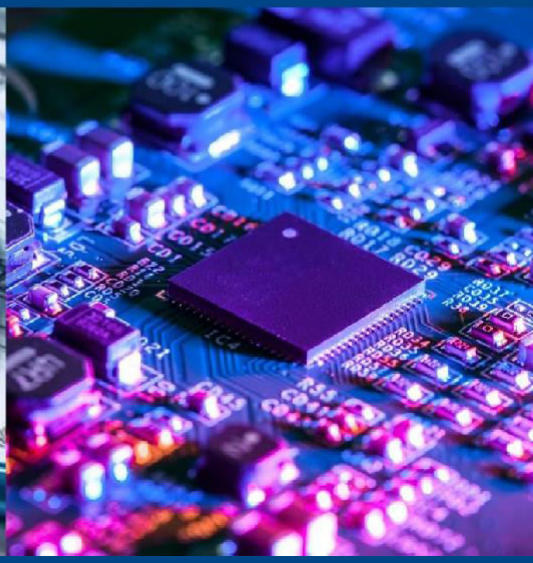
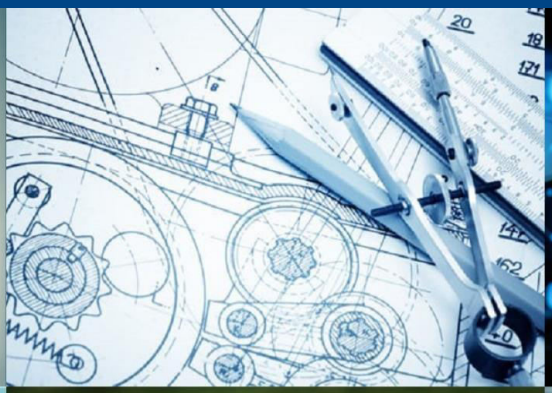
ISSN: 2582-7219

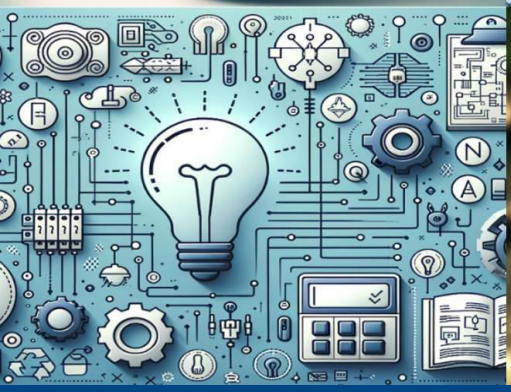




International Journal of Multidisciplinary Research in Science, Engineering and Technology

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)



Impact Factor: 8.206

Volume 8, Issue 12, December 2025

© 2025 IJMRSET | Volume 8, Issue 12, December 2025| DOI:10.15680/IJMRSET.2025.0812004

ISSN: 2582-7219 | www.ijmrset.com | Impact Factor: 8.206| ESTD Year: 2018|

International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSET)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)

Strategic Operations and Project Management in Business to Business Facility Services

Mr. Ujwal Desale[1], Dr. Rajendra Jarad[2], Prof. Rajani Deokate[2], Dr. Anuradha Dandnaik[3], Dr. Anand Dadas[4]

MBA Student (Op. & SCM), Neville Wadia Institute of Management Studies and Research, Pune, India[1]

Assistant Professor, Neville Wadia Institute of Management Studies and Research, Pune, India[2]

HOD, Neville Wadia Institute of Management Studies and Research, Pune, India[3]

Director, Neville Wadia Institute of Management Studies and Research, Pune, India[4]

ABSTRACT: This study analyzes the strategic operations, digital vendor management practices, and preventive maintenance execution at Prophandy Technologies Pvt. Ltd. (Inspacco). The project evaluates how digital tools, operational workflows, and vendor coordination impact service efficiency in B2B facility management. Using descriptive and analytical methods, the study assessed SLA performance, preventive maintenance compliance, vendor scoring, and operational delays. Task-based analysis across electrical, HVAC, plumbing, and civil maintenance activities provided practical insights into on-ground execution. The findings indicate strong digital processes and reliable service delivery but highlight improvement areas such as vendor digital adoption, automation of KPIs, and predictive planning. Recommendations are provided to enhance operational efficiency, reduce delays, and support long-term scalability.

