familiar que inciden en la intención emprendedora. Esta variable fue medida con 3 preguntas, las cuáles cumplen con los parámetros de fiabilidad y validez previamente establecidos por los expertos. Las cargas factoriales (CF) de 0.870 a 0.929, la fiabilidad compuesta (FC) 0.929, alfa de Cronbach's (AC) 0.928 y varianza media extraída (AVE) 0.811. 2) *Sistema educativo (SEDU)*, esta variable fue medida considerando los estudios desarrollados por Farashah (2013) y por Ayodele et al. (2020), para ello, se diseñaron 9 preguntas las cuáles cumplen con los parámetros de fiabilidad y validez previamente establecidos por los expertos. Las cargas factoriales (CF) de 0.785 a 0.920, la fiabilidad compuesta (FC) 0.967, alfa de Cronbach's (AC) 0.967 y varianza media extraída (AVE) 0.768. 3) *Apoyo docente (APDO)*, esta variable fue medida con base a los estudios desarrollados por Gibb (2007) y Teerijoki & Murdock (2014). Para tal efecto, se diseñaron 12 preguntas las cuáles cumplen con los parámetros de fiabilidad y validez previamente establecidos por los expertos. Las cargas factoriales (CF) de 0.862 a 0.927, fiabilidad compuesta (FC) 0.982, alfa de Cronbach's (AC) 0.982 y la varianza media extraída (AVE) 0.821.

### La Intención Emprendedora (IEMP)

Para la medición de esta variable se consideraron los estudios desarrollados por McClelland, (2013), Herman (2019) y Agu et al., (2021) los cuáles se enfocan analizar las habilidades personales y conductas que inciden en la intención emprendedora universitaria. Esta variable fue medida con 10 preguntas cumpliendo con los parámetros de fiabilidad y validez previamente establecidos por los expertos. Las cargas factoriales (CF) de 0.849 a 0.948, la fiabilidad compuesta (FC) 0.975, alfa de Cronbach's (AC) 0.975 y la varianza media extraída (AVE) 0.797.

## **RESULTADOS**

Modelo de medida. Para la fiabilidad y validez de los constructos se ha considerado el análisis de los siguientes indicadores: alfa de Cronbach's (AC), el parámetro de rho\_A, la fiabilidad compuesta (FC), validez convergente y validez discriminante. Los indicadores de confiabilidad todos nuestros valores están por encima de 0.8, de acuerdo con los parámetros recomendados por Hair et al. (2019). Además, también se observa que la validez convergente mediante el análisis de la varianza media extraída en todos los constructos supera el valor del 50% (Hair et al., 2019), ver Tabla 1.

Tabla 1: Consistencia Interna de los Constructos (Primer y Segundo Orden)

Constructo	Cronbach's Alpha	Rho_A	Fiabilidad Compuesta	Varianza Extraída Media (AVE)
Locus Control Interno (LINT)	0.978	0.978	0.978	0.658
Autoeficacia (AUEF)	0.981	0.981	0.981	0.749
Perfil Personalidad (PPER)	0.976	0.976	0.976	0.870
Locus Control Externo (LEXT)	0.986	0.986	0.986	0.745
Entorno Familiar (EFAM)	0.928	0.929	0.928	0.811
Sistema Educativo (SEDU)	0.967	0.968	0.967	0.768
Apoyo Docente (APDO)	0.982	0.982	0.982	0.821
Intención Emprendedora (IEMP)	0.975	0.976	0.975	0.797

Fuente: Elaboración propia

También, se comprobó la validez discriminante de los constructos del modelo teórico mediante el análisis de la raíz cuadrada del AVE. Los resultados (diagonal) del AVE vertical y horizontal están por debajo de la correlación entre los constructos, esta prueba fue realizada bajo las recomendaciones de Fornell & Larcker (1981). Con ello se comprueba y detecta que no existe ninguna anomalía (ver Tabla 2). Los resultados del modelo teórico proporcionan una adecuada validez convergente, validez discriminante y una adecuada fiabilidad de los constructos.

Tabla 2: Validez Discriminante Criterio de Fornell and Larcker

Constructo	APDO	AUEF	EFAM	IEMP	LEXT	LINT	PPER	SEDU
APDO	0.906							
AUEF	0.554	0.865						
EFAM	0.846	0.622	0.901					
IEMP	0.426	0.555	0.462	0.893				
LEXT	0.996	0.588	0.898	0.448	0.863			
LINT	0.625	0.989	0.675	0.598	0.662	0.811		
PPER	0.623	0.634	0.613	0.533	0.657	0.813	0.933	
SEDU	0.919	0.567	0.823	0.431	0.982	0.646	0.656	0.876

Fuente: elaboración propia

Modelo estructural. La técnica estadística de ecuaciones estructurales basada en la varianza se utilizó para comprobar las hipótesis planteadas en esta investigación a través de PLS-SEM. El uso de esta técnica es apropiada en la investigación predictiva, exploratoria y confirmatoria (Henseler et al., 2016). En la Tabla 3, se muestran los resultados del coeficiente  $\beta$ , el grado de significancia (p valor), la desviación estándar (SD), la distribución de los valores utilizando la t de Student, el valor de  $F^2$  y el porcentaje de la varianza explicada. Para comprobar la hipótesis, se utilizó el procedimiento de bootstrapping con 5.000 submuestras como lo recomienda Chin (1998). Los resultados muestran soporte empírico significativo y positivo para todas las hipótesis (H1, H2 y H3), con ello se comprueba que el locus control interno y externo tienen influencia significativa sobre las intenciones emprendedoras de los estudiantes universitarios del ITSON (ver Figura 2). La Tabla también informa los resultados de la descomposición del valor de  $R^2$ , a través de la varianza explicada, esto se traduce en que un constructo endógeno por otra variable latente viene dado por el valor absoluto del resultado de multiplicar el coeficiente path ( $b$ ) por el correspondiente coeficiente de correlación entre ambas variables.

Tabla 3: Resultado de las Hipótesis del Modelo

Hipótesis	Coeficiente Path	Estadístico T	Desviación Estándar	P Valor	F <sup>2</sup>	% Varianza (R <sup>2</sup> )	Resultado
H1: LINT -> IEMP	0.516***	0.045	11.377	0.000	0.236	30.86%	Con soporte
H2: LEXT -> IEMP	0.104**	0.049	2.117	0.017	0.010	4.66%	Con soporte
H3: LINT -> LEXT	0.650***	0.036	18.020	0.000	0.732	43.03%	Con soporte

Fuente: Elaboración propia. Nota: n = 5000 submuestras. \*\*\* p < 0.001, \*\* p < 0.01 (t student de 1 cola), t (0.05; 4999) = 1645; t (0.01; 4999) = 2327; t (0.001; 4999) = 3092.

Recientemente, los investigadores han propuesto reportar los intervalos de confianza junto con los valores t. Los intervalos de confianza tienen la ventaja que son un enfoque completamente no paramétrico y no están basados en ningún tipo de distribución (Benítez et al., 2020). Para corroborar los resultados de las hipótesis se ha considerado agregar los valores de los intervalos de confianza. Por lo tanto, si un intervalo de confianza para un coeficiente path estimado  $pc_i$  no incluye el valor cero, entonces la hipótesis de que  $pc_i$

es igual a cero se rechaza" (Henseler et al., 2009). En la Tabla 4, se puede observar que ninguna de las hipótesis con sus respectivos CI, no se presenta el valor de 0, lo que permite proporcionar un mayor soporte empírico a los resultados de este modelo de investigación (Roldán & Cepeda, 2016).

Tabla 4: Resultado de las Hipótesis (CI)

Hipótesis	Coeficiente Path	Estadístico T	Desviación Estándar	P Val or	Percentil CI 5.00%	Percentil CI 95.00%	Bias Correcte d CI 5.00%	Bias Corrected CI 95.00%
H1: LINT -> IEMP	0.516***	0.045	11.377	0.00	0.439	0.588	0.439	0.588
H2: LEXT -> IEMP	0.104**	0.049	2.117	0.01	0.029	0.190	0.029	0.190
H3: LINT -> LEXT	0.650***	0.036	18.020	0.00	0.585	0.704	0.585	0.704

Fuente: Elaboración propia. Nota: n = 5000 submuestras: \*\*\* p < 0.001, \*\* p < 0.01 (t student de 1 cola), t (0.05; 4999) = 1645; t (0.01; 4999) = 2327; t (0.001; 4999) = 3092. CI= Intervalos de confianza.

Adicionalmente, se ha realizado un análisis multigrupo para conocer si existen diferencias significativas entre el género de los estudiantes universitarios con respecto a las variables del modelo. El análisis multigrupo con Partial Least Square (PLS-MGA) se utiliza para medir el impacto o la moderación de una variable categórica que puede manifestarse en dos o más grupos. Este tipo de análisis surge para comparar si existen diferencias significativas entre los grupos que se están comparando. En este estudio se analiza la variable género, para ello se ha dividido en dos grupos. El primer grupo con valor 1 es otorgado para el género femenino y el valor 2 para el grupo del género masculino. En el estudio se utilizó el PLS-MGA no paramétrico, esta prueba requiere la confirmación de la invariancia de medida entre los dos grupos. Para ello se analizó la invariancia configuracional y la invariancia composicional. En cuanto a la invariancia configuracional, se confirma que el tratamiento de los datos para la medición de los dos modelos y la configuración estructural y el algoritmo fueron iguales para ambos grupos. Para la invariancia composicional se realizó un método de permutación con una muestra de un mínimo de 1.000 permutaciones con un nivel de significancia del 5%.

La Tabla 5, muestra los resultados de las diferencias significativas a través del test paramétrico. El resultado arroja que en la relación entre los constructos LEXT y IEMP, es en donde se presentan y más se acentúan las diferencias significativas.

Tabla 5: Test Paramétrico

Relaciones Estructurales	Diferencia (1-2)	Valor T (1 Vs 2)	Valor P (1 Vs 2)
LEXT -> APDO	-0.007	1.360	0.174
LEXT -> EFAM	-0.004	0.119	0.905
<b>LEXT -&gt; IEMP</b>	<b>-0.210</b>	<b>2.156</b>	<b>0.031</b>
LEXT -> SEDU	-0.010	1.111	0.267
LINT -> AUEF	-0.010	1.689	0.092
LINT -> IEMP	0.106	1.164	0.245
LINT -> LEXT	-0.042	0.552	0.581
LINT -> PPER	-0.076	1.754	0.080

Fuente: Elaboración propia

La Tabla 6, muestra los resultados de las diferencias significativas del análisis multigrupo a través de la valoración de los coeficientes path y el valor de t. Los resultados muestran que existen diferencias significativas en la relación entre el locus control externo y las intenciones emprendedoras, destacando que el género masculino manifiesta un mayor valor del coeficiente beta, en comparación con el género femenino.

Tabla 6: Coeficientes Path (Multigrupo)

Relaciones Estructurales	Coeficiente Path (1: Femenino)	Coeficiente Path (2: Masculino)	Valor t (1: Femenino)	Valor t (2: Masculino)	p (1: Femenino)	Valor p (2: Masculino)
LEXT -> APDO	0.977	0.984	285.921	364.563	0.000	0.000
LEXT -> EFAM	0.856	0.860	41.274	34.431	0.000	0.000
<b>LEXT -&gt; IEMP</b>	<b>0.030</b>	<b>0.240</b>	<b>0.693</b>	<b>2.284</b>	<b>0.488</b>	<b>0.022</b>
LEXT -> SEDU	0.955	0.966	154.587	173.176	0.000	0.000
LINT -> AUEF	0.966	0.976	242.999	239.496	0.000	0.000
LINT -> IEMP	0.551	0.444	12.081	4.893	0.000	0.000
LINT -> LEXT	0.633	0.675	12.904	12.512	0.000	0.000
LINT -> PPER	0.769	0.845	26.892	30.153	0.000	0.000

Fuente: Elaboración Propia

## DISCUSIÓN Y CONCLUSIONES

Desde la perspectiva teórica de la psicología (TSC y TCP) los resultados han puesto de manifiesto que el locus control interno y externo, son factores determinantes para elevar las intenciones emprendedoras en los estudiantes universitarios (Amabile et al., 1996; Covin & Slevin, 1991; McClelland, 2013). Los resultados ponen de manifiesto que el locus control interno es un factor clave para el desarrollo de las intenciones emprendedoras, estos hallazgos están alineados con la teoría social cognitiva y la teoría del comportamiento planificado (Ajzen, 1991; Bandura, 2001). Siendo la autoeficacia el factor más determinante que fortalece las intenciones emprendedoras de los universitarios del ITSON, estos hallazgos tienen un comportamiento similar con los estudios empíricos analizados en este estudio (Postigo et al., 2021; Rosique-Blasco et al., 2018). Además en un segundo plano se ha descubierto que el locus control externo tiene un efecto medio en las intenciones emprendedoras de los estudiantes universitarios del ITSON. Nuestros hallazgos tienen un comportamiento similar con los descubrimientos realizados por estudiosos en el tema (Asante & Affum-Osei, 2019), siendo el apoyo docente el factor que más influye en las intenciones emprendedoras. En un tercer momento nuestros resultados informan que el locus control interno tiene efectos significativos sobre el locus control externo, siendo así un elemento clave para minimizar los impactos del medio ambiente y que en un momento dado puede permitir elevar las intenciones emprendedoras (Asante & Affum-Osei, 2019; Hoffmann et al., 2022).

Estos resultados tienen una importante contribución en el desarrollo y fortalecimiento de las teorías psicológicas para las intenciones emprendedoras desde el contexto universitario. Derivado de los hallazgos, se han generado las siguientes implicaciones que pueden fortalecer los factores internos y externos para el desarrollo de las intenciones emprendedoras de los universitarios del ITSON. En un primer momento es importante que en las universidades se incluyan modelos educativos creativos y enfocados en el desarrollo del espíritu empresarial. Las metodologías ágiles para el desarrollo del emprendimiento y técnicas para desarrollar la creatividad son herramientas determinantes para la puesta en marcha de iniciativas universitarias que impulsan la creación de nuevos negocios (Dobrigkeit et al., 2019; Mazzarol et al., 1999). En un segundo momento las universidades están adoptando modelos exitosos de otras universidades para la puesta en marcha de centros de emprendimiento e innovación empresarial (Hausberg & Korreck, 2018). Estas acciones ayudan en el despegue de las ideas creativas y de negocios basados en la tecnología. Sin embargo, para poder llevar a cabo estas acciones se requiere de: 1) compromiso y filosofía universitaria basada en el emprendimiento y la innovación; 2) formar a los docentes con una visión en el emprendimiento; y 3) capacidad de inversión en infraestructura para adoptar modelos de negocios basados en centros de emprendimiento e innovación tecnológica. La investigación no está libre de limitaciones y

las cuáles pueden ser desde la selección de una muestra focalizada en una sola universidad, en las respuestas emitidas por los encuestados siendo juicios personales que pueden incurrir en opiniones subjetivas y también, se puede considerar una limitación la técnica estadística utilizada para el estudio. Sin embargo, es recomendable continuar con este tipo de análisis a través del tiempo con la finalidad de verificar el comportamiento de las intenciones emprendedoras de los universitarios y verificar la posibilidad de agregar nuevos constructos que ayuden a profundizar más las motivaciones para emprender.

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# ARTICULACIÓN DE LA TEORÍA DE RESTRICCIONES Y EL *BALANCED SCORECARD* A LA GESTIÓN DE CARTERA DE LAS INSTITUCIONES PRESTADORAS DE SERVICIOS DE SALUD

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## RESUMEN

*La gestión financiera de la salud es también un asunto de reflexión académica. Una eficiente gestión de cartera, y, por ende, una mayor disponibilidad de flujo de caja, son elementos esenciales para una atención en salud con calidad. Este artículo presenta una propuesta metodológica para gestionar eficientemente la cartera de las Instituciones Prestadoras de Servicios de Salud, IPS. El componente central de la propuesta articula la Teoría de Restricciones, TOC, (Goldratt, 1998), y el Balanced Scorecard, BSC. (Kaplan & Norton, 2009).*

**PALABRAS CLAVE:** Teoría de Restricciones, TOC, Balanced Scorecard, BSC, Servicios de Salud

## ABSTRACT

*The financial management of health is also a matter of academic reflection. An efficient accounts receivable management, and therefore greater availability of cash flow, are essential elements for quality healthcare. This paper presents a methodology to efficiently manage the accounts receivable of Social State Enterprises, SSE. The central component of the proposal articulates the Theory of Constraints, TOC (Goldratt, 1998), and the Balanced Scorecard, BSC. (Kaplan & Norton, 2009).*

**JEL:** I11, M15, M42

**KEYWORDS:** Theory of Constraints, TOC, Balanced Scorecard, BSC, Healthcare Services

## INTRODUCCIÓN

En Colombia, de acuerdo con la Ley 100 de 1993, la prestación de los servicios de salud se logra a través de modalidades de contratación y pago de servicios entre prestadores y aseguradores (Congreso de la República de Colombia, 1993). La realidad ha demostrado la incapacidad de los servicios de salud para ofrecer una atención en salud con calidad, debido a un permanente déficit de flujo de dinero, pues se suministran servicios médicos y hospitalarios a los pacientes y el recaudo de los dineros correspondientes de pago de los aseguradores por este servicio se logra meses después. Entonces, ¿podría subsistir financieramente una institución prestadora de servicios de salud cuando su flujo de dinero se encuentra en déficit? Según la Asociación Colombiana de Hospitales y Clínicas, ACHC, la cartera reportada por estas instituciones a junio de 2022 asciende a 13,8 billones de pesos; de los cuales el 56% corresponden a cartera vencida de más de 60 días (ACHC, 2022). Estudios realizados por Bernal, O., Forero, J., Hernández, L. & León, L. (2012). Cárdenas & Velasco (2013), Fernández & Assis (2012), Londoño (2011), Ortiz & Romero (2013), Patiño (2013), Useche (2012), y Villar (2004), entre otros, indican que el permanente déficit de flujo de dinero es efecto de una ineficiente gestión de cartera en los servicios de salud, haciendo que éstos

no puedan cumplir con sus compromisos administrativos y financieros y deban recurrir a financiamiento externo de alto costo con proveedores y acreedores financieros, lo que hace que crezca el riesgo de inviabilidad financiera y el cese parcial o total de los servicios que constituyen la atención en salud.

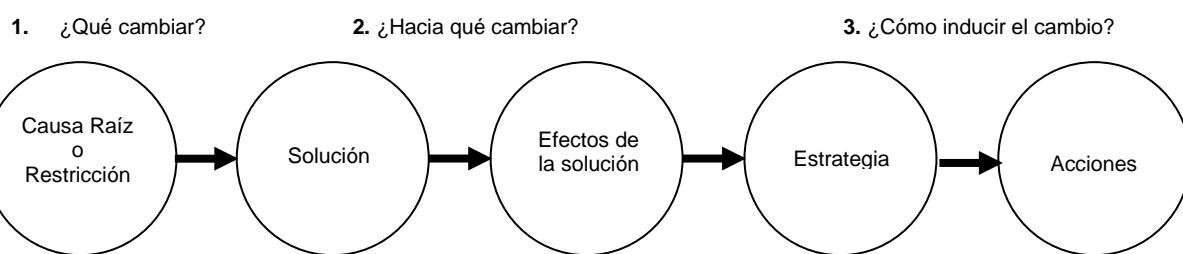
Dado que una eficiente gestión de cartera y una mayor disponibilidad de flujo de dinero son esenciales para una atención en salud con calidad, se presenta este trabajo que tiene como propósito contribuir a la solución de esta gran problemática financiera. Esto se logra a través de la articulación de la Teoría de Restricciones, TOC, de Goldratt (1998), y el *Balanced Scorecard*, BSC, de Kaplan & Norton (2009) en una propuesta metodológica susceptible de ser aplicada al Sector Salud en general. Existen dos razones que llevan a articular la Teoría de Restricciones, TOC, y el *Balanced Scorecard*, BSC. Por un lado, el uso gerencial en el sector salud de la Teoría de Restricciones ha demostrado una mayor eficiencia y productividad; por ejemplo, en la adquisición e implementación de tecnologías de información y comunicación (Gupta, Bridgman y Sahi, 2015, Chia, 2005), en la identificación de necesidades, objetivos y especificaciones de información para la toma de decisiones de contratación (Patwardhan, Sarría-Santamera y Matchar, 2006) y en la orientación de mercado para generar más facturación de productos y servicios y mayor satisfacción de clientes, empleados y accionistas (Gupta, Bridgman y Sahi, 2015).

Por otro lado, se ha visto que el *Balanced Scorecard* es una herramienta adecuada de gestión estratégica y medición del desempeño en el sector salud, usada, por ejemplo, para evaluar el acceso a los servicios de salud (Behrouzi, Shaharoun y Ma'Aram, 2014, Broccardo, 2015, Tuan, 2012, Zhang, Bamford, y Dehe, 2012), para medir la reducción de los costos mediante el uso de tecnologías de información y comunicación (De Felice y Petrillo, 2014); para cuantificar, desde la perspectiva financiera, indicadores cualitativos como la lealtad del cliente y la satisfacción de los empleados (Szabo y Sidor, 2014) y para conducir a las organizaciones hacia una dirección centrada en “*drivers*” (Drivers se refiere a los medios por los cuales se alcanza una meta u objetivo) estratégicos (Gurd y Ifandoudas, 2014). Este artículo presenta a continuación la revisión de la literatura acerca de la Teoría de Restricciones, TOC, y del *Balanced Scorecard*, BSC; luego, se articulan en una propuesta de Gestión de Cartera para las Instituciones Prestadoras de Servicios de Salud, IPS.

## REVISIÓN DE LITERATURA

La Teoría de Restricciones, TOC. Basada en la lógica de la física, fue desarrollada por Goldratt (1993, 1995, 1997, 1998). Su progreso inicial estuvo ligado al mejoramiento de los procesos de manufactura (APICS, 1996) y posteriormente, al mejoramiento de las organizaciones y empresas, algunas de ellas en el sector salud (Fernández, 2000, Gurd & Ifandoudas, 2014). La metodología TOC aborda, analiza y propone soluciones a los problemas de las organizaciones; se centra en estudiar la *causa raíz* de los problemas y no sus efectos y consecuencias. (Mabin & Balderstone, 2000, Breunlin, 1995). Para implementar esta metodología se requiere dar respuesta a tres preguntas: 1. *¿Qué cambiar?*, 2. *¿Hacia qué cambiar?* y 3. *¿Cómo inducir al cambio?* (Morales, 1994; Dettmer, 1997, Fernández, 2000) (Figura 1).

