



## The Possibility of Adopting Smart Management in Maintenance Contracts and its Impact on the Quality of Operational Performance in the Wasit Textile Factory

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### Abstract

This research aimed to investigate the feasibility of adopting smart management in maintenance contracts and its impact on the quality of operational processes at the Wasit Textile Factory. The research relied on an analysis of the organizational, technical, human, and financial factors influencing the adoption of this management approach. The research employed a descriptive-analytical methodology and used a checklist to assess six key axes representing the primary variables. Data were analyzed using mathematical models, most notably the COBB-DOUGLAS model and the geometric mean. The results showed an overall level of capability for implementing smart management at 74.12%, reflecting good readiness for implementation, although gaps exist in some variables such as human resources and technological infrastructure. The research confirmed that smart management contributes to increasing operational efficiency, reducing breakdowns and waste, and improving resource utilization. However, full implementation requires addressing the weaknesses. The research concluded that adopting smart management is a strategic tool for improving operational performance. This necessitates developing specialized training programs, strengthening the technological infrastructure, allocating clear budgets, and building partnerships with specialized technology companies. The research provides practical evidence of the impact of smart management on improving the quality of operational processes in an Iraqi industrial environment, with implications for other sectors.

**Keywords:** Smart Management, Maintenance Contracts, Operational Performance Improvement

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### Introduction

With the rapid development of information and communication technologies (ICTs) and the scarcity of resources, management has been compelled to rely on these technologies to achieve its objectives and ensure its continuity. This is especially true with the spread of the internet and its impact on the nature and structure of administrative systems, which have declined along with traditional forms of public service. A new model has emerged, based on technological and informational dimensions, bringing about radical changes. Smart management is considered one of the fruits of technological achievements (the internet) in the modern era. Developments in the field of communications have led countries and governments to seriously consider utilizing ICTs and providing services electronically, which effectively contributes to solving many problems (Al-Gharbi, 2024: 2). The systems and machines of smart managing for developed institutions and other managerial erections are pigeon-holed by a number of structures that allow humanity to develop enthusiastically. Smart managing methods and machineries can be a powerful informative tool. Smart managing machineries allow for a change in underlings' attitude just before work: to make personalities use resources judiciously and paraphernalia effectually; to apply competent invention methods and present mainframe evidence machineries for evaluating and processing evidence. Supervision industrial foundations and establishments has converted a more inspiring and complex badly-developed, assembly it impossible to use outmoded procedures to solve it. In order to expand the proficiency of supervision developed enterprises, a set of apposite procedures is looked-for that can be called discerning supervision procedures (Burkov *et al.* 2016:93-94) [7]. Maintenance service providers are exploring new types of contracts to enhance their profitability and offer added benefits to their clients.

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These providers can aim for higher returns by sharing client risk. Typically, the service provider is responsible for planning and organizing maintenance, and then agrees to provide the client with a specified level of asset availability (Marttonen *et al.*, 2013: 3-4) <sup>[14]</sup>. The parameters of a maintenance contract agreement include rules such as expectations, requirements, schedules, standards, resources, communication, testing, subcontracting, approvals, scope of work, and accountability and responsibilities. In addition to specifying the timing and procedures for audits, the author argues that a maintenance contract should also include business performance and safety indicators for the contracted maintenance provider. Legally, there is no requirement to track the performance of entities bound by the contract terms, nor are the contracting parties obligated to include performance indicators as an element of the contract (Kahuho-Mwarari, 2015:4) <sup>[12]</sup>. Subcontracting maintenance is very communal in the aerospace, defense, and excavating industries, which often rely on intricate, heavy, and grave paraphernalia. In its place of advancing in state-of-the-art preservation tools and bathrooms and preparation internal preservation teams, establishments outsource preservation happenings to specific firms. It may perhaps be challenging for institutions to observe whether preservation firms are distributing sufficient possessions to provide the unsurpassed service, which elevations intervention issues (Tian *et al.*, 2021:1-2) <sup>[17]</sup>.

