Machine Translated by Google
RCMOS – Multidisciplinary Scientific Journal The Knowledge.
ISSN: 2675-9128. São Paulo-SP.

Year VII, v.2 2026 | Submission: 09/28/2026 | Accepted: 09/01/2026 | Publication: 09/04/2026

Integrated facilities governance in small and medium-sized industries: work environment, maintenance, and safety as a performance system.

Integrated Facilities Governance in Small and Medium Industries: Work Environment, Maintenance and Safety as a Performance System

Integrated governance of installations in small and medium-sized manufacturing companies: place of work, maintenance and security as a performance system

Taís Fernanda Cavalin Hasimoto

Administrator, specialist in organizational management, facilities, and international business.

SUMMARY

Facilities connects infrastructure, services, people, and organizational objectives. In small and medium-sized industries, decisions regarding maintenance, layout, cleaning, utilities, safety, ergonomics, and the internal environment often remain scattered, hindering prioritization and learning. This article presents a narrative review of Facilities Management and proposes an integrated architecture based on criticality, lifecycle, user experience, occupational health, and operational evidence. The Integrated Facilities Governance Model organizes context, assets and services, risks, service levels, execution, and improvement. This is a didactic synthesis, not a validated protocol or a substitute for legal and technical requirements. It concludes that Facilities can contribute to continuity, well-being, and productivity when it moves beyond a purely reactive approach and begins to utilize explicit responsibilities, data, and decision criteria.

Keywords: Facilities; small and medium-sized industries; maintenance; occupational safety; work environment; governance.

ABSTRACT

Facilities management connects infrastructure, services, people, and organizational objectives. In small and medium-sized manufacturing firms, decisions about maintenance, layout, cleaning, utilities, safety, ergonomics and indoor environments are often fragmented. This narrative review proposes an integrated architecture based on criticality, life cycle, user experience, occupational health and operational evidence. The Integrated Facilities Governance Model organizes context, assets and services, risks, service levels, execution and improvement. It is a teaching synthesis, not a validated protocol or a substitute for legal and technical requirements. Facilities can support continuity, well-being and productivity when it moves beyond reactive operations and adopts explicit responsibilities, data and decision criteria.

Keywords: facilities management; small and medium-sized manufacturing firms; maintenance; occupational safety; workplace; governance.

1 INTRODUCTION

Facility management is an organizational discipline that integrates people, place, and processes to

To support quality of life and business productivity. ISO 41001:2018 establishes requirements.

for facilities management systems focused on the effective and efficient delivery of services, and customer service.

of stakeholders and sustainability. ISO 41014:2020 complements this perspective by

To guide the development of a Facilities strategy aligned with the organization's objectives.

In small and medium-sized industries, integration is challenging because of budget, maintenance,

This article is published in open access under the Creative Commons Attribution license, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Machine Translated by Google
RCMOS - Multidisciplinary Scientific Journal The Knowledge.
ISSN: 2675-9128. São Paulo-SP.

Year VII, v.2 2026 | Submission: 09/28/2026 | Accepted: 09/01/2026 | Publication: 09/04/2026

Purchasing, security, human resources, and production can share decisions without a single entity.
common governance. The consequence is the predominance of emergencies, little visibility of the cost of
life cycle and difficulty in relating physical conditions to operational continuity and experience.
of the workers.

The objective of this article is to propose an integrated Facilities governance architecture applicable to
smaller industrial organizations. The proposal relates assets, services, internal environment,
safety, behavior, and indicators. The intention is not to create a parallel standard or to certify.
conformity or attributing direct causality between a physical intervention and productivity.

2 METHOD

A narrative review was conducted, selecting international standards, institutional documents, and...
Review studies on facilities and indoor environmental quality. Manuscript organization.
It observed criteria of clarity, relevance, substantiation, and referencing compatible with SANRA (BAETHGE;
GOLDBECK-WOOD; MERTENS, 2019).1

No primary data was collected nor was a company valuation performed. The proposed relationships
These are conceptual and should be tested in the context of each installation. Legal safety requirements,
Accessibility, environment, fire, construction, and labor vary by jurisdiction and prevail.
regarding any general recommendations in this article.