Figura 1: Metodología de la Teoría de Restricciones



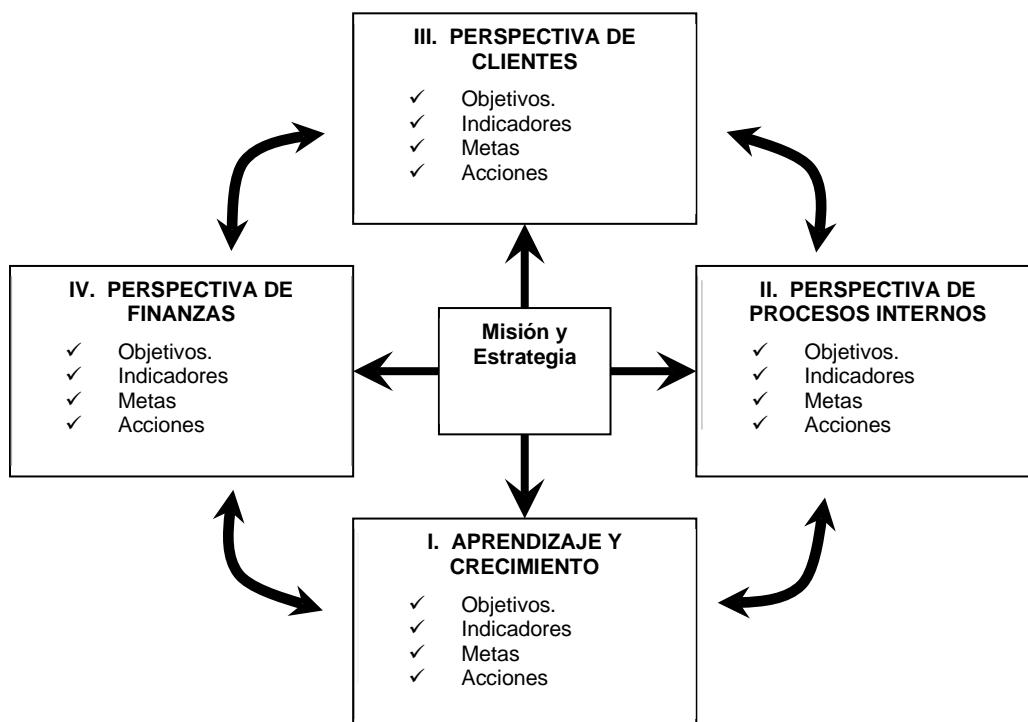
En esta figura, la identificación de la Causa Raíz o Restricción responde la primera pregunta, *¿Qué cambiar?* Al definir la solución y sus efectos,

se da respuesta a la segunda pregunta, ¿Hacia qué cambiar?, es decir, cual es el objetivo al que se pretende llegar con el cambio. Por último, al establecer la estrategia y las acciones de implementación se responde a la tercera pregunta, ¿Cómo inducir el cambio? Fuente: Adaptado de Fernández (2000).

La identificación de la Causa Raíz o Restricción responde la primera pregunta, ¿Qué cambiar? Al definir la solución y sus efectos, se da respuesta a la segunda pregunta ¿Hacia qué cambiar?, es decir, cual es el objetivo al que se pretende llegar con el cambio. Por último, al establecer la estrategia y las acciones de implementación se responde a la tercera pregunta, ¿Cómo inducir el cambio? En efecto, para lograr una eficiente gestión de cartera, se requiere inevitablemente identificar la causa raíz del problema, que, en términos de TOC, significa identificar la “Restricción”. Una vez identificada la restricción, se procede a definir la estrategia de solución y las acciones que conducen a su implementación.

*Balanced Scorecard*; BSC. Fue desarrollado por Kaplan & Norton (2007, 2009). El BSC proporciona un marco, una estructura y un lenguaje sencillo para comunicar la misión y la estrategia de una organización. Es considerado un valioso sistema integral de medición y gestión para las empresas, (Rolph, 1999, Chow, Ganulin, Haddad & Williamson, 1998), y en especial para el sector salud (Behrouzi, et al. 2014, Broccardo, 2015, Tuan, 2012 & Zhang, et al. 2012). El BSC está estructurado en cuatro perspectivas: aprendizaje y crecimiento, procesos internos, clientes y perspectiva de finanzas (Figura 2).

Figura 2: Balanced Scorecard, BSC



La perspectiva de aprendizaje y crecimiento responde a la pregunta, ¿Cómo puede la organización aprender y mejorar continuamente? La perspectiva de procesos internos responde a la pregunta, ¿para satisfacer a los clientes y a los grupos de interés, qué procesos internos son prioritarios de mejora continua? La perspectiva de clientes responde a la pregunta, ¿Cómo crear valor? y la perspectiva financiera responde a la pregunta, ¿cómo ven los accionistas y grupos de interés la organización? Fuente: Adaptado de Kaplan, R. & Norton, D. (2007) “Using the Balanced Scorecard as a Strategic Management System”. En: Harvard Business Review.

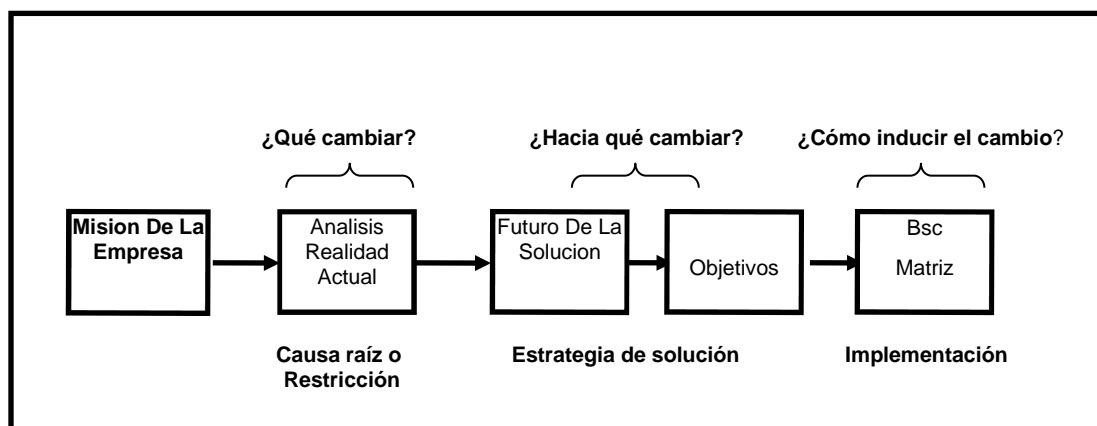
Con la Figura 2 se puede apreciar que la perspectiva de aprendizaje y crecimiento responde a la pregunta: ¿cómo puede la organización aprender y mejorar continuamente? La perspectiva de procesos internos

responde a la pregunta: para satisfacer a los clientes y a los grupos de interés, ¿qué procesos internos son prioritarios de mejora continua? La perspectiva de clientes responde a la pregunta ¿Cómo crear valor? Y la perspectiva financiera responde a la pregunta ¿cómo ven los accionistas y grupos de interés la organización? De esta manera, mediante acciones de aprendizaje y crecimiento, la realización eficiente de procesos internos reflejados en la prestación de un servicio al cliente con calidad, y la eficiente gestión de cartera de los servicios médicos y hospitalarios, se generará una mayor disponibilidad de flujo de caja para los servicios de salud. Con base en lo anterior se propone articular la TOC y el BSC para solucionar el problema de la ineficiente gestión de cartera de los servicios de salud.

## RESULTADOS

Se presenta a continuación la articulación de la Teoría de Restricciones y Balanced Scorecard en una propuesta de mejora continua al proceso de gestión de cartera de las instituciones prestadoras de servicios de salud. Según Chai (2009) la aplicación del BSC al caso de las IPS se logra mediante un adecuado manejo de la gestión de la cartera, la lealtad de los usuarios/pacientes que acceden a los servicios médicos, los procesos necesarios para inducir el cambio y la práctica de la mejora continua para alcanzar los objetivos propuestos. Desde el enfoque de la Teoría de Restricciones, la aplicación al caso de las IPS se alcanza mediante la realización de actividades que conllevan a las empresas a funcionar como un sistema orientado a la consecución de una meta (Aguilera, C., 2000). De acuerdo con Goldratt y Jeff (1993) la meta de cualquier empresa implica desarrollar un proceso de mejora continua en todos los sistemas para obtener el objetivo deseado. Por lo anterior, la TOC y el BSC pueden articularse en un proceso de mejora continua que da respuesta a tres interrogantes: 1. *¿Qué cambiar?*, 2. *¿Hacia qué cambiar?* y 3. *¿Cómo inducir al cambio?* (Figura 3).

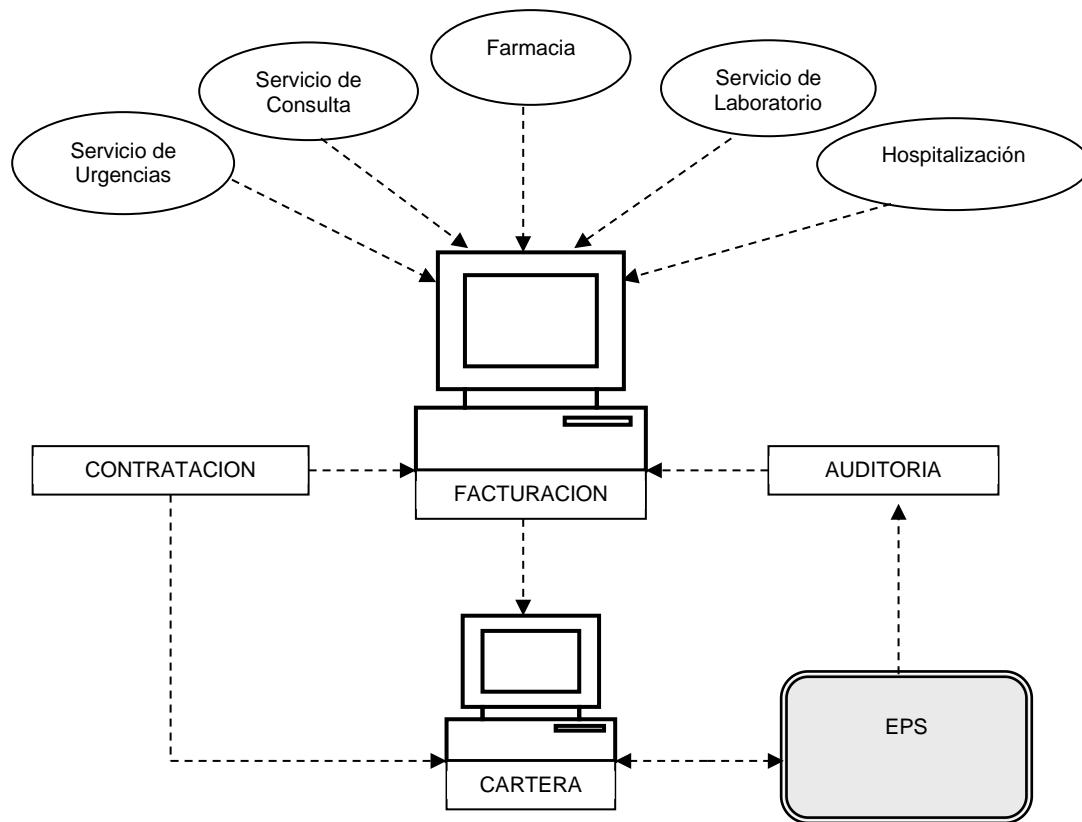
Figura 3: Articulación de la Teoría de Restricciones y el Balanced Scorecard



En la figura 3, el proceso de mejora continua inicia con la comprensión de la misión de la empresa y de esta manera dar respuesta a la primera pregunta: *¿Qué cambiar?* En este interrogante se analiza la realidad actual con el fin de identificar la causa raíz de la ineficiente gestión de cartera en los servicios de salud. Luego, para dar responder a segunda pregunta *¿Hacia qué cambiar?* se procede a formular la Estrategia, que comprende el futuro de la solución y los Objetivos Estratégicos. Finalmente, se responde a la tercera pregunta *¿Cómo inducir el cambio?*, a través de las actividades de implementación de la estrategia de solución. Fuente: Elaboración propia

El proceso de mejora continua inicia con la comprensión de la misión de la empresa y de esta manera dar respuesta a la primera pregunta: *¿Qué cambiar?* En este interrogante se analiza la realidad actual con el fin de identificar la causa raíz de la ineficiente gestión de cartera en los servicios de salud. Luego, para dar responder a segunda pregunta *¿Hacia qué cambiar?* se procede a formular la Estrategia, que comprende el futuro de la solución y los Objetivos Estratégicos. Finalmente, se responde a la tercera pregunta *¿Cómo inducir el cambio?*, a través de las actividades de implementación de la estrategia de solución.

Figura 4: Flujo de Información de la Gestión de Cartera de los Servicios de Salud.



La Figura anterior tiene como propósito gestionar eficientemente la cartera de los servicios de salud o ESE. Para esto es necesario un flujo de información adecuado entre las áreas de servicio médico y las áreas administrativas. Fuente: Elaboración propia.

La Figura 4 muestra como se puede gestionar de forma eficiente la cartera de los servicios de salud o ESE. Para ello, es necesario que exista un flujo de información adecuado y coherente entre las áreas de servicio médico y las áreas administrativas. Si no se cumple con un flujo de información adecuado se pueden generar errores e inconsistencias en la facturación, devoluciones de cuentas de cobro, retraso en la gestión de cartera y demora en el pago de los servicios de salud. Por lo tanto, para resolver el problema de información entre las áreas de servicios médicos y administrativos (causa raíz) de los servicios de salud, es necesario definir una estrategia de solución compuesta por los siguientes objetivos:

Suministrar información *exacta, completa y oportuna* al área de facturación por parte de las áreas de servicio médico.

Mantener una comunicación fluida entre las áreas de servicio administrativo, en este caso, auditoría, contratación, facturación y cartera.

Definir políticas y estrategias para la gestión de cartera y el seguimiento de la efectividad en el cobro con los aseguradores.

Tomar las medidas preventivas y correctivas necesarias para mantener una armoniosa relación entre aseguradores y prestadores de servicios de salud.

Finalmente, la implementación de la estrategia de solución se fundamenta en cuatro perspectivas de mejoramiento: 1) el fortalecimiento de la gestión de facturación a través de mecanismos permanentes de capacitación y actualización en sistemas de información y procedimientos; 2) la caracterización, estandarización y depuración de la información requerida para facturar la prestación de los servicios médicos de conformidad con los contratos suscritos entre las partes intervenientes; 3) establecer canales de comunicación efectivos entre los servicios de salud de las IPS y los aseguradores; y 4) el fortalecimiento de la gestión de cartera ordinaria y la recuperación y saneamiento de la cartera morosa por parte de los servicios de salud.

## CONCLUSIONES

El problema financiero de los servicios de salud obedece a la demora en el pago de los servicios médicos o al incremento de los niveles de cartera, efecto de devoluciones de cuentas médicas por parte de los aseguradores, que, a la vez, corresponde con un flujo inadecuado de información entre las áreas de servicio médico y las áreas de servicio administrativo al interior de la IPS. Es decir, falencias en el proceso de generación de información médica y asistencial que conlleva altos niveles de cartera. Para subsanar este problema financiero de los servicios de salud es necesario suministrar información exacta; es decir, libre de errores, completa y oportuna de los servicios médicos prestados a los pacientes asegurados, condición indispensable para realizar una eficiente gestión de la cartera, disponer de un mayor flujo de dinero y mejorar la atención en salud. La Teoría de Restricciones, TOC y el Balanced Scorecard, BSC, se articulan en una propuesta metodológica que contribuye al mejoramiento de la eficacia y eficiencia de la gestión de cartera en los servicios de salud, propuesta que se constituye en referente para el desarrollo de más procesos de mejora continua en el contexto de las instituciones prestadoras de servicios de salud.

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## RECONOCIMIENTO

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# IMPLEMENTACIÓN DEL MODELO DE VINCULACIÓN DE LA TRIPLE HÉLICE; UNIVERSIDAD, SECTOR GUBERNAMENTAL Y EMPRESA. CASO TECNOLÓGICO NACIONAL DE MÉXICO/ CAMPUS AGUA PRIETA Y DESARROLLO INTEGRAL DE LA FAMILIA

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## Resumen

*La vinculación del Tecnológico Nacional de México gestionada por el área de extensión y vinculación a nivel central promueve y atiende los convenios de colaboración con diferentes organismos de la sociedad en acciones que fortalezcan el proceso de aprendizaje en la educación creando y fortaleciendo vínculos de intercambio que contribuyan al cumplimiento de la labor educativa y de investigación. El Tecnológico Nacional de México campus Agua Prieta, toma el modelo de la triple hélice que hace referencia al valor que tienen las economías emergentes y aporta soluciones reales a problemas sociales claramente identificados, para mejorar la calidad de vida de la población y organizaciones que permite que las universidades sean parte activa en la generación de conocimiento y transferencia de tecnología a la industria a partir de modelos de vinculación colaborativos. Desde la óptica de vinculación de este modelo es posible identificar las cuestiones gubernamentales que pueden apoyar a programas o proyectos en las empresas y las universidades son el vínculo desde el punto de vista de investigación y desarrollo para desarrollar proyectos en beneficio mutuo. La triple hélice permite una dinámica de interacción en el entorno social que coadyuba a que esta investigación se lleve a cabo en las tres zonas de influencia que sugiere este modelo, ya que la academia en este caso el Tecnológico de Agua Prieta, el sector público Desarrollo integral de la familia (DIF) Agua Prieta y la industria de la localidad, lleguen a proyectos de vinculación de impacto social y productivo. Las tendencias globales tienden a que los profesionistas del TecNM (Tecnológico Nacional de México) aporten con su creatividad e innovación soluciones a problemáticas reales y actuales para fungir como actores importantes dentro de la sociedad, así mismo desarrollar proyectos sustentables que actualmente se requieren de manera imperante. Esta investigación se realizó con base a un convenio de colaboración, considerando las políticas de servicio y departamentos dentro de la institución municipal DIF en lo relacionado a clima laboral, desarrollando un proyecto interno entre los 3 actores de la triple hélice.*

**PALABRAS CLAVE:** Tecnm, Clima Laboral, Estrategias, Vinculación, Modelo de Vinculación

# IMPLEMENTATION OF THE TRIPLE HELIX LINKAGE MODEL; UNIVERSITY, GOVERNMENT SECTOR AND BUSINESS, NATIONAL TECHNOLOGICAL CASE OF MÉXICO/TECHNOLOGICAL INSTITUTE OF AGUA PRIETA AND INTEGRAL DEVELOPMENT OF THE FAMILY.

## ABSTRACT

*The linkage of the Tecnológico Nacional de México managed by the extension and linkage area at the central level promotes and attends to collaboration agreements with different organizations of society in actions that strengthen the learning process in education by creating and strengthening exchange links that contribute to fulfill educational and research work. The Tecnológico Nacional de México campus Agua Prieta, takes the triple helix model that refers to the value of emerging economies and provides real solutions to clearly identified social problems, to improve the quality of life of the population and organizations that allows universities are an active part in the generation of knowledge and technology transfer to the industry based on collaborative linkage models. From the linkage perspective of this model, it is possible to identify government issues that can support programs or projects in companies and universities are the link from the point of view of research and development to develop projects for mutual benefit. The triple helix allows a dynamic of interaction in the social environment that helps this research to be carried out in the three areas of influence suggested by this model, since the academy, in this case the Tecnológico de Agua Prieta, the public sector Development of the family (DIF) Agua Prieta and the industry of the locality, reach linkage projects of social and productive impact. Global trends tend for the professionals of the TecNM (National Technology of Mexico) to contribute with their creativity and innovation solutions to real and current problems to serve as important actors within society, as well as to develop sustainable projects that are currently urgently required. This research was carried out based on a collaboration agreement, considering the service policies and departments within the DIF municipal institution in relation to the work environment, developing an internal project between the 3 actors of the triple helix.*

**KEYWORDS:** Tecnm, Work Environment, Strategies, Engagement, Engagement Model

**JEL:** M54

## INTRODUCCION

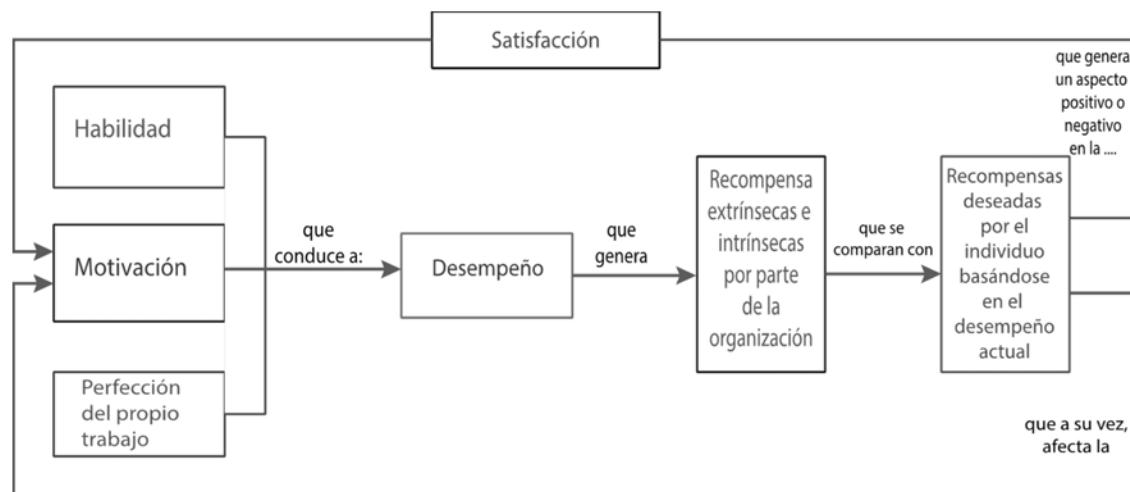
El Tecnológico Nacional de México Campus Agua Prieta implementa acciones de vinculación con diversos sectores de la sociedad en búsqueda de beneficios mutuos o colaborativos. El modelo de la triple hélice fue el modelo que se toma como referente para la vinculación e innovación en esta investigación, el campus Agua Prieta, cuenta con un programa de fomento a la vinculación, es por ello que este modelo busca generar diferentes escenarios como una plataforma para los docentes y lograr una formación integral de los estudiantes mediante prácticas de vinculación en situaciones reales. El Sistema para el Desarrollo Integral de la Familia del Estado de Sonora es un organismo descentralizado con personalidad jurídica y patrimonio propios, que tiene como objetivos la promoción de la asistencia social, la prestación de servicios, así como la realización de las demás acciones que, en la materia, le confieran las disposiciones aplicables.

*Misión:* Estará en función de humanizar a la persona desde la solidaridad y la ética.

