Formalization of the Resource Integration Phase in Mexican MSMEs: A Multiple-Case Study

Dra. Elba Myriam Navarro Arvizu
Corresponding author. elba.navarro43637@potros.itson.edu.mx
Departamento de Ciencias Administrativas, Instituto Tecnológico de Sonora
elba.navarro@itson.edu.mx
https://orcid.org/0000-0003-2695-0883

Dr. Teodoro Rafael Wendlandt Amézaga
Departamento de Ciencias Administrativas, Instituto Tecnológico de Sonora
teodoro.wendlandt@itson.edu.mx
https://orcid.org/0000-0003-0244-4062

Dra. Flor de María Miranda Pablos
Departamento de Ciencias Administrativas, Instituto Tecnológico de Sonora
flor.miranda@itson.edu.mx
https://orcid.org/0009-0000-6115-8854

Dra. Beatriz Alicia Leyva Osuna
Departamento de Ciencias Administrativas, Instituto Tecnológico de Sonora
beatriz.leyva@itson.edu.mx
https://orcid.org/0000-0003-4935-6326

Mtra. Nora Edith González Navarro
Departamento de Contaduría y Finanzas, Instituto Tecnológico de Sonora
ngonzalez@itson.edu.mx
https://orcid.org/0000-0002-7112-8082

Abstract
A firm's ability to transform its resources into capabilities depends on how it acquires, allocates, and coordinates them. However, little remains known about how this integration phase unfolds in micro, small, and medium-sized enterprises (MSMEs) operating in emerging economies. This study characterizes the practices through which Mexican MSMEs of varying sizes and business sectors integrate their human, material, financial, and technological resources, while identifying gaps relative to a formalization standard. We conducted a multiple-case study involving six MSMEs in Sonora, Mexico, operating in the construction, agricultural machinery distribution, veterinary services, restaurant, photography, and digital design sectors. Data came from organizational assessments conducted between 2024 and 2026, including questionnaires, interviews with managers, and documentary reviews. We analyzed the data through deductive coding and gap analysis, drawing on the resource-based view and resource orchestration theory. Formalization varied across subprocesses and, across these six cases, showed no consistent relationship with firm size or age. Five of the six companies lacked an induction manual, two established employment relationships without written contracts, only one reported having a

formal budget, and only one reported using management information systems. By contrast, five of the six companies applied at least one predefined selection criterion. The more formalized companies stood out for how they documented, measured, and coordinated their resources, a characteristic interpreted as a manifestation of their resource orchestration capability. Finally, we propose a maturity matrix for the resource integration phase, with implications for managers and support programs targeting MSMEs.

Keywords: integration phase, formalization, MSMEs, Mexico.

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Introduction

Markets, technology, and customer expectations now evolve at a pace that compels organizations to continuously reassess how they manage their resources. What once constituted an operational matter has become a strategic concern (Barney et al., 2021; Hitt et al., 2024; Teece, 2020). This challenge proves even greater for micro, small, and medium-sized enterprises (MSMEs), which operate with limited resources and managerial capabilities that frequently constrain their growth and threaten their long-term survival (Nichter & Goldmark, 2009).

The administrative process provides a classical framework for examining resource management. Fayol (1916/1949) described this process through five functions: forecasting, organizing, commanding, coordinating, and controlling. Later, Koontz and O'Donnell (1955) distinguished staffing as an independent function in its own right. Since then, the sequence of planning, organizing, staffing, directing, and controlling has become an established reference in management education (Koontz & Weihrich, 2013; Münch, 2010; Reyes Ponce, 1992; Robbins & Coulter, 2021). Within this sequence, integration serves as the bridge between what organizations plan and what they actually implement. During this phase, organizations acquire and allocate the personnel, materials, financial resources, and technology required for their operations (Jones & George, 2022; Koontz & Weihrich, 2013; Noe et al., 2021). Poor execution of this phase can lead to incomplete implementation of plans, weaken control mechanisms, and increase both employee turnover and operating costs (Dessler, 2020; Noe et al., 2021).

The theoretical foundations of this function lie in the resource-based view (RBV). Wernerfelt (1984) proposed examining firms through their resources rather than focusing exclusively on their industry position. Barney (1991) argued that valuable, rare, and difficult-to-imitate resources explain why some firms outperform others, while Peteraf (1993) identified the conditions that sustain these differences: heterogeneity, imperfect mobility, and ex ante and ex post limits to competition. The VRIO framework added a fourth condition: the firm must possess the organizational arrangements necessary to exploit its resources (Barney, 1995). This last condition deserves particular attention because contemporary RBV research has established that possessing resources alone does not suffice; firms must orchestrate them by structuring their resource portfolios (acquiring, accumulating, and divesting resources), bundling them into capabilities, and leveraging those capabilities (D'Oria et al., 2021; Sirmon et al., 2007, 2011). From this perspective, the integration phase moves beyond a routine administrative procedure and becomes the operational expression of resource orchestration, with human capital representing its most difficult-to-imitate component (Gerhart & Feng, 2021).

In the Mexican context, the importance of this phase cannot be overstated. According to the definitive results of the 2024 Economic Census, microenterprises accounted for 95.4% of the 5,468,180 economic units in the private sector and state-owned enterprises in 2023. Small and medium-sized enterprises represented 4.5%, while large enterprises accounted for only 0.2% (the total exceeds 100% because of rounding). Furthermore, 64.3% of economic units operated informally, employed 21.4% of the workforce, and generated 3.6% of value added (Instituto Nacional de Estadística y Geografía [INEGI], 2025).

However, two distinct phenomena warrant differentiation. Economic informality refers to operating without formal registration, whereas informality in management practices concerns legally established firms that operate without documented procedures, explicit criteria, or adequate records. This study addresses the latter phenomenon. International evidence indicates substantial variation among small businesses in developing countries regarding the adoption of basic management practices, such as maintaining records, planning, controlling inventories, and following structured recruitment procedures. Such variation correlates with productivity and firms' likelihood of survival (Bloom & Van Reenen, 2010; McKenzie & Woodruff, 2017).

Regarding human resource management, previous research has shown that formalization tends to increase with firm size, although the pace of adoption varies across different functions (Cardon & Stevens, 2004; Harney & Alkhalaf, 2021; Kotey & Slade, 2005). Research conducted in Mexico and Latin America has documented deficiencies in SME financial management (Saavedra-García et al., 2016), delays in digital transformation (Dini et al., 2021), difficulties accessing financing (Oddone & Stola, 2025), and the still-partial formalization of human resource management practices (Salas-Arbeláez et al., 2021).

Nevertheless, this body of evidence leaves at least three research gaps. The first concerns the RBV itself: research within this theoretical tradition has predominantly focused on large firms and quantitative research designs, leaving its application to MSMEs relatively underdeveloped (D'Oria et al., 2021; Kellermanns et al., 2016). The second gap stems from the tendency of MSME management studies to examine individual functions separately, such as human resources, finance, or technology. Consequently, little remains known about how firms integrate all four resource categories simultaneously. The third gap specifically concerns Mexico, where comparative cross-sector studies examining how the integration phase unfolds in practice and assessing it against an explicit standard to identify existing gaps remain scarce. As a result, researchers lack a precise understanding of how this phase takes shape across firms of different sizes and business sectors, as well as which dimensions concentrate the most significant deficiencies.

To address these gaps, this study formulated three research questions: (1) How do Mexican MSMEs of different sizes and operating in different sectors structure their practices for integrating human, material, financial, and technological resources? (2) What gaps do these practices exhibit relative to a formalization standard, and what patterns emerge in relation to firm size and business sector? (3) Which strategies can effectively address these gaps? Accordingly, the overall objective consists of characterizing and comparing the integration phase of the administrative process across six MSMEs in Sonora, Mexico, identifying their gaps relative to a formalization standard, and developing improvement strategies tailored to each firm's maturity level.

We adopted a descriptive-comparative multiple-case study design (Eisenhardt, 1989; Yin, 2018), involving six MSMEs operating in the construction, agricultural machinery distribution, veterinary services, restaurant, photography, and digital design sectors. The cases ranged from microenterprises to medium-sized firms. The data originated from organizational assessments conducted between 2024 and 2026 by graduate student teams under faculty supervision, as part

of a university–business engagement program. We reanalyzed these data through the lenses of the RBV and resource orchestration theory.

This study makes contributions at three levels. Theoretically, it extends the RBV to the integration phase in MSMEs operating within an emerging economy and proposes interpreting formalization during this phase as an observable manifestation of resource orchestration. The cases illustrate this interpretation but do not empirically test it. Methodologically, the study adapts a maturity matrix to the integration phase, comprising 19 coded subprocesses and an explicit classification rule that assigns four dimensions to different formalization levels.

This instrument enables comparisons among substantially different cases against a common standard derived from the literature. Practically, the study offers strategies tailored to different maturity levels and identifies implications for public and university-based MSME support programs. The findings do not seek statistical generalization; rather, they aim to support analytical transferability to MSMEs operating under comparable conditions.

The remainder of this article comprises five sections. The second presents the theoretical framework, while the third describes the research methodology. The fourth reports the within-case and cross-case findings. The fifth discusses the results in light of the existing literature and outlines the study's limitations. Finally, the sixth section presents the conclusions and their implications.

