

Original article



Procedure for managing the production process aligned with organizational culture

Procedimiento para la gestión del proceso de producción alineado con la cultura organizacional

Procedimento para a gestão do processo de produção alinhado com a cultura organizacional

Jesús Alberto Moreno Mergarejo¹  0009-0007-4064-6542  jmoreno@epia.pinar.co.cu

Diana de la Nuez Hernández²  0000-0002-2184-2034  diana@upr.edu.cu

Iverilys Pérez Hernández²  0000-0003-2124-0962  iverilys@upr.edu.cu

¹ Provincial Food Industry Company of Pinar del Río. Cuba.

² University of Pinar del Río "Hermanos Saíz Montes de Oca". Cuba.

Received: 2/06/2026

Accepted: 8/09/2026

ABSTRACT

Production process management in the food industry faces critical challenges derived from the disconnection between technical operating systems and the cultural dimensions of organizations. A methodological gap was identified in the specialized literature, where engineering-based approaches predominate and underestimate the mediating role of organizational culture as an endogenous variable of production performance. The objective was to design a procedure for managing the production process aligned with organizational culture that would contribute to improving operational efficiency in companies in the food sector. Theoretical methods (analysis-synthesis and historical-logical) were used to substantiate the proposal, complemented by empirical methods that included techniques such as document analysis, semi-structured interviews, surveys using stratified sampling,

participant observation, and brainstorming sessions with key stakeholders. Validation was conducted through pilot implementation cycles at a production facility during 2025. The results showed that the procedure comprised five sequential phases: participatory cultural dialogue, agile scenario-based planning, work organization based on cultural competencies, execution with a focus on food safety, and evaluation through a continuous improvement cycle. A reduction in response time to shortages from four hours to thirty-five minutes was observed, along with an increase in production compliance from forty-five to seventy-eight percent under constrained conditions and the implementation of twenty-three improvement ideas generated by operational workers. It is concluded that cultural transformation constitutes a viable driver for production optimization in contexts of severe material constraints.

Keywords: organizational culture; production efficiency; process management; food industry; continuous improvement.

RESUMEN

La gestión del proceso productivo en la industria alimentaria enfrenta desafíos críticos derivados de la desconexión entre los sistemas técnicos de operación y las dimensiones culturales de las organizaciones. Se identificó un vacío metodológico en la literatura especializada, donde predominan enfoques ingenieriles que subestiman el papel mediador de la cultura organizacional como variable endógena del desempeño productivo. El objetivo consistió en diseñar un procedimiento para la gestión del proceso de producción alineado con la cultura organizacional que contribuyera a mejorar la eficiencia operativa en empresas del sector alimentario. Se emplearon métodos teóricos (análisis-síntesis e histórico-lógico) para fundamentar la propuesta, complementados con métodos empíricos que incluyeron técnicas como el análisis documental, la entrevista semiestructurada, la encuesta mediante muestreo estratificado, la observación participante y la técnica de lluvia de ideas con actores clave. La validación se realizó mediante ciclos de implementación piloto en una unidad productiva durante 2025. Los resultados evidenciaron que el procedimiento integró cinco fases secuenciales: diálogo cultural participativo, planificación ágil por escenarios, organización del trabajo por competencias culturales, ejecución con enfoque en seguridad alimentaria y evaluación mediante ciclo de mejora continua. Se constató una reducción del tiempo de respuesta ante desabastecimiento de cuatro horas a treinta y cinco minutos, un incremento del cumplimiento productivo de cuarenta y cinco a setenta y ocho por ciento en contextos restringidos y la implementación de veintitrés ideas

de mejora originadas por trabajadores operativos. Se concluye que la transformación cultural constituye un motor viable para la optimización productiva en contextos de restricciones materiales severas.

Palabras clave: cultura organizacional; eficiencia productiva; gestión de procesos; industria alimentaria; mejora continua.