3. Facilities as a Function of Organizational Integration

Facilities management creates value when it translates organizational needs into decisions about...
spaces, assets and services. Jensen (2010) proposes that the value of Facilities can be understood by
Your contribution to objectives such as productivity, reliability, satisfaction, and adaptation. This
The contribution rarely stems from a single service. It emerges from the coordination between maintenance,
utilities, cleaning, security, occupancy, suppliers and users.

The strategy should begin with the context. Critical processes, quality requirements, profile of
Occupancy, risks, and financial constraints determine distinct priorities. A low-cost asset.
It can be highly critical if its failure disrupts production or compromises safety. Therefore,
Classification based solely on book value tends to be insufficient.

1A SANRA guided the transparency and justification of this narrative review. Its mention does not mean that it was carried out.
systematic review, external evaluation, or methodological certification of the article.

This article is published in open access under the Creative Commons Attribution license, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Machine Translated by Google
RCMOS - Multidisciplinary Scientific Journal The Knowledge.
ISSN: 2675-9128. São Paulo-SP.

Year VII, v.2 2026 | Submission: 09/28/2026 | Accepted: 09/01/2026 | Publication: 09/04/2026

ISO 41015:2023 emphasizes the influence of facilities on behaviors and outcomes. Space, Signage, resource availability, and ease of implementation shape everyday practices. Governance should avoid the interpretation that unsafe behavior is merely an individual choice. also examining design, load, access, maintenance and clarity of procedures.

4. WORK ENVIRONMENT, HEALTH AND PRODUCTIVITY

Indoor environmental quality encompasses factors such as air quality, thermal comfort, lighting, and acoustics. ergonomics. Reviews by Al Horr et al. (2016a; 2016b) identify associations between these dimensions, comfort, well-being, and perceived productivity. The evidence, however, varies by building type. method and outcome. Therefore, it is not scientifically appropriate to promise universal percentages of productivity resulting from a single intervention.

The World Health Organization proposes a healthy work environment approach that includes physical environment, psychosocial environment, personal health resources and participation in community (WHO, 2010). This vision expands Facilities without dissolving responsibilities. HR, Safety, maintenance, and leadership need to coordinate actions, but each function retains its own role. specific skills and duties.

ISO 45001:2018 offers an occupational health and safety management framework based on context, leadership, participation, risks, operation, evaluation and improvement. In 2026, the standard and the ISO 41001 are under review, while the cited editions remain published. Verification of validity at the time of submission is essential.2

5. Maintenance, Services, and Criticality-Based Decision Making

Reactive maintenance is necessary in the face of unexpected failures, but its predominance increases the risk. Cost volatility and unavailability. Integrated governance classifies assets by Failure consequence, detectability, redundancy, and applicable requirements. Based on this analysis, The combination of inspection, preventive maintenance, condition monitoring, and response is defined. corrective.

Supplier management requires scope definition, service levels, evidence of competence, and communication. Risk assessment and acceptance criteria. The lowest price does not necessarily represent the lowest total cost.

2Situation verified on August 24, 2026. The ISO 41001:2018 and ISO 45001:2018 editions remained published, with revision projects under development. Validity should be re-verified on the submission date.

This article is published in open access under the Creative Commons Attribution license, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Machine Translated by Google
RCMOS - Multidisciplinary Scientific Journal The Knowledge.
ISSN: 2675-9128. São Paulo-SP.

Year VII, v.2 2026 | Submission: 09/28/2026 | Accepted: 09/01/2026 | Publication: 09/04/2026

Rework, interruption, energy consumption, disposal, unavailability, and risk should be integrated into the Decision. Contracts also need to provide for access to data and responsibilities in the event of incidents. User reports are a source of information, but they do not replace inspections and Monitoring. Silent problems may not generate complaints, while visible issues can. Focus on records. The analysis should combine calls, work orders, inspections, consumption, Failures, incidents, and occupant perception.