Theoretical framework

Resource-Based View and Resource Orchestration

According to the resource-based view (RBV), firms differ in their performance because their resources exhibit heterogeneity and remain difficult to transfer or imitate (Barney, 1991; Peteraf, 1993; Wernerfelt, 1984). A resource becomes a source of competitive advantage when it possesses value, rarity, and resistance to imitation, provided that the firm maintains the organizational arrangements required to exploit it (Barney, 1995). This final condition shifted the focus from resource ownership to resource management. Meta-analytic evidence indicates that strategic resources influence firm performance primarily through managerial actions that activate and deploy them (D'Oria et al., 2021). Similarly, knowledge assets improve organizational outcomes only when measurement systems coordinate these assets and provide strategic direction (Asiaei et al., 2021).

What actions enable this process? Resource orchestration theory provides a concrete explanation. Sirmon et al. (2007, 2011) distinguish three processes: structuring the resource portfolio (acquiring, accumulating, and divesting resources), bundling resources into capabilities (stabilizing, enriching, and pioneering), and leveraging those capabilities in the marketplace (mobilizing, coordinating, and deploying them). In small firms, the owner-manager typically assumes responsibility for all three processes, making their ability to transform resources into repeatable routines particularly consequential (Kellermanns et al., 2016).

Two recent findings concerning SMEs deserve attention: management controls mediate the relationship between resources and performance (Ramon-Jerónimo et al., 2019), while RBV-related capabilities correlate with both financial performance and the adoption of sustainable practices (Civelek, 2024). Human capital, owing to its tacit nature and social complexity, constitutes the most difficult resource to imitate and, simultaneously, the one that depends most heavily on consistent management practices (Gerhart & Feng, 2021).

The Integration Phase of the Administrative Process

Within the administrative process, integration constitutes the managerial function through which managers obtain and allocate the resources required to implement planned activities (Koontz & Weihrich, 2013). Although its original formulation focused primarily on personnel (Koontz & O'Donnell, 1955), the Mexican administrative tradition expanded its scope early on to encompass all organizational resources. Reyes Ponce (1992) defines integration as the process of obtaining and coordinating the material and human elements that planning and organizing identify as necessary for the social organization to function. Münch (2010), in turn, treats integration as a distinct stage of the administrative process, separate from directing, explicitly encompassing human, material, financial, and technological resources. This definition predominates in management education in Mexico and provides the conceptual foundation for the present study.

Furthermore, we retain this four-dimensional taxonomy for two reasons: it reflects the classical classification of organizational resources and corresponds to the structure of the diagnostic instrument employed (see Appendix), thereby enabling comparisons across cases using consistent categories.

Each dimension encompasses subprocesses governed by specific standards. Regarding human resources, the literature identifies job analysis and description, recruitment, selection, hiring, induction, training, and retention (Dessler, 2020; Noe et al., 2021). Material resources involve equipment adequacy and condition, inventory control, preventive maintenance, and procurement practices that incorporate supplier evaluation (Heizer et al., 2020; Jacobs & Chase, 2019). Financial resources encompass budgeting, planning and allocation, monitoring and control, risk forecasting, and access to relevant information for decision-making (Brealey et al., 2023; Gitman & Zutter, 2016; Ross et al., 2022).

Finally, technological and information resources include the systems that support organizational processes, their suitability and updating, employee training in their use, and technical support (Laudon & Laudon, 2020; Stair & Reynolds, 2021). Viewed through the lens of resource orchestration, the integration phase corresponds to the structuring of the resource portfolio and the initial stages of bundling, whereas coordination across dimensions constitutes resource leveraging.

Formalization of Management Practices in MSMEs

Formalization refers to the extent to which rules, procedures, and instructions exist in written form and undergo regular implementation (Pugh et al., 1968). Informal practices tend to prevail

in small firms: owners typically make hiring, purchasing, and spending decisions, which rarely generate formal documentation (Cardon & Stevens, 2004). As firms grow, formalization increases, although its development varies across organizational functions. It generally begins with recruitment and selection and subsequently extends to induction, performance appraisal, and employee retention (Harney & Alkhalaf, 2021; Kotey & Slade, 2005).

In developing countries, small firms exhibit considerable variation in their adoption of basic management practices, including recordkeeping, planning, inventory control, and recruitment procedures. These practices predict business survival, sales, and profits (McKenzie & Woodruff, 2017), consistent with the differences in management practices across firms and countries documented by Bloom and Van Reenen (2010). Research conducted in Mexico and Latin America points to deficiencies in SME financial management (Saavedra-García et al., 2016), delays in digital adoption (Dini et al., 2021), financing constraints (Oddone & Stola, 2025), and the still-partial formalization of human resource management practices (Salas-Arbeláez et al., 2021).

In this study, formalization during the integration phase serves as an observable, albeit partial, manifestation of resource orchestration capability. This constitutes an interpretive assumption rather than a validated measure: documenting and measuring resources does not guarantee their effective coordination or their transformation into superior capabilities. Documentation (procedures, contracts, manuals, and job profiles) corresponds to structuring; measurement (inventories, budgets, indicators, and performance appraisals) corresponds to controlling the bundling process; and coordination (involving different departments in defining needs and sharing resources) corresponds to leveraging. Importantly, formalization does not constitute an end in itself. In creative organizations, for instance, formal procedures can coexist with relatively flexible work cultures. Nevertheless, without a minimum level of documentation, measurement, and coordination, organizations will struggle to transform resources into repeatable capabilities.

The matrix does not encompass every resource orchestration process. It primarily represents resource portfolio structuring (acquiring and accumulating resources through recruitment, selection, hiring, purchasing, and inventory management) and part of the bundling process (stabilizing routines through induction, training, and documented procedures). Regarding leveraging, the matrix captures only interdepartmental coordination, and only in two cases. It excludes resource divestment, capability enrichment and innovation, market deployment, and performance outcomes (Sirmon et al., 2007, 2011).

Formalization Standard and Conceptual Model

Identifying gaps requires an explicit benchmark. To this end, Table 1 presents, for each dimension and subprocess, the practices that the literature considers fundamental to a formalized integration phase. This set of practices serves as the desired state for gap analysis (Franklin Fincowsky, 2013; Harrison & Shirom, 1999) and provides the foundation for the maturity assessment rubric described in the Method section.

Table 1. Formalization Standard for the Integration Phase by Dimension and Subprocess

Dimension	Subprocess	Reference Practice	Sources
Human resources	Job positions	Documented and regularly updated job descriptions.	Dessler (2020); Noe et al. (2021)
	Recruitment	Defined internal and external recruitment sources and vacancy announcements.	Dessler (2020); Kotey & Slade (2005)
	Selection	Explicit selection criteria, interview guidelines, job-specific assessments, and reference checks.	Noe et al. (2021); Cardon & Stevens (2004)
	Hiring	Written individual employment contracts and employee records.	Dessler (2020)
	Induction	Formal induction program and handbook.	Noe et al. (2021); Harney & Alkhalaf (2021)
	Training and retention	Planned training, periodic performance appraisals, and employee retention mechanisms.	Gerhart & Feng (2021); Noe et al. (2021)
Material resources	Inventory	Updated inventory of equipment and supplies.	Jacobs & Chase (2019)
	Maintenance	Preventive maintenance program.	Heizer et al. (2020)
	Procurement	Purchasing procedures incorporating supplier evaluation.	Heizer et al. (2020)
	Use and replacement	Monitoring of resource utilization and replacement planning for obsolete equipment.	Jacobs & Chase (2019)
Financial resources	Budgeting	Formal budget.	Gitman & Zutter (2016)
	Planning and allocation	Financial planning and priority-based resource allocation.	Brealey et al. (2023); Ross et al. (2022)
	Control	Department-level budget monitoring and control mechanisms.	Gitman & Zutter (2016); Ramon-Jerónimo et al. (2019); Saavedra-García et al. (2016)
	Contingencies	Contingency fund or financial provisions for unexpected events.	Gitman & Zutter (2016); Ross et al. (2022)

Technological resources	Information	Timely financial information to support decision-making.	Saavedra-García et al. (2016)
	Systems	Information systems that support organizational processes.	Laudon & Laudon (2020)
	Suitability	Appropriate and up-to-date technology.	Stair & Reynolds (2021)
	Training	Personnel trained in technology use.	Dini et al. (2021)
	Support	Clearly defined technical support arrangements.	Laudon & Laudon (2020)

Note. Authors' own elaboration based on the cited sources.

Methodology

The research design follows a descriptive-comparative multiple-case study approach (Yin, 2018). This strategy suits research questions concerning how specific practices take shape within their organizational contexts and enables cross-case comparisons through a replication logic (Eisenhardt, 1989). The unit of analysis consists of the integration phase of the administrative process within each firm, while the four resource dimensions serve as embedded units of analysis.

Furthermore, this study constitutes a secondary analysis (Heaton, 2008). The data originated from organizational assessments conducted for intervention purposes within a university–business engagement program. In the present study, we recoded and reinterpreted these data through the lenses of the RBV and resource orchestration theory, neither of which informed the original design of the assessment instruments. Accordingly, the study adopts an abductive approach: it starts with administrative process categories and subsequently reexamines them through resource theory.

Abductive and deductive reasoning operate at different stages of the analysis. Coding follows a deductive procedure because it applies a predefined codebook, derived from Table 1, to the assessment reports. Abduction takes place during interpretation: patterns emerging from cross-case comparisons, including some not anticipated by the initial categories (such as the influence of the nature of business activities), receive explanations grounded in resource theory, which we subsequently reassess against the empirical cases.