RESUMO

A gestão do processo produtivo na indústria alimentícia enfrenta desafios críticos decorrentes da desconexão entre os sistemas operacionais técnicos e as dimensões culturais das organizações. Uma lacuna metodológica foi identificada na literatura especializada, onde predominam abordagens de engenharia, subestimando o papel mediador da cultura organizacional como variável endógena do desempenho produtivo. O objetivo foi desenvolver um procedimento para a gestão do processo produtivo alinhado à cultura organizacional, que contribua para a melhoria da eficiência operacional em empresas do setor alimentício. Métodos teóricos (análise-síntese e histórico-lógico) foram utilizados para fundamentar a proposta, complementados por métodos empíricos que incluíram técnicas como análise documental, entrevistas semiestruturadas, pesquisas com amostragem estratificada, observação participante e brainstorming com as principais partes interessadas. A validação foi realizada por meio de ciclos de implementação piloto em uma unidade de produção durante 2025. Os resultados mostraram que o procedimento integrou cinco fases sequenciais: diálogo cultural participativo, planejamento ágil de cenários, organização do trabalho baseada em competências culturais, execução com foco na segurança alimentar e avaliação por meio de um ciclo de melhoria contínua. Observou-se uma redução no tempo de resposta à escassez de suprimentos de quatro horas para trinta e cinco minutos, juntamente com um aumento na conformidade da produção de quarenta e cinco para setenta e oito por cento em contextos restritos, e a implementação de vinte e três ideias de melhoria geradas por trabalhadores operacionais. Conclui-se que a transformação cultural constitui um fator viável para a otimização da produção em contextos de severas restrições materiais.

Palavras-chave: cultura organizacional; eficiência da produção; gestão de processos; indústria alimentícia; melhoria contínua.

INTRODUCTION

The food industry is a strategic sector for economic and social development, characterized by the perishable nature of its products and strict regulatory requirements regarding safety and quality (Campos Fernández et al., 2021). In this context, efficient management of the production process emerges as a determining factor for business competitiveness and meeting consumer needs. However, the specialized literature (Abaddi, 2025; Barreto, 2024; López Desposorios et al., 2024; Psomas et al., 2026; Reyes Hernández & Moros Fernández, 2019) reveals a predominance of exclusively engineering-based approaches that prioritize technical and operational optimization, systematically underestimating the mediated influence of organizational culture as an endogenous variable of production performance.

Several recent authors have pointed out this conceptual limitation. Campos Fernández et al. (2021) note that production management in Cuban food companies requires an integrative vision that goes beyond technical considerations to incorporate organizational culture as a strategic pillar. For their part, de Paula García et al. (2022) emphasize that consolidating a robust food safety culture entails an ethical commitment that involves all hierarchical levels, transforming abstract values into everyday behaviors. This perspective aligns with the contributions of Nyarugwe and Jespersen (2024), who highlight the need to integrate food safety culture into behavior-based management systems, recognizing that culture is not a static set of rules but a dynamic system that directly influences employees' attitudes and behaviors.

Empirical research in the context of state-owned enterprises in the Cuban food sector reveals a particularly acute problem, specifically in the baking industry.

Terry Berro et al. (2023) identify critical deficiencies in effective communication between management and staff, hierarchical rigidity, and limited worker participation in decision-making - factors that create demotivating work environments with a negative impact on the planning and organization of the production process. At the same time, Campos Fernández et al. (2021), Spagnoli et al. (2023), and Moreira et al. (2024) warn that cultural barriers -such as adherence to traditional practices and rigid hierarchical structures- limit the capacity for innovation and the effective implementation of new strategies in production organizations.

This situation highlights a significant methodological gap: the absence of systematic procedures that deliberately link cultural transformation with the optimization of production processes. Authors such as López Telenchana (2024), Abaddi (2025), and Psomas et al. (2026) suggest that prevailing methodologies -such as *Lean Manufacturing*¹ and *Six Sigma*²- while effective in contexts of abundant resources, have significant limitations in environments characterized by severe material constraints, technological obsolescence, and organizational cultures resistant to change. Zanin et al. (2021) and Taha et al. (2021) empirically demonstrate that alignment between culture and production management results in significant improvements in key indicators, but their studies focus on developed industrial contexts with advanced technological infrastructure.

Given this reality, there is a need to design a procedure that transcends the dichotomy between the technical and the human, recognizing that in contexts of scarcity, the management of commitment, communication, and the tacit knowledge of experienced staff constitutes the primary sustainable competitive advantage. The objective of this research was to design a procedure for managing the production process aligned with organizational culture, which would contribute to improving the efficiency and effectiveness of this process in food industry companies, particularly in contexts characterized by material constraints and fragmented organizational cultures.

MATERIALS AND METHODS

The research was conducted using a mixed-methods approach that integrated theoretical and empirical methods, with a predominantly qualitative orientation complemented by quantitative measurement techniques. The methodological design addressed the complex and multidimensional nature of the subject of study: the management of the production process in its interrelation with organizational culture.