*Visión:* Ser una Institución que unifique acciones para diseño de programas y políticas públicas, en respuesta a las necesidades y demandas en materia de asistencia social, fortaleciendo la calidad de vida de las familias y grupos sociales más vulnerables durante la Administración 2015-2021, planeando recursos

orientados a un desarrollo integral del Estado. En cumplimiento con el Programa de Modernización Administrativa que el Sistema Municipal para el Desarrollo Integral de la Familia Agua Prieta, llevó a cabo como respuesta a la necesidad de contar con diagnóstico de clima laboral, con el propósito de identificar las condiciones de relaciones o comunicación efectiva, prestaciones, espacio de trabajo, liderazgo de los jefes, entre otros aspectos, con la finalidad de generar estrategias de mejora para el óptimo desempeño de los empleados de dicha institución. DIF Agua Prieta, es un Organismo descentralizado de carácter gubernamental, que tiene como objetivo principal brindar, atender y apoyar a la población más vulnerable del municipio a través de los diferentes programas y diversas áreas. DIF Agua Prieta, ve la necesidad de contar con un personal motivado y bien relacionado dentro del Instituto para brindar servicios asistenciales, atención social y desarrollo familiar. También relacionamos el clima laboral con la motivación en la institución ya que está íntimamente relacionado a las condiciones de trabajo, se toma de referencia la figura N° 1. Para este estudio se tomó de base una encuesta estructurada como una herramienta de recolección de información proporcionada por la empresa MWC S.A de C.V para que se aplicara en la totalidad de los empleados de DIF Agua Prieta para que sus directivos determinen en base a las recomendaciones, las acciones a seguir para una correcta gestión del capital humano.

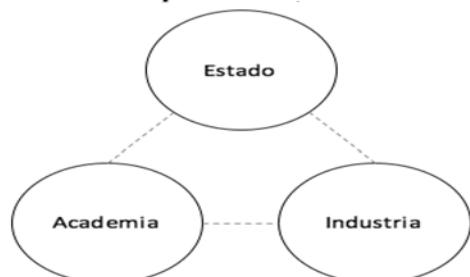
Figura 1: Relación Motivación –Desempeño.



En la figura No. 1 se muestra gráficamente la relación de la motivación con el desempeño laboral y la satisfacción en el trabajador. Autor: Miguel Moreno.

Con total pertinencia en esta investigación, se consideran las necesidades básicas del personal para determinar el clima laboral que predomina actualmente en DIF Agua Prieta, estas necesidades van desde la buena comunicación, la relación con sus compañeros y jefes, condiciones de su área física de trabajo, entre otros aspectos. El compromiso del TecNM con la sociedad es de ser instituciones que propicien el desarrollo económico, social y tecnológico, aunado en apoyar para que sean instituciones productivas y competitivas laboralmente y más tratándose de organismos municipales, que son el eje central del desarrollo de la comunidad, por ello la necesidad de que el clima laboral de DIF Agua Prieta sea lo más estable y armónico posible para que el desempeño de sus trabajadores sea eficiente, no solamente para lograr mayor eficiencia en la institución, sino también para lograr mayor motivación de los empleados. Esta investigación identifica las áreas donde hace falta generar y poner en práctica estrategias en esta institución para mejorar su ambiente de trabajo y por ende elevar la calidad en el servicio y de igual manera el bienestar de los empleados. Se visualizó a la vinculación desde el modelo de la triple hélice con los diferentes sectores que la componen para elevar el factor productividad y mejorar el clima laboral de DIF Agua Prieta, esto beneficiará el ámbito laboral y por consecuencia el logro de los objetivos institucionales y de cada empleado en lo personal.

Figura 2. Modelos de Triple Hélice en esta imagen se observan los actores del modelo de vinculación e innovación triple hélice. ( Etzkowitz, 2003)



*Modelos de Triple Hélice en esta imagen se observan los actores del modelo de vinculación e innovación triple hélice. ( Etzkowitz, 2003).*

## REVISIÓN LITERARIA

En el Tecnológico Nacional de México está existen diversos tipos de planteles que ayudan a que la formación integral de los estudiantes tenga bases fundamentales cuenta con 254 instituciones, de las cuales 126 son Institutos Tecnológicos Federales, 122 Institutos Tecnológicos Descentralizados, cuatro Centros Regionales de Optimización y Desarrollo de Equipo (CRODE), un Centro Interdisciplinario de Investigación y Docencia en Educación Técnica (CIIDET) y un Centro Nacional de Investigación y Desarrollo Tecnológico (CENIDET). Estas atiende a una población escolar aproximada de 650 mil estudiantes en licenciatura y posgrado a nacional, incluida la Ciudad de México, La vinculación realizada entre las instituciones, se relaciona a las tendencias de educación superior. Ver Figura 3

Figura 3: Tendencias en la Educación Superior



*Esta figura muestra las misiones de las tendencias en la Educación Superior: Primera misión; docencia, Segunda Misión; Investigación y Tercera Misión; compromiso social, innovación y emprendimiento. Dando pie a una transferencia de tecnología para el desarrollo regional y del país. (TecNM, 2018).*

El Campus Agua Prieta, actualmente, está integrado por una planta estudiantil muy cercana a los 1000 jóvenes, que están inscritos en las 8 licenciaturas que actualmente se ofertan en el Capus Agua Prieta. Asimismo, su fuerza de trabajo está integrada aproximadamente por 110 trabajadores, un 86% de personal docente y un 14% de personal de apoyo y asistencia a la educación. La triple hélice resalta la relación estratégica entre universidad-empresa-gobierno, iniciando en la década de 1990. El modelo está diseñado para que la universidad sea un potenciador de conocimiento y juega un papel importante entre la relación Empresa y Gobierno y como entre si crean *innovación en las instituciones* como fuente de creación del conocimiento. De igual manera existe un gran potencial para innovar y desarrollar la economía en nuestra sociedad del conocimiento, este híbrido entre universidad, empresa y gobierno genera nuevas formas para producir, trasferir y aplicar el conocimiento. Por lo que surge una renovación creativa entre las tres esferas

que involucra el modelo de la triple hélice, interactuando de manera efectiva para generar innovación en los procesos. Actualmente las empresas o instituciones dependientes del gobierno en México, sufren una serie de problemas en relación con el desempeño humano en las organizaciones y con la adaptación de sus necesidades específicas internas y externas. Algunas de ellas están relacionadas a los mecanismos que las propias instituciones o empresas implementan para lograr o mantener una motivación idónea para un desempeño laboral que mantenga la productividad adecuada para poder dar productos y/o servicios de calidad siempre con enfoque a la satisfacción del cliente.

El concepto de Clima laboral fue introducido por primera vez en psicología industrial y organizacional en las diversas instituciones. (Goleman, 2006). Las descripciones varían desde factores organizacionales puramente objetivos, como estructura, políticas y reglas, hasta atributos percibidos tan subjetivos como la cordialidad y el apoyo, esto ha llevado a que se investigue el aspecto metodológico y en el papel que juega el clima en el desarrollo de la organización. El clima laboral es importante para el desarrollo profesional de los empleados ya que al identificar los indicadores de desempeño acorde al nivel jerárquico, se pueden poner en práctica los factores motivadores por puesto-empleado, para que se eleven los índices de productividad, identidad institucional y calidad en el servicio.

Méndez (2006) manifiesta que el origen del clima organizacional está en la sociología; en donde las organizaciones se basan en teorías de relaciones, hace énfasis en la importancia del ser humano dentro de la fuerza laboral insertada en una sociedad. El clima organizacional es el resultado de la manera de como las personas interactúan dentro un lugar de trabajo donde existen procesos influenciados por valores, actitudes y creencias. Las definiciones anteriores nos permiten definir que el clima laboral es cuando identificamos la importancia de factores que considera cada individuo que esta laboralmente activo que influyen en su comportamiento, donde prevalece la percepción del empleado dentro de su lugar de trabajo. Existen tres principios que explican la conducta humana: 1. La conducta es producto de estímulos externos o internos. Existe una causa para cada conducta. Tanto la herencia como el ambiente influyen decisivamente en el comportamiento de las personas. 2. La conducta es motivada por diferentes razones del comportamiento humano. La conducta no es casual ni aleatoria, sino que se orienta en general hacia un objetivo. 3. En todo comportamiento existe siempre un impulso, deseo, necesidad o tendencia, expresiones con que se designan los motivos de la conducta. Es importante mencionar, que la sinergia entre los involucrados en la triple hélice conlleva a generar resultado óptimo de esta investigación, ya que con la parte académica dando certidumbre de la metodología y aplicación de encuestas, la industria proporcionando la herramienta de recolección de datos y el gobierno poniendo el área de aplicación del instrumento, podemos decir que es una metodología adecuada para generar un buen resultado e esta investigación.

## METODOLOGIA

La metodología utilizada para esta investigación fue de campo, con la finalidad de recolectar datos para poder identificar el clima laboral de los empleados de DIF Agua Prieta, para generar las estrategias pertinentes por la directora de dicho organismo. El presente estudio descriptivo, con un diseño de la investigación de tipo mixta, No experimental ya que no se llevó a cabo ninguna manipulación de las variables, observando el fenómeno de la investigación tal y como se genera en su entorno natural. Se consideró el cuestionario y la entrevista como instrumentos de recolección de información, para obtener datos confiables, contando con una base sólida y basada en la realidad, de tal manera que cada aspecto de la propuesta sea resultado de información objetiva, validándose a través del estudio e interpretación de los cuestionarios aplicados. Este instrumento sirvió para identificar el grado de satisfacción laboral de cada uno de los empleados de DIF Agua Prieta, además se tomó como referencia un modelo de 5 pasos relacionados a la identificación del clima laboral.

### Fijar Los Objetivos del Diagnóstico de Clima Laboral

La función principal de este análisis es medir las percepciones de los empleados en el entorno laboral. Para ello se consideró un diagnóstico para determinar lo que se necesita para mejorar la motivación e innovación por parte de sus empleados. Durante todo el periodo de recolección de información, el equipo encargado se reunía constantemente con los empleados para encuestarlos y preguntarles si lo que estaban implementando en DIF se ajustaba a sus necesidades, si lo creían justo, etc.

#### Herramientas de Medición

**Encuestas:** este recurso es muy útil para recolectar información. Permitirá identificar fácilmente las necesidades y áreas de mejora. Ver Figura 4.

Figura 4: Diseño de Encuesta



**ESTA ENCUESTA SE REALIZA CON LA FINALIDAD DE IDENTIFICAR EL CLIMA LABORAL EN DIF MUNICIPAL DE AGUA PRIETA.**

**INDICACIONES:** Responda cada respuesta en relación a su situación personal dentro de su puesto de trabajo.

1. ¿Está satisfecho con tu jefe inmediato?
  - a) Nunca \_\_\_\_\_
  - b) Casi nunca \_\_\_\_\_
  - c) Algunas Veces \_\_\_\_\_
  - d) Casi siempre \_\_\_\_\_
  - e) Siempre \_\_\_\_\_
2. ¿Cree que su jefe inmediato dirige eficazmente el trabajo en equipo de su área, departamento o proyecto?
  - a) Nunca \_\_\_\_\_
  - b) Casi nunca \_\_\_\_\_
  - c) Algunas Veces \_\_\_\_\_
  - d) Casi siempre \_\_\_\_\_
  - e) Siempre \_\_\_\_\_
3. ¿Su jefe tiene una buena comunicación con usted?
  - a) Nunca \_\_\_\_\_
  - b) Casi nunca \_\_\_\_\_
  - c) Algunas Veces \_\_\_\_\_
  - d) Casi siempre \_\_\_\_\_
  - e) Siempre \_\_\_\_\_
4. ¿Su jefe se asegura de que entienda a la perfección sus actividades y lo que se espera de su trabajo?
  - a) Nunca \_\_\_\_\_
  - b) Casi nunca \_\_\_\_\_
  - c) Algunas Veces \_\_\_\_\_
  - d) Casi siempre \_\_\_\_\_
  - e) Siempre \_\_\_\_\_
5. ¿Los jefes atienden y dan seguimiento a las sugerencias o ideas que propone para mejorar tu trabajo, los programas o actividades que se realicen en su departamento o institución ?
  - a) Nunca \_\_\_\_\_
  - b) Casi nunca \_\_\_\_\_
  - c) Algunas Veces \_\_\_\_\_
  - d) Casi siempre \_\_\_\_\_
  - e) Siempre \_\_\_\_\_
6. ¿Los jefes o encargados de programas trabajan en equipo con el resto de sus empleados?
  - a) Nunca \_\_\_\_\_
  - b) Casi nunca \_\_\_\_\_
  - c) Algunas Veces \_\_\_\_\_
  - d) Casi siempre \_\_\_\_\_
  - e) Siempre \_\_\_\_\_

*Imagen 1, fragmento de la encuesta aplicada a los empleados de DIF Agua Prieta, consta de 32 preguntas con opción múltiple cubriendo los aspectos de: claridad, estándares, responsabilidad, flexibilidad, reconocimiento, y espíritu de equipo.*

**Entrevistas:** grupales o de forma individual. Se preguntó a los empleados qué consideran que puede mejorar en su área (en términos de comunicación, equipo, presupuesto, motivación) qué pueden aportar, qué necesitan, qué conflictos tienen, por qué se generan, cómo los resolverían, entre otras cosas.

#### Detección de Aspectos Críticos del Clima Laboral

Para detectar los factores que están dañando el clima laboral, se miden desde su nivel afectación y sus causas. Se dan a conocer los aspectos más importantes a evaluar en el diagnóstico para conocer el verdadero sentir de los empleados:

*Claridad:* todos los empleados saben cuáles son sus actividades y lo que se espera de ellos

*Estándares:* DIF debe dar a conocer los objetivos de cada área o colaborador

*Responsabilidad:* los empleados cuentan con autoridad, conocimientos y elementos para lograr sus objetivos.

*Flexibilidad:* la institución confía en sus trabajadores, por lo que no tiene que imponer reglas ni procedimientos innecesarios.

*Reconocimiento:* los logros de todos los colaboradores se toman en cuenta y son recompensados.

*Espíritu de equipo:* todos pueden trabajar en armonía y ayudarse entre sí; los empleados se sienten orgullosos de representar y laborar en DIF.

#### Analiza El Entorno Físico de tu Empresa

Este punto puede ser considerado innecesario, pero es relevante. El entorno físico y la distribución del espacio pueden afectar el rendimiento de las personas. Algunos aspectos de estilo o decoración pueden mejorar el clima laboral de tu empresa.

#### Interpretación de los Datos Obtenidos

La información recopilada se analiza y se interpretan los resultados para obtener conclusiones y generar estrategias de mejora. Para el diseño de un programa de clima laboral y de motivación, se deben identificar los factores que influyen para tal fin, para que de estos factores se determinen los componentes del programa de mejora de clima laboral que deben ser incluidos dentro del programa específico para DIF Agua Prieta. Se efectuó un despliegue durante 6 semanas con docentes y 4 alumnas para realizar entrevistas y la aplicación del instrumento en el sitio mediante un cuestionario diseñado específicamente para determinar el clima laboral de DIF Agua Prieta.

## RESULTADOS

Como resultado obtenido de esta investigación se muestra la tabla 1.

Tabla 1: Tabulación de Resultados

Rubro Evaluado / Pregunta	3	4	9	10	11	20	24	30	31
Claridad	siempre	siempre	si	si	no	algunas veces	nunca	si	siempre
Rubro Evaluado / Pregunta	1	8	21	22	23	29			
Estándares	siempre	casi siempre	algunas veces	algunas veces	nunca	no			
Rubro Evaluado / Pregunta	12	27	28	16					
Responsabilidad	simepre	casi nunca	casi nunca	casi nunca					
Rubro Evaluado / Pregunta	5	7							
Flexibilidad	casi siempre	siempre							
Rubro Evaluado / Pregunta	17	18	19						
Reconocimiento	algunas veces	algunas veces	algunas veces						
Rubro Evaluado / Pregunta	2	6	14	15	25	26	32	13	
Trabajo en equipo	siempre	casi simrpe	casi siempre	nunca	casi nunca	casi nunca	si	siempre	

*En esta tabla se muestran los resultados obtenidos de las preguntas de la encuesta por rubros considerados para determinar el clima laboral de DIF Agua Prieta.*

Los resultados de esta investigación con relación a la tabla 1, se describen a continuación por rubro evaluado. En el rubro de claridad se muestra que los jefes tienen una buena comunicación con sus empleados y se aseguran de que entiendan bien sus actividades. Los empleados están de acuerdo con el horario asignado, así como su salario, pero no tienen seguridad laboral por los tipos de contratos, reciben retroalimentación de sus jefes algunas veces, pero no siempre, manifiestan no contar con manuales o guías para realizar su trabajo, se sienten orgullosos de trabajar en DIF. En el rubro de estándares la mayoría de los trabajadores está satisfecho con su jefe inmediato, casi siempre les piden opinión y son tomadas en cuenta, se observa que algunas veces se le brindan las herramientas para dar solución a sus actividades, las evaluaciones de desempeño son esporádicas, nunca o casi nunca se les brinda capacitación y mas de la mitad del personal no conoce la misión, visión, valores y objetivos de la Institución. En el rubro de responsabilidad se observa que existe retroalimentación por parte de los jefes hacia sus empleados, pero se resalta que las decisiones que toman los jefes o directivos casi nunca son justas, difícilmente tienen acceso a tecnología de punta o materiales extras para realizar su trabajo. En el rubro flexibilidad casi siempre se atienden y dan seguimiento a propuestas de los empleados y se les da libertad de expresar sus ideas o sugerencias. En el rubro de reconocimiento, solo algunas veces los empleados se sienten que no son aprovechados correctamente, solo algunas veces son reconocidos o felicitados por sus logros o buen desempeño por parte de sus jefes o directivos. En el rubro de trabajo en equipo los empleados piensan que casi siempre sus jefes dirigen eficazmente el trabajo en equipo, existe el respeto entre ambas partes, piensan

que sus compañeros de trabajo no son conflictivos, no hay personal que pueda realizar las actividades si alguien falta al trabajo y se sienten felices en su trabajo.

## CONCLUSIONES

El modelo de la triple hélice en esta investigación se aplicó considerando los beneficios que podría aportar. El TecNM campus Agua Prieta-DIF Municipal- Empresa MWC S.A. de C.V. conformaron este modelo para brindar un beneficio a uno de sus integrantes. Las estrategias que se deberán de realizar por parte de DIF, deberán ser consideradas partiendo de la información recolectada de sus empleados y considerar que es muy importante mantener un ambiente de trabajo agradable, de colaboración para lograr las metas y objetivos establecidos por la Institución. Los resultados obtenidos se pudieron lograr gracias a la directora de DIF Agua Prieta, quien dará el seguimiento correspondiente a cada uno de los aspectos indicados para lograr un mejor clima laboral en busca de que sus empleados sean más productivos, creativos y más motivados en sus puestos de trabajo tomando en cuenta los aspectos de innovación y los señalados en los resultados.

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# CONSUMO DE MÚSICA EN STREAMING Y EL IMPACTO DE TIKTOK

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## RESUMEN

*La música es parte fundamental de la vida del ser humano, donde la tecnología actualmente permite escuchar música desde diversos dispositivos ofreciendo un amplio catálogo musical a sus usuarios en todo momento. El objetivo de este estudio es analizar el comportamiento del consumidor de plataformas de música en streaming y la relación entre TikTok y las reproducciones de una canción en dichas plataformas. Para lograr esto, se realizó un cuestionario en base a preguntas recopiladas a partir de diversas fuentes, dividido en información básica de los encuestados, redes sociales, hábitos musicales, música en streaming y relación entre música en streaming y redes sociales. El cuestionario fue realizado en la plataforma SurveyMonkey y difundido en redes sociales como Instagram, WhatsApp y Twitter, obteniendo un total de 358 respuestas válidas. Los resultados evidencian que las redes sociales más usadas son Instagram y WhatsApp, las plataformas de música en streaming más usadas son Spotify y YouTube. Existen dos segmentos llamados "Amantes de la música" y "Oyentes pasivos". Asimismo, se determinó que existe una relación positiva entre la red social TikTok y las reproducciones de una canción en las plataformas de música en streaming.*

**PALABRAS CLAVE:** Música, Streaming, Redes Sociales

## MUSIC STREAMING CONSUMPTION AND THE IMPACT OF TIKTOK

### ABSTRACT

*Music is a fundamental part of the life of the human being, where technology currently allows listening to music from various devices offering a wide musical catalog to its users at all times. The objective of this study is to analyze the consumer behavior of streaming music platforms and the relationship between TikTok and the plays of a song on these platforms. To achieve this, a questionnaire was conducted based on questions collected from various sources, divided into basic information of the respondents, social networks, musical habits, streaming music and relationship between streaming music and social networks. The questionnaire was carried out on the SurveyMonkey platform and disseminated on social networks such as Instagram, WhatsApp and Twitter, obtaining a total of 358 valid responses. The results show that the most used social networks are Instagram and WhatsApp, the most used streaming music platforms are Spotify and YouTube. There are two segments called "Music Lovers" and "Passive Listeners." It was also determined that there is a positive relationship between the social network TikTok and the reproductions of a song on streaming music platforms.*

**JEL:** M39

**KEYWORDS:** Music, Streaming, Social Media.

## INTRODUCCIÓN

La música es una de las principales formas de expresión artística y es una de las maneras más importantes usadas por diferentes culturas a través de los años para definir su identidad. Por otro lado, la música también es una industria altamente lucrativa que genera ganancias de billones de dólares (Throsby, 2002). Es por esto que la industria musical ha tenido que reinventarse a través de los años dados los cambios tecnológicos que han surgido, como pasar del casete al CD, y luego a la música digital, volviéndose las redes sociales un método fundamental para promocionar música y lograr ventas tanto físicas como digitales y reproducciones en plataformas musicales como Spotify y Apple Music, adquiriendo así un rol crítico (Musicians Institute, 2021). Es aquí donde se vuelve importante la red social TikTok. Durante los últimos 3 años, TikTok se ha convertido en la red social de moda entre los jóvenes y no tan jóvenes, teniendo un aumento exponencial en épocas de cuarentena por la pandemia del COVID-19. Esta aplicación tenía alrededor de 55 millones de usuarios a nivel global en enero de 2018, creciendo a más de 271 millones a fines del mismo año y a 507 millones en diciembre de 2019 (Bursztynsky, 2021).

