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Prioritizing Factors to Foster Improvement of Sales Operations in Small- and Medium-Sized Industrial Organizations

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Abstract: Small- and medium-sized companies depend heavily on their internal configuration to achieve their goals, generate profit, and remain competitive. The performance of the sales department is often crucial for this. Decision-makers need to understand how to coordinate the sales force's operations while considering team members' communication and commitment. This article presents an approach to prioritize factors that will improve the operations of the sales department in small- and medium-sized companies in the industrial sector. To achieve this, we adopted the soft modeling approach by (1) outlining a conceptual model that identifies the factors that can lead to improvements based on the literature and (2) using the analytical hierarchy process to validate a construct and prioritize the factors. This study is focused on the organizational domain and involves the participation of sixty employees from medium-sized Mexican companies with at least five years of experience. The results indicate that the factors that foster improvement in sales department operations are communication improvement, failure prevention, workload alignment, and adequate integration of human efforts with technology without neglecting coordination and management mechanisms. This article could encourage academics and practitioners to adopt the soft modeling approach to adopt new courses of action based on continuous learning and improve organizational cohesion.

Keywords: adaptability; viability; performance; management; salesperson

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1. Introduction

Small- and medium-sized enterprises (SMEs) play a significant role in many countries by bringing dynamism to the economy through exchanging goods and services [1]. In Mexico, these organizations represent 75% of the national economic activity. Specifically, industrial sectors account for 35% of economic activity and generate 45% of formal jobs [2]. However, SMEs face various structural challenges that constrain their ability to adapt to a complex and changing environment and their capability to remain relevant in the market [3]. It is challenging to improve their capacity to sell products and services [4].

Improving the competitiveness and efficiency of the sales department in an industrial SME requires adopting a comprehensive approach. This involves deploying courses of action to enhance sales performance by aligning all company levels and coordinating organizational resources [5]. However, obstacles such as rigid organizational structure, labor relation imbalances, communication issues, and inadequate resource allocation can hinder the success of strategic departments like sales [6]. Consequently, identifying factors that aid in controlling, coordinating, and managing sales activities remains challenging [7].

Various methods, such as optimization, quality management, and systems thinking, have been proposed to address the challenge of aligning the efforts of sales personnel in SMEs [8]. However, there has been less focus on identifying factors to enhance sales performance based on the insights of managers and expert agents compared to planning, strategic implementation, and decision-making, creating a gap in exploring many crucial

factors that could translate managerial efforts into tangible results [9]. Enhancing a sales team's responsiveness capabilities should be part of feedback and a continuous and multidisciplinary process that necessitates a comprehensive analysis of organizational culture and employee engagement [10].

This paper aims to present a methodological framework for identifying and prioritizing organizational factors that can enhance the implementation of strategies to improve sales in Mexican industrial SMEs. The approach bridges the gap between reductionist management models and systems thinking. Additionally, it highlights the importance of evaluating internal factors that enable managers to optimize their organizational structures to better adapt to a constantly changing business environment. This approach integrates the experiences and knowledge of the participants, thereby enhancing the ability of SME managers to navigate organizational challenges [11].

This article consists of the following sections: (A) A literature review that examines the need for implementing a systems approach to address organizational issues within the sales department of industrial SMEs. (B) A methodology section that outlines the application of soft systems methodology (SSM) [12] as a framework for articulating network analysis (NA) and the Analytic Hierarchy Process (AHP). Through AHP, we validated the conceptual model, prioritized the subfactors, and guided decision-makers in addressing them. (C) Lastly, a brief conclusion highlights the theoretical implications and proposing avenues for future research.

2. Literature Review

The enhancement of sales in small- and medium-sized industrial companies has received considerable attention due to its impact on business competitiveness, economic sustainability, consumption, and responsible production. Over five thousand articles have been published on responsible sales and sustainability goals [13]. This section delves into the factors that can affect performance and sales in industrial SMEs, including organizational structure, team and knowledge management, leadership style, and the adoption of systemic approaches.

The organizational structure of SMEs plays a crucial role in the effectiveness of sales strategies. According to [14], an operations-based structure and an innovation-focused approach are beneficial for implementing sales-enhancing strategies as they facilitate effective resource coordination and provide the flexibility needed to adapt to market conditions. Conversely, a rigid or centralized structure may hinder environmental monitoring, the ability to address complex problems, and the organization's capacity to respond to rapid external changes [15].

According to [16], knowledge management is a crucial component that managers must incorporate to address the gap between the management's plans and the achievement of sales goals. Ref. [17] also emphasized the importance of designing and implementing effective knowledge management systems to help organizations capture, distribute, and utilize knowledge efficiently. This implementation should also promote a culture of open data to encourage continuous learning and highlight the importance of adaptation, which is vital for innovation and improved sales performance [6]. Hence, the industrial SME's capability to efficiently manage its knowledge is closely tied to the manager's dedication to the goals and their capacity to translate them into attainable projects with explicit guidelines and plans for possible contingencies [18].

The research conducted by [19,20] indicated that enhancing sales performance depends on several critical aspects: (1) implementing a management–action model based on principles of regulation and coordination, along with continuous monitoring of operations; (2) establishing a clear incentive policy; (3) providing training geared toward actual needs; (4) reinforcing organizational values; (5) communicating strategies; and (6) Involving personnel in feedback processes. According to [21], these factors converge to improve sales. However, methodological and conceptual differences may need clarification among managers and operators regarding the necessary interactions for effectively

enhancing sales performance, given the unique information and capabilities developed by each company [22].

Research by [8,23] highlighted that action–management models based on systemic principles provide a better structure for managers to integrate their staff by fostering commitment to institutional values. Ref. [24] studied the impact of regulation and coordination mechanisms using nonlinear regression analysis regarding a clear incentive policy. Refs. [6,25] emphasized that implementing incentives can accelerate sales in SMEs; this measure is not sustainable because it can detach the staff from the institutional values and put pressure on the production of products or services, affecting the responsiveness of the processes to customers. Therefore, management intervention is necessary to invest in adequate opportunities. Ref. [26] suggests that education should be oriented toward sales techniques and provide each salesperson with personal and intellectual development. Ref. [27] stressed that personnel management should promote marketing expertise and data analysis as conditions for effective sales performance. Ref. [28] highlighted that sales force training and development are essential to promote dynamic and adaptive capabilities in the organization, focusing on efficiency.

The ideas above discuss different perspectives on improving sales in SMEs. The use of systems thinking has become relevant in sales performance research. For instance, Refs. [29,30] stressed the importance of using the SSM to guide organizational effectiveness. Additionally, Refs. [31,32] utilized SSM to identify and solve organizational problems that impact sales and production, while ref. [33] used SSM to address the human and social aspects of the sales department to make the social system more efficient. The viable system model has been employed to develop semi-structured courses of action to reduce the time spent on problem detection and resolution [34]. Ref. [35] suggested constantly balancing a sales-oriented group's response capabilities. Similarly, system dynamics [18,36], network analysis [37], and multi-criteria methods [38] can also help tackle the challenges in the sales domain.

3. Methodological Approach

Understanding departmental performance and organizational problems requires shifting from a reductionist perspective to a holistic approach. These issues often involve complex and unstructured situations [39]. Therefore, we consider it appropriate to adopt the systemic method that encompasses different analytical tools to study a system's structures, relationships, functions, and context. This helps in understanding problematic situations and facilitates continuous learning and improvement [11]. Considering the above, the soft SSM by [12] supported our work. We used network analysis and AHP to develop a conceptual model with variables for improving sales department performance. The soft systems methodology is flexible and can be applied in seven steps or specific steps to organize a problem and plan for improvement. Below is a brief description of the steps we used:

- Stage 1. Identification of relevant factors: we used NA to review scientific articles and investigate how they addressed the performance of sales departments in industrial SMEs. This helped us identify the factors that could positively impact the department's performance.
- Stage 2. Development of conceptual model: this stage involved proposing a conceptual model under the AHP logic to define relationships or comparisons between factors and subfactors based on the previous step.
- Stage 3. Evaluation of the conceptual model: we used the AHP to assess the consistency of the proposed construct and to evaluate the aspects that the stakeholders could address.