## Research Methodology

### Part One: Scientific Methodology

#### First: The Research Problem

Textile factories, including the Wasit Textile Weaving Factory, suffer from numerous maintenance challenges such as high repair costs, frequent unexpected breakdowns, inefficient resource utilization, and inadequate contract monitoring and oversight. These challenges lead to a decline in operational efficiency and a decrease in the factory's competitiveness. In light of this, smart management of maintenance contracts has emerged as a modern approach that can contribute to improving operational efficiency, reducing waste, and enhancing quality. However, the extent to which this management approach can be adopted and its actual impact on the quality of operational processes in the factory remains unclear. Based on the above, the research problem and its related questions can be formulated as follows: To what extent can the adoption of smart management of maintenance contracts contribute to improving the quality of operational processes in the Wasit Textile Weaving Factory? The problem's questions can be formulated as follows:

1. What is the probability of approving smart administration in conservation contracts indoors the Wasit Textile Weaving Factory?
2. What are the record significant contests and hindrances facing the execution of smart administration of maintenance indentures in the factory?
3. How can the embracing of smart supervision of preservation contracts impact the eminence of effective processes?
4. What is the relationship between implementing smart management for maintenance contracts and reducing downtime and increasing resource efficiency in the factory?
5. Does adopting smart management for maintenance

contracts contribute to enhancing the sustainability and quality of production at the Wasit Textile Factory?

#### Second: Research Objectives

1. To assess the feasibility of adopting smart management for maintenance contracts at the Wasit Textile Factory.
2. To identify the challenges and obstacles hindering the implementation of smart management in the field of maintenance.
3. To analyze the impact of implementing smart management for maintenance contracts on the quality of operational processes.
4. To measure the impact of smart management in reducing breakdowns and improving resource utilization efficiency at the factory.
5. To demonstrate the role of smart management for maintenance contracts in enhancing production sustainability and achieving higher quality in manufacturing processes.

#### Third: The importance of the research

The importance of the research stems from the strategic importance of adopting smart management in the Iraqi industrial sector, as it provides practical and quantitative evidence for adopting this scientific approach represented by smart management in the industrial sector with regard to maintenance contracts, which represent an important juncture in the production process in the industrial sector and what is reflected on the efficiency of operational performance and reduces breakdowns and waste in the Wasit Textile Factory.

#### Fourth: Research Hypotheses

The research hypotheses aim to test the relationship between adopting smart management in maintenance contracts and improving the quality of operational performance at the Wasit Textile Factory. The main hypothesis is summarized as follows: (There is a statistically significant effect of adopting smart management in maintenance contracts on improving the quality of operational performance at the Wasit Textile Factory). The main hypothesis branches into six sub-hypotheses, which represent key aspects of smart management and cover the essential elements of the transformation and adoption process within the factory environment:

**First Hypothesis:** The infrastructure and organizational structure are suitable for implementing smart management at the Wasit Textile Factory.

**Second Hypothesis:** The extent to which human resources are compatible with the requirements for implementing smart management at the Wasit Textile Factory.

**Third Hypothesis:** The availability of technological systems and digital transformation to meet the requirements for implementing smart management at the Wasit Textile Factory.

**Fourth Hypothesis:** The availability of costs and financial resources to meet the requirements for implementing smart management at the Wasit Textile Factory.

**Fifth Hypothesis:** The ability to overcome obstacles and challenges in implementing smart management at the Wasit Textile Factory. Wasit Textile

**Sixth Hypothesis:** Feasibility and Follow-up in Implementing Smart Management in the Wasit Textile Factory

#### Fifth: Hypothetical Research Scheme

The scheme is based on a positive causal relationship, where the adoption of smart management in maintenance contracts

represents the independent variable, and the quality of operational performance represents the dependent variable (output). The six dimensions analyzed in the research are considered the determinants or constituent factors of the "adoption of smart management" variable in the factory context.