6 Indicators and Integrated Governance Model

Useful indicators connect results, processes, and risks. Availability, compliance with maintenance, recurrence, response time, normalized consumption, incidents, satisfaction, and backlog They can form a concise panel. Comparisons need to consider production, occupancy, climate and... Scope shift. An indicator without a denominator or context can lead to erroneous conclusions.

Quadro 1. Síntese do modelo proposto

Etapa	Decisão central	Evidência mínima
Contexto	Quais objetivos e requisitos devem ser apoiados?	Processos críticos, partes interessadas, requisitos
Inventário	O que existe e quem responde?	Ativos, espaços, serviços, responsáveis
Criticidade	O que não pode falhar sem controle?	Consequência, redundância, detectabilidade
Execução	Como o serviço será entregue e verificado?	Plano, ordem de serviço, nível de serviço
Melhoria	O que mudou e quais riscos permanecem?	Tendências, recorrência, auditoria, feedback

Fonte: elaboração própria com base nas referências discutidas no artigo.

The Integrated Facilities Governance Model organizes six movements. First, it defines the context. and requirements. Second, it establishes an inventory of assets, spaces, and services. Third, it assesses risks and Criticality. Fourth, agrees on service levels and responsibilities. Fifth, executes and records. Sixth, It analyzes results and provides feedback for planning. The cycle should be proportional to the size of the company, avoiding... Worthless bureaucracy.

Governance can be conducted through periodic forums involving Facilities, Operations, HR, Security, Finance and users. The forum prioritizes risks, approves changes, examines recurrences, and monitors... Actions. Emergency decisions are still possible, but they must be documented and subsequently followed. evaluated to prevent exceptions from becoming routine.

7. Proportional Implementation in Small and Medium-Sized Industries

Implementation can begin with a critical process and a few services. An initial diagnosis.

This article is published in open access under the Creative Commons Attribution license, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Machine Translated by Google
RCMOS – Multidisciplinary Scientific Journal The Knowledge.
ISSN: 2675-9128. São Paulo-SP.

Year VII, v.2 2026 | Submission: 09/28/2026 | Accepted: 09/01/2026 | Publication: 09/04/2026

It identifies liabilities, assets, recurring failures, and accountability gaps. Then, they are...
Criteria for criticality, a minimum plan, call flow, and indicators are defined. Expansion occurs.
after learning, not through the immediate adoption of a complex system.
Technology should support the process, not replace it. Controlled spreadsheets or simple systems can...
These should be sufficient when there are definitions, record-keeping discipline, and analysis. Sensors and platforms
Advanced technologies only add value when the data is of high quality, responsible, and decisive.
associated systems. Information security also needs to be considered, especially in related systems.
connected.

Worker participation improves the identification of real conditions, but does not transfer responsibility to them.
Institutional responsibility for controls. Reporting channels, planned observations, and testing of
Usability helps reveal barriers. Feedback on actions taken strengthens trust and...
It prevents listening from turning into meaningless data collection.

CONCLUSION

The review highlights that Facilities Management should be understood as a performance system.
organizational, and not just as a set of support activities. Spaces, assets, utilities,
Maintenance and services influence operational continuity, worker experience, and...
The ability to execute processes securely. Its strategic contribution emerges when these...
Dimensions are linked to explicit objectives and are no longer managed solely in response to them.
to faults or complaints.
In small and medium-sized industries, integration is especially relevant because responsibilities
They are often distributed among production, maintenance, human resources, security, purchasing and
finance. The absence of a common language can lead to gaps, overlapping tasks, and conflicting decisions.
Driven by urgency. Proportional governance allows for the establishment of responsibilities and criteria.
scaling and minimal evidence without reproducing bureaucratic structures incompatible with the
Organization size.
The Integrated Facilities Governance Model proposes that context, inventory, criticality,
Execution and improvement should be treated as parts of the same decision-making cycle. The sequence reduces the...
The tendency to select solutions before understanding requirements and consequences. It also favors
a comparison between alternatives based on risk, life-cycle cost, continuity, and effects
about users, preventing the initial price or immediate visibility from becoming the sole criterion of
prioritization.
Maintenance plays an important role in this system, but it is not the only part of it. Preventive plans,