4. Data Collection and Analysis

4.1. Identifying Factors Using Network Analysis

In the initial stage, we employed NA to examine the literature and gain insight into how the performance of sales departments in industrial SMEs has been addressed. Using the Scopus database, known for its extensive article index [40], we created a graph comprising articles and key terms. Using an undirected graph, we depicted the relationships among the collected articles. Following the recommendations of [4], we devised the following search strategy:

- Define descriptors considering titles, abstracts, and keywords according to [40] (Table 1).
- Elements to include: articles related to the sales process in the industrial sector, without restrictions by country, and the use of the systemic approach or tools.
- Year range: the search descriptors yielded articles between 2010 and 2024.
- We included articles with a high degree of input and output while excluding those that did not focus on the application of systems thinking or were unrelated to the industrial sector.

Table 1. Search criteria.

Iteration	Search Criteria	Results
1	TITLE-ABS-KEY (vsm AND (sales OR seller)) AND (LIMIT-TO (DOCTYPE, "ar") AND (LIMIT-TO (SUBJAREA, "BUSI") OR LIMIT-TO (SUBJAREA, "DECI") OR LIMIT-TO (SUBJAREA, "ECON")) AND (LIMIT-TO (LANGUAGE, "English")) AND (LIMIT-TO (SRCTYPE, "j")) AND (EXCLUDE (PUBYEAR, 1993))	12
2	TITLE-ABS-KEY (system thinking AND (sales OR seller)) AND (LIMIT-TO (DOCTYPE, "ar") AND (LIMIT-TO (SUBJAREA, "BUSI") OR LIMIT-TO (SUBJAREA, "DECI") OR LIMIT-TO (SUBJAREA, "ECON")) AND (LIMIT-TO (LANGUAGE, "English")) AND (LIMIT-TO (SRCTYPE, "j")) AND (EXCLUDE (PUBYEAR, 2001) OR EXCLUDE (PUBYEAR, 1999) OR EXCLUDE (PUBYEAR, 1998) OR EXCLUDE (PUBYEAR, 1997) OR EXCLUDE (PUBYEAR, 1995) OR EXCLUDE (PUBYEAR, 1994) OR EXCLUDE (PUBYEAR, 1993) OR EXCLUDE (PUBYEAR, 1991) OR EXCLUDE (PUBYEAR, 1989) OR EXCLUDE (PUBYEAR, 1985))	59
3	TITLE-ABS-KEY (b2b AND viable AND system AND model) AND (EXCLUDE (SRCTYPE, "p"))	0
4	TITLE-ABS-KEY ("viable system model" AND (sales OR seller)) AND (LIMIT-TO (SUBJAREA, "BUSI")) AND (EXCLUDE (SRCTYPE, "k"))	0
5	TITLE-ABS-KEY (sales AND vsm) AND (LIMIT-TO (DOCTYPE, "ar") AND (LIMIT-TO (SUBJAREA, "BUSI") OR LIMIT-TO (SUBJAREA, "DECI") OR LIMIT-TO (SUBJAREA, "ECON")) AND (LIMIT-TO (LANGUAGE, "English")) AND (LIMIT-TO (SRCTYPE, "j")) AND (LIMIT-TO (PUBYEAR, 2022) OR LIMIT-TO (PUBYEAR, 2021) OR LIMIT-TO (PUBYEAR, 2020) OR LIMIT-TO (PUBYEAR, 2019) OR LIMIT-TO (PUBYEAR, 2018) OR LIMIT-TO (PUBYEAR, 2016) OR LIMIT-TO (PUBYEAR, 2015) OR LIMIT-TO (PUBYEAR, 2013) OR LIMIT-TO (PUBYEAR, 2007)))	12
6	TITLE-ABS-KEY (b2b AND vsm) AND (LIMIT-TO (DOCTYPE, "ar") AND (LIMIT-TO (SUBJAREA, "BUSI")) AND (LIMIT-TO (LANGUAGE, "English")) AND (LIMIT-TO (SRCTYPE, "j")))	1
7	TITLE-ABS-KEY (viable AND system AND model AND (sales OR seller)) AND (LIMIT-TO (DOCTYPE, "ar") AND (LIMIT-TO (SUBJAREA, "BUSI") OR LIMIT-TO (SUBJAREA, "DECI") OR LIMIT-TO (SUBJAREA, "ECON")) AND (LIMIT-TO (PUBYEAR, 2022) OR LIMIT-TO (PUBYEAR, 2021) OR LIMIT-TO (PUBYEAR, 2020) OR LIMIT-TO (PUBYEAR, 2019) OR LIMIT-TO (PUBYEAR, 2018) OR LIMIT-TO (PUBYEAR, 2017) OR LIMIT-TO (PUBYEAR, 2016) OR LIMIT-TO (PUBYEAR, 2015) OR LIMIT-TO (PUBYEAR, 2014) OR LIMIT-TO (PUBYEAR, 2013) OR LIMIT-TO (PUBYEAR, 2012) OR LIMIT-TO (PUBYEAR, 2011) OR LIMIT-TO (PUBYEAR, 2007) OR LIMIT-TO (PUBYEAR, 2005) OR LIMIT-TO (PUBYEAR, 2004) OR LIMIT-TO (PUBYEAR, 2003)))	19
8	TITLE-ABS-KEY (soft AND systems AND methodology AND (sales OR seller)) AND (LIMIT-TO (DOCTYPE, "ar") AND (LIMIT-TO (SUBJAREA, "BUSI") OR LIMIT-TO (SUBJAREA, "DECI")) AND (LIMIT-TO (LANGUAGE, "English")) AND (LIMIT-TO (SRCTYPE, "j")))	13
9	TITLE-ABS-KEY (ssm AND (sales OR seller)) AND (LIMIT-TO (DOCTYPE, "ar") AND (LIMIT-TO (SUBJAREA, "BUSI") OR LIMIT-TO (SUBJAREA, "DECI") OR LIMIT-TO (SUBJAREA, "ECON")) AND (LIMIT-TO (LANGUAGE, "English")))	5

Table 1. *Cont.*

Iteration	Search Criteria	Results
10	TITLE-ABS-KEY (psm AND (sales OR seller)) AND (LIMIT-TO (DOCTYPE, "ar") AND (LIMIT-TO (SUBJAREA, "BUSI") OR LIMIT-TO (SUBJAREA, "DECI")) AND (LIMIT-TO (LANGUAGE, "English")) AND (LIMIT-TO (SRCTYPE, "j")))	38
11	TITLE-ABS-KEY (problem AND structuring AND methods AND (sales OR seller)) AND (LIMIT-TO (DOCTYPE, "ar") AND (LIMIT-TO (SUBJAREA, "BUSI") OR LIMIT-TO (SUBJAREA, "DECI") OR LIMIT-TO (SUBJAREA, "ECON")) AND (LIMIT-TO (LANGUAGE, "English")) AND (LIMIT-TO (SRCTYPE, "j")))	4
12	TITLE-ABS-KEY ("problem structuring methods" AND (sales OR seller)) AND (LIMIT-TO (SUBJAREA, "BUSI") OR LIMIT-TO (SUBJAREA, "DECI")) AND (LIMIT-TO (SRCTYPE, "j"))	1
13	TITLE-ABS-KEY ("soft system methodology" AND (sales OR seller)) AND (LIMIT-TO (DOCTYPE, "ar") AND (LIMIT-TO (PUBYEAR, 2021) OR LIMIT-TO (PUBYEAR, 2019) OR LIMIT-TO (PUBYEAR, 2014) OR LIMIT-TO (PUBYEAR, 2012) OR LIMIT-TO (PUBYEAR, 2010) OR LIMIT-TO (PUBYEAR, 2009) OR LIMIT-TO (PUBYEAR, 2007))) AND (LIMIT-TO (SUBJAREA, "BUSI") OR LIMIT-TO (SUBJAREA, "DECI")) AND (LIMIT-TO (SRCTYPE, "j"))	3
14	TITLE-ABS-KEY ("system thinking" AND salesperson) AND (LIMIT-TO (DOCTYPE, "ar") AND (LIMIT-TO (SUBJAREA, "BUSI") OR LIMIT-TO (SUBJAREA, "DECI")) AND (LIMIT-TO (SRCTYPE, "j")))	1
15	TITLE-ABS-KEY ("system thinking" AND salespeople) AND (LIMIT-TO (DOCTYPE, "ar") AND (LIMIT-TO (SUBJAREA, "BUSI") OR LIMIT-TO (SUBJAREA, "DECI")) AND (LIMIT-TO (SRCTYPE, "j")))	1