The six cases comprise legally established MSMEs that participated in the university–business engagement program between 2024 and 2026. Case inclusion required three conditions: each firm had to provide a manager familiar with all four resource dimensions, agree to undergo the organizational assessment, and receive feedback on the results. We selected the cases through convenience sampling, drawing on the professional networks of the graduate student teams responsible for conducting the assessments (whose profiles we describe below). The selection

sought variation across business sectors and firm sizes, ranging from microenterprises to medium-sized firms, to enable theoretical replication based on formalization levels. All six firms operate in Sonora, northwestern Mexico; five are located in the southern part of the state and one in its northern border region. Table 2 provides a description of the cases.

Table 2. Case Characteristics

Case	Sector and Business Activity	Firm Size	Years in Operation	Informant	Data Collection Period	Data Sources
MAQ	Commerce: distribution and servicing of agricultural machinery and equipment.	Medium-sized (100 employees)	Established in 2000	Human Resources Coordinator (18 years with the company)	Second half of 2024	Questionnaire, interview, and forms
CON	Industry: residential construction, remodeling, and paving.	Small (20 employees)	Established in 2015	Managing partners (two)	First half of 2024	Questionnaire, interview, and forms
FOT	Services: photography studio.	Micro (7 employees)	Established in 1958	Owner	Second half of 2024	Questionnaire, interview, and forms
DIS	Services: marketing and digital design agency operating remotely.	Micro (6 employees)	Established in 2015	Owner	First half of 2025	Questionnaire, interview, and forms
VET	Services: veterinary clinic and grooming services.	Micro (8 employees)	Established in 2022	Managing Director	First half of 2026	Questionnaire, interview, and forms
RES	Services: seafood restaurant.	Small (11 employees)	Established in 1970	Owner	First half of 2026	Questionnaire, interview, and forms

Note. The codes replace the companies' legal names to ensure confidentiality. Firm size was determined solely by the number of employees, following the size categories established by the Official Gazette of the Federation (Diario Oficial de la Federación, 2009): microenterprises employ up to 10 workers; small enterprises employ 11–50 workers in industry and services and 11–30 in commerce; and medium-sized enterprises employ 51–250 workers in industry, 51–100 in services, and 31–100 in commerce. The official classification combines the number of employees (weighted at 10%) and annual sales (weighted at 90%) within a maximum combined score. Since the assessment reports did not include sales figures, applying this criterion was not possible.

Each organizational assessment combined three sources of information. The first consisted of a structured questionnaire designed to assess the administrative process, covering the integration, directing, and controlling phases. The present study uses only the integration section. The complete instrument comprises 194 items (70 on integration, 62 on directing, and 62 on controlling). The research team administered an identical version of the questionnaire at all four data collection periods (2024–2026).

The integration section comprises five blocks: human resources (items 1–31, covering recruitment, selection, hiring, induction, and training), material resources (items 32–41), financial resources (items 42–51), technological and information resources (items 52–61), and resource integration (items 62–70). Sixty-six items follow a dichotomous response format (Yes/No), 20 of which also include an open-ended question prompting respondents to describe the corresponding practice; the remaining four items consist entirely of open-ended questions. Examples include whether the company "has formally defined and updated job descriptions for each position," "has an induction manual," "maintains a formally established budget," or "provides personnel with training to use available technological systems." The Appendix reproduces the complete section and identifies the corresponding subprocess from Table 1 for each item.

Fifty items cover the 19 subprocesses included in the formalization standard. The remaining 20 examine resource sufficiency or adequacy (for example, whether employee numbers or financial resources meet organizational needs) or the joint integration of resources. We used these items for descriptive contextual purposes rather than to assess formalization. The resource integration block (items 62–70) formed part of the questionnaire from the first data collection period. Its detailed treatment in only the VET and RES reports reflects differences in report coverage rather than any modification to the instrument.

The second source consisted of a semistructured interview with one manager from each company, designed to explore the reasons underlying existing practices and the difficulties firms encounter. The third source involved reviewing available documents, including job descriptions, employment contracts, manuals, inventories, and budgets, whenever companies provided them. The assessment teams reviewed every document that respondents reported as available. Accordingly, the reports classified a practice as documented only when the team had reviewed the corresponding document. Drawing on these three sources, each team prepared an organizational assessment report and a document containing improvement proposals for the company. These reports constitute the corpus for the secondary analysis.

Graduate students conducted the organizational assessments. Each company received an assigned team of three students enrolled in the second term of the Master's Degree in Business Administration and Business Development. The students prepared the assessment as part of their academic activities within the university–business engagement program. Across the four data collection periods, all six teams came from the same master's program and attended the same course. Before conducting the assessments, the teams received training in the use of the instrument and subsequently worked under the supervision of the faculty members responsible

for the course, who also authored this article. These faculty members coordinated the research and reviewed each report upon submission.

Fieldwork consistently followed the same sequence: contacting the company and obtaining its consent; administering the questionnaire and interviewing the manager; reviewing available documents; preparing the organizational assessment report; developing improvement proposals; and, finally, presenting the findings to company management. Data collection took place during four distinct periods: the first half of 2024 (CON), the second half of 2024 (MAQ and FOT), the first half of 2025 (DIS), and the first half of 2026 (VET and RES). All assessments employed the same questionnaire version. The authors subsequently conducted the analysis reported in this study.

The analysis proceeded through six steps. First, we extracted information concerning each of the 19 subprocesses from every assessment report and entered it into a case-by-subprocess matrix (Miles et al., 2014). Second, we deductively coded each subprocess using a codebook derived from Table 1 and four mutually exclusive codes that distinguish between the existence of a practice, its documentation, and the availability of information:

- Documented and verified practice (F): The report describes the practice as written, documented, recorded, or governed by a formal procedure.

- Existing but undocumented or partially documented practice (P): The practice exists but lacks formal documentation or has only partial documentation.

- Nonexistent practice (N): The report explicitly states that the practice does not exist.

- No data (—): The report does not address the subprocess.

Missing information never qualifies as evidence that a practice does not exist. Accordingly, code N requires an explicit statement in the report confirming the absence of the practice, whereas mere omission receives the no-data code. Code F denotes a practice verified through documentary evidence. Under the assessment protocol, the teams reviewed every document that respondents declared available (for example, the questionnaire requests the induction manual whenever a respondent reports its existence). Consequently, the reports classified a practice as documented only after the team had verified the corresponding document. No practice received a documented classification without such verification.

Third, we assessed each dimension using the rubric presented in Table 3 and the scoring procedure explained immediately after the table. Fourth, we identified the gaps in each case relative to the standard presented in Table 1 (Franklin Fincowsky, 2013; Harrison & Shirom, 1999). Fifth, we conducted a cross-case synthesis by dimension and by company characteristics, including size, age, and business sector. Sixth, we derived improvement strategies for each maturity level, drawing on the proposals developed by the student teams and the relevant literature.

Two authors independently coded the data and resolved discrepancies through consensus. To assess coding reliability, two coders independently and blindly recoded all 114 cells in the matrix using the same codebook. They agreed on 109 of the 114 cells (95.6%; Cohen's kappa, $\kappa = 0.94$, 95% CI [0.88, 0.99]), indicating almost perfect agreement according to Landis and Koch (1977). Since the assessment reports paraphrase respondents' statements, few verbatim quotations remain available. Whenever we include a direct quotation, we identify its source using the corresponding case code.

Table 3. Maturity Rubric for the Integration Phase by Dimension

Level	Designation	Descriptor	Example in Human Resources
1	Informal	Practices depend on the owner's discretion; no written procedures or records exist.	Unguided interview, verbal employment agreement, and on-the-job adjustment without a formal program.
2	Basic	Some practices have been defined or recorded, but complete documented procedures are lacking.	Practical test as a selection screening tool and written employment contract, but no induction or performance appraisal.
3	Structured	Procedures for the main subprocesses have been defined and documented, with regular recordkeeping.	Job descriptions, multistage selection, employment contract, induction, and periodic performance appraisal, but no indicators or information system.
4	Systematized	Documented procedures, indicators, controls, and supporting information systems are in place.	All of the above, plus indicators for each subprocess and a human resource information system.

Note. The rule for assigning each level is explained in the text following the table.

The rubric was applied using a scoring rule established before the assessment and applied identically across all six cases, with equal weight assigned to every subprocess. The rule comprises four components. The first establishes a minimum coverage requirement: a dimension receives a score only when data are available for at least half of its subprocesses (three of six for human resources, two of four for material resources, three of five for financial resources, and two of four for technological resources). Otherwise, the dimension is recorded as having insufficient evidence, thereby avoiding the assignment of a low maturity level to a dimension about which the reports provide little information.

The second component establishes the thresholds, calculated based on the subprocesses for which data are available: a dimension receives Level 1 (informal) when none of its subprocesses are formalized; Level 2 (basic) when at least one subprocess is formalized but fewer than half are; and Level 3 (structured) when half or more are formalized. Level 4 (systematized) additionally requires indicators for each subprocess and an information system to support them.

The third component addresses conflicting evidence: when the organizational assessment report and the improvement proposals document differ, the assessment report takes precedence because it records the observed situation, whereas the proposals describe the desired situation.