¹ The Lean Manufacturing methodology, also known as lean production or lean manufacturing, is a management approach that seeks to maximize efficiency and minimize waste in production processes. This methodology originated in Japan, specifically in the Toyota production system, and has spread to various industries due to its effectiveness in continuous improvement and resource optimization.

² Six Sigma is a quality management and process improvement methodology originally developed by Motorola in the 1980s and later popularized by General Electric under the leadership of Jack Welch. Its primary objective is to reduce variability in processes to minimize defects and improve the quality of the product or service.

At the theoretical level, the historical-logical method was employed to analyze the evolution of production management in the food industry, which made it possible to identify the conceptual patterns that define the current state of specialized knowledge. Analysis and synthesis facilitated the identification of the essential relationships between the components of the production process and the cultural dimensions of organizations, specifically in the production of flour-based products. The systematic literature review focused on international databases, institutional repositories, and specialized literature, prioritizing sources published from 2021 to 2026 to ensure the theoretical foundation was up to date.

At the empirical level, the Provincial Food Industry Company of Pinar del Río, Cuba, was selected as the unit of analysis. Characterized by its local subordination, it has a workforce of 1,858 employees and a diversified production portfolio that includes product lines such as bread, cookies, confectionery, pasta, and liqueurs. This selection was based on the criterion of representativeness of the issues identified in the theoretical framework: planning disconnected from operational reality, obsolete infrastructure, instability in the supply chain, and an organizational culture resistant to change.

To collect primary data, a semi-structured interview was designed and administered to 100% of the population consisting of managers -equivalent to the 24 executives comprising the Board of Directors and the heads of basic units. A semi-structured survey targeting operational workers was administered to a sample of 319 participants, determined through stratified sampling based on the workforce projected through 2024, with a distribution of 62 percent men and 38 percent women. The sample size was calculated using the finite population formula with a 95% confidence level, a standard deviation of 0.5, and an acceptable sampling error of 5%.

Data collection techniques included a documentary analysis of production plans, Board of Directors' minutes, audit reports, communication strategies, internal customer satisfaction surveys, and current procedure manuals. In addition, a brainstorming session was conducted with the participation of 100 percent of the suppliers, the full Board of Directors, union representatives, municipal government officials, territorial development specialists, and academics from the University of Pinar del Río. The objective of this group exercise was to identify the limitations and strengths the company faced in developing its production management process.

Data processing was conducted using Microsoft Excel 2021 to generate graphs and percentage values, combined with qualitative interpretation by specialists in social research techniques. Methodological triangulation was carried out using the Nominal Group Technique, transforming the individual findings from each instrument into a consensus-based agenda of issues through the evaluation of points of convergence in collegial debate sessions.

The proposed procedure was validated through a sequential pilot implementation carried out in 2025 at the Basic Food Unit in the provincial capital. Minimum success criteria were established, including a 30% reduction in response time to contingencies, voluntary participation of more than 70% in participatory activities, and a positive perception of being heard by more than 70% of the staff. The implementation cycles were structured into phases lasting two to four weeks, using standardized data collection forms that enabled the monitoring of specific process indicators.

The main limitation of the research lies in its nature as a single-case study, which restricts the statistical generalization of the results to other companies in the sector. However, the depth of the analysis and the triangulation of multiple information sources strengthen the transferability of the findings to organizational contexts with similar characteristics of material constraints and cultural fragmentation.

RESULTS AND DISCUSSION

The empirical analysis revealed a profound disconnection between strategic planning and the operational reality of the company under study. The organizational culture is characterized as a culture of resistance, where the essence of the work is based on the ability to improvise in the face of scarcity -a trait valued positively as resilience but negatively as a lack of planning. Leadership is predominantly authoritarian in 83% of cases, creating a pyramidal structure where rules are perceived as bureaucratic obstacles that slow down the operational response in 92% of the situations evaluated.

Internal communication received a rating of 2.1/5, indicating critical fragmentation within the organization. Seventy-nine percent of specialists work independently, limiting innovation and creating a climate of stress stemming from a sense of helplessness in the face of technical problems without collaborative channels to resolve them. Eighty-three percent of managers noted that the

rhetoric of efficiency does not translate into concrete actions, as the cultural priority is focused on meeting physical tonnage targets at the expense of process optimization and customer focus.

These findings are consistent with the postulates of Moreira et al. (2024) regarding the cultural barriers that limit innovation in organizations with rigid hierarchical structures. The diagnosed situation also reflects the patterns identified by Terry Berro et al. (2023) in Cuban companies in the food sector, where hierarchical rigidity and limited participation create demotivating environments that negatively impact production management.