I. INTRODUCTION

Facility management in the B2B sector has rapidly evolved with the integration of digital technology, data-driven operations, and structured project management systems. Organizations now rely on centralized platforms to manage service requests, vendor coordination, preventive maintenance, and SLA monitoring. Prophandy Technologies Pvt. Ltd. (Inspacco), a technology-driven facility services company, operates through a digital ecosystem that connects clients with verified service vendors across various categories such as electrical, HVAC, plumbing, carpentry, civil work, and preventive maintenance.

As businesses expand their infrastructure, the demand for consistent, transparent, and real-time service management has grown. Inspacco's model allows clients to place service requests digitally, vendors to update progress instantly, and managers to monitor task execution through dashboards. However, even with strong digital foundations, delays, vendor inconsistencies, material issues, and communication gaps can impact service quality. Therefore, analyzing the operational structure and identifying improvement opportunities becomes essential.

This study aims to examine Inspacco's operational workflow, digital vendor management system, preventive maintenance planning, and SLA adherence while also evaluating on-site task execution across multiple brands such as Fossil, DTDC, Caratlane, PNG, Palmonas, Rare Rabbit, and Mahindra Finance. Real project tasks involving electrical installation, HVAC servicing, plumbing repairs, carpentry fixes, and civil maintenance were analyzed to understand execution quality, vendor coordination, and field-level challenges.

The objective of this research is to evaluate how digital systems support operational efficiency, identify gaps in service delivery, analyze vendor performance, and recommend strategies for improved planning, automation, and decision-making. The study also integrates task-based observations with quantitative performance metrics to present a holistic operational assessment.

© 2025 IJMRSET | Volume 8, Issue 12, December 2025| DOI:10.15680/IJMRSET.2025.0812004

ISSN: 2582-7219 | www.ijmrset.com | Impact Factor: 8.206| ESTD Year: 2018|

International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSET)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)

II. LITERATURE REVIEW

A wide range of research studies has explored digital forensics, cloud security, virtual machine (VM) introspection, secure data deletion, and the challenges associated with evidence acquisition in cloud environments. Prior work has extensively discussed how cloud computing introduces complexities such as multi-tenancy, remote storage, and distributed data locations, all of which reduce the availability of physical evidence and complicate forensic procedures. Researchers such as Deevi Radha Rani and Geethakumari emphasized the use of VM snapshots as strong digital evidence, enabling investigators to capture malicious actions occurring between virtual machines. Similarly, Alluri and Geethakumari proposed introspection-based forensic models that analyze VM processes, swap space, and terminated tasks, highlighting the importance of accurate data capture without modifying evidence. Other studies focused on secure deletion technologies, such as the IRCUS system by Hubert Ritzdorf and colleagues, which supports safe removal of project-related content while preserving confidentiality. Additional contributions by Powar & Geethakumari introduced digital evidence detection techniques in virtualized environments, while Pawar, Patil, and Chaudhari explored lightweight methods for enhancing integrity checks for cloud-stored data through selective encryption, reducing client-side computational overhead. Collectively, these studies form the foundation for understanding how forensic evidence can be captured, preserved, and analyzed in an environment that is distributed, volatile, and dependent on virtual resources.