The fourth component stipulates that no overall maturity level is assigned to each case. An average or predominant level would obscure precisely the differences among subprocesses that this study seeks to reveal, fail to resolve ties, and prove impossible to calculate for cases in which only one dimension receives a score. Instead, each case is described by its maturity profile across dimensions and its coverage, that is, the number of subprocesses for which data are available and the number classified as formalized. The 50% threshold was established before scoring.

Regarding research rigor, we followed the criteria proposed by Lincoln and Guba (1985). A distinction must be drawn between procedures conducted during the original organizational assessments and those undertaken for the present analysis. Student teams triangulated questionnaire, interview, and documentary evidence when preparing each assessment report, while presenting the findings to company managers provided validation of those assessments, not of the recoding performed using the maturity rubric. Neither procedure can therefore be attributed to the analysis presented here. In the present study, credibility rests on comparing, for each case, the organizational assessment report with the improvement proposals document and on ensuring that every score can be traced to the passages in the reports that support it.

Participants did not validate the recoding. Transferability was enhanced by describing the cases and their context. Dependability rests on the codebook, an explicit rubric, and inter-coder agreement ($\varkappa = 0.94$). Regarding ethical considerations, managers provided consent for conducting the organizational assessments and receiving feedback on the results. For this publication, the companies were anonymized (a code replaces each legal business name, and personal names and addresses have been omitted), and written authorization was obtained. No personal data concerning employees were collected.

Results

The first overall finding indicates that formalization during the integration phase varies across firms and, more importantly, across subprocesses. Table 4 presents the case-by-subprocess matrix and, based on it, the maturity profile of each dimension. The matrix distinguishes the absence of a practice (N) from the absence of information (—), and documented and verified practices (F) from existing but undocumented practices (P). Dimensions with data available for fewer than half of their subprocesses are classified as having insufficient evidence and are not assigned a maturity level. Some practices, such as recruitment, are formalized in half of the cases, while job descriptions are formalized in two cases. Others, such as purchasing procedures incorporating supplier evaluation, budgetary controls, and contingency planning, are not formalized in any case.

Report coverage also differs: the VET and RES reports address 19 and 17 of the 19 subprocesses, respectively, whereas the reports for the other four cases cover between 6 and 8. Consequently, only the human resources dimension could be assessed in MAQ, CON, DIS, and FOT. VET alone achieves the structured level across all four dimensions. The following subsections address Research Question (1) dimension by dimension; Table 5 and the section on patterns address Research Question (2), while Table 6 addresses Research Question (3).

Table 4. Formalization Matrix by Subprocess and Maturity Profile by Dimension

Dimension	Subprocess	MAQ	CON	FOT	DIS	VET	RES
Human resources	Job positions	P	P	—	—	F	F
	Recruitment	F	P	P	F	F	N
	Selection	F	P	P	P	F	P
	Hiring	F	F	N	—	P	N
	Induction	F	N	N	P	P	P
	Training and retention	F	—	P	P	F	P
	Dimension maturity level	**3**	**2**	**1**	**2**	**3**	**2**
Material resources	Inventory	—	—	—	—	F	N
	Maintenance	—	—	—	—	F	P
	Procurement	—	P	—	—	P	N
	Use and replacement	—	—	—	—	P	—
	Dimension maturity level	**IE**	**IE**	**IE**	**IE**	**3**	**1**
Financial resources	Budgeting	—	—	—	—	F	N
	Planning and allocation	—	—	—	P	F	N
	Control	—	—	N	—	N	—
	Contingencies	—	—	—	—	N	N
	Information	—	—	P	—	F	N
	Dimension maturity level	**IE**	**IE**	**IE**	**IE**	**3**	**1**
Technological resources	Systems	—	—	N	P	F	N
	Suitability	—	P	—	—	F	N
	Training	—	—	—	—	F	N
	Support	—	—	—	—	F	N
	Dimension maturity level	**IE**	**IE**	**IE**	**IE**	**3**	**1**
Coverage	Subprocesses with data (out of 19)	6	7	8	6	19	17
	Formalized subprocesses (F)	5	1	0	1	13	1

Note. F = documented practice verified by the assessment team (the report describes it as written, documented, recorded, or governed by a formal procedure, which, under the protocol, means that the team reviewed the corresponding document); P = the practice exists but remains undocumented or only partially documented; N = the report explicitly states that the practice does not exist; — = the report does not address the subprocess (no data). Dimension maturity levels follow the scoring rule described in the Methodology section: 1 = informal; 2 = basic; 3 = structured; 4 = systematized; IE = insufficient evidence (fewer than half of the dimension's subprocesses have data). No overall maturity level is assigned to any case.

Human Resources

This is the only dimension for which information is available across all six cases, and it is also the most formalized. Regarding job positions, VET and RES have defined job profiles. MAQ bases its selection process on job analysis, although its report does not specify whether the profiles have been documented. CON, FOT, and DIS do not report documented job profiles, although CON takes job descriptions into account when selecting candidates. Recruitment practices differ markedly. MAQ has a dedicated recruitment analyst and combines job boards, professional networks, social media, and print media. VET combines internal referrals with social media and applies explicit policies (English proficiency, values, and drug testing). DIS maintains a candidate database and advertises vacancies through social media. At the other end of the spectrum, CON and FOT recruit exclusively through employee referrals (CON, in fact, "prohibits recruiting relatives, in order to avoid creating any conflict," according to its report), while RES neither uses recruitment sources nor advertises vacancies. Notably, the most frequently reported difficulty concerns not the lack of candidates but their quality: at MAQ, "there have been few occasions when the company has had several highly qualified candidates" (MAQ report).

In selection, five of the six cases apply at least one predefined screening criterion, although the criteria vary considerably in nature. MAQ combines interviews, psychometric tests, reference checks, socioeconomic background checks for operational positions, and technical assessments for accounting positions, all supported by job analysis. VET follows a four-stage process (interview using a question guide, one-day trial, one-week trial, and initial one-month period), including data verification and a final decision by the immediate supervisor. CON, by contrast, replaces employment applications and reference checks with a two-week practical trial at a construction site, after which both managers interview the candidate. The report explains that they "choose to place their trust in the candidate so that they feel comfortable." FOT and DIS select candidates through interviews and portfolios, while DIS also considers their fit with the team culture. RES represents the only case in which the owner conducts interviews without a guide or tests, although the owner does verify employment references, a practice that the report itself identifies as a strength.

The clearest differences among the cases emerge in hiring. MAQ formalizes permanent and temporary employment contracts, with a three-month probationary period and an explanation of the contract upon commencement of employment. CON signs fixed-term contracts. VET hires employees on a monthly basis once they have passed the trials, using arrangements that vary by department. FOT, by contrast, hires workers through verbal, temporary agreements, which the report describes as both a source of flexibility and an indication of a lack of structure. At RES, "the employment relationship is established primarily by registering the worker with Social Security," without a written contract. DIS does not report which type of contractual arrangement it uses.

Induction emerges as the least formalized subprocess overall. Only MAQ provides an employee handbook, accompanied by a welcome session. VET has an induction program comprising customer service protocols, written activities, and monthly evaluations, delivered by the owner,

the administrator, or the most experienced stylist, but it has no handbook. DIS integrates new employees through meetings, recreational activities, and shared playlists, without a formal program. CON, FOT, and RES provide no induction. At RES, the employee on duty assumes responsibility for helping newcomers adjust.

Training, performance appraisal, and retention present a mixed picture. MAQ conducts quarterly or annual performance appraisals and offers training programs and team-building events, although not all positions have written performance indicators. VET provides ongoing training, conducts weekly or monthly evaluations, and retains employees through a weekly bonus for meeting established standards. However, it has no formal recognition programs. The manager's explanation is revealing: "they have not been considered; employees sometimes do not perform well enough" (manager, VET). DIS provides access to online courses, productivity bonuses, and days off for good performance, but has neither a formal recognition program nor systematic individual performance appraisals; existing records are maintained in spreadsheets. RES considers its employees adequately trained and evaluates them periodically, although it has no ongoing training or retention programs. FOT motivates its staff by allowing them to use the photographic equipment, but has neither written incentive policies nor regular performance appraisals.

Material Resources

Only the information available for VET and RES provides sufficient coverage to assess this dimension. CON describes its purchasing practices, MAQ merely mentions inventory among the controls applied at the departmental level, and DIS refers only to the equipment provided to its employees. VET maintains an up-to-date inventory, schedules preventive maintenance for each piece of equipment (weekly, monthly, or semiannually, as appropriate), and plans for the replacement of obsolete equipment. However, it lacks a purchasing procedure: acquisitions are decided through direct contact with suppliers and by consensus among the partners. Nor does it monitor the use of materials. RES has sufficient resources, adequate facilities, and preventive maintenance, but lacks both an updated inventory and a procurement procedure. CON purchases steel and cement every week from a stable group of suppliers selected on the basis of quality, speed, and service; its report makes no mention of inventory or maintenance. At DIS, the company provides equipment only for on-site projects, meaning that "remote employees must have their own resources" (DIS report). The pattern is consistent: preventive maintenance exists where critical equipment is involved, but none of the cases documents a purchasing procedure that incorporates supplier evaluation.