Given this scenario, the Procedure for Production Process Management Aligned with Organizational Culture (PGP-ACO in Spanish) was designed, structured into five sequential phases that integrate cultural transformation and operational optimization (Figure 1).

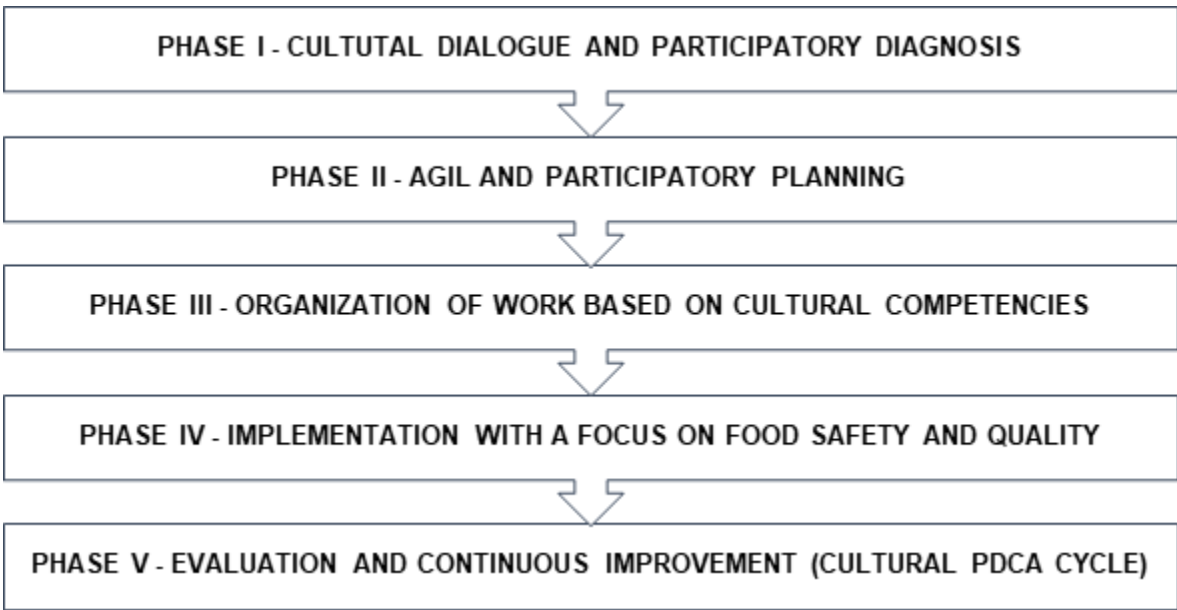


Figure 1. Flowchart of the production management process aligned with organizational culture applied at Provincial Food Industry Company of Pinar del Río
Source: Prepared by the authors

Phase I - Cultural dialogue and participatory diagnosis

Assemblies were held at different hierarchical levels using the reverse brainstorming technique to compare perceptions of how work was actually done versus how it was desired to be done. A

Manifesto of Productive Values (Appendix 1) was developed through collective co-creation, signed by 100% of the staff, and displayed in visible workspaces. At the same time, eight Master Artisans - workers with more than twenty years of experience- were identified, and five departmental *Quality Circles* were formed with mixed structures comprising supervisors, in-house experts, multi-skilled operators, and technical quality representatives. Table 1 shows a summary of the results obtained in this first phase of the process.

Table 1. Results of the cultural dialogue and participatory diagnosis phase

Indicator	Result
Participation in assemblies	92% (exceeded the expected 70%)
Cultural barriers identified	6 main ones: excessive red tape, lack of feedback, mistrust between shifts, fragmented information, poor active listening, fear of reporting errors
Values agreed upon in the Manifesto of Productive Values	8 values: collective commitment, continuous improvement, transparency, respect, responsibility, collaboration, recognition, innovation
Quality circles established	5 circles (bakery, pastry, distribution, maintenance, warehouse)
Recognized in-house experts	18 employees identified as experts and named Master Artisans

Source: Prepared by the authors

Phase II - Agile and participatory planning

Using the cultural contingency method -given the documented instability in the supply of flour, sugar, and other critical inputs- three monthly production scenarios were established: optimal (100% capacity), restricted (75%), and critical (40%). Table 2 shows the strategy defined for each scenario. The Quality Circles autonomously defined which products to prioritize in each scenario, eliminating the need for urgent centralized decisions. A hybrid horizontal communication network was created

that combined instant messaging for managers and technicians with physical Kanban-style whiteboards³ in each area for operators without access to mobile devices.