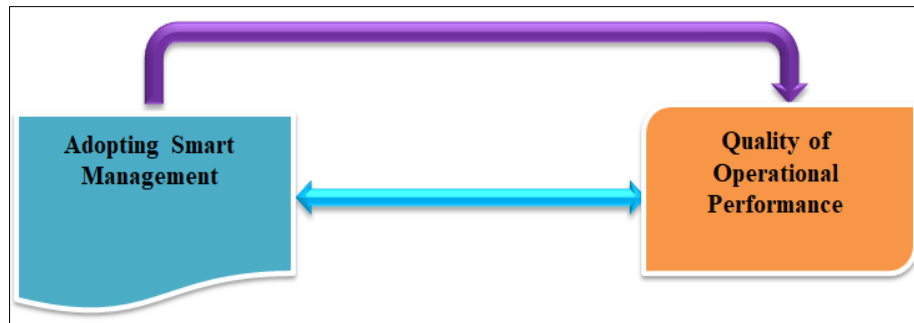


Fig 1: Hypothetical Research Scheme

## Part Two: The Conceptual Framework

### First: The Concept of Maintenance

Today's industrial companies use state-of-the-art equipment based on modern technology. This equipment is typically expensive and highly productive. Therefore, any downtime on this equipment represents a significant loss for these companies. The responsibility of maintenance management is to ensure that equipment utilization is not due to inadequate maintenance, poor planning, or poor management of maintenance operations. As a result of this importance, developed countries have conducted numerous studies and research projects to improve maintenance management methods and address the risks that arise during its implementation (Ammar, 2011: 52).<sup>[4]</sup>

Maintenance is of increasing importance in countries worldwide, including Iraq, because these countries import equipment, machinery, and spare parts from advanced industrial nations using hard currency in pursuit of economic and social development. Maintenance is defined as a set of technical activities designed to keep a system in a specific operating condition. It includes corrective and preventive activities necessary for the proper functioning of the system. For equipment, systems, and machinery to function correctly, their activity must fall within a range between the maximum and minimum values of specific parameters. However, even the concept of "good operation" of equipment can be subjective and open to interpretation regarding desired quality and maintenance costs. Maintenance policies are a key driver of sustainable production because they enable companies to maintain efficient production systems and high-quality products. Maintenance services can be implemented either in-house, through an internal structure, or by a specialized external party. The advantages of outsourcing are closely tied to practical considerations (Velescu *et al.* 2025:34).

Pakkala *et al.* (2007) pointed out the lack of standardization of the terminology used in maintenance contracts. Examples of the diverse terms used globally embrace asset administration conventions, asset preservation contracts, performance-based conservation conventions, managing agent conventions, performance-based conventions, wide-ranging preservation contracts, and other diminishing

systems. These terms principally refer to farm out routine conservation, pre-emptive maintenance, humdrum and pre-emptive maintenance, or all preservation service area, which use specific kind of results-based condition (performance levels) or mandatory "level of package" that obligation be met over a long historical of stretch (often 3 to 10 years). Selected of the relations used in various cases pronounce a new thinking and seek to decrease asset weakening by depressing the "life-cycle cost." Specific of these indentures may embrace upgrades or recuperation, hence the tenure "asset administration indentures" (Menches *et al.* 2010:11)<sup>[15]</sup>. Conservation incorporates a range of procedures and methods to keep a system operational or restore it to a functional state after a failure. Depending on the activity and timing, maintenance can be corrective or preventive. Corrective maintenance includes a set of activities that must be performed after a system has ceased to meaning, i.e., stopped performance its primary occupation. In other words, counteractive maintenance happenings would only be completed in cases of catastrophe triggered by an error (human, procedural, or test equipment malfunction), due to corrosion, ecofriendly impact, or damage momentous from mishandling. In this grouping of maintenance, refurbishing or replacing whichever part just before the minute of catastrophe is well-thought-out more efficient. Preventive conservation involves interrupted checkup of the system's environments and constraints to prevent catastrophe (Kontrec *et al.* 2021:2)<sup>[13]</sup>.