This article is published in open access under the Creative Commons Attribution license, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Machine Translated by Google

Year VII, v.2 2026 | Submission: 09/28/2026 | Accepted: 09/01/2026 | Publication: 09/04/2026

Inspections and monitoring need to be combined with supplier management and quality control.
Environmental considerations, ergonomics, cleanliness, accessibility, safety, and communication with occupants. A
Integrating this information allows us to recognize that a technical failure can have different causes and
Operational, human, and financial consequences that don't appear on a work order.
analyzed in isolation.

The indicators should reflect this multidimensionality without producing excessive panels.
Availability, recurrence of failures, maintenance compliance, response time, consumption.
Normalized, incidents, satisfaction, and backlog only gain meaning when they have
definition, denominator, responsible party, and context of interpretation. Measurement does not replace the
Technical judgment. It makes the reasoning more transparent and allows for verification of corrective actions.
They reduced risks or simply shifted the problem.

The participation of workers complements the operational evidence by revealing difficulties in
usage, access barriers, and conditions that technical systems don't always record. This participation
It does not transfer the institutional responsibility of risk control to users. It is the organization's responsibility to provide channels.
Safe, respond to the demonstrations, and show how the information was considered. Without
If you return, the consultation may lose credibility and reduce the willingness to report future problems.

The study has limitations inherent to narrative reviews. No primary data were collected.
estimated causal effects or tested the model in specific facilities. The structure presented does not
It replaces legal requirements, current standards, engineering projects, and occupational hygiene assessments.
or assignments of qualified professionals. Its purpose is didactic and organizational, and it should be
tailored to the jurisdiction, risks, technology, and management capacity of each organization.

Future research could assess the relationship between facilities maturity, asset reliability,
environmental quality, worker experience and operational results in small and medium-sized enterprises
industries. Longitudinal designs and comparative studies can help to separate associations.
of effects attributable to interventions. The development of this field depends on metrics
replicable, clear description of the context and integration between management, engineering, occupational health and
organizational sciences.

REFERENCES

Al horr, y. et al. Impact of indoor environmental quality on occupant well-being and comfort: a review of the literature. International Journal of Sustainable Built Environment, v. 5, no. 1, p. 1-11, 2016a. doi: 10.1016/j.ijsbe.2016.03.006.

Al horr, y. et al. Occupant productivity and office indoor environment quality: a review of the literature. Building and Environment, vp 369-389, 2016b. DOI: 10.1016/j.buildenv.2016.06.001.

This article is published in open access under the Creative Commons Attribution license, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Machine Translated by Google

Year VII, v.2 2026 | Submission: 09/28/2026 | Accepted: 09/01/2026 | Publication: 09/04/2026

Baethge, C.; Goldbeck-Wood, S.; Mertens, S. Sanra, a scale for the quality assessment of narrative review articles. Research Integrity and Peer Review, vol. 4, art. 5, 2019. DOI: 10.1186/s41073-019-0064-8.

Iso. Iso 41001:2018. Facility management: management systems: requirements with guidance for use. Geneva: international organization for standardization, 2018. Includes amendment 1:2024.

ISO. ISO 41014:2020. Facility management: development of a facility management strategy. Geneva: international organization for standardization, 2020.

ISO. ISO 41015:2023. Facility management: influencing organizational behaviors for improved facility outcomes. Geneva: international organization for standardization, 2023.

ISO. ISO 45001:2018. Occupational health and safety management systems: requirements with guidance for use. Geneva: international organization for standardization, 2018. Includes amendment 1:2024.

Jensen, PA The facilities management value map: a conceptual framework. Facilities, vol. 28, no. 3/4, p. 175-188, 2010. DOI: 10.1108/02632771011023131.

World Health Organization. Healthy workplaces: a model for action. Geneva: WHO, 2010. ISBN: 978-92-4-159931-3.

This article is published in open access under the Creative Commons Attribution license, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.