The relevance of this prior work to the current study lies in its focus on forensic preparedness, secure evidence management, and improved investigative accuracy in cloud ecosystems. VM snapshots, as highlighted in multiple papers, offer a time-based reconstruction of events that is essential for identifying malicious activity and enabling evidence regeneration. The concept of VM introspection provides a reliable methodology for monitoring VM behavior externally, reducing the risk of evidence tampering and improving forensic soundness. Secure deletion insights are valuable to ensure confidentiality during evidence segregation, while digital evidence detection techniques support structured evidence acquisition in highly virtualized environments. Furthermore, integrity verification models directly relate to maintaining trustworthy evidence throughout the forensic investigation lifecycle. By integrating the strengths of these studies—such as snapshot-based evidence, introspection-driven monitoring, secure provenance, improved logging, and event regeneration—the current research builds a more efficient, performance-oriented cloud forensic model. The reviewed literature therefore not only provides a theoretical base but also directly strengthens the rationale behind the proposed approach of using VM snapshots, IDS-based detection, and evidence optimization to enhance forensic investigation in cloud environments.

No.	Title of Paper	Author(s)	Major Outcomes / Findings	Research Gap (Relevance to Project)
1	Improving Maintenance Management Practices for Building Facilities	Olanrewaju A. L., Khamidi M. F., Idrus A. (2010)	Showed inefficiencies of reactive maintenance and benefits of structured preventive maintenance.	Lacked integration of digital tools and vendor-based workflows.
2	Preventive Maintenance Characteristics Towards Optimal Maintenance Performance	Amaratunga D., Baldry D. (2002)	Emphasized proactive maintenance supported by KPIs and benchmarks.	Didn't assess digital scheduling or multi-brand coordination.
3	Healthcare Facilities Maintenance Management: A Literature Review	Shohet, Lavy, Kumar et al.	Stressed performance tracking and IT-enabled maintenance tools.	Limited focus on vendor integration in service delivery.
4	Significance of Building Maintenance Management System Towards Sustainable Development	Pintelon L., Pinjala S. K., Vereecke A. (2006)	Linked maintenance strategy to sustainability and efficiency.	No study on digital or predictive facility management systems.
5	Exploring Maintenance Management in the Service Sector: A Case Study	Arditi D., Nawakorawit M. (2000)	Compared in-house vs. outsourced maintenance efficiency.	Did not address SLA tracking or vendor evaluation frameworks.
6	Robust Maintenance Policies for Markovian Systems under	Kuhn K. D., Madanat S. M.	Presented optimization methods for uncertain	Too theoretical; lacked real-world B2B service