In recent centuries, contract supervision has advanced into a major business spectacle. It is pigeonholed by its miscellaneous aspects and lacks homogenous measures. Contract supervision partially overlaps with other managing systems, such as shopper affiliation management (CRM), risk supervision, project supervision, service level administration (SLM), and inventiveness resource scheduling (ERP). This is not shocking, as contracts are the principal machinery for commercial discussion and are therefore appropriate to practically all branches within a establishment. Contract supervision is also meticulously linked to amenability, as one of its purposes is to fulfill predetermined compulsions. It aims to ensure that conventions are executed bestowing to disposition and to association the gap flanked by contractual

preparation and contractual obligations. Affording to several inspections, non-compliance by means of contractual terms and surroundings is considered a most important hazard that leads establishments to favor convention managing systems (Kahler, 2013:91).<sup>[11]</sup>

### Second: Maintenance Contract Management

This system governs all maintenance activities outsourced to the company, from the moment contracts are signed until their purpose is fulfilled (whether through completion of the contracted activity or at the end of the contract period). Therefore, maintenance contract management involves a continuous and comprehensive approach that includes not only meticulous planning, thorough review, and strict adherence to requirements, but also strategic decision-making to optimize maintenance activities. Regarding the importance of maintenance contract management within the company (Velescu *et al.*, 2025: 398), a maintenance contract includes a fixed fee, a percentage that determines the operator's share of the service provider's repair costs, and a penalty for delays in fulfilling orders, which is borne by the supplier (Hazarkhani *et al.*, 2019: 5). Contracting is a crucial topic in transaction cost economics, as it is implicitly assumed that if there are no transaction costs, contracting is free (Williamson, 1979). Scott and Triantz partially support this view, arguing that contracts are capable of protecting (and encouraging) specific investments—investments whose value is higher when used to support a particular transaction than when reinvested for any other purpose (investments measured according to the concept of asset specificity). However, contracting is a controversial subject. This section will describe and explain contract theory and its various types.

### Third: Types of Contracts

Contracting is a crucial topic in transaction cost economics. It is implied that if there are no transaction costs, then contracting is cost-free. According to contract theory, there are two distinct types of contracts (Hamers, 2019)<sup>[8]</sup>

1. Complete Contracts: A complete contract defines obligations for every possible scenario in the world. Therefore, there is no need for renegotiation between the parties.

2. Incomplete Contracts: A contract is incomplete if it is not possible to consider all possible scenarios beforehand, which are therefore not recorded in the contract. It is also incomplete if the contract is open to multiple interpretations. In both cases of incomplete contracts, renegotiation is required after the transaction. Transaction cost economics suggests that limited rationality renders all (complex) contracts incomplete.

### Fourth: Opportunities and challenges of applying smart management to maintenance contracts in the manufacturing sector

The concept of smart management can be defined as a modern management approach based on the understanding and conscious use of information and communication technologies (ICTs) in carrying out the basic functions of management (planning, organizing, controlling, staffing, and directing). It is also defined as the process of using smart technologies to improve business performance and make sound administrative decisions. Smart management systems provide ways to help companies identify obstacles that

organizations may face in carrying out their work and the impact of these obstacles on achieving their goals (Balghazali *et al.*, 2025: 3).

Smart management is considered a contemporary approach to developing and modernizing management, eliminating problems, and improving leadership performance through the use of modern technological methods characterized by efficiency, effectiveness, and speed. Smart management also seeks to transform institutions, including public education, and activate the use of technology and the internet in carrying out administrative tasks and functions (Qanbar, 2014, p. 399).<sup>[6]</sup> Smart management encompasses all uses of ICTs in a way that achieves a unified vision and thus enables the electronic performance of work and services anytime, anywhere. This leads to increased quality, simplified procedures, and improved administrative organization to facilitate decision-making based on accurate and direct information. Thus, smart management possesses many components and advantages that This indicates that it will be the central system for institutional leadership in the near future. Therefore, it is important for educational institutions to have a clear understanding of how to implement smart management in order to overcome the challenges of applying it in the workplace (Abdulaziz, 2022: 870). Smart management is the process of using smart technologies, advanced algorithms, and artificial intelligence-supported tools such as robots that rely on cloud computing, machine learning, and natural language processing to collect, process, and analyze big data. This allows for the utilization of this data to improve the quality and efficiency of public services. The term and concept of smart management is a modern one, linked to technological advancements and the development of artificial intelligence. In the traditional definition, smart management referred to using human mental capabilities and intelligence in decision-making and successfully managing institutions based on logical principles (Abdullah & Abdul, 2024: 41).