Financial Resources

This is the least formalized dimension and the one with the lowest data coverage. VET is the only case with a formal budget, financial planning, priority-based resource allocation, and monthly assessments of its financial position. Even so, departments are unaware of their spending limits, no budget monitoring controls exist, and the company does not plan for contingencies. RES neither prepares a budget nor engages in financial planning, and it lacks timely financial information, although its owner considers the available resources sufficient and believes they are used effectively. DIS has no structured budget allocation process, which the

report links to ongoing operational adjustments. FOT operates without accounting software or control procedures, relying on occasional monitoring of income and expenses. No financial data were obtained for MAQ or CON. In sum, only VET has financial information available to support decision-making, and none of the companies reporting on this dimension maintains a contingency fund.

Technological and Information Resources

Technology appears primarily as equipment or a communication channel rather than as an information system. VET reports systems that support its processes, appropriate technology, trained personnel, quarterly technical support, and periodic updates. CON replaces its computer equipment every year and renews its video surveillance and automated access control systems. It considers its technological capabilities good compared with those of its competitors, but does not report using management systems. MAQ uses digital platforms for recruitment but lacks an information system that centralizes employee records, recruitment monitoring, and performance appraisal—a shortcoming that the student team itself identified as a priority. FOT lacks technological tools for supervision and financial management, while RES has no information systems, up-to-date infrastructure, employee training, or technical support. At DIS, the assessment mentions only a candidate database, spreadsheets for recording performance, and online learning platforms. It provides no information on technology suitability, employee training in its use, or technical support; consequently, this dimension is classified as having insufficient evidence.

Coordination Across Dimensions and Main Gaps

Regarding the joint integration of resources (items 62–70 in the Appendix), only the reports for two companies, VET and RES, provide information. At VET, department heads participate in defining resource requirements, shortages are reviewed weekly, allocations are adjusted when circumstances change (for example, during a renovation), and the effectiveness of resource integration is assessed. At RES, the company identifies resource shortages promptly, but department heads do not participate in defining requirements, and no arrangements exist for coordinating resource sharing. The reports for MAQ, CON, FOT, and DIS do not address this section. Table 5 summarizes the gaps identified in each case relative to the standard presented in Table 1, while also highlighting practices that function despite the lack of formalization.

Table 5. Gaps Relative to the Formalization Standard and Strengths by Case

Case	Main Gaps	Strengths
MAQ	No HR information system; written performance indicators not available for all positions; shortage of qualified candidates; material and financial dimensions not assessed.	Comprehensive recruitment, selection, hiring, and induction process supported by an employee handbook; periodic performance appraisal.
CON	No employment application or reference checks; no induction; no documented job	Practical test used as a screening tool; written employment contracts; purchasing

	profiles; no inventory or budget information reported.	practices based on established criteria and stable suppliers; equipment renewed annually.
FOT	Verbal hiring arrangements; no induction; no performance appraisal; no accounting software or financial controls; no technological tools.	Portfolio-based selection; employee motivation through access to photographic equipment.
DIS	No formal induction or mentoring program; no systematic performance appraisal or formal recognition; no budgeting process; unequal equipment provision for remote employees.	Recruitment supported by a candidate database and social media; selection based on portfolios and team fit; incentives and access to training courses.
VET	No induction handbook; no purchasing procedure or monitoring of resource use; no departmental budget controls or contingency provisions; no nonmonetary recognition program.	Job profiles; four-stage selection process; evaluated induction program; inventory and preventive maintenance; budget; information systems and technical support; interdepartmental coordination.
RES	No recruitment process, interview guide, written employment contract, employee records, or induction; no inventory or purchasing procedure; no budget or timely financial information; no information systems or technical support.	Job profiles; employment reference checks; preventive maintenance; periodic employee performance appraisal.

Three patterns emerge from these findings. The first concerns uneven formalization across subprocesses, both between firms and within individual firms. Five cases apply at least one selection screening criterion, but only one has an induction handbook, and only one reports having a formal budget. Furthermore, none of the cases has formalized purchasing procedures incorporating supplier evaluation, budgetary controls, or contingency planning—not even VET, which has formalized 13 of the 19 subprocesses. Among the cases with sufficient financial data (VET and RES), this dimension reaches the structured level only at VET.

The second pattern is that, across the six cases analyzed, no consistent relationship emerges between firm size or age and the level of formalization. VET, a microenterprise established in 2022, exhibits the most structured practices across all four dimensions. CON, a small enterprise with nearly ten years of operation, remains at the basic level in human resources, the only dimension with sufficient data, while RES, also a small enterprise, falls at the informal level in three of its four dimensions. MAQ, the largest company, has reached the structured level in human resources but has not progressed to the systematized level. The two oldest companies, FOT (established in 1958) and RES (1970), fall at the informal level in most of their assessed dimensions, which might even suggest an inverse relationship with firm age.

Given the six cases selected through convenience sampling, these contrasts do not allow us to rule out the influence of firm size or age; they merely show that neither factor, on its own, explains the differences observed.

The third pattern concerns the nature of business activities. Where operations require technical protocols (VET) or specialized functional departments (MAQ), documentation forms part of everyday work. In creative activities (DIS and FOT) and the restaurant business (RES), by contrast, flexibility tends to be valued or operations depend heavily on the owner, and formalization is perceived as dispensable until growth makes it unavoidable. VET's report acknowledges this process by describing how the company moved from an initial reliance on employees performing multiple roles to the establishment of clearly defined departments.

Improvement Strategies by Maturity Level

The proposals developed by the student teams and presented to the companies were reorganized by maturity level, based on the premise that each company should advance one level in its less developed dimensions before attempting to systematize its practices (Table 6). Brand names and prices have been omitted; tools are described in terms of their intended functions.

Table 6. Improvement Strategies by Maturity Level and Dimension

Starting Level	Objective	Human Resources	Material Resources	Financial Resources	Technological Resources	Cases
(1) Informal	Establish basic documentation.	Written individual employment contracts and employee records; job profiles; position-specific interview guides; brief induction program including equipment care guidelines (FOT).	Equipment and supplies register recording incoming and outgoing items and minimum stock levels.	Income and expenditure records; annual operating budget.	Spreadsheet or point-of-sale system for recording sales, costs, and inventory.	FOT (HR); RES (MR, FR, TR)
(2) Basic	Document the main subprocesses.	Employment application and reference checks (CON); induction handbook and formal mentoring (CON, DIS);	Purchasing procedure incorporating supplier evaluation; inventory (CON); equipment provision	Project-based budgeting and basic controls (DIS).	Centralized project and performance records (DIS).	CON, DIS, and RES (HR)

		semiannual performance appraisal with indicators and development plan (DIS); written individual employment contract, interview guide, and brief induction program covering hygiene and service standards (RES).	policy for remote employees (DIS).			
(3) Structured	Systematize practices through indicators and information systems.	Induction handbook (VET); nonmonetary recognition program (VET); subprocess-level indicators and an HR information system integrating employee records, recruitment monitoring, and performance appraisal (MAQ); partnerships with educational institutions and participation in job fairs (MAQ).	Purchasing procedure and resource utilization controls (VET).	Departmental budget controls and contingency fund (VET).	Integration of existing systems to support decision-making.	MAQ (HR); VET (all four dimensions)

Note. Authors' own elaboration based on the improvement proposals for each case and the standard presented in Table 1. The Cases column identifies the case and dimension assigned to each maturity level according to Table 4. Strategies for dimensions with insufficient evidence derive from the student teams' proposals and appear in the row corresponding to the human resources maturity level of the respective case, as guidance rather than as an outcome of the assessment.

Discussion

The six cases show that, in the MSMEs studied, the integration phase becomes formalized incrementally rather than as a whole. Regarding Research Question (1), human resource practices are the most clearly defined: five cases apply selection screening criteria, and two (MAQ and CON) formalize employment contracts in writing. VET hires employees on a monthly basis, but its report does not specify whether the contracts are written. Material resource practices focus more on maintenance than on procurement; financial practices depend largely on the owner's discretion, with one exception; and technology enters the firm as equipment or a recruitment channel before becoming an information system.

Regarding Research Question (2), the main gaps concern induction, written employment contracts, budgeting, purchasing procedures, and contingency planning. In these cases, the gaps do not follow a consistent pattern based on firm size or age: the youngest microenterprise proved to be the most structured, whereas a small enterprise with nearly ten years of operation remains at the basic level in human resources, and the two oldest firms remain at the informal level in most of their dimensions. Regarding Research Question (3), appropriate strategies vary according to the starting point: establishing basic documentation for dimensions at the informal level, introducing procedures for those at the basic level, and implementing indicators and systems for those at the structured level.

The sequence in which human resource practices become formalized aligns with findings reported for small firms in other contexts: recruitment and selection become structured first, followed by induction, performance appraisal, and retention (Harney & Alkhalaf, 2021; Kotey & Slade, 2005). Personnel-related decisions also remain largely concentrated in the owner (Cardon & Stevens, 2004).

The cases examined here add a nuance that this literature, which focuses on individual functions, does not fully capture: the same asymmetry also occurs across resource categories. A company may conduct a four-stage selection process while lacking budgetary controls, or replace its equipment annually while hiring employees without requiring an employment application. For MSMEs, therefore, the appropriate unit of analysis is not the individual function but rather the set of subprocesses through which they integrate their resources.

The substantial variation in such basic practices as recordkeeping, budgeting, inventory management, and written employment contracts among firms of similar size is consistent with evidence from developing countries (McKenzie & Woodruff, 2017) and with the dispersion of management practices observed among firms within the same country (Bloom & Van Reenen, 2010). In these cases, firm size and age alone do not explain this variation, which is consistent with the view that management practices reflect, at least in part, managerial choices rather than automatic consequences of growth, although six cases do not suffice to rule out the influence of either variable.