Based on the above, we used the igraph package [41] to generate a mode-one graph (Figure 1) that only depicts the relationships between keywords. This allowed us to identify blocks that can be interpreted as patterns in how sales department performance has been addressed in industrial SMEs.

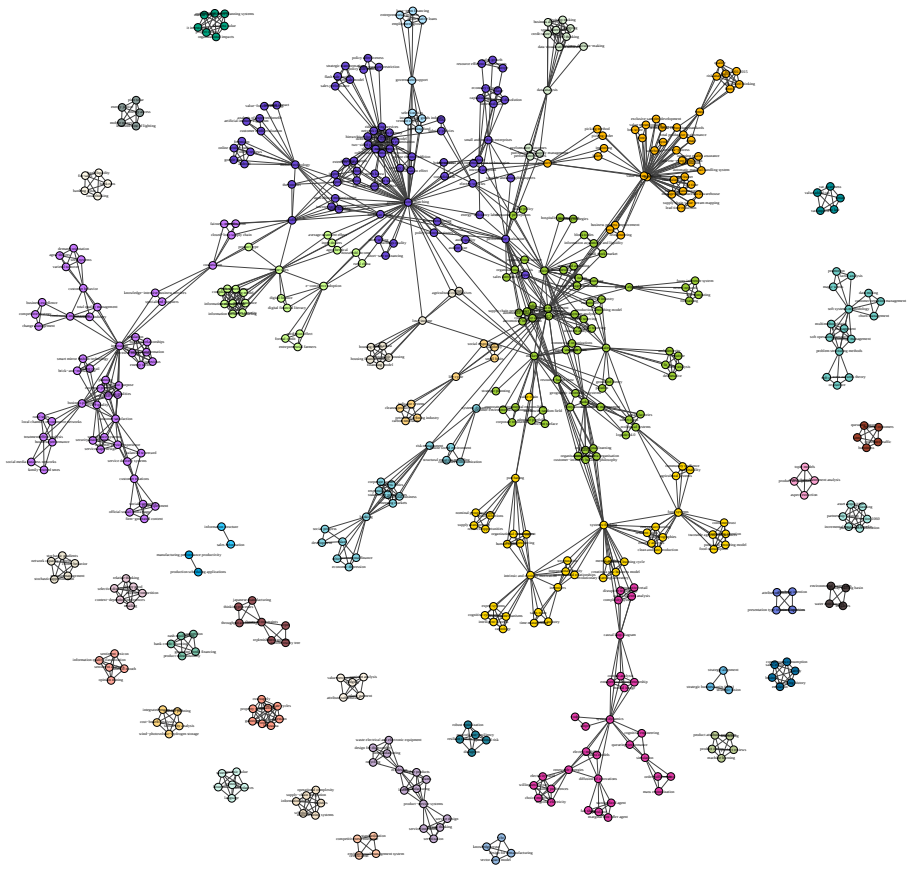

Figure 1. One-mode graph connecting related factors.

4.2. Proposing the Conceptual Model Using AHP

The information gathered from the previous step was used to create a hierarchical diagram with three levels. Level 0 represents the objective or purpose of the decision-making process or the goal of a system; Level 1 consists of the criteria or factors; and Level 2 includes the alternatives. The objective of the AHP model is to prioritize the factors that can enhance sales in industrial SMEs. In our context, we use AHP to prioritize factors rather than to decide on a single element. Therefore, the hierarchical structure does not include decision alternatives.

4.3. Obtaning the Normalized Priority Weights of Individual Factors and Subfactors

This step involved calculating the relative weights of each factor and subfactor, which means normalizing the values resulting from the paired comparisons to estimate the importance of each element within the hierarchy.

We followed the following steps in order to obtain the normalized weights.

4.3.1. Expressing the Comparison Matrix

As mentioned previously, the matrix **A** used to evaluate the relative importance of the factors and subfactors has the form

$$\mathbf{A} = \begin{pmatrix} 1 & a_{12} & \cdots & a_{1n} \\ a_{21} & 1 & \cdots & a_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ a_{n1} & a_{n2} & \cdots & 1 \end{pmatrix} \tag{1}$$

where the following properties apply:

- a_{ij} indicate the comparison ratio between factor i and factor j. The comparison values are obtained using the standard comparison scale (generally from 1 to 9) [42]. On this scale, when $a_{ij} = 1$ then both factors have equal importance, when $a_{ij} > 1$ then factor i is more important than j, and $a_{ij} < 1$ indicates that factor j is more important than i.
- The matrix is reciprocal, that is, $a_{ij} = \frac{1}{a_{ij}}$, meaning that, if the factor i is a_{ij} times more important than factor j, then factor j will be $\frac{1}{a_{ij}}$ times more important than factor i.
- The elements on the diagonal $a_{ii} = 1$ are equal to 1 since every factor is equally as important as itself.

Based on the hierarchical diagram, the comparison matrix between the factors (Level 1) and the comparison matrix between the subfactors (Level 1 and Level 2) can be structured as follows:

$$\mathbf{A} = \begin{pmatrix} 1 & a_{12} & a_{13} & a_{14} & a_{15} & a_{16} & a_{17} \\ \frac{1}{a_{12}} & 1 & a_{23} & a_{24} & a_{25} & a_{26} & a_{27} \\ \frac{1}{a_{13}} & \frac{1}{a_{23}} & 1 & a_{34} & a_{35} & a_{36} & a_{37} \\ \frac{1}{a_{14}} & \frac{1}{a_{24}} & \frac{1}{a_{34}} & 1 & a_{45} & a_{46} & a_{47} \\ \frac{1}{a_{15}} & \frac{1}{a_{25}} & \frac{1}{a_{35}} & \frac{1}{a_{45}} & 1 & a_{56} & a_{57} \\ \frac{1}{a_{16}} & \frac{1}{a_{26}} & \frac{1}{a_{36}} & \frac{1}{a_{46}} & \frac{1}{a_{56}} & 1 & a_{67} \\ \frac{1}{a_{17}} & \frac{1}{a_{27}} & \frac{1}{a_{37}} & \frac{1}{a_{47}} & \frac{1}{a_{57}} & \frac{1}{a_{67}} & 1 \end{pmatrix} \tag{2}$$

$$\mathbf{A}_k = \begin{pmatrix} 1 & a_{12} & a_{13} & \cdots & a_{1m} \\ \frac{1}{a_{12}} & 1 & a_{23} & \cdots & a_{2m} \\ \frac{1}{a_{13}} & \frac{1}{a_{23}} & 1 & \cdots & a_{3m} \\ \vdots & \vdots & \vdots & \ddots & \vdots \\ \frac{1}{a_{1m}} & \frac{1}{a_{2m}} & \frac{1}{a_{3m}} & \cdots & 1 \end{pmatrix} \tag{3}$$

4.3.2. Normalizing the Comparison Matrix

Normalizing the matrix ensures that all values have a standard scale and can be compared. It also helps to identify inconsistencies in comparison judgements if the column sums are inconsistent. Thus, the normalized matrix **N** is denoted by

$$\mathbf{N} = [n_{ij}], \text{where } n_{ij} = \frac{a_{ij}}{\sum_{i=1}^{n} a_{ij}} \tag{4}$$

where the elements are defined as follows:

- **N** is the matrix of normalized elements.
- n_{ij} is the normalized element.
- a_{ij} is the original element of the comparison matrix.
- $\sum_{i=1}^{n}$ is the sum of the elements in column j of matrix **A**.