### Fifth, the characteristics of smart management

Adopting advanced technologies such as the internet, the Internet of Things (IoT), and big data to achieve intelligent management and control. The characteristics of intelligent management include the following (Jing & Si-cong, 2022:7):

1. Big data application: This involves the comprehensive collection of large datasets, multiple overlays, mutual stimulation, data mining, and the generation of more information. This allows for accurate identification of the industry situation, implementation of control measures, and a valuable impact assessment.

2. Advanced management and control: This involves using problem-solving and service-oriented thinking, relying on information technology to restructure operations, and addressing weaknesses and shortcomings in traditional supervision. For example, this includes using technology to collect information on cold chain transportation, control temperature during transport, monitor transportation conditions, investigate incidents, and track progress.

3. Dynamic and real-time supervision: This involves the rapid transmission of information, which will transform the work style. Management will be able to detect problems immediately, respond promptly, and address them effectively. Such as temperature control, early warning and emergency response, and regulating the logistics capacity of the cold chain in the event of a public safety emergency, etc.

**Sixth: The Importance of Smart Management**

Administrative leadership in various organizations is of paramount importance in fulfilling its diverse roles, particularly influencing the behavior of others, controlling and resolving work problems, keeping pace with various changes, especially technological advancements, and utilizing them to achieve organizational goals. It also involves acquiring all the skills and knowledge that meet the organization's needs. Therefore, this necessitates the presence of e-leadership with the skills to deal with changes and modern technological developments. Smart management is a product of the information and communication technology revolution, through which leaders have been able to influence, communicate, and execute various administrative tasks. Its various forms have facilitated the performance of different processes to achieve their objectives. As electronic entities have grown, smart management has become a requirement as a modern management style in contemporary organizations. The importance of smart management lies in the following: (Abdulaziz, 2022: 876-877):

1. Ensuring more efficient and effective performance.
2. Exploring possibilities for new methods in conducting administrative and organizational processes.
3. Contributing to change in organizational patterns.
4. Helping to build value for the organization and lead it to innovation.
5. Expanding the scope and breaking down barriers of time and place to complete transactions.
6. Establishing relationships among members of the organization.
7. Saving time and effort for leaders and subordinates.
8. Supporting collective participation in decision-making at all levels of the organization and working to eliminate hierarchy.
9. Achieving flexibility, as the climate in e-leadership is characterized by change.

#### Seventh: Smart management of maintenance contracts

Recent technological advancements, digitalization, and the Fourth Industrial Revolution have led to the development of smart solutions in maintenance contract management and their applications. Smart maintenance contract management aims to integrate intelligent maintenance management solutions with smart contracts and contract management software platforms. The opportunities presented by adopting smart maintenance contract management include integration, ease of use, automation, improved performance, and enhanced safety for industrial companies. However, the challenges associated with these opportunities include high costs, resource scarcity, difficulty in implementing smart

solutions, and their lifespan. Apropos the productions most possible to adopt these new machineries, and given that workroom safety is a key precedence, the oil and gas, authority generation, and withdrawal productions stand to assistance most from executing smart maintenance supervision. Furthermore, the incorporation and concert improvements consequential from the approval of smart preservation managing suggest that the aeronautics industry, transportations centers, also data centers are the most to be expected to implement these knowledge. Future examination will concentration on new smart appearances in conservation contract supervision, as well as thoughtful how unlike sponsors can work together in transitioning to shrewd conservation resolutions (veleşcu *et al.* 2025:401-402) <sup>[18]</sup>. A study by Villa *et al.* 2025:16-17 concluded that smart maintenance contracts can offer significant benefits.