In Mexico, the findings align with previously documented deficiencies in financial planning and control among SMEs (Saavedra-García et al., 2016): even the most structured company lacks

departmental controls and a contingency fund, while none of the micro and small service firms has timely financial information. The findings also reflect the digital lag reported among MSMEs in the region (Dini et al., 2021), as technology appears primarily as infrastructure rather than as a system supporting decision-making. Finally, they are consistent with the only partial formalization of human resource management practices documented among Latin American SMEs (Salas-Arbeláez et al., 2021).

The VET case warrants separate consideration. Its early formalization appears to stem from two factors. The first concerns the clinical nature of its activities, which requires service protocols and the monitoring of supplies. The second involves rapid growth, which, according to the report itself, forced the company to move from an initial arrangement in which employees performed multiple roles to clearly defined departments and responsibilities. Both factors align with the literature on the growth of small firms, which emphasizes the role of managerial capabilities in shaping expansion (Nichter & Goldmark, 2009), and with the observation that how owners perceive their resources influences how they manage them (Kellermanns et al., 2016).

At the theoretical level, the findings are consistent with the resource-based view and, above all, with its more recent emphasis on resource management rather than resource ownership (Barney et al., 2021; D'Oria et al., 2021). This study did not measure the firms' resource endowments, which differ substantially in scale (from 6 to 100 employees); therefore, we cannot claim that their resources are comparable. What the reports do show is that, in several cases, managers consider their resources sufficient for operations (employees with the necessary training, equipment in good condition, and stable suppliers), while firms differ in how they document, measure, and coordinate those resources. In terms of resource orchestration (Sirmon et al., 2007, 2011), all firms structure their resource portfolios because they acquire personnel and supplies, but only some bundle those resources into repeatable routines and leverage them through interdepartmental coordination.

Under the assumption adopted in the theoretical framework, these differences in formalization can be interpreted as differences in resource orchestration capability. Because this assumption itself establishes the connection between the two concepts, the cases do not confirm it; they merely illustrate it. Furthermore, through the maturity matrix, this study proposes an as-yet-unvalidated operationalization of the VRIO framework's "organized to exploit its resources" condition (Barney, 1995), applied at the subprocess level and to smaller firms. One final point deserves attention. The priority firms give to selection over induction suggests that they address human capital structuring before bundling it into organizational routines. If the human capital literature is correct in arguing that the value of this resource depends on consistent management practices (Gerhart & Feng, 2021), this sequence could help explain why MSMEs struggle to retain employees whom they have selected so carefully. This, however, remains a hypothesis that the present research design cannot test.

The maturity matrix draws on two antecedents. The first is the World Management Survey, which uses structured interviews to assess eighteen management practices on a scale from 1 to 5, grouped into operations, monitoring, targets, and incentives, and which has documented the variation in these practices across firms and countries (Bloom & Van Reenen, 2007, 2010). The

second comprises maturity models derived from the Capability Maturity Model, which arrange process development into cumulative levels, progressing from improvised practices to processes that are systematically managed and improved (Paulk et al., 1993), and whose adaptation to other management processes Röglinger et al. (2012) reviewed. The matrix draws on both approaches by assessing observable practices through an ordinal scale with cumulative levels, but differs in three respects: it focuses on the integration phase of the administrative process rather than on management in general or software processes; it uses secondary reports instead of standardized interviews; and it explicitly distinguishes missing data from the absence of a practice. Its contribution, therefore, lies in adapting these approaches to the integration phase in MSMEs, rather than introducing a new or validated instrument.

For owners and managers, the main implication concerns sequencing. Before investing in information systems, firms should document the basics (employment contracts, job profiles, inventory and income records, and an annual budget). These low-cost practices make measurement possible and, eventually, enable systematization. Table 6 organizes the proposed actions according to this principle. For university–business engagement programs, organizational assessments can serve as a mechanism for transferring management practices, provided that they use a common instrument, report findings against an explicit standard, and follow up on implementation. For public policy, the findings suggest that MSME support programs, which often focus on economic formalization (tax and social security registration), would benefit from incorporating the formalization of management practices as a complementary objective. Such an approach would align with evidence concerning the effects of basic business practices on the survival of small firms (McKenzie & Woodruff, 2017).

The findings should be interpreted in light of five limitations. The first is evident: the study examines six cases selected through convenience sampling in a single Mexican state, with one informant per company and self-reported data, which are therefore susceptible to social desirability bias. The second stems from the secondary nature of the analysis. Graduate student teams, working under faculty supervision, prepared the reports; these paraphrase informants' statements and do not cover every dimension or item in every case. Consequently, 51 of the 114 cells in the subprocess matrix had to be coded as "no data," while 12 of the 24 dimension-level assessments were classified as having insufficient evidence. Coverage varied substantially across cases, ranging from 6 to 19 subprocesses with available data. Furthermore, the analysis relied on the reports rather than the original data (questionnaires, interview notes, and company documents).

Therefore, this study could not independently triangulate the evidence or present the recoding results to company managers for validation. The documentary verification underlying code F in Table 4 was conducted by the student teams during the original assessments, in accordance with the protocol; the present analysis could not repeat that verification. The third limitation concerns timing: data collection took place at four different points between 2024 and 2026, meaning that the practices of the earlier cases may have changed since then. Fourth, the study examines formalization but does not measure organizational performance; the relationship between maturity and efficiency rests on the existing literature rather than on data collected for this study. Fifth, the authors themselves applied the rubric. Although coding was performed independently

by two coders, using predefined criteria and achieving inter-coder agreement ($\varkappa = 0.94$), other analysts might assign different scores to borderline cases.

These limitations point to several avenues for future research. Researchers should apply the instrument and maturity rubric to a larger sample of MSMEs to estimate the distribution of maturity levels across dimensions; examine the relationship between these levels and performance indicators (employee turnover, profit margins, and firm survival) through longitudinal designs; test the observed sequence as a hypothesis (selection preceding induction, and human resources preceding financial resources); extend the analysis to the directing and controlling phases, which the same program has already assessed; and use intervention studies to evaluate what happens when firms implement the proposed strategies.

Conclusions

This study characterized the integration phase of the administrative process in six MSMEs in Sonora, Mexico, identified their gaps relative to a formalization standard derived from the literature, and proposed improvement strategies based on each firm's maturity level. Four conclusions emerge.

The first is that formalization during the integration phase varies across subprocesses, within individual firms, and between firms. The most clearly defined practices concern human resources, the financial dimension exhibits the greatest lag, and technology is adopted as equipment or a communication channel before becoming an information system. Five of the six companies lack an induction handbook, two formalize employment relationships without written contracts, and only one reports having a formal budget. None documents a purchasing procedure incorporating supplier evaluation, and none of the companies reporting on this matter plans for contingencies.

The second conclusion is that, across the six cases analyzed, formalization does not necessarily increase with firm size or age. The most structured company is a recently established microenterprise whose activities require formal protocols. The least formalized firms are micro and small service enterprises whose operations depend heavily on their owners, including the two oldest companies. In these cases, the nature of business activities and managerial decisions appear to explain the differences more effectively than firm size or age, although the research design does not allow us to rule out their influence.

The third conclusion, which concerns theoretical implications, is that the cases are consistent with the notion that possessing resources differs from orchestrating them. Firms vary in how they document, measure, and coordinate their resources, and the maturity matrix offers an approach, still requiring validation, for observing these manifestations of resource orchestration at the subprocess level in small organizations.

The fourth conclusion, concerning methodological implications, is that secondary analysis of organizational assessments generated through university–business engagement programs offers a viable approach to studying MSMEs that are difficult to access, provided that researchers

explicitly state the comparison standard, report data coverage, and apply rigorous criteria when recoding the reports.

Based on these conclusions, we propose the following recommendations:

For dimensions at the informal level (FOT in human resources; RES in material, financial, and technological resources): Formalize employment relationships in writing, maintain employee records and job profiles, keep inventory and income and expenditure records, and adopt a basic tool for recording sales and costs. These low-cost actions provide the foundation for subsequent improvements.

For dimensions at the basic level (human resources in CON, DIS, and RES): Document the main subprocesses by introducing an induction handbook, an interview guide with reference checks, a purchasing procedure incorporating supplier evaluation, and an annual budget. Organizations operating remotely should also establish an equipment provision policy.

For dimensions at the structured level (human resources in MAQ and all four dimensions in VET): Establish subprocess-level indicators, departmental budget controls, and a contingency fund; introduce nonmonetary recognition programs; and adopt an information system integrating employee records, recruitment monitoring, and performance appraisal. Firms should also strengthen talent attraction through partnerships with educational institutions.

For university–business engagement programs: Align organizational assessments with an explicit formalization standard, monitor the implementation of proposed improvements, and obtain companies' authorization from the outset to use anonymized data for academic purposes.

For MSME support agencies: Complement economic formalization programs with guidance on formalizing management practices, prioritizing the financial dimension, where gaps are greatest and the available tools are more accessible.