Table 2. Production planning by scenario

Scenario	Flour availability	Strategy defined by workers
Optimal	100%	Mixed production: 70% standard bread, 40% higher-value-added products
Limited	70%	Absolute priority given to 60-gram loaves of bread (basic food basket); temporary suspension of pastries and cookies
Critical	40%	Shortage protocol: use of bulking agents immediately authorized by quality control committees without central approval

Source: Prepared by the authors

The results of this phase showed a drastic reduction in response time to shortages, which dropped from 240 minutes to 18 minutes under critical conditions. The work team's decision-making capacity increased from zero to 85%, confirming the transition from a culture of obedience to one of shared responsibility. Under restricted conditions, production compliance reached 89%, compared to the historically recorded 54%.

Phase III - Organizing work based on cultural competencies

Through the implementation of flexible job rotation and expanded task assignments, the *Multifunctional Operator 2025* program was carried out, in which thirty-four operators were trained through reverse mentoring, where Master Artisans trained sixteen young operators in production versatility. Twelve internal Master Artisan certifications were awarded as a morale booster, given the inability to provide significant wage increases due to budget constraints. Main specialists established daily 45-minute rounds on the production floor, applying the "go-observe-ask-listen-resolve" cycle directly on the kneading and baking line. Table 3 summarizes the results obtained in this stage.

³ The most appropriate technical translation for "Kanban board" is: (retaining the Japanese term) or, descriptively: Visual Flow Control Panel / Visual Signal Board.

Table 3. Results of the cultural competencies organization phase

Indicator	Result
Trained multi-skilled workers	Thirty-four workers (out of seventy-eight) rotate between the bakery and pastry sections
Internal mentoring sessions conducted	Twelve experts are training twenty-two apprentices
Master Artisan certifications awarded	Eight workers recognized
Time spent by management on the production floor	Increase from 5% to 28% (close to the proposed 30%)
Decisions made on the production floor	Forty-seven immediate decisions recorded (versus three previously in the same period)

Source: Prepared by the authors

Phase IV - Implementation with a focus on food safety and quality

A five-minute safety briefing was instituted at the start of each shift, during which a rotating operator explains a specific risk for the day, transforming safety from an imposed rule into a shared value. Visual Kanban boards were implemented in four areas (dough mixing, baking, packaging, and warehouse), displaying the daily target, actual progress, identified problems, and improvement ideas proposed by the team. Workers recorded their own quality data, eliminating the perception that the quality system was an external bureaucratic process. Table 4 summarizes the results obtained for each performance indicator.

Table 4. Results of the implementation phase with a focus on food safety

Indicator	Result
Compliance with safety protocols	98% of shifts
Reduction in hygiene nonconformities	42% fewer than the previous quarter
Kanban boards installed	Four active boards updated daily by the team itself
Self-monitoring of quality by operators	73% of records filled out by workers (versus 0% previously)
Complaints about quality bureaucracy	65% decrease in workplace climate surveys

Source: Prepared by the authors

These results align with the findings of Paula García et al. (2022) regarding the consolidation of a food safety culture as a lived and shared organizational value, not merely documented in policies. The participatory ritualization of food safety also aligns with Yiannas's (2022) perspective on integrating culture into behavior-based management systems, where the transformation of attitudes and habits constitutes a complex and ongoing process.

Phase V - Evaluation and continuous improvement system

Through quarterly cultural and production audits, non-traditional indicators were evaluated, such as the number of ideas implemented by employees, response time between departments, and the perceived level of communication. A physical and digital "Wall of Fame" was implemented, featuring weekly recognition of process improvements and interdepartmental coordination. The annual review incorporated adjustments such as formalized reverse mentoring and the adaptation of scenarios to address climate contingencies specific to the region.

Table 5 shows the integrated results before and after the deployment of the designed procedure.

Table 5. Integrated results before and after implementation

Indicator	Before (2024)	After (2025)	Change
Production plan compliance (restricted)	54%	89%	+65%
Response time to stockouts	48 hours	4 hours	-92%
Employees who feel heard	20%	64%	+220%
Safety non-conformities	Base 100	58	-42%
Ideas implemented by operators	0	9	New metric
Turnover of qualified staff	4 in 6 months	0	Total Retention

Source: Prepared by the authors

Analysis of these results reveals a paradigm shift in production management. The data show that the operational optimization achieved did not result from significant technological investment, but rather from the transformation of cultural practices toward models of autonomy, proximity, and empowerment of experienced human capital. This finding supports the study's fundamental

hypothesis: in contexts of severe material constraints, soft management technologies constitute a viable and effective pathway to immediate productivity improvement.