Ya a finales del año 2021, según reporta la misma compañía, TikTok ya celebra 1 billón de usuarios activos al mes, confirmando así su popularidad hoy en día. Esta red social se basa principalmente en la creación de contenido audiovisual corto (entre 6 segundos a 1 minuto) que contienen bailes, humor, lip-sync, etc. La creciente popularidad de la aplicación ha hecho que esta se convierta en una herramienta para que los artistas puedan acercarse a sus públicos, personas como cantantes, deportistas, actores, influencers hacen uso de esta para crear contenido más cercano logrando que muchas personas se creen un usuario, no para subir contenido, sino para no perderse ninguna novedad (Llorca Palomero, 2021). El audio detrás de cada video es fundamental, ya que este es el principal objeto que capta la atención de los espectadores, en la aplicación está lleno de audios de series, películas, canciones y remixes que algunos usuarios realizan de estas. Dado lo anterior es que la música se vuelve parte fundamental, logrando que artistas desconocidos o nuevas canciones de artistas reconocidos salgan a la palestra y se vuelvan virales. Tal es el ejemplo de Stunna girl, una rapera estadounidense que vio como su single lanzado en febrero de 2019 se volvió conocido recién en diciembre de dicho año gracias a la red social, logrando más de 18.6 millones de reproducciones (Toscher, 2021). Dada la popularidad que ha logrado adquirir TikTok, surge la necesidad de la industria musical de analizar si es esta red social donde deben empezar a enfocar mayoritariamente sus esfuerzos. Es por esto el problema de investigación a desarrollar tendrá relación con ambos conceptos, la música y la red social TikTok. Se pretende descubrir si existe una relación entre la viralización de una canción a través de la red social y sus reproducciones en plataformas musicales, mediante el análisis del comportamiento del consumidor de música en streaming y las percepciones de los principales usuarios de estas aplicaciones, quienes corresponderían a adolescentes y adultos jóvenes.

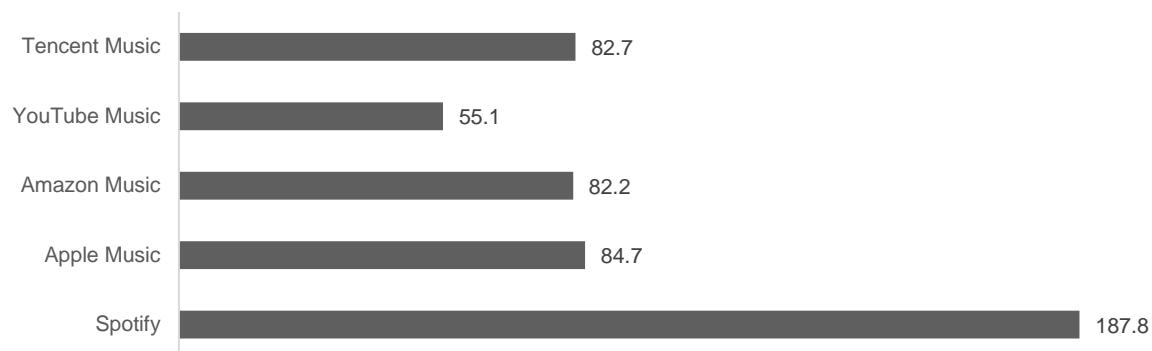
## REVISIÓN LITERARIA

### Industria de la Música

Dado los avances de la tecnología y la globalización existente en la actualidad es que la industria musical se ha visto en la necesidad de ir cambiando su modelo de negocios para ir al corriente con las necesidades y preferencias de los consumidores. Durante los últimos diez años, la digitalización de contenido y el desarrollo de Internet no solo han reducido los costos de reproducción dramáticamente, sino que también han tenido fuertes efectos en todas las etapas de la industria, desde la creación hasta la promoción de la música (Bourreau et al., 2008). Es así como la industria ha pasado por distintos formatos de comercialización del contenido comenzando por el Casete, el cual desde mediados de la década de 1970 tuvo su éxito, pero cuando realmente se masificó y se volvió tan popular fue en los 80 sobre todo con la llegada de los reproductores portátiles: los Walkman 1. Pasando luego al Compact Disc (CD) lanzado por primera vez por el grupo ABBA en 1982 y volviéndose en la plataforma de reproducción más popular durante los 90 y la década de los 2000. (McCourt, 2005)

En esta época se volvió popular la piratería de los archivos de música a través de internet lo cual intentó compensar con Apple en 2003 con su tienda de música en formato digital (iTunes) la cual venía disponible en sus dispositivos de reproducción. Pese a esto, la comercialización continuó siendo la plataforma más popular hasta la época de los 2010, cuando comienza el auge de la plataforma de reproducción en línea Spotify (El Gamal, 2012). Es ahí cuando el público dispone de ofertas más atractivas que el formato físico, en cuanto a precios y productos. Mientras que por un CD se podía pagar hasta más de 10 € (9.500 CLP aprox.), actualmente por ese precio se dispone de un catálogo de música infinito de diferentes artistas y géneros, en directo y a disposición del usuario en cualquier lugar (Gómez Herrero, 2021). La música en streaming se encuentra actualmente en su auge a nivel global y se proyecta alcanzaría ingresos de USD 13.660 millones en 2022 (Statista, 2022). Había 616,2 millones de suscriptores a mediados de 2022, un 7,1 % más que a fines de 2021. Las adiciones netas totales de suscriptores durante los primeros seis meses de 2022 (42,1 millones) fueron inferiores a los 53,8 millones que se agregaron un año antes, insinuando la desaceleración de la economía mundial (Mulligan, 2022).

Figura 1: Millones de Usuarios Suscritos Por Plataforma de Música en Streaming.



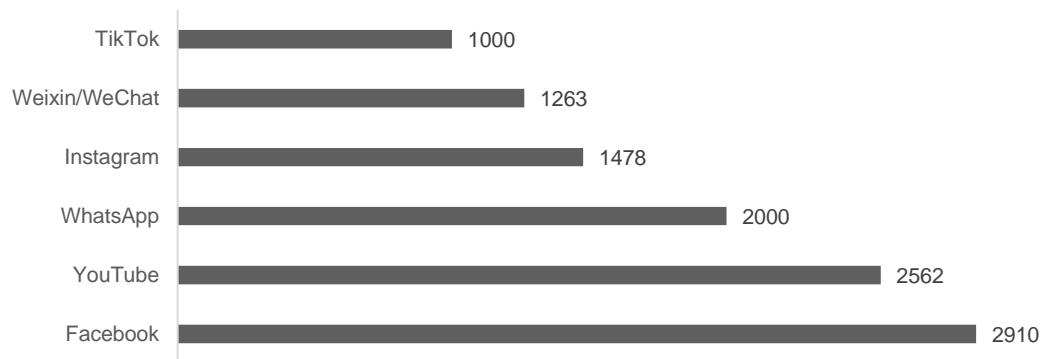
*La Figura 1 muestra las plataformas de música en streaming más populares a nivel mundial según la cantidad de millones de usuarios suscritos en el segundo trimestre de 2022. Al respecto destaca Spotify como la plataforma más popular, seguido de Apple Music, Tencent Music y Amazon Music. Fuente: Elaboración propia con datos de Mulligan (2022).*

En ese contexto y de acuerdo con la Figura 1, la plataforma más popular a nivel mundial es Spotify alcanzando 187,8 millones de suscriptores en el segundo trimestre de 2022, sin embargo, su participación de mercado se ha erosionado constantemente desde el cuarto trimestre de 2020, y su participación del 30,5 % en el segundo trimestre de 2022 disminuyó desde un máximo del 33,2 % en el segundo trimestre de 2018 (Mulligan, 2022). El resto del mercado a nivel mundial se lo reparten entre Apple, Amazon y YouTube. De acuerdo a Mulligan (2022) si bien YouTube y Amazon ganaron participación en 2022, aunque a un ritmo decreciente, Apple Music ocupa el segundo lugar con sus 84,7 millones de suscriptores registrando una participación de mercado del 13,8%, un 1,2% menos que en el segundo trimestre 2021.

### Redes Sociales

Las redes sociales son “comunidades formadas por diferentes usuarios y organizaciones que se relacionan entre sí en plataformas de Internet” (Peiró, 2017). De acuerdo con la Figura 2, Actualmente la red social más popular medida por número de usuarios activos sigue siendo Facebook seguido de cerca por Youtube.

Figura 2: Millones de Usuarios Activos Por Red Social



*La Figura 2 muestra las redes sociales más populares a nivel mundial según la cantidad en millones de usuarios activos a enero de 2022. Al respecto destaca Facebook como la red social más popular seguido de YouTube y WhatsApp. Fuente: Elaboración propia con datos de Statista (2022).*

En este contexto, destaca TikTok por su explosivo crecimiento durante la pandemia por COVID-19, donde según reportó según reportó la misma red social (TikTok, 2021), ya en 2021 alcanzó 1 billón de usuarios.

#### Relación Entre el Consumo de Música y el Uso de Redes Sociales.

El uso global de los sitios de redes sociales por parte de los consumidores ha experimentado un crecimiento significativo en los últimos años, tanto en términos del uso como de la cantidad de tiempo que pasan en promedio en estos sitios. Esta explosión en su uso ha generado un aumento en la interacción de consumidor a consumidor y los esfuerzos de marketing para capitalizar estos medios para interactuar con los consumidores (Bailey et al., 2021). A raíz de lo anterior es que la industria musical también ha evolucionado para aprovechar al máximo esta tendencia, cambiando su manera de funcionar a como era años atrás. Las redes sociales se convirtieron en una vía importante para que los músicos alcancen audiencias, no solo a nivel nacional sino a escala global. Redes sociales como Instagram, Twitter y TikTok se han convertido en un lugar común para los artistas y les permite interactuar con los fanáticos de muchas maneras. Los fanáticos pueden escuchar música, acceder a calendarios de conciertos en vivo, merchandising y comentar en cualquier sitio web. Esto crea una vía de comunicación bidireccional entre los músicos y los fanáticos habilitando el feedback. (Aponte, 2011) Juntos, las redes sociales y la industria de la música crean una armonía única. Dos de cada tres (63 %) de los usuarios están de acuerdo en que están descubriendo nuevos artistas en las redes sociales. Casi el 60 % de los usuarios de las redes sociales visitan los servicios de transmisión para escuchar música después de ver una actualización, un tweet o una publicación. En Facebook, la actividad musical más valorada es poder compartir enlaces a música desde servicios de transmisión, incluidas las listas de reproducción. (Crupnick, 2018)

De lo anterior se desprende la importancia para la música en la actualidad de redes sociales como TikTok. Artistas como Lil Nas X, quien alcanzó un récord de 17 semanas en el primer lugar del ranking de Billboard con su canción “Old town road” en 2019 gracias a su viralización en dicha red social. La promoción funcionó porque Hill (Lil Nas X) entendió brillantemente cómo manipular los insaciables algoritmos de las redes sociales. El usuario era la estrella, mientras que la canción se usaba como tema de fondo pegadizo para bromas visuales y diversión, lo que la hacía agradable y compatible. Fue un meme que se convirtió en canción, y su creador fue una estrella viral que se convirtió en una estrella del pop no tan accidental (Shortlidge, 2019). Finalmente, según una encuesta realizada por Ypulse (2019) las formas preferidas de los consumidores de descubrir nueva música son a través de las recomendaciones de las mismas plataformas de streaming de música, redes sociales, y recomendaciones de amigos, independiente el rango etario.

## METODOLOGÍA

El estudio comienza con una revisión de literatura a través de distintas fuentes para elaborar un cuestionario (Richard et al. 2012; Devasagayam et al., 2016; Danviriyakul & Miller, 2017; Gamón, 2018; Oyedele y Simpson, 2018; Berbineau & Fink, 2020; Barata y Coelho, 2021). El cuestionario se divide en cinco secciones que agrupan temáticas relevantes para el estudio: redes sociales, hábitos musicales, música en streaming, música en streaming y redes sociales, e información básica de los encuestados. Luego se procede con la operación de campo a través de la plataforma online SurveyMonkey durante los meses de abril y mayo de 2022. La encuesta fue difundida en redes sociales como Instagram, WhatsApp y Twitter, como también presencialmente siguiendo un muestreo no probabilístico por conveniencia donde el público objetivo corresponde a personas que escuchan música en alguna plataforma de streaming, logrando de esta forma un total de 385 respuestas de las cuales un 92,99 % resultan válidas (358 respuestas completas). Posteriormente se desarrolla el análisis de los datos usando el software IBM SPSS Statistics 28, primero se desarrolla un análisis descriptivo de la muestra obtenida y en segundo lugar se realiza un análisis clúster bietápico para así encontrar el número de clústeres óptimo y luego con el método k-medias para caracterizar a cada segmento. Finalmente se discuten las implicancias de los hallazgos.

## RESULTADOS

De las 358 respuestas válidas, 193 personas se identifican con el género femenino lo que equivale a más de la mitad de la muestra (53,9 %). Por otro lado, 43,9 % se identifica con el género masculino, mientras que un 1,1 % se identifica como no binario o prefiere no revelarlo. Respecto de la edad de los encuestados el rango etario predominante corresponde a 22 - 28 años con un 67 % de las respuestas. Respecto de sus hábitos musicales, los encuestados manifiestan que escuchan entre 1 a 2 horas diarias de música (29,9%) seguido de 2 a 3 horas (20,4%). Principalmente escuchan música desde sus teléfonos (73%) y computadores (17%). En ese contexto, el principal propósito de estos al escuchar música es disfrutar (93,6 %) y en segundo lugar relajarse del estrés con el 70,4 % de la preferencias, y en tercera posición el propósito de ponerse al día con música nueva (28,2 %). Adicionalmente, el género más escuchado por los encuestados es el Pop seguido del Reggaeton. Asimismo, los encuestados manifiestan estar totalmente de acuerdo con que la música es una parte importante de sus vidas (56,42%).

En cuanto a las plataformas de música en streaming, más de tres cuartos de los encuestados escoge Spotify (80,45 %) seguido por YouTube (15%) y Apple Music (3%). Acá es importante destacar que la muestra evidencia diferencias respecto de la tendencia mundial mostrada en la Figura 1 anteriormente. Ahora bien, el 80,56% de los encuestados usuarios de Spotify paga por el servicio, mientras que solo el 27,45% de los usuarios de YouTube paga por el servicio. Esto revela distintos perfiles de usuario en cada plataforma. Respecto de la experiencia de uso, más de la mitad de estos (58,66 %) declara tener entre 3 a 7 años de experiencia usando estas plataformas de música en streaming. Posteriormente se analizan los atributos mejor y peor valorados por los usuarios de estas plataformas de streaming, al respecto, cabe destacar la facilidad de uso percibida y la capacidad de la plataforma para ayudar a explorar y descubrir música nueva, además de la importancia de las listas de reproducción personalizadas y la capacidad de estas plataformas de adaptarse a distintos dispositivos.

Tabla 1: Valoración de Atributos de Plataformas de Música en Streaming

Ítems Pregunta 11 (Likert 1 A 5)	Media	Moda	Desv. Estándar
Me gustan las plataformas de música en streaming porque puedo escuchar contenido cuando y donde quiera.	4,53	5	0,713
Es importante para mí poder crear mis propias playlist personalizadas.	4,52	5	0,758
Creo que los servicios de música en streaming son fáciles de usar.	4,51	5	0,713
Me gusta que las plataformas de música en streaming me entreguen estadísticas de mis hábitos de escucha a fin de año.	4,21	5	0,995
Las plataformas de música en streaming me permiten conocer nuevos artistas.	4,20	4	0,808
Siento que las opciones de explorar de las plataformas de música en streaming me dan nuevas ideas de que escuchar.	4,00	4	0,861
Las aplicaciones de música en streaming me permiten escuchar música recomendada por mis amigos.	3,81	4	0,921
Es importante para mí que el servicio de música en streaming me sugiera canciones, artistas o podcast.	3,79	4	1,009
Me divierte interactuar con las plataformas de música en streaming.	3,65	3	0,908
Las aplicaciones de música en streaming significan más para mí que otras aplicaciones.	3,26	3	1,035

*La Tabla 1 muestra medidas de tendencia central y dispersión por cada reactivo utilizado en la pregunta 11. En esta pregunta se buscó evaluar la importancia de atributos que tienen las plataformas de música en streaming, para esto se utiliza una escala Likert de 5 puntos desde 1 Totalmente en desacuerdo a 5 Totalmente de acuerdo. Se puede apreciar que la capacidad de adaptarse al contexto, la posibilidad de crear listas personalizadas, y la facilidad de uso de las plataformas de música en streaming son importantes.*

En cuanto al uso de redes sociales, casi la totalidad de los encuestados utiliza con frecuencia Instagram (92,7 %), mientras que WhatsApp se posiciona en el segundo lugar como la red social más utilizada (87,7 %), y en tercer lugar aparece TikTok con un 43% de usuarios en la muestra. Es importante destacar que la muestra evidencia algunas diferencias respecto de los usuarios activos a nivel mundial mostrados en la Figura 2 anteriormente. Siguiendo con el análisis, 63,97 % de ellos afirma conocer nueva música por medio de YouTube. Por otro lado, otras opciones preferidas por los encuestados son Instagram y TikTok con casi la mitad de las preferencias (59,22 % y 48,32 % respectivamente). Además, el 44,41% conoce nueva música por medio de las recomendaciones de la plataforma de música que usan y el 42,74% por recomendaciones de otras personas. Sobre las acciones que realizan los encuestados cuando les gusta una nueva canción, 81,51 % de ellos la agrega a una de sus listas de reproducción, mientras que un 73,39 % responde buscar más canciones de ese artista. Por otro lado, 13,45 % de ellos afirma compartir este nuevo descubrimiento musical con sus amigos o familiares y solo un 18,21 % lo sube a sus historias de Instagram o TikTok. En esa misma línea, solo un 18,16% de los encuestados manifiesta estar totalmente de acuerdo con que es importante compartir música en redes sociales. Finalmente, acerca de la relación de la red TikTok y las plataformas de música, el 46,09 % de los encuestados está totalmente de acuerdo o de acuerdo con que suelen escuchar música en las plataformas de música en streaming que escucharon previamente en TikTok.

### Análisis Cluster

Complementando el análisis descriptivo antes expuesto se desarrolla un análisis de segmentación buscando identificar perfiles de usuarios presentes en la muestra. Para lograr esto se realizó una iteración mediante distintas combinaciones de preguntas del cuestionario hasta obtener el resultado mostrado en la siguiente Figura.

Figura 4: Resumen Análisis Cluster Bietápico

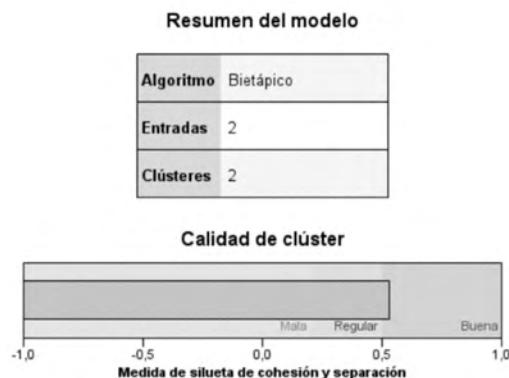


Figura 4: resultados análisis cluster bietápico usando las variables “Valoró la música como parte importante de mi estilo de vida” y “Es importante para mí poder compartir música, playlist o podcast en redes sociales”, ambas medidas en escala Likert de 1 a 5 donde 1 es Totalmente en desacuerdo y 5 es Totalmente de acuerdo. Al respecto, se aprecia una buena calidad de cluster en cuanto a su medida de cohesión y separación, es decir, se encontraron segmentos homogéneos dentro de si y heterogéneos entre ellos.

Luego se procedió a caracterizar a cada cluster cruzando la variable cluster de pertenencia con otras variables presentes en el cuestionario. De este modo, en primer lugar están los "Amantes de la música", quienes están totalmente de acuerdo con que la música es parte fundamental en su estilo de vida y les gusta compartir lo que escuchan en redes sociales. Este segmento corresponde al 70,96 % de la muestra y se compone principalmente por personas del género femenino entre 22 y 28 años. Gran parte de este grupo utiliza con mayor frecuencia redes sociales como Instagram, WhatsApp y TikTok. Además escuchan música entre 1 a 3 horas diariamente, les divierte interactuar con las plataformas de música en streaming y que estas les entreguen estadísticas de sus hábitos musicales anualmente. Al ser un grupo que aprecia el nexo entre las plataformas de música y las redes sociales, suelen conocer música nueva a través de redes como Instagram, YouTube y TikTok. En adición a lo anterior, casi la mitad de ellos escucha música en las plataformas de música en streaming que previamente escuchó en TikTok. El segundo lugar, se identificó el clúster denominado "Oyentes pasivos", para quienes la música les es indiferente en su estilo de vida y compartir está en sus redes sociales no es de su agrado. Este clúster corresponde al 29,05 % de los encuestados, y se compone mayoritariamente por personas del género masculino entre 22 y 28 años. En general este segmento utiliza con mayor frecuencia redes sociales como WhatsApp, Instagram y Facebook. Asimismo, este segmento escucha música entre 0 a 2 horas diariamente, conoce nueva música a través de Instagram, YouTube y recomendaciones de otros o de la misma plataforma de música y les es indiferente interactuar con las plataformas y recibir estadísticas personales a fin de año por parte de la plataforma. Con respecto al nexo entre la música y las redes sociales, parte de este clúster escucha música que con anterioridad escuchó en TikTok (aproximadamente 40 %), mientras que la mayoría está en desacuerdo con dicha afirmación.

## CONCLUSIONES

Se logró determinar algunas conductas y características de los consumidores de estas plataformas. Entre ellas destacan la edad de los usuarios, quienes en su mayoría tienen entre 22 y 28 años y el género, ya que levemente son más personas del sexo femenino quienes utilizan estas plataformas. Con respecto a las redes sociales utilizadas por los usuarios de las plataformas de música en streaming se identificó que las más utilizadas son WhatsApp e Instagram seguido de TikTok. Sobre los hábitos musicales, se determinó que mayoritariamente los usuarios escuchan música durante 1 a 2 horas diariamente con el propósito de disfrutar de ella y relajarse del estrés y a través de sus teléfonos celulares. Dentro de las plataformas de música en streaming como tal, se pudo identificar que la gran mayoría del usuarios cuenta con más de tres años de

experiencia en estas plataformas y la plataforma más utilizada es Spotify seguida de YouTube, la primera de ellas en su versión de pago y la otra en su versión gratuita. En lo que respecta a la relación entre las redes sociales y las plataformas de música en streaming, se identificó que estas son la principal vía para que los usuarios descubran nuevas canciones, específicamente YouTube, Instagram y TikTok respectivamente. Además, parte importante de ellos considera importante la posibilidad que otorgan las plataformas de música de compartir la música que escuchan en redes sociales. Por otro lado, en el análisis clúster realizado se pudieron identificar dos segmentos de usuarios distintos: "Amantes de la música" y "Oyentes pasivos". Finalmente, con respecto a la pregunta planteada inicialmente sobre si TikTok produce un impacto en las reproducciones de una canción, se puede concluir que hay cierto segmento de los usuarios de las plataformas de música en streaming que si ve influenciadas sus preferencias musicales por dicha red social independiente del reconocimiento previo que tenga el artista. Este grupo principalmente corresponde a personas jóvenes a quienes les apasiona la música.