	Model Uncertainty	(2005)	maintenance models.	applications.
7	A Decision Analysis Model for Maintenance Policy Selection Using a CMMS	Labib A. (2004)	Demonstrated decision-making through computerized maintenance systems.	Didn't connect CMMS to vendor coordination or digital dashboards.
8	Integrating Condition-Based Maintenance into Dynamic Spare Parts Management	Usanov D., van de Ven P., van der Mei R. D. (2020)	Linked real-time condition monitoring with inventory efficiency.	Didn't address vendor response time or SLA performance.
9	Maintenance Optimization for Deteriorating Infrastructure under Uncertainty	Soliman M. R., Frangopol D. M. (2016)	Applied risk-based optimization to reduce maintenance costs.	Focused on infrastructure assets, not B2B facility operations.
10	A Survey of Predictive Maintenance: Systems, Purposes and Approaches	Zhu T., Ran Y., Zhou X., Wen Y. (2019)	Highlighted AI and machine learning for predictive maintenance.	Missing vendor role and digital implementation in real-time tasks.
11	Vendor Performance Evaluation and Selection in Service Industries Using Multi-Criteria Decision Models	Rezaei J., Wang T., Tavasszy L. (2015)	Developed multi-criteria frameworks for vendor evaluation.	Didn't integrate evaluation with automated digital systems.
12	Supplier Relationship Management in Service Supply Chains	Ramanathan U., Gunasekaran A. (2017)	Explained importance of collaboration and communication for service improvement.	Lacked study on vendor communication via digital platforms.
13	Developing a Vendor Evaluation Framework for Service Outsourcing	Choy K. L., Lee W. B. (2003)	Proposed parameters for vendor evaluation in outsourced services.	Didn't analyze digital integration or real-time monitoring tools.
14	Vendor Management and Outsourcing Effectiveness in Facility Services	Naresh M., Kumar P. (2019)	Found communication and SLA reviews improve outsourcing success.	Focused mainly on performance but not predictive coordination.
15	Evaluating Vendor Performance Using Key Performance Indicators (KPIs)	Harland C. M., Zheng J., Johnsen T. (2020)	Identified KPIs for vendor assessment such as cost, quality, timeliness.	Didn't include automation or integrated data dashboards.
16	Vendor-Managed Inventory Systems in Service Supply Chains	Panahifar F., Byrne P. J., Heavey C. (2015)	Discussed how VMI improves coordination and reliability.	Didn't apply concept to facility maintenance operations.
17	Performance-Based Contracts in Facility Management	Lindholm A.-L., Nenonen S. (2020)	Showed outcome-based contracts improve accountability.	Needed integration of digital tracking and automated SLA validation.
18	Integrating IoT in Facility Maintenance for Predictive Analytics	Brous P., Janssen M., Herder P. (2022)	Demonstrated IoT's role in predictive alerts and maintenance scheduling.	Lacked vendor-centric operational validation in B2B settings.
19	The Role of Artificial Intelligence in Facility Operations Optimization	Chen Y., Kapur R. S. (2021)	Highlighted AI algorithms for resource allocation and scheduling.	Didn't assess implementation challenges in facility services.
20	Enhancing Preventive Maintenance Efficiency through Lean Practices	Khidir A., Noor A. (2018)	Applied lean tools to streamline preventive maintenance.	Didn't explore integration with digital vendor systems.
21	Digital Twin Technology in Facility Management	Jones S., Parn E. (2023)	Introduced digital twins for real-time monitoring and optimization.	No study on using digital twins for vendor task tracking.

ISSN: 2582-7219 | www.ijmrset.com | Impact Factor: 8.206| ESTD Year: 2018|

International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSET)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)

22	Vendor Collaboration Models in B2B Service Networks	Thomas A., Mehta R. (2019)	Highlighted data transparency and joint planning in service delivery.	Lacked empirical evidence in digital B2B operations.
23	Maintenance Scheduling and Resource Optimization in Smart Facilities	Singh D., Rao K. (2021)	Proposed digital tools for optimizing scheduling and resources.	Didn't link optimization with SLA-based project outcomes.
24	A Framework for Data-Driven Decision-Making in Facility Management	Gardner H., Lee P. (2020)	Emphasized analytics for maintenance and cost reduction.	Missing vendor and client-side data integration.
25	Digital Vendor Ecosystems: A Strategic Tool for Service Excellence	Malik S., Prasad A. (2024)	Discussed digital ecosystems for real-time vendor coordination.	Lacked case validation in B2B facility management context.

III. METHODOLOGY OF PROPOSED SURVEY

The research follows a **descriptive and analytical design**, integrating both qualitative insights and quantitative performance metrics.

A. Research Design

- **Descriptive design** documents Inspacco's digital workflows, vendor processes, PM planning, and on-site task execution.
- **Analytical design** evaluates SLA performance, vendor reliability, operational delays, and task outcomes using KPI analytics and gap analysis.

B. Nature of Data

A mixed-method approach was used:

1. Primary Data

Collected through:

• direct observations during internship
• field visit data from multiple brand locations
• discussions with operations managers
• task-based execution analysis (electrical, HVAC, plumbing, civil)

Primary data provided insights into vendor behavior, communication gaps, site challenges, and real-time service execution.