References

Asiaei, K., Rezaee, Z., Bontis, N., Barani, O., & Sapiei, N. S. (2021). Knowledge assets, capabilities and performance measurement systems: A resource orchestration theory approach. Journal of Knowledge Management, 25(8), 1947-1976. https://doi.org/10.1108/JKM-09-2020-0721

Barney, J. (1991). Firm resources and sustained competitive advantage. Journal of Management, 17(1), 99-120. https://doi.org/10.1177/014920639101700108

Barney, J. B. (1995). Looking inside for competitive advantage. Academy of Management Executive, 9(4), 49-61. https://doi.org/10.5465/ame.1995.9512032192

Barney, J. B., Ketchen, D. J., & Wright, M. (2021). Resource-based theory and the value creation framework. Journal of Management, 47(7), 1936-1955. https://doi.org/10.1177/01492063211021655

Bloom, N., & Van Reenen, J. (2007). Measuring and explaining management practices across firms and countries. The Quarterly Journal of Economics, 122(4), 1351-1408. https://doi.org/10.1162/qjec.2007.122.4.1351

Bloom, N., & Van Reenen, J. (2010). Why do management practices differ across firms and countries? Journal of Economic Perspectives, 24(1), 203-224. https://doi.org/10.1257/jep.24.1.203

Brealey, R. A., Myers, S. C., Allen, F., & Edmans, A. (2023). Principles of corporate finance (14.ª ed.). McGraw-Hill.

Cardon, M. S., & Stevens, C. E. (2004). Managing human resources in small organizations: What do we know? Human Resource Management Review, 14(3), 295-323. https://doi.org/10.1016/j.hrmr.2004.06.001

Civelek, M. (2024). The importance of resource-based view related abilities and financial performance of SMEs for their sustainable practices. Journal of Mehmet Akif Ersoy University Economics and Administrative Sciences Faculty, 11(4), 1542-1558. https://doi.org/10.30798/makuiibf.1510554

Cohen, J. (1960). A coefficient of agreement for nominal scales. Educational and Psychological Measurement, 20(1), 37-46. https://doi.org/10.1177/001316446002000104

Dessler, G. (2020). Human resource management (16.ª ed.). Pearson.

Diario Oficial de la Federación. (2009, 30 de junio). Acuerdo por el que se establece la estratificación de las micro, pequeñas y medianas empresas. Secretaría de Economía. https://dof.gob.mx/nota_detalle.php?codigo=5096849&fecha=30/06/2009

Dini, M., Gligo, N., & Patiño, A. (2021). Transformación digital de las MiPyMEs: Elementos para el diseño de políticas (Documentos de Proyectos LC/TS.2021/99). Comisión Económica para América Latina y el Caribe. https://repositorio.cepal.org/handle/11362/47183

D'Oria, L., Crook, T. R., Ketchen, D. J., Sirmon, D. G., & Wright, M. (2021). The evolution of resource-based inquiry: A review and meta-analytic integration of the strategic resources-actions-performance pathway. Journal of Management, 47(6), 1383-1429. https://doi.org/10.1177/0149206321994182

Eisenhardt, K. M. (1989). Building theories from case study research. Academy of Management Review, 14(4), 532-550. https://doi.org/10.5465/amr.1989.4308385

Fayol, H. (1949). General and industrial management (C. Storrs, Trad.). Pitman. (Obra original publicada en 1916)

Franklin Fincowsky, E. B. (2013). Auditoría administrativa: Evaluación y diagnóstico empresarial (3.ª ed.). Pearson.

Gerhart, B., & Feng, J. (2021). The resource-based view of the firm, human resources, and human capital: Progress and prospects. Journal of Management, 47(7), 1796-1819. https://doi.org/10.1177/0149206320978799

Gitman, L. J., & Zutter, C. J. (2016). Principios de administración financiera (14.ª ed.). Pearson.

Harney, B., & Alkhalaf, H. (2021). A quarter-century review of HRM in small and medium-sized enterprises: Capturing what we know, exploring where we need to go. Human Resource Management, 60(1), 5-29. https://doi.org/10.1002/hrm.22010

Harrison, M. I., & Shirom, A. (1999). Organizational diagnosis and assessment: Bridging theory and practice. Sage.

Heaton, J. (2008). Secondary analysis of qualitative data: An overview. Historical Social Research, 33(3), 33-45. https://doi.org/10.12759/hsr.33.2008.3.33-45

Heizer, J., Render, B., & Munson, C. (2020). Operations management: Sustainability and supply chain management (13.ª ed.). Pearson.

Hitt, M. A., Ireland, R. D., Hoskisson, R. E., & Harrison, J. S. (2024). Strategic management: Concepts and cases: Competitiveness and globalization (14.ª ed.). Cengage.

Instituto Nacional de Estadística y Geografía. (2025, 24 de julio). Censos Económicos 2024. Resultados definitivos [Comunicado de prensa núm. 79/25]. https://www.inegi.org.mx/contenidos/saladeprensa/boletines/2025/ce/CE2024_def.pdf

Jacobs, F. R., & Chase, R. B. (2019). Administración de operaciones: Producción y cadena de suministros (15.ª ed.). McGraw-Hill.

Jones, G. R., & George, J. M. (2022). Contemporary management (12.ª ed.). McGraw-Hill.

Kellermanns, F., Walter, J., Crook, T. R., Kemmerer, B., & Narayanan, V. (2016). The resource-based view in entrepreneurship: A content-analytical comparison of researchers' and entrepreneurs' views.
Journal of Small Business Management, 54(1), 26-48. https://doi.org/10.1111/jsbm.12126

Koontz, H., & O'Donnell, C. (1955). Principles of management: An analysis of managerial functions. McGraw-Hill.

Koontz, H., & Weihrich, H. (2013). Elementos de administración: Un enfoque internacional y de innovación (8.ª ed.). McGraw-Hill.

Kotey, B., & Slade, P. (2005). Formal human resource management practices in small growing firms. Journal of Small Business Management, 43(1), 16-40. https://doi.org/10.1111/j.1540-627X.2004.00123.x

Landis, J. R., & Koch, G. G. (1977). The measurement of observer agreement for categorical data. Biometrics, 33(1), 159-174. https://doi.org/10.2307/2529310

Laudon, K. C., & Laudon, J. P. (2020). Management information systems: Managing the digital firm (16.ª ed.). Pearson.

Lincoln, Y. S., & Guba, E. G. (1985). Naturalistic inquiry. Sage.

McKenzie, D., & Woodruff, C. (2017). Business practices in small firms in developing countries. Management Science, 63(9), 2967-2981. https://doi.org/10.1287/mnsc.2016.2492

Miles, M. B., Huberman, A. M., & Saldaña, J. (2014). Qualitative data analysis: A methods sourcebook (3.ª ed.). Sage.

Münch, L. (2010). Administración: Gestión organizacional, enfoques y proceso administrativo. Pearson Educación.

Nichter, S., & Goldmark, L. (2009). Small firm growth in developing countries. World Development, 37(9), 1453-1464. https://doi.org/10.1016/j.worlddev.2009.01.013

Noe, R. A., Hollenbeck, J. R., Gerhart, B., & Wright, P. M. (2021). Human resource management: Gaining a competitive advantage (12.ª ed.). McGraw-Hill.

Oddone, N., & Stola, I. (2025). Hacia un financiamiento renovado para las pymes en México: Experiencias y lecciones aprendidas para el contexto actual (Documentos de Proyectos LC/MEX/TS.2025/16). Comisión Económica para América Latina y el Caribe. https://repositorio.cepal.org/handle/11362/83270

Paulk, M. C., Curtis, B., Chrissis, M. B., & Weber, C. V. (1993). Capability maturity model, version 1.1. IEEE Software, 10(4), 18-27. https://doi.org/10.1109/52.219617

Peteraf, M. A. (1993). The cornerstones of competitive advantage: A resource-based view. Strategic Management Journal, 14(3), 179-191. https://doi.org/10.1002/smj.4250140303

Pugh, D. S., Hickson, D. J., Hinings, C. R., & Turner, C. (1968). Dimensions of organization structure. Administrative Science Quarterly, 13(1), 65-105. https://doi.org/10.2307/2391262

Ramon-Jerónimo, J. M., Florez-López, R., & Araujo-Pinzón, P. (2019). Resource-based view and SMEs performance exporting through foreign intermediaries: The mediating effect of management controls. Sustainability, 11(12), 3241. https://doi.org/10.3390/su11123241

Reyes Ponce, A. (1992). Administración moderna. Limusa.

Robbins, S. P., & Coulter, M. (2021). Management (15.ª ed.). Pearson.

Röglinger, M., Pöppelbuß, J., & Becker, J. (2012). Maturity models in business process management. Business Process Management Journal, 18(2), 328-346. https://doi.org/10.1108/14637151211225225

Ross, S. A., Westerfield, R. W., Jaffe, J., & Jordan, B. D. (2022). Corporate finance (13.ª ed.). McGraw-Hill.

Saavedra-García, M. L., Tapia-Sánchez, B., & Aguilar-Anaya, M. A. (2016). La gestión financiera en las pymes del Distrito Federal, México. Revista Perspectiva Empresarial, 3(2), 55-69. https://doi.org/10.16967/rpe.v3n2a5

Salas-Arbeláez, L., García-Solarte, M., & Murillo-Vargas, G. (2021). Gestión humana y desempeño organizacional en PYMES colombianas. Revista Venezolana de Gerencia, 26(Especial 6), 457-474. https://doi.org/10.52080/rvgluz.26.e6.28

Sirmon, D. G., Hitt, M. A., & Ireland, R. D. (2007). Managing firm resources in dynamic environments to create value: Looking inside the black box. Academy of Management Review, 32(1), 273-292. https://doi.org/10.5465/amr.2007.23466005

Sirmon, D. G., Hitt, M. A., Ireland, R. D., & Gilbert, B. A. (2011). Resource orchestration to create competitive advantage: Breadth, depth, and life cycle effects. Journal of Management, 37(5), 1390-1412. https://doi.org/10.1177/0149206310385695

Stair, R. M., & Reynolds, G. W. (2021). Principles of information systems (14.ª ed.). Cengage.