4.3.3. Relative Weight Estimation

After normalizing the matrix, we calculated the relative weights of each factor or subfactor, denoted as (w_i). These weights quantify the contribution of each factor and subfactor relative to the overall objective. The sum of all weights (w_i) in a normalized matrix must equal 1, ensuring that the weights are interpreted as relative proportions of the total.

$$w_i = \frac{\sum_{i=1}^{n} n_{ij}}{n} \tag{5}$$

4.4. Verifying Consistency of Comparison Matrices

Due to different situations, individuals may display inconsistencies when making decisions. Verifying the consistency of the comparison matrices ensures the results' reliability. Subsequently, it allows validation that the comparisons made are consistent and that there are no significant contradictions in the decisions made by the evaluators. A matrix is considered consistent if $AW = nW$. So, to comply with this step, we performed the following calculations.

4.4.1. Calculating the Matrix Eigenvalue

The maximum eigenvalue (λ_{max}) is obtained by averaging the ratios $\frac{(\mathbf{A})_i}{w_i}$. Then, (λ_{max}) is calculated as follows:

$$\lambda_{max} = \frac{1}{n} \sum_{i=1}^{n} \left(\frac{(\mathbf{Aw})_i}{w_i} \right) \tag{6}$$

where n is the number of factors or subfactors, **w** the vector of weights, and $(\mathbf{A})_i$ the element i of the product **Aw**.

4.4.2. Obtaining Consistency Index (CI)

We aimed to assess the consistency of participants' comparisons. This index is obtained by calculating

$$CI = \frac{\lambda_{max-n}}{n-1} \tag{7}$$

4.4.3. Obtaining Consistency Ratio (CR)

If $CR < 0.10$, the level of inconsistency in the comparison matrix is acceptable, and the results of prioritizing factors or subfactors are considered valid. However, if $CR > 0.10$, the results are unacceptable, and the evaluator should revise the evaluation process. The CR is calculated as follows:

$$CR = \frac{CI}{RI} \tag{8}$$

According to [42], the random index (RI) is different based on the number of items. Based on Table 1, the random index for the factors is 1.32, and, for comparisons with three subfactors, it is 0.58 and 0.90 for four subfactors.

4.5. Global Weight Estimation

The global weights are calculated by multiplying the local weights of the subfactors with the local weights of the factors they belong to:

$$w_{G_{ij}} = w_{F_i} \cdot w_{S_{ij}} \tag{9}$$

where the elements are defined as follows:

- $w_{G_{ij}}$ is the overall weight of subfactor j under factor i.
- w_{F_i} is the local weight of factor i at Level 1.
- $w_{S_{ij}}$ is the local weight of subfactor j under factor i at Level 2.

This step involved incorporating the local weights of the subfactors with the weights of the factors at a higher hierarchical level to determine the relative importance of each subfactor in the overall objective. We used [43] for calculations.

4.6. Group of Participants

In this step, the participants involved in the problem situation provided information for the pairwise comparison of the factors and subfactors (see Appendix A) using the nine-point scale [44]. It is important to clarify that the AHP is an algebraic tool from operations research, meaning that it is not a parametric tool and does not rely on the assumption of data normality. As a result, it is not essential to gather a statistically significant sample size, as the unit of analysis is the decision made by a specific group rather than the group itself [3]. Refs. [4,8,27,45] are examples of the application of AHP with small samples that contrast with traditional statistical analysis. Additionally, Ref. [42] stated that AHP is an appropriate method for gathering information from professionals acquainted with a specific research problem or topic, which can limit the sample size.

The information was gathered with the assistance of the National Chamber of the Transformation Industry (CANACINTRA, for its acronym in Spanish), which groups various companies. In order to capture a diversified view, SMEs from different sectors, such as manufacturing, chemicals, machinery, equipment, and materials, were included. The criteria for forming the group of participants were based on the contributions of [46–48]. For sales managers, the criteria included (1) having a minimum of five years of experience in managing sales teams, (2) direct responsibility for strategic sales decisions in their respective companies, (3) demonstrated a track record of leading teams that met or exceeded sales targets in at least three of the last five years.

CANACINTRA facilitated the initial contact with 40 organizations in central Mexico. However, only ten agreed to participate after evaluating the inclusion criteria. The final group of participants comprised 60 collaborators: 3 sales department managers in manufacturing, 2 in machinery, 2 in chemicals, and 3 in industrial equipment. Each manager selected five salespeople from their or her team, following these criteria: having at least four years of sales experience and consistently exceeding sales goals in the last two years. The average number of years of experience among managers was eight years, while, among salespeople, it was six years. To obtain information, we conducted a virtual session with each manager and their team to explain how to answer the questions.

5. Results and Discussion

The results are presented below following the steps detailed in the methodological approach.

In the first stage, graph visualization provided an overview of the study of the performance of the sales department in industrial SMEs. The frequency of certain keywords in different articles increased their connections in the graph, helping to identify the most

interconnected aspects and the more isolated ones. Subsequently, the fast greedy algorithm, which forms cumulative hierarchical clusters, was used to detect these connection groups [41]. Figure 1 illustrates twenty-nine isolated components, possibly representing factors or variables related to specific areas, and also shows a larger component grouping the most frequently used factors.

The frequency of the connections in the most significant connected component of Figure 1 provided the information to subsequently focus on reviewing specific articles. This review proposed a list of factors and subfactors (Table 2) to form the conceptual model.

Table 2. Factors and subfactors.

Factor	Sub Factor	Focus	Literature
Communication	Precise communication	Accurate, minimal, and necessary helpful information for streamlining interdepartmental functions	[49] [50]
	Feedback	Continuous adjustment concerning deviations to both processes and sales styles	[51] [39]
	Robust communication channels	Establishing effective communication infrastructure across the organization	[52] [53]
Operations	Error prevention	Minimizing defects and errors in the finished products or services	[50] [51]
	Workload alignment	Minimizing overloads and avoiding idle time between work groups	[54] [55]
	Inventory management	Improve efficiency and reduce response times	[55] [51]
Technology	Automation	Systems integration and seller expertise.	[54] [56]
	New technology	Incorporate computer tools that make core operations efficient	[14] [56]
	CRM Software	Utilizing CRM tools efficiently to track customers and effectively manage sales	[15] [57]
Adaptation	Flexible structure	The organizational capability to swiftly adjust to the situation and meet the client's needs while considering employee well-being	[19] [20]
	Learning culture	Continuous learning and personal and professional development are organizational values	[58] [59]
	Data and analytic capabilities	Ability to collect, analyze, and use data effectively to make informed decisions	[22] [24]
	Innovation	Creation of teams dedicated to innovation, research, and development, and cultivating a culture that nurtures new ideas	[13] [26]
Management	Effective assignment	Efficient task assignment; workers have the necessary resources to complete their operations	[35] [6]
	Leadership	Exert a leadership that maintains a clear focus on organizational objectives	[60] [11]
	Strategic planning and deployment	Establish a framework for defining, measuring, and achieving organizational objectives	[20] [61]
People development	Training	Specialized training programs focused on enhancing employees' skills	[19] [26]
	Financial incentives	Financial rewards for employees who exceed sales goals	[61] [17]
	Professional growth	Programs designed to aid employees in their overall development and to help them advance in their careers	[62] [63]

Table 2. *Cont.*

Factor	Sub Factor	Focus	Literature
Quality	Certifications	Obtain and maintain certifications demonstrating the organization's commitment to international quality standards	[64] [65]
	Continuous improvement	Implement a systematic and systemic approach to improve processes, products, and services	[59] [35]
	Monitoring	Implementing control and monitoring systems to improve process performance	[64] [35]
	Customer orientation	Ensuring that the needs and expectations of both internal and external customers are understood and consistently met	[66] [52]

Based on the results obtained at this stage, we proposed a conceptual model for its subsequent evaluation (Figure 2). According to [67], developing a conceptual model manifests the systemic perspective, as it not only requires the identification of minimum and sufficient factors but also fosters a continuous learning process. Additionally, expressing a conceptual model enables us to analyze feedback relationships and patterns of mutual influence between factors, thereby facilitating change.