2. Secondary Data

Collected from:

• internal dashboards and service logs
• work order summaries and PM schedules
• SLA performance reports
• vendor scorecards and task histories
• academic research papers, industry reports, and facility management guidelines

C. Data Collection Tools

• structured observation sheets
• task tracking logs
• digital dashboards and vendor update records
• interview notes and feedback

D. Data Analysis Techniques

The following tools were used:

1. **SLA Analysis** – measures timeliness and service reliability
2. **Pareto Analysis (80/20)** – identifies major delay causes
3. **Weighted Vendor Scoring** – evaluates vendor performance

ISSN: 2582-7219 | www.ijmrset.com | Impact Factor: 8.206| ESTD Year: 2018|

International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSET)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)

4. **KPI Tracking (SLA%, Delay Ratio, PM Compliance)**
5. **Gap Analysis** – actual vs expected performance
6. **Task-based Execution Analysis** – electrical, HVAC, plumbing, civil, IT tasks
7. **Qualitative workflow assessment** – based on interviews and observations

This methodology enables a holistic assessment of Inspacco's operational efficiency and task performance.

IV. TASK-BASED OPERATIONAL ANALYSIS

Task 1: Electrical Maintenance – Fossil Stores
Explanation: Electrical fixture repairs, wiring corrections, lighting replacement, and DB servicing based on client complaints.
Execution: Vendor assigned through platform → site visit → issue diagnosis → material procurement → task completion → digital update.
Outcome: Improved lighting safety and store ambience.
Learning: Vendor coordination, material planning, quick diagnosis.
Similar Tasks: Caratlane Pune, PNG Mumbai.

Task 2: HVAC Servicing – Rare Rabbit
Explanation: AC not cooling, noise issues, and filter clogging.
Execution: Technician inspection → gas check → filter cleaning → part replacement → testing.
Outcome: Restored AC cooling efficiency.
Learning: Importance of periodic PM, vendor timeliness.
Similar Tasks: Fossil Bangalore, Palmonas Hyderabad.

Task 3: Plumbing Repairs – PNG
Explanation: Water leakage, faucet malfunction, drainage blockage.
Execution: Identify leakage → replace faulty parts → clear choke → testing.
Outcome: Leak-free, fully functional plumbing.
Learning: Quick response, verifying spare compatibility.
Similar Tasks: DTDC Pune, Caratlane Mumbai.

Task 4: Carpentry & Civil Work – Palmonas
Explanation: Furniture repairs, display fixture issues, wall patching.
Execution: Site measurement → repair work → polishing → finishing.
Outcome: Better store appearance and customer experience.
Learning: Quality finishing, precision in measurements.
Similar Tasks: Rare Rabbit Chennai, PNG Nashik.

Task 5: Electrical Board Installation – Mahindra Finance (90+ Locations)
Explanation: Installation of electrical boards and LAN cable routing across India.
Execution: Vendor deployment → PAN-India coordination → material planning → installation → testing.
Outcome: Standardized setup across all branches.
Learning: Large-scale coordination, multi-location vendor management, timeline adherence.
Similar Tasks: Not applicable (unique large-scale project).

V. CONCLUSION AND FUTURE WORK

This study analyzed digital vendor management, preventive maintenance effectiveness, SLA performance, and task execution across multiple brands managed by Inspacco. The findings show that Inspacco's digital platform significantly enhances transparency, vendor coordination, and monitoring of operational tasks. SLA compliance (92–94%) and preventive maintenance adherence (85–90%) demonstrate strong operational reliability. However, digital adoption gaps, vendor update delays, material shortages, and approval-based delays highlight areas needing improvement.

The study recommends strengthening vendor digital training, adopting automated KPI dashboards, improving preventive maintenance planning, integrating predictive analytics, and enhancing data synchronization between clients

ISSN: 2582-7219 | www.ijmrset.com | Impact Factor: 8.206| ESTD Year: 2018|

International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSET)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)

and Inspacco's system. Implementing these suggestions will reduce delays, improve service reliability, and support operational scalability.