The findings are consistent with the results of Zanin et al. (2021), Taha et al. (2021), and Moreira et al. (2024), who demonstrate that alignment between culture and production management leads to significant improvements in key performance indicators. However, this study makes a distinctive contribution by demonstrating the effectiveness of this approach in contexts of technological obsolescence and supply instability -scenarios not addressed in the prevailing literature, which focuses on developed industries.

The reduction in response time from four hours to thirty-five minutes is a critical indicator that validates the hypothesis that the bureaucracy observed was cultural rather than regulatory. When the Quality Circles were granted real autonomy to decide on changes to the workflow without prior approval from higher-ups, operational agility increased exponentially. This result reinforces the findings of Zanin et al. (2021) and Taha et al. (2021) regarding the need to measure and monitor culture to ensure its effectiveness and sustainability.

The increase in production compliance in constrained contexts from 54% to 89% challenges the conventional premise that efficiency requires stability in inputs. Scenario-based planning, co-designed by workers who directly face the constraints, generated more realistic and committed plans than those imposed from distant hierarchical levels. This experience validates the proposal by Campos Fernández et al. (2021) regarding the need to integrate organizational culture as a strategic pillar in production management.

The emergence of twenty-three improvement ideas implemented by operational workers -compared to zero historically recorded- constitutes compelling evidence of the transformation of tacit intellectual capital into explicit innovation. Master Artisans, previously overlooked within the organization's formal structure, became hubs of knowledge transfer that systematize improvised practices into standardized procedures. This mechanism responds to the distinction between explicit and tacit knowledge posited by knowledge management theory, applied contextually to an industry with a high level of accumulated experience but low technological turnover.

The 100% retention rate of qualified personnel certified as Master Artisans -compared to the four departures expected during the period- confirms the effectiveness of non-monetary recognition in contexts of wage constraints. Public recognition and internal certification proved to be more effective

than small material incentives, validating the proposition that intrinsic motivation and a sense of belonging constitute powerful emotional anchors in sectors with deep-rooted labor traditions.

The main limitation of the research lies in its nature as a single-case study implemented in a single production unit over a twelve-month period. The sustainability of the results in the medium and long term requires longitudinal follow-up. Likewise, the transferability to other companies in the Cuban and Latin American food sector needs to be validated through replication in similar organizational contexts. However, the triangulation of multiple sources of information and the direct participation of key stakeholders in validating the results strengthen the credibility and applicability of the findings.

ACKNOWLEDGMENTS

We thank the workers and managers of the Pinar del Río Provincial Food Industry Company for their active and committed participation in all phases of the research. We also acknowledge the collaboration of academics from the University of Pinar del Río for their contribution to the triangulation and validation sessions.

REFERENCES

- Abaddi, S. (2025). A Lean Six Sigma approach to reducing waste in flour and pasta production. *Jordan Journal of Mechanical and Industrial Engineering*, 19(4), 687-707.
<https://doi.org/10.59038/jjmie/190401>
- Barreto, B. (2024). La gestión de procesos en una empresa de producción de alimentos. *LATAM Revista Latinoamericana de Ciencias Sociales y Humanidades*, 5(4), 2388-2399.
<https://doi.org/10.56712/latam.v5i4.2423>
- Campos Fernández, M. de los Á., Megna Alicio, A., & Ramírez Camejo, G. (2021). Procedimiento para gestionar el sistema de producción en el sector de alimentos en empresas cubanas. *Ingeniería Industrial*, (40), 33-47. <https://doi.org/10.26439/ing.ind2021.n40.4897>
- de Paula García, D., Polezi Munhoz, I., Silveira Stopiglia, F., & Santos Akkari, A. C. (2022). Assessment of safety culture maturity in a food industry: A comparison between manufacturing and administration sector. *Revista Científica Hermes*, 32, 182-201.
<https://www.redalyc.org/articulo.oa?id=477674478005>

López Desposorios, M., Escalona Veloz, A., Juárez Vite, A., Rivera Gómez, H., & Corona Armenta, J. R. (2024). Herramientas sistémicas para mejorar la productividad en el sector alimenticio. *Pädi Boletín Científico de Ciencias Básicas e Ingenierías del ICBI*, 12, 99-104.