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# SISTEMA INTERNO DE ASEGURAMIENTO DE LA CALIDAD EN LA EDUCACIÓN SUPERIOR

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## RESUMEN

*Históricamente se ha otorgado a la educación superior la responsabilidad de entregar propuestas y soluciones ante la problemática del entorno. Sin embargo, la evolución de los sistemas educativos frente a otros sectores productivos y económicos, no avanza en la misma proporción. Frente a esta realidad, se plantea como objetivo diseñar un sistema interno de aseguramiento de la calidad, que permita a las instituciones de educación superior, dinamizar los procesos misionales de forma organizada, prospectiva y garantizando su participación pertinente y efectiva en la problemática del país. La investigación es cualitativa teniendo en cuenta la revisión bibliográfica exhaustiva de diferentes autores y modelos educativos y de gestión. Adicionalmente, se sustenta en una metodología de investigación - acción, con la participación de la comunidad académica de varias universidades colombianas. El Sistema Interno de Aseguramiento de la Calidad dinamiza la operatividad del plan de desarrollo institucional. Está constituido por dos elementos que funcionan de manera articulada, el Modelo de Autoevaluación y Autorregulación junto con el Sistema Integrado de Calidad. Estos a su vez, son apoyados por un sistema de información interno y externo. Se vinculan al interno los ejes, académico, gestión humana y gestión financiera, y al externo la información reportada a los diferentes organismos que regulan la educación superior en Colombia. Las universidades que implementaron el sistema propuesto, logran generar aportes, propuestas y soluciones pertinentes a la problemática del país a través de la mejora continua de sus procesos misionales, con la participación comprometida de la comunidad académica.*

**PALABRAS CLAVE:** Educación Superior, Sistema de Aseguramiento de la Calidad, Calidad

## INTERNAL SYSTEM QUALITY ASSURANCE IN HIGHER EDUCATION

### ABSTRACT

*Historically, higher education has had the responsibility of delivering proposals and solutions to environmental problems. However, the evolution of educational systems in comparison with other productive and economic sectors, does not advance in the same proportion. Faced with this reality, the objective is to design an internal quality assurance system that allows higher education institutions to energize missionary processes in an organized, prospective manner and guaranteeing their relevant and effective participation in the country's problems. The research is qualitative taking into account the exhaustive bibliographical review of different authors and educational and management models. Additionally, it is based on an action-research methodology, with the participation of the academic community of various Colombian universities. The Internal Quality Assurance System streamlines the operation of the institutional development plan. It is made up of two elements that work in an articulated way, the Self-assessment and Self-regulation Model together with the Integrated Quality System. These, in turn, are supported by an internal and external information system. The axes, academic, human management and financial management, are linked to the internal, and the information reported to the different organizations that regulate higher education in Colombia to the external. The universities that implemented the proposed system manage to generate contributions, proposals and pertinent solutions to the country's problems through the continuous improvement of their missionary processes, with the committed participation of the academic community.*

**JEL:** I23, I25, I28

**KEYWORDS:** Higher Education, Quality Assurance System, Quality

## INTRODUCCIÓN

Desde 1945 la Organización de las Naciones Unidas para la Educación, la Ciencia y la Cultura (UNESCO), impulsa la educación a través de una serie de iniciativas que dinamizan la agenda de políticas en búsqueda de garantizar inclusión, equidad y calidad. En consecuencia, se establece como una prioridad para el desarrollo de las naciones (UNESCO, 2015). A finales de la década de los 90, en Latinoamérica se implementan estrategias para llevar a cabo los acuerdos asumidos en la Conferencia Mundial sobre la Educación Superior en el siglo XXI. La calidad de la educación superior se enfoca en garantizar, adecuadas condiciones físicas y de infraestructura tecnológica, eficiencia en la gestión en el marco de la autonomía responsable y la calidad docente (Vaillant & Rodríguez, 2018). Lo anterior constituye un hito teniendo en cuenta que, frente a una creciente demanda, diversificación y expansión de la educación superior, se incorporan en el tiempo otras dimensiones que generan una perspectiva compleja de la calidad. Se promueve la calidad de los proyectos educativos institucionales, considerando la relevancia y pertinencia social. De igual forma se contemplan temas como, acceso, permanencia deserción estudiantil.

Con relación al profesorado, se incluyen aspectos relacionados a la producción académica e investigativa. Otra dimensión, son los procesos académicos enmarcados en la integralidad, flexibilidad, interdisciplinariedad curricular, internacionalización y resultados del aprendizaje. Por último, se tiene en cuenta, los compromisos con la investigación y bienestar institucional (Consejo Nacional de Acreditación, 2013), (CEAACES, 2015). En la actualidad, toma relevancia el impacto del quehacer universitario en el marco de sus funciones sustantivas, docencia, investigación, proyección social y las dimensiones de bienestar e internacionalización, con el fin de poner en evidencia el cumplimiento de su responsabilidad y contribución a la transformación de cada uno de los actores que hacen parte de la sociedad (Consejo Nacional de Educación Superior , 2022). De igual forma Colombia ha tenido en cuenta los diferentes acuerdos internacionales incluyendo los Objetivos de Desarrollo Sostenible y los planteamientos de la Organización para la Cooperación y el Desarrollo Económico (OCDE). En un principio evidencia la calidad enfatizando recursos y capacidades institucionales y de programas.

Sin embargo, en las dos últimas décadas observa importantes avances en la concepción del sistema de aseguramiento de la calidad. Incorpora resultados del aprendizaje y medición del impacto, es decir, la contribución de las instituciones de educación superior con el desarrollo del país (Consejo Nacional de Educación Superior, 2014). Pese a los esfuerzos y avances logrados en materia de calidad, la educación se comporta de una manera conservadora. En los actuales momentos en que la sociedad está en medio de grandes transformaciones, se requiere su rápida adaptación y articulación con los sectores productivos y sociales. En Colombia se proyecta la educación en perspectiva al 2034. Para esto se establecieron diez temas estructurales que permitirán el logro de este objetivo. Educación inclusiva; calidad y pertinencia; investigación; regionalización; articulación de la educación media con la educación superior y la formación para el trabajo y el desarrollo humano; comunidad universitaria y bienestar; nuevas modalidades educativas; internacionalización; estructura y gobernanza del sistema y sostenibilidad financiera (Consejo Nacional de Educación Superior, 2014). Frente a esta realidad, se plantea diseñar un sistema interno de aseguramiento de la calidad, que permita a las instituciones de educación superior, dinamizar los procesos misionales de forma organizada, prospectiva y garantizando su participación pertinente y efectiva en la problemática del país. Tomando en cuenta que la economía del conocimiento demanda la transformación de las estructuras tradicionales de las instituciones de educación superior, a fin de involucrarse proactivamente en los escenarios económicos, políticos, sociales, ambientales y culturales.

El documento se organiza como sigue. En la revisión literaria se exponen argumentos teóricos relevantes relacionados al concepto de la calidad que da cabida al análisis dimensional a través del tiempo, junto con la revisión del marco normativo en el que se encuadra la propuesta. Posteriormente se presenta la metodología de trabajo, basada en un proceso de investigación - acción, con la participación de la comunidad académica de varias universidades colombianas. Seguidamente, se describe la propuesta de un Sistema Interno de Aseguramiento de la Calidad (SIAC) implementado en algunas universidades colombianas, cuyos resultados obtenidos en los últimos cinco años permiten escalarlo a nivel latinoamericano. Finalmente, se exponen conclusiones, limitaciones y futuras líneas de investigación que se derivan de esta investigación.

## REVISIÓN LITERARIA

El término calidad en la educación superior ha evolucionado desde que se introdujo en el discurso mundial impulsado por la UNESCO. Barba (2018) asegura que la calidad es relativa a las circunstancias y requerimientos del usuario, lo que le otorga una característica subjetiva y ha dado lugar a varias concepciones. La calidad con carácter elitista, calidad equivalente a excelencia, calidad sinónimo de cumplimiento de estándares mínimos, calidad con enfoque a la calidad total, calidad como aptitud para logro de una misión, entre otras. A continuación, en la Tabla 1 se exponen algunos conceptos que dan cuenta de este desarrollo histórico que ha tenido la calidad en la educación superior. En Colombia se asume el concepto de calidad a partir de 1995, enmarcado en procesos de acreditación institucional y de programas, que conducen a la propuesta de un sistema de aseguramiento de la calidad que se aplica en la educación superior.

*“...el concepto de calidad hace referencia a la síntesis de características que permiten reconocer un programa académico específico o una institución de determinado tipo y hacer un juicio sobre la distancia relativa entre el modo cómo en esa institución o en ese programa académico se presta dicho servicio y el óptimo que corresponde a su naturaleza” (CNA, 2022).*

Este concepto de calidad en la educación superior propone desafíos que constituyen implicaciones importantes para las instituciones educativas y sus programas. Compromete a reconocer y mejorar sus debilidades para encaminar los procesos a los ideales de calidad. Para esto se definen políticas que promueven el cumplimiento misional, puesto en evidencia cuando se genera la confianza en la sociedad, a través de la acreditación temporal y su continua renovación. Dicho esto, la universidad debe decir lo que hace, hacer lo que dice, probarlo y mejorarlo (CNA, 2022).

Para esta propuesta, se considera que el concepto de calidad y su aplicación en una institución de educación superior, se convierte en el punto de partida y de llegada para orientar la gestión, la evaluación y el desarrollo en cada uno de los procesos que soportan las funciones sustantivas. Una condición indispensable para implementar la calidad y hacer de ella una forma permanente de vida institucional, es comprender lo que ella significa y cómo medirla, para efectuar acciones de mejora continua.

Tabla 1: Evolución del Concepto de la Calidad en la Educación Superior

Autor	Concepto de Calidad en la Educación Superior	Enfoques
Astín, Roose y Anderson (1970)	Destacan la superficialidad de la confianza exclusiva en la reputación como medida de calidad.	Relevancia social
Mayhew, Ford y Hubbard (1990)	Consiste en preparar a los estudiantes por medio del uso de palabras, números y conceptos abstractos para entender, resolver e influenciar positivamente el ambiente en el cual se encuentran.	Valor agregado
Astin (1991)	La excelencia se concibe en términos del desarrollo del talento. Por lo tanto, las instituciones más excelentes son las que agregan más valor al conocimiento y desarrollo personal del estudiante.	Valor agregado
Schmelkes (1992)	La calidad está referida a un contexto y a un plantel e implica una mirada hacia fuera, hacia los objetivos o funciones sociales de la educación.	Función social
Mollis (1993)	La calidad de la educación debe medirse sobre la base de la excelencia académica o debe conjugarse con el criterio de relevancia social de las actividades universitarias.	Eficiencia y relevancia social.
Delgado (1995)	La calidad en la educación implica mucho más que mejora de inmobiliario o distribución de computadoras; supone atreverse a transformar estilos de gestión y estilos de enseñanza-aprendizaje.	Valor agregado
Bergquist (1995)	Relacionan calidad a la existencia de recursos adecuados dirigidos a la tarea de alcanzar los resultados relacionados con la misión de la institución, logrando diferencia significativa y positiva en las vidas de los estudiantes.	Insumos, resultados, procesos y valor agregado
Hawarth y Conrad (1997)	Un programa de calidad es aquel que desde la perspectiva de los diversos interesados contribuye a enriquecer las experiencias de aprendizaje de los estudiantes, afectándolos de manera positiva.	Valor agregado
Backhouse, Grünewald, Letelier, Loncomilla, Ocaranza y Toro (2007)	El valor que determinado o determinados actores asignan a ciertas características de una entidad dada, a través de la aplicación de un conjunto de criterios preestablecidos.	Relevancia social
González & Espinoza (2008)	Implica tener la capacidad para integrar armónicamente y diferencialmente los distintos componentes involucrados en toda acción educativa, es decir, significa considerar tanto las orientaciones como los procesos y resultados.	Eficiencia y eficacia
CESU (2014)	Concebida como atributo del servicio público de la educación, que supone un esfuerzo continuo de las instituciones para cumplir con las exigencias propias de cada una de sus funciones.	Eficiencia, eficacia y relevancia
CNA (2016)	La capacidad que tienen las IES de cumplir verdaderamente con sus propósitos a través de acciones y actividades acordes a dichas intenciones y de verificar este cumplimiento ajustando las acciones en función de los resultados obtenidos de tal verificación.	Eficiencia y eficacia
Barba (2018)	Propone la calidad como la ecuación que relaciona al aprendizaje multiplicado por la equidad existente en el servicio educativo y, por medio de este, como exigencia, de la equidad en el entorno, social, económico, político de la educación.	Equidad, pertinencia, relevancia
Instituto Nacional para la Evaluación (2018)	Es la cualidad que resulta de la integración de las dimensiones de pertinencia, relevancia, eficiencia interna y externa, impacto, suficiencia y equidad.	Pertinencia, relevancia, eficiencia, impacto, suficiencia, equidad
CNA (2020)	Entiende la calidad como un atributo integral de algo, resultado de una síntesis de los componentes y procesos que la producen y distinguen.	Holístico

En esta tabla se exponen en orden cronológico los conceptos de calidad de la educación distinguiendo entre ellos los enfoques o dimensiones que se trasladan a las instituciones de educación superior a través de sistemas de aseguramiento de la calidad. Elaboración basada en Bondarenko (2007), Barba (2018), CNA (2022).

En este sentido, la calidad está presente en todos los elementos y componentes de la universidad como organización sistémica, lo cual involucra a los estudiantes, profesores, egresados y empleadores y trasciende sus formas permanentes de pensar, sentir, actuar y en el interés por hacer las cosas bien, generando una cultura que se centra en el concepto de calidad humana, basada en valores y en un comportamiento ético. Esta mirada concuerda con Barba (2018), cuando se refiere a la calidad de la educación incorporada a una concepción del ser humano y de la sociedad, del Estado y sus funciones, exponiendo sus resultados con transparencia ante los diferentes grupos de interés.

Es así como, la calidad está presente en los planes de estudio, en las estrategias pedagógicas, en la evaluación y en las técnicas de enseñanza, en los procesos y procedimientos, en los recursos físicos y en la disponibilidad de los recursos financieros, es decir, la calidad debe estar presente en todos los componentes que determinan los resultados o productos de su acción educativa, incluyendo el éxito de sus egresados. Con la finalidad de asegurar que la calidad deseada, como sea que se defina y se mida, es efectivamente entregada, el rol del Estado es fundamental (González & Espinoza, 2008).

Es así que, en Colombia la Constitución Política en sus artículos 67 y 69, establece respectivamente la inspección y vigilancia de la educación con el fin de velar por su calidad, garantizando el adecuado cubrimiento del servicio, desde la autonomía, mediante la definición de sus propias directivas y estatutos, de acuerdo con la ley. Además, todo un cuerpo legal que reafirma que la calidad de la educación superior debe ser vista de forma integral, considerando aspectos como la diversidad, la inclusión, el gobierno universitario, los resultados académicos, la estructura académico-administrativa, los resultados de aprendizaje, la autoevaluación, los medios y procesos empleados.

## METODOLOGÍA

La investigación es cualitativa teniendo en cuenta la revisión bibliográfica exhaustiva de diferentes autores relacionados a la temática. Además, con el objetivo de lograr un desarrollo sostenido de la calidad educativa en las universidades que participaron en el estudio, el trabajo se organizó en tres fases que hacen parte de la trayectoria cíclica y participativa de la investigación. Siguiendo a Corrales (2010), cada fase se inserta en un proceso en espiral de cuatro momentos definidos como: preocupación inicial, plan de acción, acción y análisis-reflexión. Se inicia con el diálogo entre personal académico e investigadores que buscan identificar una problemática central en la disciplina y transversalizarla en las funciones misionales de la universidad. Esto propicia la actuación conjunta en la creación de propuestas y la búsqueda permanente de alternativas de soluciones a comunidades académicas, sociales y empresariales en el marco de la proyección social. Las fases del diseño metodológico se detallan en la Tabla 2.

El estudio se realizó con la participación de tres universidades de corte privado ubicadas en la ciudad de Bogotá. En la primera fase participaron el 60% de profesores, junto con 40% de estudiantes de programas del área de ciencias económicas. En la segunda, participaron directivos, 80% de profesores y 80% de estudiantes de siete programas diferentes. En la tercera fase se incorporaron directivos, decanos, directores de programa, profesores, estudiantes, egresados y empresarios. Cada una de las fases se ejecutaron en períodos consecutivos y en diferentes universidades.

Tabla 2: Fases del Diseño Metodológico de la Investigación

Fases	Proceso en Espiral	Momentos
Reformulación académica	Preocupación inicial	Definición del problema
	Plan de acción	Transversalización del problema en las funciones sustantivas
	Acciones	Operacionalización curricular
	Análisis y reflexión	Sobre los resultados de la operacionalización curricular
Articulación	Preocupación inicial	Articulación de la reforma curricular
	Plan de acción	Planificación estratégica
	Acciones	Implementación del sistema de gestión de la calidad
	Análisis y reflexión	Sobre los resultados de la gestión de la calidad
Mejoramiento continuo	Preocupación inicial	Cultura de calidad y mejora continua
	Plan de acción	Desdoblamiento de plan de desarrollo institucional
	Acciones	Ejecución de la planeación
	Análisis y reflexión	Sobre los resultados de la ejecución de la planeación operativa

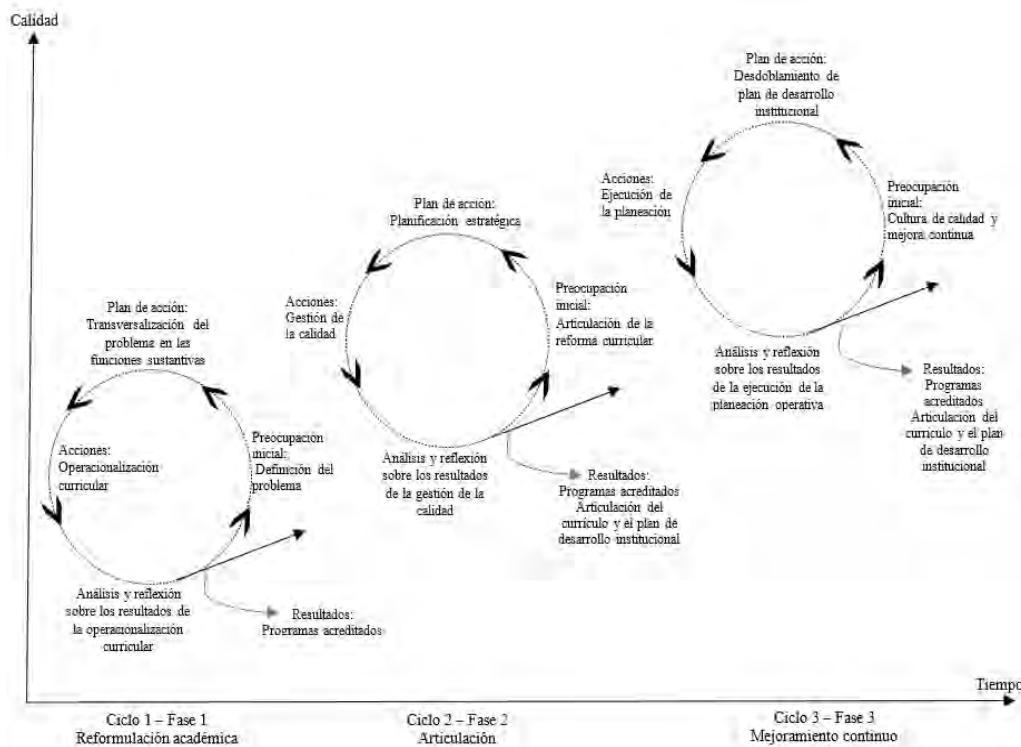
*En esta tabla se describe el diseño metodológico que se sustenta en la metodología en espiral de la investigación – acción. Se disponen tres fases que se integran en tres ciclos dinámicos de investigación-acción. Para cada uno, se definen momentos específicos propios del estudio.*

## RESULTADOS

Conforme el objetivo planteado y el diseño metodológico definido para el trabajo, se obtuvieron resultados por cada una de las fases, los mismos que permitieron dar forma a la propuesta del SIAC. La metodología facilitó la articulación de los resultados del primer ciclo con la situación problemática definida para el segundo y de la misma manera, los resultados del segundo ciclo se articularon con la situación problemática identificada para el tercer ciclo. Finalmente, los resultados de las tres fases se configuraron en la propuesta de un sistema interno de aseguramiento de la calidad, cuyo fin último es orientar el crecimiento sostenido de la calidad educativa en las universidades en las que se implementó. En la Figura 1 se ilustra las fases de investigación insertas en el proceso en espiral que permite tal articulación.

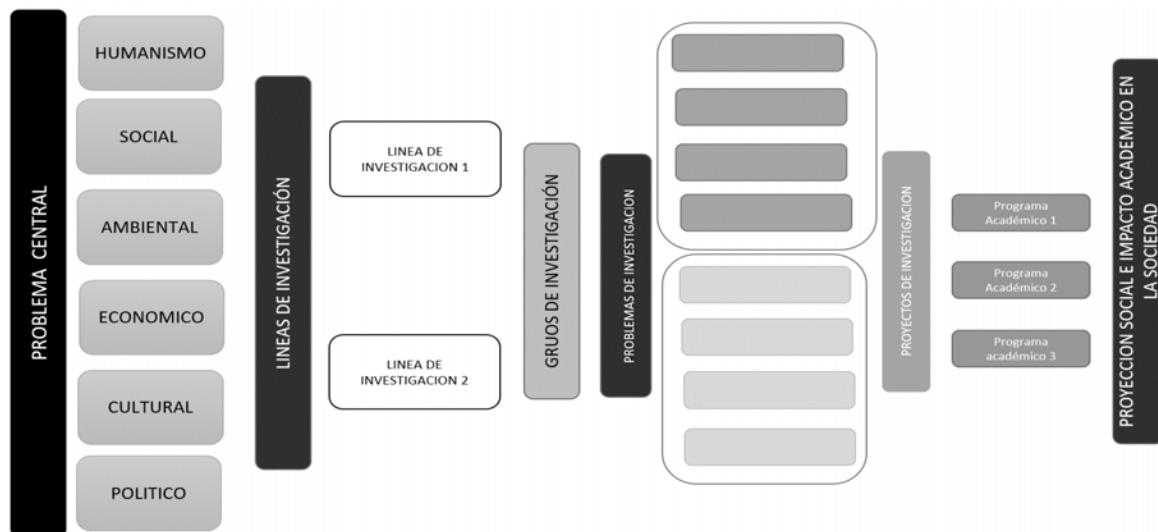
En la primera fase denominada Reformulación académica, se crearon grupos de trabajo generando un proceso de reflexión permanente en diversos espacios de discusión. Con base en la espiral metodológica de la investigación – acción, en este ciclo, se definió un problema central de investigación con una pregunta problemática integradora, con el fin de ser transversalizada en las funciones sustantivas de la universidad. De esta manera se inicia la operacionalización curricular, logrando que el plan de estudios refleje la problemática definida en sus contenidos programáticos. Se genera como resultados una producción académica e investigativa que permite movilizar el programa hacia el cumplimiento de estándares de alta calidad de la educación superior (Figura 2).