1. It can reduce response and intervention times in emergencies.
2. It simplifies decision-making processes and accelerates maintenance workflows, whether routine or exceptional.
3. The productivities expanded in these courses lead to cost optimization, reduced organizational and legal quarrels, and occasions to progress risk management tactics and accommodations supervision practices.
4. The limpidity and immutability of blockchain natural greater trust among participants by warranting compliance through predefined operating protocols.
5. Repurposing smart contracts for these critical functions will enhance infrastructure resilience, operational efficiency, and risk mitigation strategies.

The researcher believes that adopting smart management in maintenance contract execution offers significant opportunities to improve operational performance, enhance safety, simplify decision-making processes, and reduce costs and risks. However, he cautions against the challenges associated with high costs, resource scarcity, and practical implementation difficulties. The industries that will benefit most will be those reliant on complex and sensitive operations, such as oil and gas, aviation, and energy.

#### Part Three: The Practical Aspect

##### First: Describing and Coding the Research Variables

This pace aims to afford the signs that epitomize the variables and the items in the quantity apparatus. This helps the bookworm recognize the results acceptably and affords a clear view of the points that the homework pursues to uncover. Hence, Table (1) illustrates the coding and explanation of the training variables.

**Table 1:** Description and Coding of Research Variables

N	Checklist parameters	NO.	Code
1	Infrastructure and Organization	4	INO
2	Human Resources	3	HUR
3	Technological Systems and Digital Transformation	4	TSDT
4	Costs and Financial Resources	3	CFR
5	Obstacles and Challenges	3	OBC
6	Feasibility and Follow-up	3	FEF

### Second: Normality Test

The fallouts in Table (2) show the investigation of the figures related to the exploration variables. A numerical test was secondhand to scrutinize whether the data shadowed a normal circulation. This expressions that the consequence level is

bigger than 0.05, denotation that the data imitate to a normal spreading. Created on this, the null supposition, which statuses that the data pinched from the study illustration follow a customary pattern, was conventional, and the alternative proposition was prohibited.

**Table 2:**

Variables	Normal distribution parameter	Probability	
Infrastructure and Organization	0.232	0.324	0.124
Human Resources	0.145		0.153
Technological Systems and Digital Transformation	0.241	0.201	0.134
Costs and Financial Resources	0.251		0.152
Obstacles and Challenges	0.216		0.161
Feasibility and Follow-up	0.189		0.158
			0.141
			0.154

### Third: Investigation of the steadfastness of the quantity instrument

The grades in Table (3) show that the normal consistency of the quantity instrument gotten (0.883), which is distributed among the dimensions of the study variables, represented by infrastructure and organization, with (4) items that obtained reliability (Cronbach's Alpha = 0.812), human resources, with (3) items that obtained reliability (Cronbach's Alpha = 0.812), human resources, with (3) items that obtained reliability (Cronbach's Alpha =

0.921), technical systems and digital transformation, with (4) items that obtained reliability (Cronbach's Alpha = 0.824), costs and financial resources, with (3) items that obtained reliability (Cronbach's Alpha = 0.825), obstacles and challenges, with (3) items that obtained reliability (Cronbach's Alpha = 0.834), and feasibility and follow-up, with (3) items that obtained reliability (Cronbach's Alpha = 0.871).