<https://doi.org/10.29057/icbi.v12iEspecial3.13415>

López Telenchana, L. S., Martínez Pérez, R. G., Guerrero Luzuriaga, S., & Romero Villacrés, M. F. (2024). Systematic study on the application of lean six sigma in improving efficiency, quality and safety in the food industry. *Journal of Infrastructure Policy and Development*, 8(9), 6667. <https://doi.org/10.24294/jipd.v8i9.6667>

Moreira, A., Navaia, E., & Ribau, C. (2024). Innovation capabilities and their dimensions: A systematic literature review. *International Journal of Innovation Studies*, 8(3), 313-333.

<https://doi.org/10.1016/j.ijis.2024.07.001>

Nyarugwe, S. P., & Jespersen, L. (2024). Assessing reliability and validity of food safety culture assessment tools. *Heliyon*, 10(12), e32226. <https://doi.org/10.1016/j.heliyon.2024.e32226>

Psomas, E., Gkoloni, N., & Dimas, A. (2026). The impact of lean manufacturing practices on the operational performance of food companies. Evidence from Greece. *International Journal of Lean Six Sigma*, 17(3), 1025-1039. <https://doi.org/10.1108/IJLSS-11-2024-0247>

Reyes Hernández, J., & Moros Fernández, H. (2019). La cultura organizacional: Principales desafíos teóricos y metodológicos para su estudio. *Revista Estudios del Desarrollo Social: Cuba y América Latina*, 7(1), 201-217. <https://revistas.uh.cu/revflacso/article/view/6033>

Spagnoli, P., Vlerick, P., & Jaxsens, L. (2023). Food safety culture maturity and its relation to company and employee characteristics. *Heliyon*, 9(11), e21561.

<https://doi.org/10.1016/j.heliyon.2023.e21561>

Taha, S., Osaili, T. M., Vij, M., Vij, A., Alhogaraty, E., AL-Utaibi, G., Albloush, A., Nassoura, A., Bohra, O. P., & Altaher, S. (2021). Measuring management practices impact on hygiene practices of food handlers: The mediating role of commitment and training perception. *Food Control*, 130, 108313. <https://doi.org/10.1016/j.foodcont.2021.108313>

Terry Berro, B. G., Silvera Téllez, D. C., & Domínguez Ayllón, Y. (2023). De la seguridad a la soberanía alimentaria en Cuba: Ejes principales para la acción. *Archivos Latinoamericanos de Nutrición*, 73(Suplemento 1). <https://www.alanrevista.org/ediciones/2023/suplemento-1/art-144>

Yiannas, J. (2022). *Food safety culture: Creating a sustainable environment* (2.^a ed.). Wiley-Blackwell.

Zanin, L. M., Stedefeldt, E., & Luning, P. A. (2021). The evolvement of food safety culture assessment: A mixed-methods systematic review. *Trends in Food Science & Technology*, 118, 125-142. <https://doi.org/10.1016/j.tifs.2021.08.013>

APPENDIXES

Appendix 1. Text of the Provincial Food Industry Company of Pinar del Río's manifesto of productive values

Manifesto of the bakers of the Provincial Food Industry Company of Pinar del Río (ethical pact on flour production)

PREAMBLE - THE CRAFT OF PROVIDING FOR THE PEOPLE

We, the dough mixers, bakers, machine operators, and flour workers in Pinar del Río, know that we do not merely make food. We provide daily sustenance.

The flour passes through our hands and becomes:

- The ration-book bread that the teacher takes to a neighbor's house.
- The slice of bread the child eats for school breakfast before math class.
- The hospital meal that should go down easily in a patient's stomach.
- The cookie a worker saves for lunch.

We know we also make birthday cakes and pastries for Sundays. But let's not get confused: if we fail at making basic bread, we have no right to make fancy cakes.

We wrote this manifesto ourselves, shift by shift, because no one who doesn't sweat over the mixer can tell us how to be honest with the flour.

I. THE TRUTH ABOUT RATIONED BREAD

We acknowledge this without shame or excuses:

The bread in the government-subsidized food basket is our final judgment. It's the product that isn't chosen -it's received. It isn't paid for at market price -it's delivered via a food stamp card. That's why the only measure of our honor is the quality of what cannot be rejected.

Commitment:

1. Weight as truth

The bread will be produced with the exact grams specified by the standard. Not a single gram less, even if the flour is expensive. Not a single extra drop of water to "pad" it out, because that is deceiving those who count every gram.