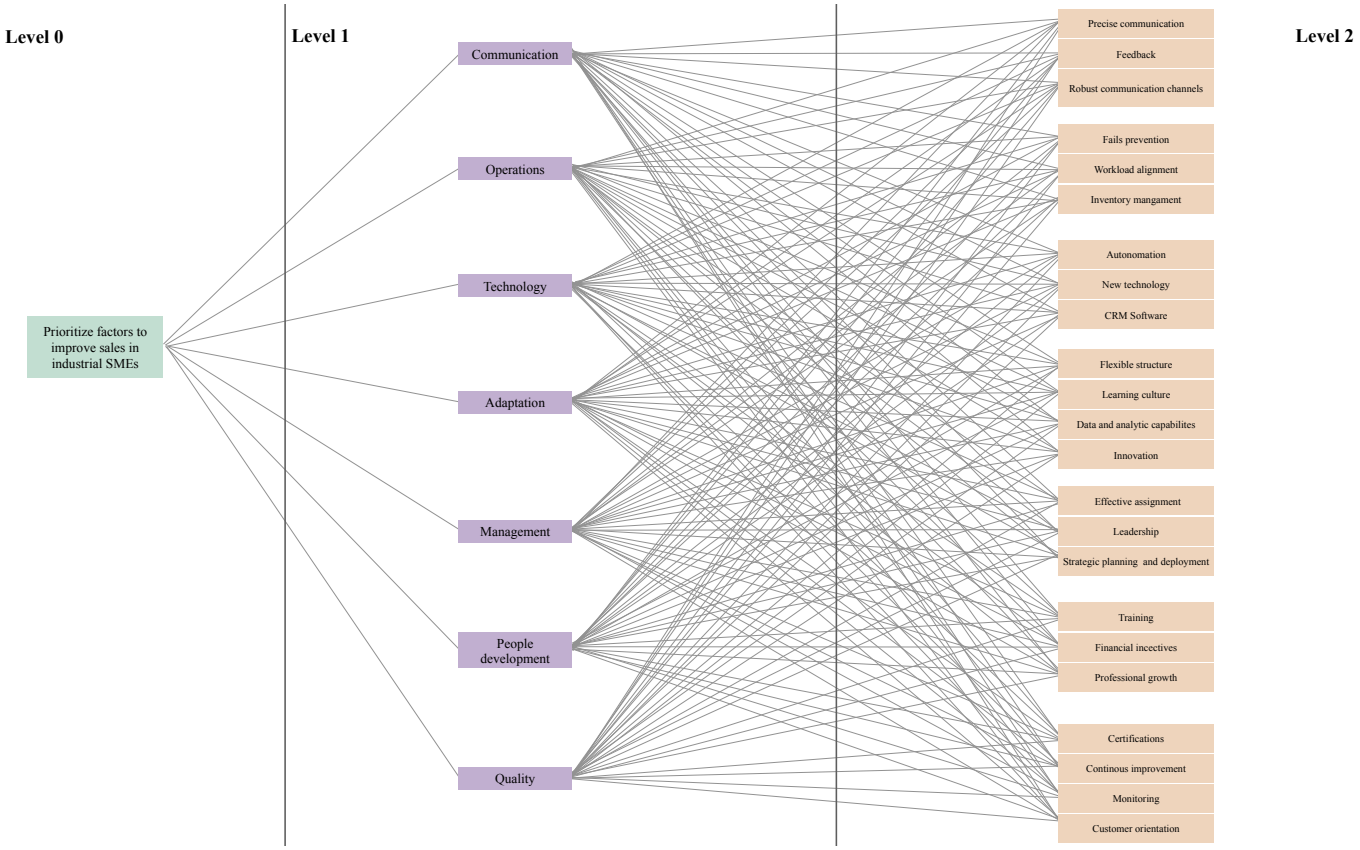

Figure 2. Conceptual model.

The combined results of the pairwise comparisons are presented and were calculated using the geometric mean (5). It is important to note that all matrices achieved a $CR < 0.10$, indicating that the proposed conceptual model aligns well with the problem context. The prioritization of factors for improving sales is shown in Table 3.

Table 3. Aggregate results for factors.

Factor	Communication	Operations	Technology	Adaptation	Management	People Development	Quality	Weights (W)	Consistency Test
Communication	1	4.049	2.777	3.040	1.609	3.870	4.484	0.3172	λ_{max} = 7.304
Operations	0.247	1	2.749	2.715	1.430	2.547	2.169	0.1833	CI = 0.051
Technology	0.360	0.364	1	1.169	1.025	3.053	4.626	0.1377	RI = 1.32
Adaptation	0.329	0.368	0.856	1	1.010	2.265	2.595	0.1104	CR = 0.038 < 0.10
Management	0.622	0.699	0.976	0.990	1	3.687	3.248	0.1490	
People Development	0.258	0.328	0.328	0.441	0.271	1	2.336	0.0612	
Quality	0.223	0.216	0.216	0.385	0.308	0.428	1	0.0412	

The most significant factor identified was communication ($W = 0.3172$). This contrasts with the perspectives of [14,15], who considered management and technology to be the most relevant factors. However, our model's result emphasizes the necessity of the communication factor, suggesting that enhancing both internal and external communication channels can lead to improved sales performance. It is important to note that efficient communication involves transmitting information and strategic and operational alignment. Better communication with employees is crucial for successful strategy deployment, coordination with customers and suppliers, and aligning organizational efforts across departments in a rapidly changing business environment [25,26].

In this framework of ideas, the results imply the need to strengthen communication and coordination mechanisms within each work cell and level of the SME, emphasizing the coordination and flow of information within the organization and its interaction with the market. An alternative to streamline communication is to ensure that the standardized operating language is understood and shared throughout the organization and to adopt a culture of open data or indicators, which could increase employee commitment to core processes [68]. In contrast to the proposals of [25,34], the results in Table 3 imply that decision-makers prioritize the organizational capacity to analyze and deploy minimal and necessary information to reduce the duplication of tasks.

The operations factor was the second most relevant, and the result ($W = 0.1833$) indicates that employees have clarity regarding the organization's focus on sales. We agree with [69]'s idea that this is critical to keep a company in the market. Likewise, the valuation for this factor implies optimization by continuously seeking the efficiency of production processes and logistics to ensure delivery and cost control [28,70]. To assist in this, leaders can rely on frameworks or methodologies such as Lean Six Sigma that facilitate identifying and eliminating efficiencies by improving coordination and workflow between the different operating units. Our results contrast with the proposals of [7,25], who agree that adequate strategic plan communication is the only critical factor in improving sales performance. On the other hand, our conceptual model converges with the ideas of [9,71] that state that the congruent functioning of the basic operations must be ensured by guaranteeing them the resources to carry out their activities, mechanisms for accountability, and strict adherence to the organizational culture. Considering [72], the results obtained suggest that employees could generate better sales results and would be willing to increase the performance of work teams if the communication established with decision-makers is open and congruent with the political principles that govern the organization's operations.