Figura 1: Proceso en Espiral y Articulación de Resultados



En la figura se ilustra el proceso en espiral y la articulación de los resultados de las tres fases que da lugar a la configuración del SIAC.

Figura 2: Reformulación Académica

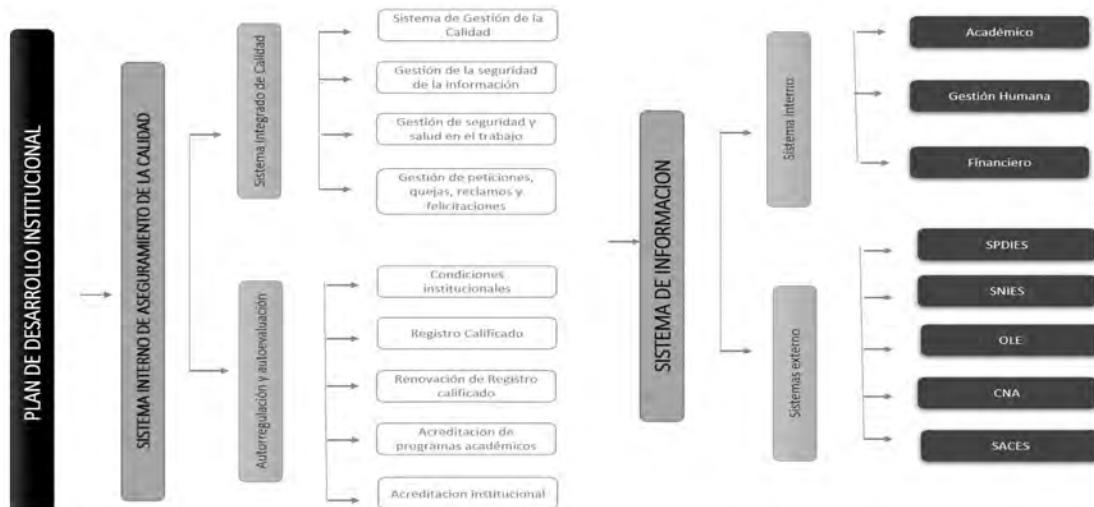


En la figura se ilustra el proceso cíclico observado en la fase de reformulación académica, que, partiendo de plantear una pregunta problemática en el marco de los ámbitos descritos, dinamiza líneas de investigación involucrando a los diversos actores, para a través de proyectos de investigación plasmar en cada programa académico el eje problematizador que se convertirá en el norte de propuestas de docencia, investigación y vinculación.

En la segunda fase se articula la reforma curricular con el plan de desarrollo institucional, a través de la inclusión de la pregunta problematizadora en todas las facultades y programas académicos. Esto da inicio

al SIAC del cual hacen parte un sistema integrado de calidad y un modelo de autoevaluación y autorregulación, operativizado por un sistema de información. Se genera como resultado vinculación de los estamentos académicos y administrativos junto con entes externos que permiten iniciar una cultura de calidad (Figura 3).

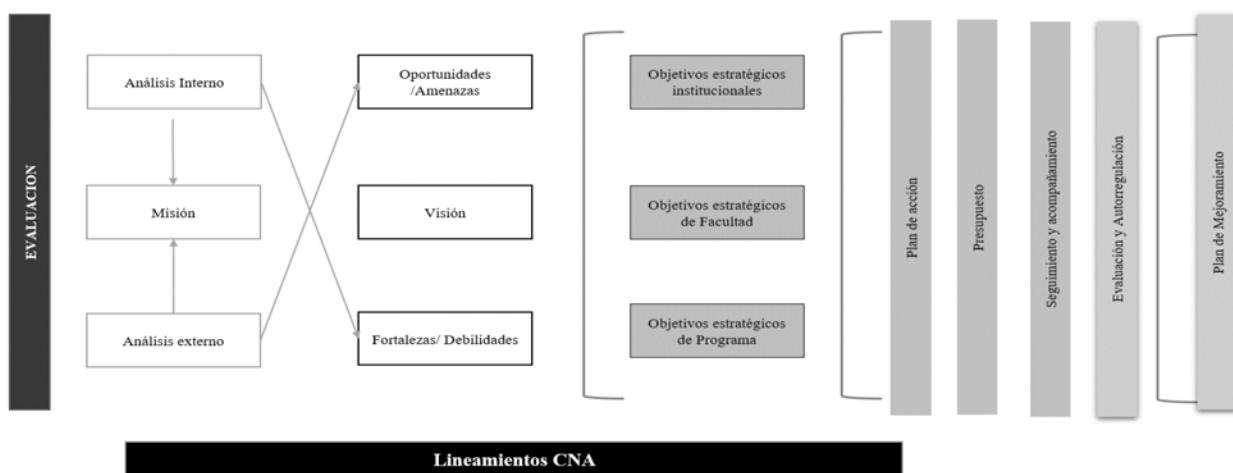
Figura 3: Articulación de la Reforma Curricular con el Plan de Desarrollo Institucional



En la Figura se representa la articulación de la reforma curricular, resultante de la primera fase, con el plan de desarrollo institucional, dando lugar al inicio de la configuración del SIAC.

En la tercera fase denominada Mejoramiento Continuo, se realiza el desdoblamiento del plan de desarrollo institucional permitiendo identificar objetivos estratégicas y metas de facultad y de programas evidenciados en los planes de acción debidamente presupuestados. Se realiza acompañamientos y seguimientos a través de la implementación del modelo de evaluación y autorregulación para conocer fortalezas y oportunidades de mejora y así plantear planes de mejoramiento, que serán parte de los siguientes planes de acción (Figura 4).

Figura 4: Desdoblamiento Estratégico



En la figura se representa la fase de mejoramiento estratégico lograda a partir del desdoblamiento estratégico, su implementación y evaluación y reflexión de los resultados.

Se genera como resultado de la articulación de resultados de las tres fases mencionadas el SIAC y la cultura de mejoramiento continuo (Figura 5).

Figura 5: Sistema Interno de Aseguramiento de la Calidad



*Se ilustra el Sistema Interno de Aseguramiento de la Calidad de la Universidad que consiste en el conjunto de acciones planificadas y sistemáticas que guían y direccionan el cumplimiento de las políticas y objetivos de la institución en términos de calidad.*

## CONCLUSIONES

El SIAC garantiza entregar egresados que dan respuesta a una sociedad, y permite que la educación ejerza el papel de dinamizador e innovador. Asimismo, responde a la permanencia en el tiempo y el cumplimiento de las metas establecidas, a través de la gestión en cada uno de los procesos misionales y de apoyo. De igual forma, logra incorporar el para qué y el porqué de lo académico con un eje de apoyo administrativo, condensando con el cumplimiento de la misionalidad de la educación con calidad como eje transformador de la sociedad. Todo lo anterior basado en un marco metodológico en espiral de investigación-acción que promueve el crecimiento sostenido de la calidad educativa a través de una cultura de mejora continua. Las limitaciones más relevantes en el desarrollo del trabajo constituyeron, la poca importancia que se otorga, desde el eje estratégico de la universidad, a los resultados de la autoevaluación y con ello el bajo cumplimiento de los planes de mejoramiento. Además, el limitado presupuesto asignado a la ejecución de los planes de mejora. Los resultados obtenidos al implementar el SIAC en las universidades que participaron en la investigación, permiten escalar la propuesta a nivel nacional e inclusive de Latinoamérica.

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# METODOLOGÍA PARA LA CREACIÓN DE MODELADOS EN 3D

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## RESUMEN

*En la era digital actual, el diseño y animación 3D reviste de importancia por las múltiples aplicaciones en diversos campos. En consecuencia, varias empresas han visto la oportunidad de crear repositorios digitales de modelados 3D, que han dado lugar a la proliferación de comunidades que impulsan el continuo desarrollo y creación de contenido. La diversidad y calidad de los modelados atraen a expertos y profesionales en el área, que buscan optimizar recursos y tiempos de producción, haciendo uso de dichos modelados. En este contexto, se plantea como objetivo desarrollar una metodología simple que permita agilizar el flujo de trabajo en el proceso de creación de modelados en 3D, para su posterior uso en proyectos de amplio alcance. El estudio se basa en una revisión bibliográfica exhaustiva de diferentes autores que proponen variados procesos para llevar a cabo la producción de contenido audiovisual. Como resultado se adaptaron las tres etapas fundamentales más comunes observadas en este campo, a la creación de modelados en 3D. Se concluye que la metodología propuesta garantiza un modelado óptimo y totalmente funcional aplicable a cualquier ámbito, desde video juegos, aplicaciones móviles hasta simulaciones y realidad virtual y aumentada.*

**PALABRAS CLAVE:** Metodología de Modelado en 3D, Contenido de Código Abierto, Repositorios de Modelados 3D

## METHODOLOGY FOR 3D MODELS CREATION

## ABSTRACT

*In today's digital era, 3D designs and animation gains importance due to its multiple applications in many fields. Consequently, several companies have seen the opportunity to create digital repositories of 3D models, which has given rise to the proliferation of communities that propel the continuous development and creation of content. The diversity and quality of the models attract experts and professionals in the area, who seek to optimize resources and production times, making use of said models. In this context, the objective is to develop a simple methodology that allows streamlining the workflow in the process of creating 3D models, for later use in wide-ranging projects. The study is based on an exhaustive bibliographical review of different authors who propose various processes to carry out the production of audiovisual content. As a result, the three most common fundamental stages observed in this field were adapted to the creation of 3D models. It is concluded that the proposed methodology guarantees optimal and fully functional modeling applicable to any field, from video games, mobile applications to simulations and virtual and augmented reality.*

**JEL:** L17, L23, O30, O34, O36

**KEYWORDS:** 3D Modeling Methodology, Open-Source Content, 3D Modeling Repositories

## INTRODUCCIÓN

En la actualidad el diseño 3D constituye una herramienta versátil utilizada en una amplia gama de aplicaciones en diferentes ámbitos, desde la educación, medicina y arquitectura, hasta campos más variados como el entretenimiento y arte (Gomez, Dominguez, & Ortiz, 2021). Los modelados 3D son la parte fundamental de este proceso de diseño, ya sea en simulaciones, animaciones o proyectos de mayor alcance, como la realidad virtual o aumentada. El diseñador pone en juego su creatividad e ingenio para con el uso de herramientas tecnológicas y la aplicación de técnicas adecuadas entregar el objeto meta. Aun cuando en la actualidad proliferan plataformas de software para este fin, los tiempos en los procesos de diseño pueden desviar del objetivo real, que en si no es la creación del modelo, sino la aplicación como tal. Ejemplo de esto es el uso de modelado 3D para facilitar el aprendizaje o ahorrar costos utilizando dichos modelos en prácticas de laboratorio de diversas disciplinas (Jorquera, 2018).

Dependiendo de la dimensión y alcance del proyecto, se requiere un equipo de trabajo multidisciplinario con especialistas en las diferentes áreas, con el fin de agilizar el flujo de trabajo y alcanzar la meta propuesta (Izquierdo, Pardo, & Izquierdo-Lao, 2020). Sin embargo, el trabajo articulado exige fases que se ejecutan en serie, es decir, el punto de arranque son los entregables de los modeladores para continuar con el proyecto. Es así que los repositorios de modelados en 3D surgen como una alternativa para reducir tiempos y recursos (Baldeón, 2021). En este contexto, el objetivo del trabajo es desarrollar una metodología simple que permita agilizar el flujo de trabajo en el proceso de creación de modelados en 3D, para su posterior uso en proyectos de amplio alcance. Para tal efecto se aplica el pensamiento de diseño, como un proceso no lineal e iterativo centrado en el usuario que facilita la resolución creativa de problemas (Rodríguez, 2018). El documento se organiza como sigue. En el primer apartado se exponen argumentos teóricos relevantes relacionados al modelado 3D, los principales repositorios y tipos de software utilizados para el diseño 3D. Posteriormente se presenta la metodología de trabajo, centrada fundamentalmente en el pensamiento de diseño. En el apartado de resultados se explica la metodología propuesta obtenida al adaptar las tres etapas fundamentales más comunes observadas en el campo de producción de contenido audiovisual. Finalmente, conclusiones, limitaciones y futuras líneas de investigación que se derivan de este trabajo.

## REVISIÓN LITERARIA

El desarrollo de las nuevas tecnologías y de computación dio paso a cambios importantes en el diseño gráfico, a lo que se conoce como diseño asistido por computador. Con la ayuda de ordenadores y software especializados se facilita la proyección de las ideas y la composición visual que se requiere comunicar. Sin duda los avances radican en la rapidez y precisión al obtener modelos 3D, además la eliminación de errores en el plano técnico. En este sentido, el modelado 3D es un proceso que permite la representación tridimensional de objetos, entornos o escenas en un espacio virtual (García, 2017). Desde una perspectiva técnica, el modelo 3D es resultado de un proceso de creación a partir de una representación matemática de superficies utilizando geometría (Jorquera, 2018). Desde la perspectiva visual, es una representación esquemática a través de objetos, elementos y propiedades que se procesan, para convertirse en una imagen o una animación 3D. Se incorporan características de acabados, texturas, reflejos, sombras y otras, que le otorgan un aspecto realista. Finalmente, se puede simbolizar como imagen bidimensional utilizando un proceso de renderizado, o bien, como un objeto físico, a través de una herramienta de fabricación con control numérico o impresora 3D. El proceso de renderizado consiste en crear una imagen digital mediante software especializado con la finalidad de obtener el máximo nivel de realismo posible de la escena desde cualquier perspectiva. Según autores como García (2017), Izquierdo et al. (2020), Jorquera (2018), los modelos 3D pueden clasificarse modelos poligonales o de superficie, y modelos sólidos. Los primeros, se observan como objetos huecos cubiertos por una piel de grosor cero. Estos modelos se crean mediante la suma de muchos polígonos hasta obtener una malla poligonal que genera una representación tridimensional del objeto. En relación a los modelos sólidos, tienen espesor diferente de cero y encierran volumen, se

utilizan en simulaciones no visuales o en programas de modelado paramétrico avanzados. El archivo del modelo 3D puede ser enviado a fabricación directa y crear un prototipo del mismo (Bryden, 2014). Ejemplo puntual de su aplicación es en la industria médica u odontológica, como es el caso de estudio.

En este orden, se establecen algunos tipos de modeladores. Los denominados B-splines racionales no uniformes (NURBS), los de malla poligonal y los paramétricos. Los NURBS se basan en curvas definidas matemáticamente denominados splines. La forma del modelo se controla por puntos que asignan una tensión en la curva y pueden ajustarse para cambiar la forma de las curvas y de las superficies. El número de puntos es variable, un mayor número facilita manipulaciones más específicas (Bryden, 2014), (Díaz, 2021). En la misma línea de Bryden (2014), manifiesta que los modeladores tipo malla poligonal se basan en la conexión de polígonos que forman una malla.

Para lograr modelos refinados con texturas lisas y suavizadas, se realiza un proceso de subdivisión a partir de una malla poligonal menos refinada. Los modeladores paramétricos utilizan las dimensiones por lo que requieren exploración visual exhaustiva y un enfoque lógico y planificado. Con la finalidad de facilitar los procesos de modelado 3D existen varios programas informáticos. Sin embargo, la principal desventaja en caso de software comercial son los costos elevados, aunque se contrasta con un sinnúmero de ventajas a la hora de tomar una decisión, como por ejemplo, disponer de soporte técnico constante, flexibilizar la gestión de las licencias y tener el software siempre actualizado. Frente a esta opción está el software de acceso abierto o libre, que constituye una alternativa viable y provechosa (Soria & Haro, 2022).

Para el caso de estudio, en la fase de prototipado, se utilizó Blender, un software de acceso abierto que ofrece similares características que los comerciales, en cuanto a modelado, esculpido y versatilidad. Por otro lado, impulsa la creación de comunidades de aprendizaje y repositorios de modelos 3D que reducen tiempos de producción audiovisual (Soria & Haro, 2022). A continuación, en la Tabla 1, una breve síntesis de la variedad de software para el modelado 3D en donde se revisan sus características más importantes.

Lograr los modelos 3D constituye la fase inicial de un proyecto a gran escala, con aplicación en una variedad de campos, médico, odontológico, arquitectura, entretenimiento, educación, otros. En consecuencia, es indispensable reducir tiempos y costos de producción de modelos 3D, con esta finalidad se han creado de manera espontánea o impulsados por los mismos desarrolladores de software de modelados, comunidades de aprendizaje y con ello repositorios de modelos. Estos modelos en muchos casos son de uso libre y en otros se pueden obtener a precios que dependen de la finalidad, complejidad y campo de aplicación (Soria & Haro, 2022).

Los repositorios de modelos 3D, constituyen espacios en donde las comunidades de profesionales del arte gráfico comparten, publican, descargan y en muchos casos comercializan sus diseños y modelos 3D. A continuación, en la Tabla 2 se muestran algunos repositorios, en donde se puede navegar entre una amplia variedad de diseños y modelos 3D.

Tabla 1: Algunos Software para Modelado 3D

Software	Principales Características	Fuente
Autodesk Maya	Puede realizar modelado, animación, manipulación, partículas, generación de fotogramas clave, materiales, iluminación. Extensiones con otros programas Contiene un sin número de herramientas 3D Menús personalizables Edición en tiempo real Reproducción almacenada en caché Entorno de trabajo muy atractivo Incompatibilidad con software ajeno a Autodesk	(Maya, 2022)
Cinema 4D	Solución de software profesional de modelado, animación, simulación y renderizado 3D. Brinda conjunto de herramientas que lo vuelve rápido, potente, flexible y estable. Flujos de trabajo 3D accesibles y eficientes para el diseño, gráficos en movimiento, desarrollo de juegos y todo tipo de profesionales de la visualización.	(Maxon, 2022)
Rhino 7	Rapidez en la creación de mallas cuadrangulares a partir de superficies, sólidos, mallas o SubD existentes. Fácil renderizado, animación, dinámicas de fluidos computacionales, métodos de elementos finitos e ingeniería inversa	(Rhino 7, 2022)
ZBrush	Establece el estándar de la industria para la escultura y pintura digital. Permite usar pinceles personalizables para dar forma, textura y pintar arcilla virtual en un entorno en tiempo real que proporciona retroalimentación instantánea. Es una herramienta de arte permite crear de forma ágil modelos e ilustraciones limitados solo por la imaginación.	(ZBrush, 2022)
Blender	Plataforma de creación 3D gratuita y de código abierto, compatible con la totalidad de la canalización 3D: modelado, rigging, animación, simulación, renderizado, composición y seguimiento de movimiento, incluso edición de video y creación de juegos.  Los usuarios avanzados emplean la API de Blender para scripts de Python para personalizar la aplicación y escribir herramientas especializadas. Blender es adecuado para individuos y pequeños estudios que se benefician de su canalización unificada y proceso de desarrollo receptivo.	(Blender, 2022)

*En esta tabla se describen características más relevantes de algunos softwares comerciales y de código abierto más utilizados para el modelado 3D. El software utilizado en el prototipado de este estudio es Blender, por ser de código abierto y sus características que facilitan el modelado y renderización adecuados en la creación de un repositorio de kit odontológico.*

Tabla 2: Algunos Repositorios de Modelos 3D

Repositorios	Descripción	Enlace
Thingiverse	Uno de los más reconocidos en la comunidad de impresiones 3D por su amplia gama de modelos 3D compartidos por sus usuarios.	<a href="https://www.thingiverse.com/">https://www.thingiverse.com/</a>
YouMagine	Repositorio administrado por Ultimaker, cuenta con un amplio catálogo similar al anterior.	<a href="https://www.youmagine.com/#google_vignette">https://www.youmagine.com/#google_vignette</a>
MyMiniFactory	Tiene un servicio adicional, si no existe en catálogo se puede solicitar a un diseñador profesional	<a href="https://www.myminifactory.com/es/">https://www.myminifactory.com/es/</a>
GrabCAD	Se destaca por la profesionalidad de sus modelos. El objetivo que persigue es crear un marketplace que permita la conexión entre ingenieros para compartir diseños CAD en una misma plataforma.	<a href="https://grabcad.com/">https://grabcad.com/</a>
Pinshape	Una de las comunidades más grandes, ofrece la posibilidad de utilizar su herramienta de impresión online '3SPrinterOS', con la que los usuarios pueden cortar editar y mandar imprimir una pieza sin necesidad de descargarla.	<a href="https://pinshape.com/">https://pinshape.com/</a>
Turbosquid	Modelos 3D dispuestos en cualquier formato Cumplen estándares de calidad de modelado técnico Supera las necesidades y expectativas de producción profesional independientemente de la industria que se aplique	<a href="https://www.turbosquid.com/">https://www.turbosquid.com/</a>

*En esta tabla se expone un ejemplo de comunidades de modelaje 3D que contienen una gran variedad de modelos diseñados por los usuarios o por profesionales. Además, se puede acceder a través del enlace.*

Los modelados 3D han escalado a ámbitos inimaginables, uno de ellos la industria odontológica, en donde brindan su contingente en soluciones ágiles e innovadoras que responden a la necesidad de personalización y gran nivel de detalle en su aplicación, un ejemplo de repositorio Turbosquid o Cults (Cults, 2022). En este ámbito se encuentran varias colecciones con instrumental, piezas o artículos relacionados directamente al trabajo odontológico, que por lo tanto es factible llevarlos a impresión o bien utilizarlos directamente para la enseñanza. En este contexto, el propósito de este estudio es proponer una metodología ágil que reduzca tiempos y costos en el proceso de modelado en 3D. Para evaluar la metodología propuesta se crea un repositorio de modelos 3D de un kit odontológico de acceso libre, que puede ser utilizado posteriormente para la aplicación que se considere conveniente. El repositorio fue subido a la plataforma Turbosquid que contiene modelos 3D de alta calidad, con texturas y acabados que le otorgan alto nivel de realismo y aplicabilidad en cualquier ámbito de la industria.

## METODOLOGÍA

El diseño metodológico se fundamenta en una aplicación adaptada del proceso de creación de contenido audiovisual, siguiendo la secuencia de las fases y principio fundamental del Design Thinking. Se optó por este enfoque ya que permite la interacción participativa de todos los actores involucrados en el proceso de modelado 3D. La orientación práctica y la evaluación o testeo del prototipo, permite la retroalimentación permanente de los usuarios y corregir errores durante el desarrollo, en consecuencia, una evolución en espiral según avanza la ejecución del proyecto. En su fase inicial el estudio es de enfoque cualitativo, basado en la investigación documental y en la revisión sistemática de autores que han investigado y trabajado los modelados 3D, procesos para llevar a cabo la producción de contenido audiovisual y aplicación del Design Thinking. Las bases consultadas fueron Scielo, Dialnet, ScienceDirect, Google, Academic, Strategic Management Journal, Elsevier, así como también varias páginas web de repositorios y software de empresas dedicadas al modelado 3D.