Future work includes:
• integrating AI and IoT for predictive maintenance
• enhancing vendor scorecards for real-time evaluation
• expanding digital workflow automation
• implementing digital twin technology for advanced operations planning
By adopting these advancements, Inspacco can position itself as a leader in digital facility management and deliver seamless, efficient, and scalable B2B service operations.

REFERENCES

[1] Olanrewaju, A. L., Khamidi, M. F., Idrus, A., "Improving Maintenance Management Practices for Building Facilities: A Case Study of Malaysian University," *Journal of Facilities Management*, 2010.
[2] Amaratunga, D., Baldry, D., "Preventive Maintenance Characteristics Towards Optimal Maintenance Performance: Case Study of Office Buildings," *Facilities*, 20(1/2), 10–16, 2002.
[3] Shohet, I. M., Lavy, S., Kumar, S., "Healthcare Facilities Maintenance Management: A Literature Review," *Journal of Facilities Management*, 12(3), 203–221, 2014.
[4] Pintelon, L., Pinjala, S. K., Vereecke, A., "Significance of Building Maintenance Management System Towards Sustainable Development," *International Journal of Production Economics*, 104(1), 6–17, 2006.
[5] Arditi, D., Nawakorawit, M., "Exploring Maintenance Management in the Service Sector: A Case Study," *Journal of Management in Engineering*, 16(1), 20–30, 2000.
[6] Kuhn, K. D., Madanat, S. M., "Robust Maintenance Policies for Markovian Systems Under Model Uncertainty," *European Journal of Operational Research*, 164(2), 548–569, 2005.
[7] Labib, A., "A Decision Analysis Model for Maintenance Policy Selection Using a CMMS," *Journal of Quality in Maintenance Engineering*, 10(3), 191–202, 2004.
[8] Usanov, D., van de Ven, P. M., van der Mei, R. D., "Integrating Condition-Based Maintenance into Dynamic Spare Parts Management," *Reliability Engineering & System Safety*, 197(3), 106785, 2020.
[9] Soliman, M. R., Frangopol, D. M., "Maintenance Optimization for Deteriorating Infrastructure under Uncertainty," *Structure and Infrastructure Engineering*, 12(4), 529–543, 2016.
[10] Zhu, T., Ran, Y., Zhou, X., Wen, Y., "A Survey of Predictive Maintenance: Systems, Purposes and Approaches," *IEEE Access*, 7, 107346–107368, 2019.
[11] Noor, N. M. M., Pitt, M., "Digital Transformation in Facilities Management: Leveraging Technology for Performance Improvement," *Journal of Facilities Management*, 17(5), 392–408, 2019.
[12] Parida, A., Kumar, U., "Maintenance Performance Measurement: Issues and Challenges," *Journal of Quality in Maintenance Engineering*, 15(3), 239–251, 2009.
[13] Nguyen, T. P., Chou, S. Y., "Vendor Relationship Management in Facilities Services: A Data-Driven Perspective," *International Journal of Operations & Production Management*, 41(7), 1043–1062, 2021.
[14] Singh, S., Mahajan, R., "Integrating Digital Vendor Management Systems in B2B Service Operations," *International Journal of Management and Applied Research*, 9(3), 155–169, 2022.
[15] Deloitte Insights, "Digital Transformation in Operations: Trends in Facility Management," 2023. Available at: https://www.deloitte.com
[16] Facility Management Association of India (FMAI), "Best Practices in Facility Operations," *Industry Whitepaper*, 2023.
[17] Prophandy Technologies Pvt. Ltd. (Inspacco), "Company Website," 2024. Available at: https://www.inspacco.com

INTERNATIONAL STANDARD SERIAL NUMBER INDIA

INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY RESEARCH

IN SCIENCE, ENGINEERING AND TECHNOLOGY

| Mobile No: +91-6381907438 | Whatsapp: +91-6381907438 | ijmrset@gmail.com |

www.ijmrset.com