Management ($W = 0.1490$) and technology ($W = 0.1377$) could be considered as the pair of factors with medium importance. On the other hand, management provides the framework that enables the effective implementation of sales strategies [20]. In industrial SMEs, adopting a systemic management model is crucial for making informed decisions and incorporating employees' perspectives of the market. This requires decision-makers to integrate enterprise resource planning systems to facilitate a holistic view of the organization. Complementarily, ref. [73] suggested developing transformational leadership to improve the ability of managers to motivate the sales team, while data-driven management should be considered a pillar for strategic decisions. Organizationally, it is necessary to design clear structures and work roles supported by business intelligence tools to strengthen the ability to transform data into information and knowledge to maintain consistency and efficiency [68].

Our results regarding the technology factor differ from those of [7,38], who stated that the implementation of emerging technologies such as the Internet of Things and Big Data analysis are the main elements to increase sales and be competitive, since the authors consider that the automation of processes and the implementation of flexible manufacturing systems can reduce cycle times and improve product quality, facilitating a faster response to market demands. However, the assessment of this factor suggests that technical resources are not a substitute for the knowledge or skills developed by experienced salespeople [28,74,75]. Subsequently, technology should play the role of intelligence; it should be carefully incorporated into the organizational structure, emphasizing staff training and the design of simulations that allow an SME to enrich its strategic planning [76].

The factors of adaptation ($W = 0.1104$), people development ($W = 0.0612$), and quality ($W = 0.0412$) obtained the lowest weights, suggesting that the participants in the study considered that these aspects have less impact on sales improvement in industrial SMEs, even though they are important. This result could be attributed to the fact that these types of organizations may prioritize factors that directly impact operational efficiency and management effectiveness, such as communication, as these tend to have a faster and more visible effect on sales improvement [77]. In contrast, factors such as adaptation, people development, and quality can be related to long-term investments [78]. Additionally, according to [79], SMEs tend to operate with limited resources, which could lead to prioritization of areas where the most significant short-term returns are perceived. According to [73], dealing with immediate problems that require quick solutions can divert attention from more profound organizational efforts such as quality improvement and talent development.

As for the subfactors, Table 4 presents the results for the communication-related components. In this case, accurate communication is more highly valued (W = 0.645) than feedback (W = 0.237) and robust communication channels (W = 0.118). These valuations differ from the findings of [9,35], who established that the efficient fulfillment of core operations is based on communication channels and the degree of employee commitment to the organization. In contrast, the results obtained through AHP, in the context of sales improvement in industrial SMEs, can help understand that communication precision is fundamental for effective coordination, regulation, and control. This implies establishing clear protocols for transmitting information between departments and operating units, which must be supported by standard procedures and communication guidelines that ensure that all involved clearly understand the objectives and strategies. In addition, our results also differ from the conclusions of [5,7] because, although these authors recognize the relevance of aspects such as feedback and communication channels, they consider them to be at isolated organizational levels. In contrast, the systemic approach makes it possible to recognize that the interrelation of these subfactors favors the strengthening of the communication infrastructure, positively influencing the commitment of the collaborators [6]. Regarding this idea, it should be clarified that the commitment does not have a connotation of unquestionable loyalty but should be understood as the emergence of the orderly interaction of organizational mechanisms that promote self-regulation as well as the sense of belonging, essential for continuous improvement and the achievement of strategic objectives in industrial SMEs [69].

Table 4. Results for communication subfactors.

Subfactor	Precise Communication	Feedback	Robust Communication Channels	Weights (W)	Consistency Test
Precise Communication	1	3.397	4.535	0.645	λ_{max} = 3.042
Feedback	0.294	1	2.469	0.237	CI = 0.021
Robust Communication Channels	0.221	0.405	1	0.118	RI = 0.58 CR = 0.037 < 0.10

Based on Table 5, participants consider that failure prevention is the most relevant component for sales-related operations in industrial SMEs ($W = 0.678$), which underscores the need to implement anti-oscillatory mechanisms that minimize errors and interruptions not only to ensure the continuity of operations but also to optimize efficiency and reduce costs associated with downtime [28], which is essential to adapt to customer expectations and maintain healthy interactions with suppliers. On the other hand, workload alignment ($W = 0.214$) and inventory management ($W = 0.108$) obtained lower relative weights. Following [79]'s ideas, ensuring that tasks are adequately distributed to maximize efficiency requires SMEs to adopt or generate coordination mechanisms that regulate, together with operational management, the different operating units. In this regard, those involved must attend to the planning and scheduling of tasks and simplify human resource management [80]. In addition, operational management must implement audits to identify imbalances and promptly adjust. Regarding inventory management, the results obtained differ from [38,81], who consider inventory management as the backbone to guarantee the responsiveness of SMEs. This weighting could be understood as a function of control rather than action in the context of SMEs. However, in the context of industrial SMEs, it is necessary to establish clear policies and procedures to ensure adequate turnover and minimize losses due to obsolescence.

Table 5. Results for operations subfactors.

Subfactor	Failure Prevention	Workload Alignment	Inventory Management	Weights (W)	Consistency Test
Fails prevention	1	3.938	5.251	0.678	λ_{max} = 3.041
Workload Alignment	0.254	1	2.433	0.214	CI = 0.020
Inventory Management	0.190	0.411	1	0.108	RI = 0.58
					CR = 0.035 < 0.10

From a systemic perspective, it is crucial to establish a stable and dependable operating environment to prevent failures. However, the findings in Table 6 contradict the ideas of [25,71], who emphasized the significance of incorporating technology to replace human effort in repetitive tasks. These authors also suggested that decision-makers should concentrate on making SMEs more reliant on technology to reduce operating costs and increase profits from sales. In contrast, our results indicate that automation ($W = 0.612$), which involves the effective integration of human effort and technological resources, is another aspect that decision-makers should consider as it could contribute to operational stability.

Table 6. Results for technology subfactors.

Subfactor	Automation	New Technology	CRM Software	Weights (W)	Consistency Test
Automation	1	2.737	4.711	0.612	λ_{max} = 3.045
New Technology	0.365	1	3.239	0.280	CI = 0.022
CRM Software	0.212	0.309	1	0.108	RI = 0.58
					CR = 0.039 < 0.10

Regarding adaptive capacity, Table 7 displays the findings for the subfactors associated with adaptation. The most significant factor is a flexible structure ($W = 0.516$). According to [8], a flexible structure is crucial for ensuring the sustainability of an organization. The substantial weight assigned to this subfactor indicates that SMEs understand the importance of avoiding rigid structures that could impede innovation and adaptability. This is consistent with [6]'s recommendations on change management, which stresses the importance of maintaining an adaptive organizational structure to foster resilience and competitiveness and modulate threats. The second-ranking factor, learning culture ($W = 0.267$), underscores that organizational flexibility must be accompanied by values promoting continuous learning and utilizing newly acquired skills for the company's benefit. In this sense, we agree with [82] that a continuous learning culture improves adaptive capability and promotes the generation and assimilation of new ideas. It is striking that the subfactors data and analytics capabilities ($W = 0.152$) and innovation ($W = 0.066$) have a lower weighting.

Industrial SMEs should address this area of opportunity, as innovation involves creating new products and services and allocating resources for research and development [76].

Table 7. Results for adaptation subfactors.