Paralelamente, en una etapa exploratoria se realizó entrevistas a profesionales relacionados al diseño gráfico y modelado, con la finalidad de profundizar en la necesidad de optimizar los tiempos del flujo de trabajo en el proceso de creación de modelados en 3D. Así mismo, se requirió interactuar con profesionales relacionados con el sector dental y de enseñanza, para la fase de evaluación y mejora de los modelos. Se aplicó el Design Thinking, con la finalidad de generar una propuesta metodológica para agilizar el flujo de trabajo en el proceso de creación de modelados en 3D, evaluar y mejorar, hasta lograr un modelado 3D acorde a las necesidades del usuario. Posteriormente se subió a un repositorio de acceso libre. En la Tabla 3 se observan las etapas de investigación y las de Design Thinking.

Tabla 3: Etapas de Investigación y Design Thinking

Etapas De Investigación	Etapas Design Thinking	Definición de las Etapas del Etapas Design Thinking
Investigación documental	Empatizar	Entender las necesidades y lo que realmente es importante para los usuarios.
Investigación exploratoria: entrevistas	Empatizar/ Definir	Sintetizar la información como punto de partida
Propuesta para agilizar el flujo de trabajo en procesos de modelaje 3D	Ideación	Generar ideas innovadoras y con
Aplicación de la propuesta en un caso práctico: modelado 3D kit odontológico	Prototipado/ Evaluación	Desarrollar prototipo y recibir realimentación del usuario
Ajustes	Mejora continua	Propuesta validada y repositorio de modelo 3D kit odontológico

*En esta tabla se presentan las etapas de investigación y cómo se aplicaron cada una de las etapas del Design Thinking.*

El Design Thinking representa una metodología ágil centrada en el usuario, flexible, iterativo y dinámico, que incorpora un proceso de mejora continua en base a la evaluación de prototipos. Esto exige, una interacción permanente entre todos los actores, desde quien formula la propuesta hasta el usuario que finalmente la evalúa (Rodríguez, 2018), (Ñontol et al., 2021). La dificultad de los profesionales que desconocen sobre las técnicas de diseño gráfico y modelado pasa a segundo plano, puesto que se propicia un trabajo colaborativo entre todos los miembros del equipo, que es multidisciplinario.

## RESULTADOS

Como resultado de la investigación documental se definió una propuesta para agilizar el flujo de trabajo en procesos de modelaje 3D. Se trasladó a este campo el proceso de creación para diseño de contenido audiovisual propuesto por un sin número de autores (Sempere, 2017), (Botella, 2018), (De Lamo, 2016) (ILERNA, 2020), (Baqué & Morales, 2021). La propuesta contempla un proceso con cuatro etapas, según se observa en la Tabla 4.

Tabla 4: Propuesta Metodológica Para Modelaje 3D

Etapa	Definición (Campo de Creación Audiovisual)	Propuesta Autores (Modelado 3d)
<b>Preproducción</b>	<p>Durante este periodo se debe idear, organizar y preparar todo el producto audiovisual (Sempere, 2017, p. 36)</p> <p>Es la planificación de lo que se va a hacer además de una sólida documentación respecto al tema y tener claro por dónde se quiere llevar. (Botella, 2018, p.8)</p> <p>Allí donde nace la idea (ILERNA, 2020).</p> <p>Consiste en la formación del equipo de trabajo, distribución de roles, selección de contenidos, armado y búsqueda del presupuesto, financiación, plan de producción, de locación y rodaje (Baque &amp; Morales, 2021, p.38).</p>	<p>Concebir la idea, regularizar su organización y preparación, de esta manera se habilita la fácil solución de problemas que puedan surgir durante etapas próximas.</p> <p>En esta etapa se debe recopilar la mayor cantidad de información posible previo al modelado, con el fin de facilitar la creación de la malla. Esta información puede ser extraída de varios tipos de fuentes, tales como textos, imágenes, videos o de la manipulación de los objetos a modelar.</p>
<b>Producción</b>	<p>Una vez se tiene organizado todo el proyecto es hora de pasar a la acción. En esta parte del proyecto es cuando damos vida a todo aquello que hemos ideado previamente y hemos plasmado sobre el papel. (Sempere, 2017, p. 79).</p> <p>Se pone en práctica todo lo planificado en la fase de preproducción. Esta es la parte del proyecto donde se graba todo el material necesario para el montaje (Botella, 2018, p.21).</p> <p>Rodaje: el arte de adaptarse al imprevisto (ILERNA, 2020).</p> <p>En esta parte se reúnen tanto el personal humano como los recursos técnicos, los elementos auditivos y visuales y entrevistas (Baque &amp; Morales, 2021, p.38).</p>	<p>En esta etapa se realizan los modelados de los objetos a partir de la información visual recolectada en la etapa anterior. Además, se realiza un chequeo a la funcionalidad de cada objeto y se optimiza la malla de cada modelado.</p> <p>Lo anterior es posible a partir de la retroalimentación constante con los profesionales técnicos del ámbito en el cual se están creando los modelos. En el caso particular, se interactuó con profesionales del campo de la salud dental.</p>
<b>Postproducción</b>	<p>Esta es la última fase de elaboración del producto. Una vez obtenidas las imágenes, estas tendrán que pasar por varios procesos para obtener la obra final (Sempere, 2017, p. 92)</p> <p>Se realizará el montaje del perfil audiovisual, así como la edición tanto de imagen como de sonido para obtener el mejor resultado posible (Botella, 2018, p.24)</p> <p>Etapa en la que se ajusta al detalle (ILERNA, 2020)</p> <p>Se escogen lo que son imágenes y también los sonidos que van a ser. Luego se dispondrán el orden y el tiempo definitivo de los planos, atendiendo a la estructura establecida en el guion (Baque &amp; Morales, 2021, p.38).</p>	<p>En esta etapa se realizan los trabajos finales sobre el modelo con el fin de obtener un resultado realístico. Se realiza un chequeo de la funcionalidad de cada objeto y se empaqueta todo el conjunto de objetos con los componentes necesarios.</p> <p>Se afinan detalles según las necesidades de los usuarios con quienes se mantiene constante interacción, hasta obtener el producto final que satisfaga sus necesidades.</p>
<b>Registro y difusión</b>	<p>Fase de exportación del producto (Sempere, 2017, p. 92)</p> <p>Creación de datos y depósitos, Catalogación de datos y registros, Repositorio de datos y archivos, Manejo de los datos activos (Paz, Hernández, &amp; Leiva, 2020)</p>	<p>Se realiza el registro y difusión de los modelos en los denominados repositorios de modelos 3D, impulsados por las diferentes comunidades.</p>

*En la tabla se muestran el flujo de trabajo propuesto para optimizar tiempos en el modelado 3D, en la segunda columna, los que se desarrollan en la creación de contenido audiovisual y en la tercera, los propuestos por los autores, ajustado a los requerimientos y necesidades de un proceso de creación de contenido en 3D.*

A continuación, se describen el proceso que involucra cada una de las etapas de la propuesta metodológica para la creación de modelos 3D.

Figura 1: Detalle de las Etapas de la Propuesta Metodológica Para Creación de Modelos 3D



*Se observa en detalle el proceso en cada etapa de la metodología propuesta, que finalmente facilitó la creación de un repositorio de kit odontológico subido en la plataforma TurboSquid, disponible en acceso abierto en <https://n9.cl/repositorioodontologico>.*

## CONCLUSIONES

La propuesta metodológica para creación de contenido 3D, admite realizar varias etapas de manera simultánea, lo que reduce significativamente los tiempos de producción que en la actualidad responden a modelos lineales, donde la ejecución es secuencial, y requieren de los entregables de los diseñadores o modeladores para continuar. Siguiendo el diseño metodológico, se seleccionó el sector de la industria odontológica para la aplicación de la propuesta, articulados en cada proceso con las etapas del Design Thinking, lo que permitió generar un ambiente de trabajo dinámico e interconectado, centrado en el usuario y propiciar el mejoramiento continuo e ingresar a un espiral de mejora del modelado 3D hasta llegar a satisfacer las necesidades reales del usuario. Los autores proponen una fase final en la cual se procede a registrar y difundir los modelos 3D de instrumental odontológico creados, a través de un repositorio. Contribuyendo de esta forma a la comunidad de profesionales que requieren este tipo de modelos 3D como base para proyectos de mayor escala, muy bien utilizables en ámbitos de comercialización, o de simulaciones e inclusive enseñanza. El uso de este repositorio acortaría el proceso de producción, ya que se obviarían las primeras etapas, permitiendo al equipo de trabajo centrarse en las restantes y obtener resultados más satisfactorios en menor tiempo.

La metodología propuesta se evaluó en el ámbito odontológico creando modelos 3D, lo cual permite concluir que garantiza un modelado óptimo y totalmente funcional aplicable a cualquier ámbito, desde video juegos, aplicaciones móviles hasta simulaciones y realidad virtual y aumentada. La principal limitación en el desarrollo del estudio fue la estandarización de los instrumentos a ser modelados, debido a la dispersión de la información, por lo que la interacción con los profesionales del ramo fue fundamental. Es por ello que en general, los modelos 3D disponibles en repositorios deben tener la opción de ser reestructurados antes de cualquier aplicación.

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# DESEMPEÑO INNOVADOR EN LAS PYMES MANUFACTURERAS DEL DISTRITO METROPOLITANO DE QUITO

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## RESUMEN

*El objetivo del trabajo es estimar el nivel de desempeño innovador en las pequeñas y medianas empresas manufactureras del Distrito Metropolitano de Quito. La metodología tiene un enfoque cuantitativo, bajo un diseño no experimental, de alcance descriptivo y de carácter transversal. La recolección de datos se realizó a través de cuestionario estructurado aplicado a modo de encuesta a 68 gerentes. Para el tratamiento y análisis de datos se aplicó la técnica de componentes principales no lineales, que facilita la construcción de índices. Estos índices recogen la información en conjunto de las variables que conforman el desempeño innovador. En términos generales, los resultados revelan que el 86% de las empresas que participaron en el estudio, observan un promedio superior a 84 en escala de 1 a 100, en cuanto a su desempeño innovador, dando mayor atención a la dimensión innovación en procesos que a la dimensión innovación en productos. Se concluye que el nivel de Desempeño Innovador en las pequeñas y medianas empresas manufactureras es alto, sin embargo, la mayor parte realizan únicamente mejoras marginales a sus productos y no siempre se sustentan en innovación tecnológica. Del mismo modo, la innovación en procesos se orienta a mejoras en la maquinaria de producción, que no conlleva a la introducción de productos nuevos con innovaciones significativas.*

**PALABRAS CLAVE:** PYMES, Desempeño Innovador, Análisis de Componentes Principales No Lineales

## INNOVATIVE PERFORMANCE IN MANUFACTURING SMEs IN THE METROPOLITAN DISTRICT OF QUITO

## ABSTRACT

*The objective of the work is to estimate the level of innovative performance in small and medium-sized manufacturing companies in the Metropolitan District of Quito. The methodology has a quantitative approach, under a non-experimental design, of a descriptive correlational scope and of a cross-sectional nature. Data collection was carried out through a structured questionnaire applied as a survey to 68 managers. For the treatment and analysis of the data, the technique of non-linear principal components was applied, which facilitates the construction of indices. These indices collect information on the set of variables that make up the innovative action. In general terms, the results reveal that 86% of the companies that participated in the study observed an average of more than 84 on a scale from 1 to 100, in terms of their innovative performance, giving more importance to the innovation in processes dimension than the innovation in products dimension. It is concluded that the level of Innovative Performance in small and medium-sized manufacturing companies is high, however, most only make marginal improvements to their products and are not always based on technological innovation. In the same way, innovation in processes is oriented towards improvements in productive machinery, which does not lead to the introduction of new products with significant innovations.*

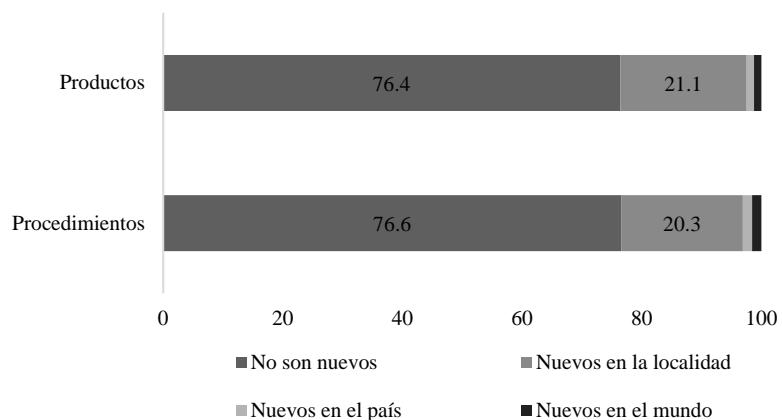
**JEL:** O32, L25, L26, L69, M11

**KEYWORDS:** SMEs, Innovative Performance, Nonlinear Principal Component Analysis

## INTRODUCCIÓN

Las pequeñas y medianas empresas contribuyen significativamente al desarrollo socioeconómico de los países, por lo que desde varios ámbitos se despliegan esfuerzos que contribuyan a lograr crecimiento sostenido. La Orientación Emprendedora promueve a las empresas a encontrar nuevos procesos de aprendizaje y generación de conocimiento individual y organizacional, lo que conlleva a su aplicación en actividades productivas que generan ventajas competitivas, la optimización de recursos e innovación en todas sus dimensiones (Ramírez et al., 2021). Ecuador tiene la Tasa de Actividad Emprendedora (TEA) más alta respecto al promedio de la región, pero también registra el tiempo de funcionamiento más corto de los negocios nacientes que no llegan a establecerse (Lasio et al., 2020). Lo anterior podría explicarse debido a que, además, se registra un nivel de Actividad Emprendedora del Empleado (EEA) más bajo respecto al promedio de la región. Este último, alineado al nivel de innovación e intraemprendimiento en las empresas, podría justificar el bajo nivel de innovación en productos y procedimientos (Figura 1).

Figura 1: Innovación de Productos y Procedimientos de los Emprendedores

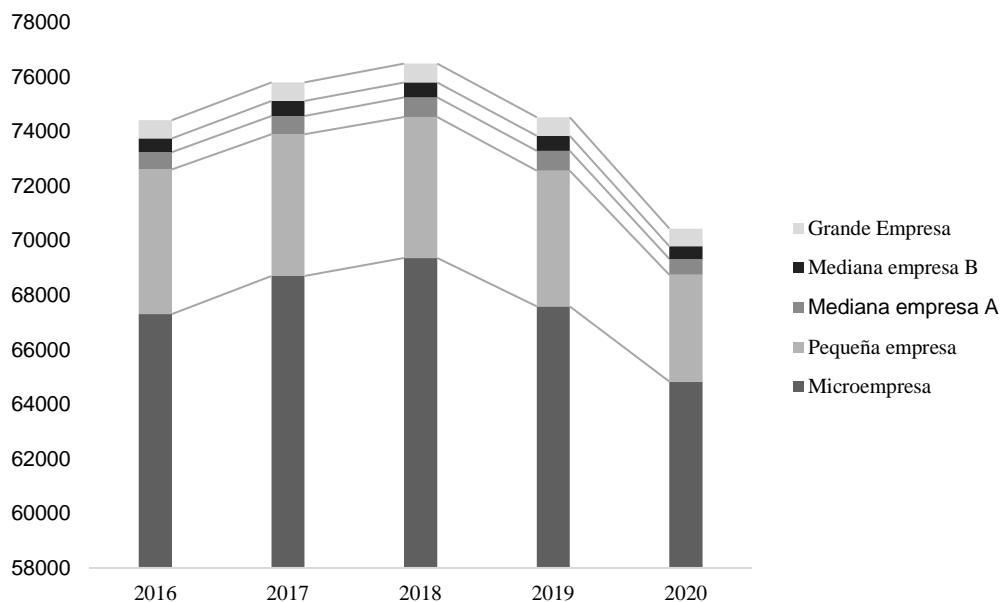


*La figura muestra datos del porcentaje de innovación en productos y procedimientos. Tomado del reporte GEM Ecuador 2019 – 2020 (Lasio et al., 2020, p. 37).*

Las Pequeñas y Medianas Empresas (PYMES) constituyen un objetivo central de estudio en la teoría de la organización, debido a que tiene una representación significativa en las economías de los países (Solis & Robalina, 2019). En Ecuador, como en la mayor parte de países, las PYMES caracterizan el entrelazado empresarial, de ahí que constituyen la principal fuente de desarrollo social y generación de riqueza. Entre las actividades económicas que realizan estas empresas en el país se destacan: el comercio, agricultura, selvicultura, pesca, manufacturas, construcción, transporte, comunicación y otras.

El sector más golpeado por las crisis mundiales, pandemia y conflicto bélico entre Rusia y Ucrania, ha sido el manufacturero. Se generaron pérdidas insostenibles que inclusive llevaron al cierre definitivo de cerca de un 30% de estas. Las características mencionadas anteriormente, de EEA y nivel de innovación también se observan en las empresas de este sector, que pese a representar un gran aporte a la economía del país, mantiene una posición conservadora en el mercado en cuanto a innovación se refiere (Lucero, 2020) (INEC, 2021) (Cadena et al., 2019). Dentro de este sector la mayor parte de empresas son micro, pequeñas y medianas empresas y se ubican en el Distrito Metropolitano de Quito - DMQ (Figura 2).

Figura 2: Estructura del Sector Manufacturero del Ecuador Por Tamaño de Empresas



La figura muestra el número de empresas manufactureras del Ecuador por tamaño del 2016 al 2020. Datos (INEC, 2021).

En este contexto se plantea como objetivo estimar el nivel de Desempeño Innovador en las PYMES Manufactureras del DMQ, con la finalidad de proporcionar información relevante y aportar a la gestión de este sector que dinamiza la economía del país. El documento se organiza como sigue. En el primer apartado se exponen argumentos teóricos relevantes relacionados al Desempeño Innovador. Posteriormente se presenta la metodología de trabajo desarrollada con un enfoque cuantitativo, bajo un diseño no experimental. En el apartado de resultados se exponen los principales hallazgos que dan cuenta del nivel de Desempeño Innovador de las PYMES que participaron en el estudio. Finalmente, conclusiones, limitaciones y futuras líneas de investigación que se derivan de este trabajo.

## REVISIÓN LITERARIA

La teoría de los Recursos y Capacidades surge de los planteamientos realizados por Penrose en 1959, quien consideraba a la empresa como un depósito de conocimientos y colección de recursos específicos. Barney en 1991 fue el principal autor que expandió y reafirmó la visión de esta teoría, donde menciona que el potencial de la empresa está en identificar los recursos y capacidades para lograr una ventaja competitiva (Hernández et al. 2015). En el marco de esta teoría el propósito de la gestión es buscar el potencial de la empresa para crear ventajas competitivas a través de las capacidades y los recursos que posee. Para este trabajo, el propósito es generar ventajas competitivas sostenibles, a través de potenciar el Desempeño Innovador de las PYMES del DMQ. Varios autores coinciden en afirmar que el Desempeño Innovador puede estimarse en términos de Innovación de Producto e Innovación en Procesos (Ejdys, 2016), (Guzmán et al., 2016), (Ramírez et al., 2021). Las empresas necesitan desarrollar nuevos productos para que los procesos mejorados se puedan ver en los productos. El Desempeño Innovador se lo entiende como el lanzamiento de productos y la mejora de las técnicas usadas en el proceso productivo (AEI, 2020).

La innovación de productos es la capacidad de una empresa para introducir nuevos productos o servicios. Cuantos más productos novedosos se introduzcan, más probable es que la empresa sobreviva. Las empresas tienen que introducir nuevos productos o novedades a un ritmo que sea fácil de manejar, pero no tan mínimo como para que no haya innovaciones significativas. La tecnológica ofrece el cimiento para competir, es el eje fundamental para desarrollar ventajas competitivas y el centro en la formulación de la estrategia tanto

en los sectores emergentes como desarrollados (Valencia, 2019). La forma en que se produce y entrega un servicio o producto se llama Innovación en Procesos.

## METODOLOGÍA

La investigación es cuantitativa de corte transversal no experimental y de alcance descriptivo. Para la recopilación de datos del Desempeño Innovador de las PYMES se utilizó el instrumento desarrollado por el Instituto Nacional de Estadísticas y Censos en 2019. Los datos obtenidos se procesaron a través del software de análisis estadístico Statistical Package for Social Sciences versión 26 (SPSS 26) y Excel. Al 2021 se registran un total de 929 empresas PYMES Manufactureras dentro del DMQ activas (Supercias, 2021). De acuerdo a la Clasificación Industrial Internacional Uniforme (CIIU, 2010), el sector manufacturero está compuesto por 24 subsectores. Además, contiene en su clasificación 68 grupos, 140 clases, 216 subclases y 1012 actividades dentro este sector. Debido a la dificultad presentada a finales del 2021 por las medidas restrictivas emitidas en el contexto de la pandemia Covid – 19, se realizó un muestreo por conveniencia según la facilidad de acceso a los gerentes de las PYMES del DMQ, se alcanzó encuestar a 68 gerentes. Las dimensiones del desempeño innovador son la innovación en producto e innovación en proceso. Para la primera se consideran las siguientes categorías: Productos mejorados, Sistemas mejorados, Productos nuevos para el mercado y Productos nuevos para la empresa. Para la segunda dimensión: Métodos mejorados, Sistemas mejorados, Actividades mejoradas en el proceso, Procesos nuevos para el mercado y Procesos nuevos para la empresa. A continuación, en la

Tabla 1: Se Presenta la Codificación de la Variable Desempeño Innovador.

Dimensión	Código	Categoría	Código	Código de ítem
Innovación en producto	IO	Productos mejorados	MP	DEIOMP
		Sistemas mejorados	SM	DEIOSM
		Productos nuevos para el mercado	PM	DEIOPM
		Productos nuevos para la empresa	EP	DEIOEP
Innovación en procesos	IS	Métodos mejorados	MJ	DEISMJ
		Sistemas mejorados	SS	DEISSS
		Actividades mejoradas en el proceso	AM	DEISAM
		Procesos nuevos para el mercado	PN	DEISP <span style="font-size: small;">N</span>
		Procesos nuevos para la empresa	PO	DEISPO

En la Tabla se presenta la codificación de la variable, las dos primeras letras corresponden a Desempeño Innovador (DE), las dos segundas a las de cada una de las dimensiones que la componen (IO, IS). Las dos últimas letras corresponden al código de la categoría.