**Table 3: Cronbach's Alpha Test Parameter**

Variables	NO.	Cronbach's Alpha
Infrastructure and Organization	4	0.812
Human Resources	3	0.921
Technological Systems and Digital Transformation	4	0.924
Costs and Financial Resources	3	0.825
Obstacles and Challenges	3	0.834
Feasibility and Follow-up	3	0.871
		0.883

### Fourth: Numerical Explanation of Variables

The outcomes in Table (4) expression a clear effort by the employees of the Wasit Textile Factory on the possibility of adopting smart management in maintenance contracts. This is due to the factory's focus on the quality of operational performance. It is noted that the infrastructure and organization achieved a mean score of (3.26) and a standard deviation of (0.78), human resources achieved a mean score

of (3.27) and a standard deviation of (10.9), technical systems and digital revolution accomplished a mean mark of (3.26) and a standard deviation of (0.78), costs and financial resources achieved a mean score of (3.39) and a standard deviation of (0.71), obstacles and challenges achieved a mean score of (3.33) and a standard deviation of (0.68), and feasibility and follow-up achieved a mean score of (3.47) and a standard deviation of (0.68). (0.78).

**Table 4: Statistical Description**

NO.	Mean	S. D	NO.	Mean	S. D
INO1	3.42	0.82	CFR1	3.41	0.82
INO2	3.21	0.90	CFR2	3.35	0.64
INO3	3.35	0.92	CFR3	3.40	0.83
INO4	3.05	0.74	CFR	3.39	0.71
INO	3.26	0.78	OBC1	3.29	0.89
HUR1	3.20	0.83	OBC2	3.28	0.77
HUR2	3.22	0.88	OBC3	3.41	0.79
HUR3	3.38	1.02	OBC	3.33	0.68
HUR	3.27	0.91	FEF1	3.49	0.75
TSDT1	3.33	0.82	FEF2	3.49	0.88
TSDT2	3.25	0.77	FEF3	3.44	0.79
TSDT3	3.10	0.79	FEF	3.47	0.78
TSDT4	3.35	0.89			
TSDT	3.26	0.78			

### Fifth: Hypothesis Testing and Path Analysis

#### A significant correlation exists between the potential for adopting smart management and the quality of operational performance.

The results of the correlation matrix in Table (5) show strong and statistically significant positive relationships between all variables, with correlation coefficients ranging from 0.766 to

0.958. This indicates a strong correlation and integration among the studied variables. The highest correlation was recorded between the variables HUR and CFR, reflecting the strength of their relationship. All other relationships were also at a high level, reinforcing the possibility of reciprocal effects among these variables.

**Table 5:** Correlation Matrix

	INO	HUR	TSDT	CFR	OBC	FEF
INO	1					
HUR	.881**	1				
TSDT	.803**	.842**	1			
CFR	.955**	.958**	.922**	1		
OBC	.803**	.923**	.848**	.902**	1	
FEF	.772**	.811**	.956**	.886**	.766**	1

### Part Four: Conclusions and Recommendations

#### First: the conclusions

- 1.The research results showed an acceptable level of smart management application for maintenance contracts at the Wasit Textile Factory. However, this acceptance is not ideal, reflecting a gap that should be narrowed in the future.
- 2.The Wasit Textile Factory possesses the organizational and technical capabilities that support the successful implementation of smart management.
- 3.The low values for some variables are due to unbalanced performance and the fact that some aspects weaken the overall impact.
- 4.Smart management of maintenance contracts has a tangible impact on improving operational performance by increasing efficiency and reducing waste.
- 5.There is a positive correlation between adopting smart management and the effectiveness of operational processes, making it a strategic tool for performance improvement.
6. The results indicate that the Wasit Textile Factory is in a transitional phase between traditional practices and smart management, requiring continuous efforts for the transition process.

#### Second: Recommendations

- 1.A comprehensive development plan must be implemented at the factory to address weaknesses through training and human resource development.
- 2.The factory's technological infrastructure must be strengthened through intelligent monitoring and control systems that support rapid response and accurate execution.
- 3.Incentive policies must be adopted to encourage employees to engage with and utilize the capabilities of smart management systems.
- 4.Predictive analytics and artificial intelligence must be integrated into maintenance contracts to improve forecasting and reduce downtime.
- 5.Performance indicators for maintenance contracts must be continuously reviewed to ensure alignment with the factory's operational efficiency goals.
6. Partnerships must be established with specialized technology companies to provide innovative solutions that contribute to raising the smart management implementation rate to levels exceeding 80%.

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