Subfactor	Flexible Structure	Learning Culture	Data and Analytic Capabilities	Innovation	Weights (W)	Consistency Test
Flexible Structure	1	2.788	4.002	5.159	0.516	λ_{max} = 4.169
Learning Culture	0.359	1	2.512	4.581	0.267	CI = 0.056
Data and Analytic Capabilities	0.250	0.398	1	3.559	0.152	RI = 0.90
Innovation	0.194	0.218	0.281	1	0.066	CR = 0.062 < 0.10

Concerning the subfactors related to management (Table 8), effective allocation ($W = 0.576$) was found to be the most relevant. This finding implies the optimal distribution of tasks and the adequate use of staff competencies and skills. This converges with contributions emphasizing that effective resource allocation is crucial to maximize operational efficiency and avoid work overload or the underutilization of capabilities [68,72]. A high weighting suggests a clear understanding that effective management is critical to achieve strategic and operational objectives. Subsequently, the subfactor is critical to ensuring organizational flexibility [22]. Leadership scored $W = 0.318$, one weight lower than the previous subfactor. This prioritization might seem counterintuitive given the consensus in the literature on the importance of leadership in organizational success [19,20]. However, its weighting in this study may reflect a perception that leadership is more of a general quality than a specific subfactor that can be measured and optimized. It may even suggest that work teams are more autonomy-oriented [83]. As for the planning and strategic deployment subfactor ($W = 0.106$), it received the lowest priority. This might suggest that industrial SMEs underestimate the role of intelligence in aligning resources with organizational objectives. However, it is necessary to recognize that effective strategic planning sets the organization's long-term direction and provides a framework for decision-making and resource allocation [14]. Following [4]'s ideas, organizational intelligence should be used in the classical sense of identifying opportunities and threats, translating environmental data into valuable information for management, and being sufficiently understandable for basic operations.

Table 8. Results for management subfactors.

Subfactor	Effective Assignment	Leadership	Strategic Planning and Deployment	Weights (W)	Consistency Test
Effective Assignment	1	2.217	4.548	0.576	λ_{max} = 3.037
Leadership	0.451	1	3.642	0.318	CI = 0.018
Strategic Planning and Deployment	0.220	0.275	1	0.106	RI = 0.58 CR = 0.032 < 0.10

Tables 9 and 10 report the critical subfactors influencing people's development and quality. AHP reveals that training is the influential subfactor in people's development ($W = 0.644$). This finding aligns with the ideas put forward by [15], which highlights the importance of continuous training as a critical tool for improving technical competencies and organizational knowledge. However, it is interesting to note that, despite its high weighting, other research suggests that training alone is insufficient to ensure high performance if not complemented by an organizational environment that fosters the practical application of acquired skills [17]. On the other hand, financial incentives ($W = 0.255$) and professional growth ($W = 0.100$) have a lower priority in the model. The weighting of incentives may reflect an emerging trend in personal management that posits that intrinsic motivators, such as a sense of belonging and purpose, may significantly impact long-term operations by fostering commitment and retention [6,19]. This perspective contrasts with the classical perspective that prioritizes financial incentives as the primary driver of work motivation [26]. Likewise, the underweighting of career growth poses significant challenges, as the literature consistently emphasizes that advancement opportunities are critical to attracting and retaining talent, especially in competitive labor markets [28]. This

discrepancy suggests a possible underestimation of the importance of career growth within SMEs, which could limit their ability to develop a reliable talent base over the long term.

Table 9. Results for people development subfactors.

Subfactor	Training	Financial Incentives	Professional Growth	Weights (W)	Consistency Test
Training	1	3.279	5.202	0.644	λ_{max} = 3.058
Financial Incentives	0.305	1	3.261	0.255	CI = 0.029
Professional Growth	0.192	0.275	1	0.100	RI = 0.58 CR = 0.050 < 0.10

Regarding quality, the analysis indicates that certifications are the most relevant subfactor ($W = 0.516$). This result is consistent with studies highlighting the significance of international certifications as an indicator of quality and competence in industrial sectors [33]. Although certifications indicate companies' commitment to improving their personnel and operations, some proposals suggest that certifications should be complemented, from a systemic quality perspective, with continuous development programs to maintain relevance and update competencies in an ever-changing technological and market environment [34]. The continuous improvement subfactor scored $W = 0.240$, highlighting the relevance of a constant focus on process optimization. Refs. [77,84] support this idea by emphasizing that continuous improvement is a central component of the total quality management approach and is vital for maintaining competitiveness in a complex and volatile context [83]. However, the lower priority assigned to the monitoring ($W = 0.156$) and customer orientation ($W = 0.070$) subfactors constitute a challenge to be addressed. Customer orientation has been identified as crucial for service differentiation and customization [73]. However, it should be taken into account that, from a systemic point of view, the idea of the customer is not limited to the end user but to any actor who receives the result of a given system. In this sense, the low weighting of these subfactors could indicate a possible disconnection between mechanisms for coordination, management, and control of operations.

Table 10. Results for quality subfactors.

Subfactor	Certifications	Continuous Improvement	Monitoring	Customer Orientation	Weights (W)	Consistency Test
Certifications	1	3.330	3.131	5.012	0.516	λ_{max} = 4.168
Continuous Improvement	0.300	1	2.343	3.819	0.240	CI = 0.056
Monitoring	0.319	0.427	1	3.196	0.156	RI = 0.90
Customer Orientation	0.200	0.262	0.313	1	0.070	CR = 0.062 < 0.10

The weights and overall ranks of the subfactors critical for sales improvement in industrial SMEs according to the AHP algorithm are presented in Table 11. Accurate communication, failure prevention, effective allocation, autonomy, and feedback are the top five critical subfactors for improving sales in industrial SMEs. This order of priority underscores the importance of clarity in transmitting information, mitigating operational disruptions, optimizing resource management, implementing automated technologies, and providing effective feedback mechanisms. Therefore, SMEs should focus on these factors to optimize their operational efficiency, strengthen their risk resilience, and improve strategic alignment within the organization. Attention to these subfactors will not only facilitate better coordination and execution of strategies. It will also foster an adaptive and continuous improvement-oriented organizational culture, essential for competing in a complex and dynamic marketplace.

Table 11. Hierarchical structure weights and ranks.

Subfactors	Global Weights	Global Ranks
Precise communication	0.204	1
Failure prevention	0.124	2
Effective assignment	0.086	3
Automation	0.084	4
Feedback	0.075	5
Flexible structure	0.057	6
Leadership	0.047	7
Training	0.039	8
Workload alignment	0.039	9
New technology	0.039	10
Robust communication channels	0.038	11
Learning culture	0.029	12
Certifications	0.021	13
Inventory management	0.020	14
Data and analytic capabilities	0.017	15
Strategic planning and deployment	0.016	16
Financial incentives	0.016	17
CRM software	0.015	18
Continuous improvement	0.010	19
Innovation	0.007	20
Monitoring	0.006	21
Professional growth	0.006	22
Customer orientation	0.003	23

Based on our results, the subfactor "customer orientation" obtained the last place in importance. This finding contrasts with previous studies, such as those of [48,52], as well as with the general idea that customer orientation is one of the most critical elements for the success of an SME. This apparent discrepancy could be understood by considering aspects such as the structural design and operational context of industrial SMEs, where strategic interactions and priorities emerge from immediate operational needs and tend to focus on operational efficiency and short-term risk management. In this sense, the low prioritization of "customer orientation" could be related to the lack of an integrated vision within SMEs, where sales, product development, and customer service functions operate in isolation or with limited communication. Considering the above and, from a systemic perspective, this fragmentation of functions limits the ability of the organizational system to align around a customer-oriented strategy that cuts across the entire organizational structure. In a system where departments work independently, the ability of sales teams to influence the customer orientation strategy is reduced, which may help to understand why subfactors such as "effective assignment" and "automation", which are perceived to have more control and direct impact on sales operations, are prioritized more. Additionally, it is pertinent to note that AHP, through structuring decisions in a hierarchical framework, tends to highlight local interdependencies that are more visible or immediate to the participants. In the case of industrial SMEs, where sales managers are constantly under pressure to meet quarterly or annual targets, the priorities that emerge from the AHP analysis reflect this need for quick and tangible results. Factors such as "automation" and "failure prevention" facilitate concrete, short-term operational improvements, while "customer orientation", which often requires sustained investments and a more holistic approach, may be perceived as a long-term priority and, therefore, relegated to the background in the hierarchical decision structure. Considering what has been expressed up to this point, this result suggests an opportunity for industrial SMEs to adopt a more integrated approach that balances short-term priorities with long-term sustainable strategies. By recognizing the current limitations of their organizational configuration, companies can redesign their sales and coordination systems to promote a customer-oriented culture that responds to immediate needs and fosters lasting customer relationships.