Para obtener una estimación del nivel de Desempeño Innovador se construyó un índice por cada una de las dimensiones. Se utilizó el Análisis de Componentes Principales No Lineales ACPNL para cuantificar las variables a través de la asignación de valores a cada una de las categorías de las variables originales. Este método mejora la combinación lineal de las variables, lo que facilita su aplicación en una amplia gama de posibilidades, una de ellas la construcción de índices. Para la cuantificación de las variables categóricas se utilizó el procedimiento denominado PRINCALS. La expresión PRINC corresponde a las siglas de Principal Components, y ALS porque utiliza como algoritmo de cálculo los mínimos cuadrados alternantes, esto es Alternating Least Squares. Este procedimiento se encuentra programado en el SPSS y fue utilizado en el trabajo de investigación.

## RESULTADOS

Según el cálculo del índice del Desempeño Innovador, 29 empresas registran un valor de 100 en el índice la dimensión Innovación en Producto, estos son: 1, 4, 10, 11, 13, 15, 19, 20, 21, 28, 29, 30, 33, 35, 36, 37, 47, 48, 53, 54, 55, 57, 58, 59, 60, 61, 62, 64, 67. Mientras 32 casos tienen un valor sobre la media (87,22). Finalmente, el menor valor de 0 lo tienen 5 PYMES. Estos resultados muestran que hay una innovación en el producto alta por parte de las PYMES manufactureras del DMQ; lo que significa que tienen la capacidad de introducir nuevos productos que de una u otra manera contribuyen a su supervivencia. Sin embargo, los resultados también reflejan que aun cuando innovan en el producto, esta innovación no incorpora un elemento que los diferencie y les permita generar una real ventaja competitiva. Es decir, no introducen innovaciones radicales, sino únicamente novedades en sus productos. Lo anterior coincide con los resultados mostrados por Rodeiro y Fernández (2006) quienes destacan que la Innovación en producto es la más frecuente debido a que es considerada la más sencilla por no introducir innovaciones radicales, sino novedades en los productos o servicios.

Para el índice Innovación de Procesos los casos tres PYMES tienen un valor máximo de 100. Mientras 49 tienen un valor sobre la media (80,78). Finalmente, 3 casos tienen el mínimo valor de 0. Estos resultados muestran que el nivel de Innovación en Procesos es moderado al momento de introducir prácticas nuevas de producción. Ya que el objetivo de innovar en los procesos es optimizar los recursos, a razón que la introducción de soluciones tecnológicas se considera factible de aplicar en las empresas dependiendo de su nivel de recursos y capacidades (Valencia, 2019). El menor porcentaje de PYMES que innovaron en procesos, podría ser resultado del mayor grado de complejidad que implica este tipo de innovación, en la medida que requiere incorporar soluciones tecnológicas. Para lo cual, es necesario identificar y definir un problema, establecer la secuenciación de actividades y acciones de mejora, para finalmente obtener el producto innovado y proceder a su comercialización (Valencia, 2019). Tomando en cuenta que la tecnología constituye un factor que ayuda a procesos de manufactura a ser más eficientes, y por lo tanto es un factor principal para el crecimiento y desarrollo de las PYMES manufactureras (Madurga et al., 2020, López, 2020).

## CONCLUSIONES

La globalización incide en un cambio de paradigma en las PYMES manufactureras, conduce al análisis interno, en especial de sus recursos y capacidades como el aspecto indispensable para identificar, desarrollar y desplegar estrategias, que permitan asegurar a largo plazo una ventaja competitiva por medio de procesos más dinámicos, productos innovados y un mejor comportamiento emprendedor. La estimación del Desempeño Innovador, resulta relevante para explicar el comportamiento de las PYMES del sector manufacturero del DMQ, frente a los grandes desafíos del contexto actual postpandemia que generó pérdidas, insostenibles para muchas que inclusive llevó a su cierre definitivo. Por lo que se hace imprescindible orientar la estrategia de los directivos y gerentes hacia la innovación sostenida, como la única vía que conduzca hacia mayores niveles de competitividad.

Del análisis de las dimensiones de Desempeño Innovador se evidenció que en general las PYMES manufactureras estudiadas buscan obtener ventajas competitivas aprovechando las habilidades de su personal, sin embargo, no comprometen sus recursos a las oportunidades por el miedo al fracaso. Aspectos que se contradicen con los principios de la Teoría de los Recursos y Capacidades, cuyo propósito es que la empresa alcance una ventaja competitiva sostenible en base a la combinación eficiente de sus recursos y capacidades. La estimación del índice del Desempeño Innovador de las PYMES manufactureras del DMQ, permitió observar un alto valor, sin embargo, la mayor parte de las PYMES realizan únicamente mejoras marginales a sus productos y no siempre se sustentan en innovación tecnológica. Del mismo modo, la Innovación en Procesos se orienta a mejoras en la maquinaria de producción, que no conlleva a la introducción de productos nuevos con innovaciones significativas. El mayor valor de índice en la dimensión

Innovación Procesos podría significar que la mayor parte de estas empresas ponen énfasis en actividades de mejora del proceso de producción, tal vez por la necesidad de disminuir costos para poder mantener su posición en el mercado. Entre las limitaciones para el desarrollo de la investigación, fue lograr la colaboración de los dueños o gerentes de las PYMES manufactureras, debido a las medidas de bioseguridad propuestas por el COE Nacional entorno a la pandemia del COVID-19. Otra limitación fue atraer la atención sobre la importancia de vincularse con la academia para beneficiarse de los aportes que se generen a partir de la investigación, debido a la situación crítica que atravesaban las empresas. A partir de este trabajo se abre la posibilidad de ampliar la investigación desde la perspectiva de otros actores distintos al dueño o gerente, así como también, estudiar otras variables que resultarían relevantes para explicar el desempeño innovador de las PYMES. Considerando la relevancia del protagonismo de las PYMES en la activación económica de los países, se podría ampliar el estudio a otros sectores.

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# FACTORES CLAVE DE GESTIÓN DE LOS E-SPORTS ANTE SITUACIONES DE CRISIS

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## RESUMEN

*Los eSports han demostrado alta capacidad de resiliencia ante situaciones extremas desfavorables, como la pandemia o el conflicto bélico entre Rusia y Ucrania. No obstante, la crisis global genera incertidumbre en algunos eslabones de la cadena de valor lo que pone en riesgo la supervivencia de los eSports como modelo de negocio. Frente a esta situación, se plantea como objetivo identificar factores clave en la gestión de los eSports que surgen en situaciones de crisis. La investigación es de tipo exploratoria, en base al análisis de las reacciones de los dirigentes y jugadores más destacados del mundo, publicadas en diferentes páginas oficiales de organizaciones deportivas y trabajos de investigación relacionados. Los resultados muestran la fragilidad de las empresas que concentran su cartera en la gestión de los equipos eSports. Se concluye que la aplicación de nuevas tecnologías, los Publisher y la gestión de equipos, son factores claves a ser considerados en la gestión deportiva. Este último elemento, debe contemplar objetivos individuales dependiendo de la realidad de cada jugador y objetivos colectivos para desarrollar habilidades de trabajo en equipo. Así mismo, plantear objetivos para los técnicos mirando en dirección de los jugadores, para generar un ambiente de confianza y sentido de pertenencia. Además, es recomendable observar una estructura organizacional que asegure una eficaz gestión empresarial. Normalmente la estructura de los clubes incluye jugadores, directores, entrenadores, personal de apoyo administrativo y personal médico.*

**PALABRAS CLAVE:** Esports, Gestión Deportiva, Nuevas Tecnologías

## KEY FACTORS IN THE MANAGEMENT OF E-SPORTS IN CRISIS SITUATIONS

### ABSTRACT

*Esports have shown high resilience in the face of extreme unfavorable situations, such as the pandemic or the war between Russia and Ukraine. However, the global crisis generates uncertainty in some links of the value chain, which puts at risk the survival of eSports as a business model. Faced with this situation, the objective is to identify key factors in the management of eSports that arise in crisis situations. The investigation is of an exploratory type, based on the analysis of the reactions of the most outstanding leaders and players in the world, published on different official pages of sports organizations and related investigations and related research papers. The results show the fragility of the companies that concentrate their portfolio on the management of eSports teams. It is concluded that the application of new technologies, Publishers and team management are key factors to be considered in sports management. This last element must contemplate individual objectives depending on the reality of each player and collective objectives to develop teamwork skills. Likewise, set objectives for the coaches looking in the direction of the players, to generate an environment of trust and a sense of belonging. In addition, it is advisable to observe an organizational structure that ensures effective business management. Normally the structure of the clubs includes players, directors, coaches, administrative support staff and medical staff.*

**JEL:** Z21, Z29, L83, M12, M14, M15

**KEYWORDS:** Esports, Sports Management, New Technologies

## INTRODUCCIÓN

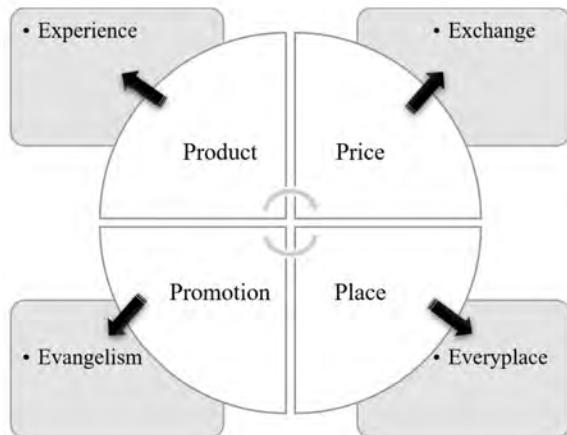
Los videos juegos se han convertido en una de las industrias de entretenimiento más rentables del mundo, que da lugar al desarrollo de los eSports, como un ecosistema en donde conviven varios actores con roles muy bien determinados. Empresas desarrolladoras, organizadores de torneos o eventos de competición, jugadores, clubes, patrocinadores, plataformas streaming, medios de comunicación, inversionistas, audiencia. Para los desarrolladores, los videos juegos constituyen su principal capital intelectual para atraer a los demás grupos de interés (Cáceres, 2022). Desde otra mirada, uno de los sectores más afectados por las crisis mundiales, como la pandemia del Covid 19 o la guerra Rusia – Ucrania, es el deporte. Los eSports considerados parte de esta industria, han sido los menos afectados. Aunque si se analiza todos los eslabones de la cadena de valor, el escenario es más incierto (Rodríguez, 2020). El ecosistema de los eSports fundamentalmente basa su crecimiento en patrocinios, por lo que, en medio de una crisis el retiro prolongado de estas empresas, pone en riesgo su rentabilidad y limita un crecimiento sostenido. Así mismo, la supervivencia de empresas que sustentan su negocio únicamente en la gestión de equipos de eSports, se ponen en riesgo, no así las grandes compañías que diversifican su cartera de productos y contrariamente aseguran su crecimiento (García, 2022).

Pese a lo mencionado, en el primer caso, ante el confinamiento obligatorio, no se suspendieron actividades, más bien se desarrollaron mayor cantidad de torneos, en consecuencia, crece exponencialmente su audiencia. Convirtiéndose en una actividad cada vez más extendida y lucrativa, que mueve millones de espectadores y millones dólares en todo el mundo (Orús, 2022). En el segundo caso, las disruptivas causadas en estos deportes, va más allá de las sanciones impartidas a Rusia en el último año en diferentes disciplinas deportivas. La afectación psicológica y emocional, a decir de los mismos jugadores, influye en su nivel de rendimiento. Ante tales circunstancias, se observa creciente interés de la comunidad científica por estudiar aspectos psicosociales, psicológicos, emocionales, entre otros necesarios para un alto rendimiento de los jugadores de eSports (García-Naveira & León, 2022). Frente a esta situación, se plantea como objetivo de investigación identificar factores clave en la gestión de los eSports, que desde diversas perspectivas permitan hacer frente a situaciones de crisis o resultados adversos, generando mayor capacidad de resiliencia individual y organizacional. El documento se organiza de la siguiente manera. En primer lugar, se exponen argumentos teóricos sobre la definición de Sports que dan cuenta de su desarrollo y perspectiva compleja a ser considerada en la gestión deportiva. Seguidamente, se despliega la metodología de trabajo, cuyo enfoque es cualitativo. En el apartado resultados se presentan los principales factores que debe tomar en cuenta la gerencia de los eSports. Finalmente, se presentan algunas conclusiones, limitaciones y futuras líneas de investigación que se derivan de este trabajo.

## REVISIÓN LITERARIA

Con el crecimiento de los espectadores y de los encuentros de competición, se incrementa el seguimiento mediático de medios de comunicación. El desarrollo de las tecnologías de la información y comunicación, da lugar a los medios de comunicación modernos. Desde esta perspectiva, los eSports ocupan un mercado importante, al contar con plataformas especializadas que realizan transmisiones en vivo y convocan una audiencia que crece de manera sostenida (Rodríguez S. , 2018). Por su parte, Yuri (2013) citada por el mismo autor, propone analizar la situación descrita, desde la perspectiva experiencial de los eSports. Para lo cual se adapta el modelo de las 4P de Porter al de las 4E (Figura 1).

Figura 1: Adaptación del Modelo de Porter de las 4P Al Modelo de las 4E



En la figura se observa la adaptación de los modelos de las 4P al de las 4E. De producto se pasa a Experiencia, de Precio a Intercambio, de punto de venta a vender donde el cliente y finalmente de Promoción a Evangelización.

Por otro lado, la necesidad de conceptualizar el término es parte de la discusión en la comunidad científica, y da cuenta de su evolución según la propia evolución que ha tenido este fenómeno. Desde una práctica individualizada y tecnológica en sus inicios, hasta una que se desarrolla en entornos más sociales y experiencias compartidas. En la actualidad se generaliza el concepto de eSports como una actividad deportiva considerando el análisis de diversas características e implicaciones motrices y cognitivas. En la Tabla 1 se observan algunas definiciones propuestas desde la mirada de diversos autores.

Tabla 1: Definiciones de eSports

<b>eSports</b>	<b>Autor (Año)</b>	<b>Enfoque</b>
Un término general para describir la acción de jugar a videojuegos de forma competitiva.	(Bornemark, 2013)	Académico
Prácticas de videojuegos con fines competitivos a través de los que se obtiene dinero o cualquier tipo de premio cuantificable para los que alcanzan los primeros lugares en las competiciones.	(Marcano, 2012; Antón y García, 2014; Carrillo, 2016)	Económico
Son un fenómeno basado en videojuegos multijugador de éxito cuyos torneos se convierten en espectáculos en vivo para multitudes.	(Rodríguez, 2017)	Entretenimiento
Hace referencia a los torneos de cualquier videojuego en cualquier plataforma, incluso puede hacer referencia a jugar en un celular algún juego para dos personas en donde haya un ganador, o hasta videojuegos profesionales.	(Rodríguez, 2018)	Multidimensional
Se definen como el juego competitivo organizado de ciertos videojuegos, los cuales requieren cumplir una serie de criterios (estructura competitiva, mediática y el principio de igualdad competitiva), que pueden ser jugados de forma amateur o profesional, presencial u online, y en función del videojuego, se compite en modalidad individual o por equipos, sentados delante de una pantalla de ordenador, móvil o monitor de consola.	(Antón, 2019)	Multidimensional
Actividad de rendimiento humano con un alto contenido psicológico (psicomotricidad, concentración, toma de decisiones, confianza, motivación, cohesión, tolerancia a la frustración, ansiedad y estrés, etc.), siendo cuestiones centrales combinar la mejora del rendimiento con el cuidado de la salud, optimizando los recursos psicológicos del gamer, equipo y el entrenador	(García-Naveira & León, 2022)	Psicológico

Se presenta solo una muestra de múltiples definiciones que se han generado sobre los eSports desde diferentes enfoques que explican de la evolución desde lo simple hasta la complejidad que conlleva su análisis en la actualidad, en donde el nuevo contexto social y experiencial exige incorporar una dimensión psicológica.

## METODOLOGÍA

El estudio es exploratorio de tipo cualitativo, basado en una investigación documental y una revisión sistemática y exhaustiva de autores que realizaron estudios en el campo de los videos juegos y el surgimiento de los deportes electrónicos comúnmente denominados eSports. Además, se examinan páginas oficiales a través de las cuales se difunden cifras, la situación actual, estadísticas, proyecciones y novedades alrededor de los deportes electrónicos. Se complementa la información a través del análisis de opiniones y reacciones de jugadores profesionales destacados y directivos de organizaciones deportivas. Para orientar la búsqueda de la información se definen variables de estudio con sus respectivas dimensiones y fuentes de información en donde se realizar la búsqueda, como se muestra en la Tabla 1.

Tabla 1: Variables de Estudio

Variables	Dimensiones	Fuente de información
eSports	Orígenes Desarrollo Definiciones Enfoques	Estudios científicos
Ecosistema	Grupos de interés	Estudios científicos Páginas oficiales
Cifras	Espectadores Dinero Tecnología Eventos	Páginas oficiales

Se determinan las variables eSports con sus dimensiones, origen, desarrollo histórico, definiciones, enfoques. Ecosistema con sus dimensiones relacionadas a los grupos de interés que interactúan. Cifras en cuanto a espectadores, dinero, tecnología, eventos. En la tercera columna se muestra la fuente información para cada dimensión.

## RESULTADOS

Los eSports son duelos entre equipos o jugadores profesionales que se realizan en entornos virtuales sobre un video juego de competición. Se consolida como una actividad profesional y organizada que despierta el interés de una audiencia numerosa. Los resultados de la investigación se enfocan a tres aspectos, eSports como ecosistema, características relevantes y factores clave de gestión.

### Ecosistema

El eSport se define como un ecosistema digital en evolución, conformado por: “equipos, ligas, jugadores, entrenadores, preparadores físicos, nutricionistas, psicólogos, creadores de contenido escrito y audiovisual, community managers, especialistas en audiovisuales, personal de marketing de comunicación, abogados, anunciantes o sponsors, marcas, proveedores, desarrolladores, canales o medios de comunicación, espectadores”.

### Publishers y Empresas Organizadoras

En los eSports a diferencia de los deportes tradicionales, los denominados Publisher tienen la titularidad exclusiva de todo lo relacionado con el video juego, por lo que es uno de los actores indispensables en la dinámica de este ecosistema. Son compañías desarrolladoras y/o comercializadoras de video juegos que poseen la propiedad intelectual o industrial un video juego. Las empresas desarrolladoras de videojuegos se asocian con otras que se ocupan de la promoción y profesionalización de los eSports. Organizan ligas y torneos a nivel mundial que conglomeran equipos y jugadores según su nivel de habilidad. Intervienen equipos o empresas que se encargan de la logística para asegurar el desarrollo del evento de competición.

Cada torneo, equipo, jugador, se ajusta a las reglas y modalidad establecida por la empresa organizadora. Se entregan premios e incentivos económicos a los equipos y jugadores.

### Equipos y Jugadores

La preparación contempla aspectos individuales, como: desarrollo de habilidades y concentración, y aspectos colectivos, como la capacidad de trabajo en equipo. Conlleva entrenamiento físico y mental continuo, aprendizaje de estrategias, conocimiento del videojuego específico. Intervienen entrenadores, preparadores físicos, psicólogos, y otros expertos encargados de mejorar el desempeño de los jugadores virtuales.

### Difusión

Intervienen empresas de comunicación, medios de comunicación, marcas, patrocinadores, influencers. Los torneos se difunden a través de canales digitales o plataformas como Twitch y Youtube.

### Factores Clave de Gestión

Las situaciones de crisis generan inestabilidad e inclusive ponen en riesgo la supervivencia de ecosistemas y los eSports no son la excepción. La capacidad de resiliencia se pone a prueba cuando ocurren eventos adversos, por lo que se han identificado algunos factores clave que podrían contribuir a la gestión de los eSports. Publisher, por la influencia que ejercen en el ecosistema eSport es indispensable tomar en cuenta en la gestión. Marco normativo y legal, aun cuando existe contradicción entre la necesidad de regulación básica y la capacidad de autorregulación del sector, son aspectos esenciales de la gestión a tener en cuenta: relaciones laborales, ley de eventos en caso de torneos de competición presenciales, forma jurídica de los equipos o clubes eSports. Tecnología, los eSports son un sector nativo digital, de ahí la dependencia con el desarrollo tecnológico. Esto abre la posibilidad de incorporar a los eSports tecnologías consolidadas en otros sectores, favoreciendo su desarrollo. Entre otras alternativas se observan en la actualidad: uso de Big Data en analíticas en la gestión, interfaz de programación de aplicaciones conocidas como APIs para compilar datos de las partidas. Las APIs pueden ser utilizadas por los publishers para lograr versiones mejoradas del video juego, a través de conocer datos técnicos y de equilibrios del sistema de juego y los personajes, o problemas que se pudieran presentar al momento de jugar desde el punto de vista del jugador. Para los equipos, esta información es relevante para el coaching y entrenamiento de los jugadores.

Gestión de equipos, se enfatiza en el planteamiento de objetivos desde la perspectiva de los jugadores y desde la de los técnicos. Los primeros orientados al desarrollo de fortalezas a nivel individual como la motivación, confianza, competitividad, adaptabilidad. Además, otras grupales como trabajo en equipo, clima organizacional, relaciones interpersonales. Los objetivos desde la perspectiva de los técnicos se plantean de cara a los jugadores, se orientan a desarrollar métodos de entrenamiento que guíe la preparación de los jugadores para el alto rendimiento. Se debe tomar en cuenta el número de horas, contenidos, carga de trabajo y eficacia de los entrenamientos, tanto a nivel individual como grupal (García-Naveira & León, 2022). Otro aspecto de la gestión de equipos es la Estructura organizacional básica que debe ser considerada. Responde a las formas de organización interna y administrativa que se define en un equipo eSport para lograr sus objetivos. Este ecosistema, incluye varios agentes, directores (general, operaciones, marketing, otros) jugadores, entrenadores, personal de apoyo administrativo, personal médico.

## **CONCLUSIONES**

La gestión de eSports es una función compleja de la mano al contexto en el que se desarrollan y al fenómeno social y cultura que representan en actualidad. Desde el punto de vista del ecosistema eSport, es fundamental tomar en cuenta factores clave de gestión, de modo que su supervivencia y la de los agentes

en los diversos eslabones de la cadena de valor, no se ponga en riesgo, frente a situaciones de crisis o variables endógenas que resultan inmanejables. Entre los factores clave identificados se encuentran: Publisher, Marco normativo y legal, Tecnología y Gestión de equipos.

Este trabajo abre muchas líneas de investigación desde diferentes enfoques y disciplinas, para comprender el comportamiento que han tenido, tienen y proyectan los eSports. Por ejemplo, profundizar en el comportamiento de los diferentes agentes que conforman el ecosistema eSports. De manera específica, se podría contribuir desde la academia a promover estilos de vida y hábitos saludables, así como el establecimiento de buenas prácticas de actividad deportiva. Así mismo el análisis correlacional o causal entre variables como estado emocional y rendimiento deportivo, podrían contribuir al planteamiento de estrategias más acertadas de gestión. La principal limitación del estudio fue la escasa bibliografía generada con rigurosidad científica, como resultado del relativamente reciente interés por estudiar este fenómeno.

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