Teece, D. J. (2020). Hand in glove: Open innovation and the dynamic capabilities framework. Strategic Management Review, 1(2), 233-253. https://doi.org/10.1561/111.00000010

Wernerfelt, B. (1984). A resource-based view of the firm. Strategic Management Journal, 5(2), 171-180. https://doi.org/10.1002/smj.4250050207

Yin, R. K. (2018). Case study research and applications: Design and methods (6.ª ed.). Sage.

Appendix

Administrative Process Diagnostic Instrument: Integration Section

Instructions and identification. The questionnaire opens with the instruction, "Please answer objectively, based on your company's current practices," followed by an identification section requesting the date of administration; the company's name and address; the name, email address, and telephone number of its representative or manager; and the name(s) of the interviewer(s). It closes with a thank-you message and spaces for the business owner's and interviewers' names and signatures. The integration section is reproduced below.

No.	Item [response format]	Subprocess (Table 1)
	Human resources. *Assess whether the company has appropriate and sufficient personnel who have been properly integrated into the organization.*	
	Personnel recruitment. *Indicate whether the company has recruitment procedures, policies, and sources for attracting candidates.*	
1	Does the company have formally defined and up-to-date job descriptions for each position? *[Yes/No; if No, proceed to item 3]*	Job positions
2	Is the job description taken into account when recruiting candidates? *[Yes/No]*	Job positions
3	Is the number of employees sufficient to meet current operational objectives? *[Yes/No; if No: does the number exceed or fall short of requirements?]*	—
4	Does the company follow a formal personnel recruitment procedure? *[Yes/No; if Yes: what is the procedure?]*	Recruitment
5	Does the company use internal recruitment sources? *[Yes/No; if Yes: which sources?]*	Recruitment
6	Does the company use external recruitment sources? *[Yes/No; if Yes: which sources?]*	Recruitment
7	Does the company use communication channels or media to advertise vacancies? *[Yes/No; if Yes: which channels or media?]*	Recruitment
8	Has the company established policies for personnel recruitment? *[Yes/No; if Yes: what policies?]*	Recruitment
	Personnel selection. *Provide information about the methods, tools, and criteria used in the candidate selection process.*	
9	Does the company follow a formal personnel selection procedure? *[Yes/No; if Yes: what is the procedure?]*	Selection
10	Is there an interview guide containing questions for candidates applying for a position? *[Yes/No; if Yes: what questions does it include?]*	Selection
11	Who is responsible for interviewing candidates applying for a position within the company? *[Open-ended]*	Selection
12	Is a written report prepared at the end of the candidate's interview? *[Yes/No; if No: how are the results communicated?]*	Selection
13	Who is responsible for preparing the report following interviews with candidates applying for a position within the company? *[Open-ended]*	Selection
No.	Item [response format]	Subprocess (Table 1)
14	Are candidates required to take tests (e.g., knowledge or skills assessments)? [Yes/No; if Yes: what types of tests?]	Selection

15	Does the company verify the data or information provided by candidates? [Yes/No; if Yes: how?]	Selection
16	Are candidates required to undergo medical examinations? [Yes/No]	Selection
17	Does the candidate's prospective immediate supervisor make the final hiring decision? [Yes/No; if No: who makes the decision?]	Selection
18	Is the job description taken into account when selecting a candidate? [Yes/No]	Selection
	Hiring. Assess the elements the company uses to formalize the employment relationship and compile the employee's personnel file.	
19	Does the company have a procedure for hiring employees, compiling their personnel files, and registering them with the relevant institutions? [Yes/No; if Yes: what is the procedure?]	Hiring
20	Does the company provide an employment contract? [Yes/No; if No: how is the employment relationship formalized?]	Hiring
21	If an employment contract is used, please indicate the type of employment relationship under which the new employee is hired. [Open-ended]	Hiring
	Induction. Assess the programs and documents the company uses to integrate new employees into the organization.	
22	Does the company have a formal induction program for new employees? [Yes/No; if Yes: what does the program involve?]	Induction
23	Who is responsible for conducting the induction process for new employees? [Open-ended]	Induction
24	Does the company have an induction handbook? [Yes/No; if Yes, the handbook is requested]	Induction
25	If the company has an induction handbook, is it up to date? [Yes/No]	Induction
	Training. Assess the company's training and development programs.	
26	Do employees receive the training necessary to perform their duties efficiently? [Yes/No]	Training and retention
27	When assigning personnel to positions, does the company consider their skills, experience, and educational background? [Yes/No]	—
28	Does the company have ongoing training or professional development plans? [Yes/No]	Training and retention
29	Does the company periodically evaluate employee performance to identify needs for adjustment or further development? [Yes/No]	Training and retention
30	Does the company have mechanisms in place to retain key talent? [Yes/No]	Training and retention
31	Do employees clearly understand their responsibilities and lines of authority? [Yes/No]	—
No.	Item [response format]	Subprocess (Table 1)
	Material resources. Assess whether the company's material resources are adequate for its operations and available when needed.	
32	Does the company have the material resources necessary to carry out its activities? [Yes/No; if No: why?]	—
33	Are the equipment and tools in suitable working condition? [Yes/No; if No: why?]	—

34	Does the company maintain an up-to-date inventory of its material resources? [Yes/No]	Inventory
35	Does the allocation of material resources reflect the actual needs of each department or area? [Yes/No]	—
36	Is preventive maintenance performed on equipment and facilities? [Yes/No]	Maintenance
37	Are material resources sufficient to meet the workload? [Yes/No]	—
38	Are there formal procedures for purchasing material goods? [Yes/No; if Yes: what is the procedure?; if No: how are purchases made?]	Procurement
39	Does the company monitor the efficient and responsible use of material resources? [Yes/No]	Use and replacement
40	Are the physical facilities suitable for carrying out the company's activities? [Yes/No]	—
41	Does the company plan for the replacement or renewal of obsolete material resources? [Yes/No]	Use and replacement
	Financial resources. Assess whether the company's financial resources are available and properly allocated.	
42	Does the company have a formally established budget? [Yes/No]	Budgeting
43	Are the company's financial resources sufficient to meet its operating needs? [Yes/No]	—
44	Does the company engage in adequate financial planning? [Yes/No]	Planning and allocation
45	Are financial resources allocated according to organizational priorities? [Yes/No; if No: how are they allocated?]	Planning and allocation
46	Does the company have controls in place for budget utilization and monitoring? [Yes/No]	Control
47	Does each department or area of the company know the financial limits governing its operations? [Yes/No]	Control
48	Does the company set aside resources for contingencies? [Yes/No]	Contingencies
49	Does the company periodically assess its financial position to adjust its decisions? [Yes/No]	Information
50	Are financial resources used efficiently? [Yes/No]	—
51	Does the company have timely financial information to support decision-making? [Yes/No]	Information
No.	Item [response format]	Subprocess (Table 1)
	Technological and information resources. Assess the availability and suitability of the company's technological resources and information systems.	
52	Does the company have information systems that support its processes? [Yes/No]	Systems
53	Is the technology currently used appropriate for the company's needs? [Yes/No]	Suitability
54	Are employees trained to use the available technological systems? [Yes/No]	Training (technological resources)
55	Do information systems facilitate internal communication? [Yes/No]	Systems

56	Does the company have sufficient technological tools to support decision-making? [Yes/No]	Systems
57	Is technical support available for maintaining systems and equipment? [Yes/No]	Support
58	Is the information generated by the systems reliable and timely? [Yes/No]	Systems
59	Does the company periodically update its technological infrastructure? [Yes/No]	Suitability
60	Are administrative processes supported by information technology? [Yes/No]	Systems
61	Does technology contribute to improving organizational efficiency and productivity? [Yes/No]	—
	Resource integration. Assess how all types of company resources are coordinated.	
62	Is there consistency among the human, material, financial, and technological resources available to the company? [Yes/No; if No: why?]	—
63	Do the managers responsible for each area or department participate in defining resource requirements? [Yes/No]	—
64	Does resource integration align with the company's established strategic objectives? [Yes/No]	—
65	Are resource shortages identified in a timely manner? [Yes/No]	—
66	Does the company adjust resource integration in response to changes in its environment? [Yes/No]	—
67	Are resources allocated equitably across the company's areas or departments? [Yes/No]	—
68	Is there coordination among the company's areas or departments to facilitate the shared use of resources? [Yes/No]	—
69	Does resource integration contribute to achieving organizational goals? [Yes/No]	—
70	Does the company evaluate the effectiveness of resource integration? [Yes/No]	—

Note. This appendix reproduces the integration section of the questionnaire (items 1–70), administered in a single version across all four data collection periods, retaining the original blocks and numbering; only the response lines have been omitted. The response format for each item appears in square brackets. When a response triggers an open-ended follow-up question, the latter is summarized after the semicolon. The "Subprocess" column indicates how each item corresponds to the standard presented in Table 1; the dash identifies the 20 items that address resource sufficiency or adequacy, or the joint integration of resources, and were not used to assess formalization.