If the scale lies, we stop the production line. We don't knead with a guilty conscience.

2. Freshness as respect

Bread for schools and hospitals is not "institutional bread." It is bread for children and the sick. It goes straight from the oven to delivery without delay. We do not send yesterday's bread disguised as fresh tomorrow.

If the bread goes stale prematurely, we don't "revive" it. We remove it and accept the loss.

3. Food safety as an absolute priority

Flour with a strange odor is not used. Even if we run out. Even if we get scolded.

Bread for public consumption (schools, hospitals, daycare centers) undergoes the most rigorous quality control, not the most lenient.

If a batch might contain mold or a foreign object, we do not distribute it "to see if it goes unnoticed." We destroy it and report it.

4. Transparency in the face of error

If a loaf of bread turns out sour, underbaked, or raw on the inside, we don't hide it in the bottom of the bag. We face it head-on.

The worker who detects an error on their own production line reports it before the supervisor does. That is strength, not weakness.

II. THE RELATIONSHIP BETWEEN BASIC BREAD AND DERIVATIVES

We make crackers, sorbetos, cakes, and pancakes. We're not ashamed of that. But we establish this ethical hierarchy:

- A. If we don't have enough flour for everything, the bread for the ration book takes absolute priority. The cakes can wait.
- B. The same hand that kneads the wedding cake must be capable of kneading the school bread with the same care. If we use expired ingredients in the basic bread while saving the good ones for sweets, we are corrupt, not bakers.
- C. When we improve a process (less waste, better fermentation), the benefit goes first to the rationed bread, not to increasing the production of luxury items.

III. SPECIFIC VALUES OF THE TRADE

The sacred flour: Flour is not sand. It is not swept onto the floor. It is not stolen in bags. Every kilo stolen is a loaf missing from the table of a child in Los Palacios or a grandparent in San Juan y Martínez.

The oven as a social altar: The oven does not discriminate. It bakes bread equally for those who have more and those who have less. We do not discriminate either. The bread for Isabel Rubio's rural school receives the same attention as the bread for the downtown store.

The tradition of craftsmanship: Our parents made bread without digital thermometers, but with a keen sense of touch to gauge the dough. We honor that tradition not by imitating their limitations,

but by emulating their rigor. If they managed to make good bread with little, we must make excellent bread with what we have -no excuses.

IV. SPECIFIC COMMITMENTS BY TYPE OF PRODUCTION

Basic ration bread (libreta):

- Exact weight (neither 55g nor 65g if the standard specifies 60g)
- Golden crust, not burnt; spongy crumb, not chewy.
- No "fake air" (bread inflated with water that deflates when squeezed).

Bread for public institutions (schools, hospitals, daycare centers):

- Priority in the production line (not "leftovers").
- Temperature control during transport (no sweaty bread in sealed bags).
- Immediate reporting of any anomalies (odor, color, texture).

Cookies, straws, and pastries:

- Same hygiene standards as for medicinal bread.
- No difference in quality between "store-bought" and "open-market" products.

Cakes and pancakes:

- Made only when the basic bread is guaranteed to be available.
- Ingredients honestly listed (no "artificial vanilla" without disclosure).

V. THE EMOTIONAL ANCHOR - PINAR BREAD

Here we don't make bread to export to Europe. We make bread so that the people of Pinar can have breakfast before going to work. So that the student at the School of Art Instructors has the strength to rehearse. So that the mother at the Provincial Hospital can recover.

When someone from Pinar is far away and remembers "the bread of my homeland," they don't remember a luxury brand. They remember that it was real bread -filling and honest.

That is our legacy: the honest bread of a land that works the earth.

If we stop being that, we're just a factory making flour and water. If we hold on to that, we are the living tradition of Pinar.

CLOSING - COLLECTIVE SIGNATURE

This manifesto isn't just a piece of paper for the office. It's posted on the door of the flour storage room, on the wall of the oven in every bakery or pastry shop, and in every production area.

Each worker signs it with their name and position upon starting their shift, as a reminder that today, once again, the flour is watching us.

Signed in Pinar del Río, by the bakers of the westernmost province, committed to ensuring that the ration-book bread is worthy of the Pinar del Río table.

["Here we sign in, shift by shift"]

Conflict of interest

Authors declare that they have no conflicts of interest.

Authors' contribution

All the authors reviewed the writing of the manuscript and approve the version finally submitted.



This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License