To summarize, this study presented a construct that integrates factors and subfactors collected from previous proposals and reviewed by the participants. Network visualization helped to achieve the first objective by identifying the most frequently connected factors. We fulfilled the second objective through a literature review that allowed the factors to be hierarchically structured and subjected to evaluation. For the third objective, applying the AHP made it possible to evaluate and rank both the primary factors and the subfactors, verifying the internal congruence of the model through consistency tests. This suggests a convergence among the participants in recognizing the critical elements for management in industrial SMEs.

From a theoretical point of view, this study identified the factors and subfactors that decision-makers and collaborators in the sales department consider crucial to improving the department's performance. The application of the AHP method proved to be an effective tool for assessing the relative importance that participants assign to each factor, providing a robust alternative to traditional statistical methodologies such as partial least squares path models. Although the latter are helpful, they can be limited by inherent errors in the relationship between variables and collinearity issues, which can compromise the accuracy of the results. In contrast, AHP, not a conventional statistical technique, offers a more accurate way of decomposing unstructured problems into multi-criteria problems, thus facilitating strategic decision-making. This systemic perspective, which focuses on identifying and prioritizing key factors, enables SME managers to make informed and effective decisions to improve their operations and sales strategies.

From a practical point of view, this paper highlights the need to adopt a complementary approach to strategic management. The literature has pointed out the importance of organizational structures for successful strategic implementation. Our study supports this perspective and emphasizes the need for management tools that facilitate employees' collection and synthesis of relevant information. We recommend that managers collaboratively design strategy maps, implement visual management tools, and train staff in waste minimization and efficient management. In addition, we suggest that managers use the proposed model to prioritize resources, establish precise accountability mechanisms, and improve feedback channels, thereby increasing team autonomy and responsiveness. These actions are essential to address many SMEs' structural limitations and foster an organizational culture oriented towards learning and continuous improvement.

It is essential to recognize the limitations of this study. Our research focused on Mexican SMEs and internal aspects of the organization; therefore, to enrich the discussion of the results, we suggest applying our conceptual model in other geographic and business contexts. Although the analysis based on the hierarchical structure of the AHP is valuable, applying network analysis and system dynamics could provide a more enriched view of the dependencies and feedbacks at micro, meso, and macro levels. We also recommend exploring the application of the viable system model to design resilient organizational structures, thus minimizing the risk of strategy implementation failures.

This study presents a framework for prioritizing critical factors in improving industrial SME sales. The inductive nature of the analytical hierarchy process requires the participation of experts or stakeholders directly related to the problematic situation. This allows suggestions for improvements or alternatives for change by incorporating the organization's internal knowledge. Furthermore, since AHP is not a parametric tool, it distances itself from traditional top-down or reductionist approaches. Instead, we propose a model that invites decision-makers to take a holistic view of the organization. This approach facilitates the adaptation of structures and processes, supporting the implementation of strategies at all levels of the organization.

6. Conclusions

We consider that improving the essential operations of the sales department in industrial SMEs requires not only the involvement of employees but also that decision-makers consider the alignment of the organizational structure, intelligence mechanisms, and coordination systems with crucial elements such as sales strategy, the precise definition of operational objectives, and the design of incentives that not only facilitate effective implementation but also act as feedback and control tools. This study addressed these needs from a systemic perspective, suggesting a method that fosters consensus on the key factors to prioritize in order to develop strategic actions aimed at improving sales, ensuring the acceptance and commitment of all members of the sales team, and reducing the gap between strategic design and operational execution.

For managers and change enablers in industrial SMEs, our study suggests that sales improvement can benefit from the complementary use of analytical tools, such as AHP and network analysis, to constantly review their operations and progress to map work cells, predict new relationships or identify customer churn. These tools can be applied continuously to assess and prioritize critical factors that require further attention, optimizing sales team performance. This approach can provide clarity to managers on how to better integrate human and technology resources for efficient task fulfillment. In other words, the synergy between the components of the SME sales system should facilitate the continuous adaptation of sales strategies, internal relationships, and operational conditions necessary to improve operations at all levels of the organization. The model proposed in this study is based on this perspective, highlighting the factors and relationships that enable SMEs to prioritize sustained improvements.

This study also highlights the need to close the gap between the factors that can effectively improve collaboration within the sales department. The results underscore the importance of understanding each organization's specific context before implementing strategies, encouraging managers to develop action plans tailored to their circumstances rather than replicating approaches from other companies. Systems thinking is presented as an alternative to conventional approaches to sales improvement, which often focus exclusively on top–down management tactics. In contrast, the proposed approach considers critical interactions within the organizational system, providing managers with a strategic framework for adapting sales teams and structures to changing market needs. In addition, this systemic perspective can strengthen strategic management by providing a flexible framework for collaborative action research and facilitating data collection and analysis to translate this information into specific strategic actions to improve sales. The evaluation of the conceptual model and the estimates obtained for each factor suggest that the model could be applicable to organizations in different sectors since the factors considered are not limited to a specific type of SME.

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Appendix A

Appendix A.1. Factor Comparison

Factor A	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Factor B
Communication																		Operations
Communication																		Technology
Communication																		Adaptation
Communication																		Management
Communication																		People development
Communication																		Quality
Operations																		Technology
Operations																		Adaptation
Operations																		Management
Operations																		People development
Operations																		Quality

Factor A	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Factor B
Technology																		Adaptation
Technology																		Management
Technology																		People development
Technology																		Quality
Adaptation																		Management
Adaptation																		People development
Adaptation																		Quality
Management																		People development
Management																		Quality
People development																		Quality

Appendix A.2. Subfactor Comparison

Appendix A.2.1. Communication

Subfactor A	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Subfactor B
Precise communication																		Feedback
Precise communication																		Robust communication channels
Feedback																		Robust communication channels

Appendix A.2.2. Operations

Subfactor A	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Subfactor B
Fails prevention																		Workload alignment
Fails prevention																		Inventory management
Workload alignment																		Inventory management

Appendix A.2.3. Technology

Subfactor A	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Subfactor B
Automation																		New technology
Automation																		CRM Software
New technology																		CRM Software

Appendix A.2.4. Adaptation

Subfactor A	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Subfactor B
Flexible structure																		Learning culture
Flexible structure																		Data and analytic capabilities
Flexible structure																		Innovation
Learning culture																		Data and analytic capabilities
Learning culture																		Innovation
Data and analytic capabilities																		Innovation

Appendix A.2.5. Management

Subfactor A	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Subfactor B
Effective assignment																		Leadership
Effective assignment																		Strategic planning and deployment
Leadership																		Strategic planning and deployment

Appendix A.2.6. People Development

Subfactor A	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Subfactor B
Training																		Financial incentives
Training																		Professional growth
Financial incentives																		Professional growth

Appendix A.2.7. Quality

Subfactor A	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Subfactor B
Certifications																		Continuous improvement
Certifications																		Monitoring
Certifications																		Customer orientation
Continuous improvement																		Monitoring
Continuous improvement																		Customer orientation
Monitoring																		Customer orientation

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