

**INFORMATION TECHNOLOGY TO  
ENHANCE MAINTENANCE  
MANAGEMENT IN UNIVERSITIES  
BUILDINGS  
CASE STUDY IN MUTAH UNIVERSITY  
IN JORDAN**

**KHALED J ALADAYLEH**

**Supervised by: Dr. PABLO S FERREER**

**Ph.D. Program in Design, Manufacture and Management of Industrial Projects**

# Abstract

University buildings require maintenance in order to create a suitable environment that supports and enhance learning, teaching, innovation, and research. This research seeks to report the maintenance management system of a university institution in Mut'ah university in Jordan. The major conclusion drawn from the case study was that the maintenance management systems are not IT based. Implement information technology like internet (email account) and computerize maintenance management System (CMMS) and Electronic document management (EDM )will enhance Work in process (WIP) and lean maintenance management by reducing the time 45% for response repair , cycle time for work and work orders , Reducing paper documents with 85% , Increase production efficiency.

This research reports the maintenance management system of Mut'ah university in Jordan. It evaluates understanding, preparedness, and commitment to achieving the objectives of the maintenance unit of the University.

## KEYWORDS

Computerized Work Management Systems (CWMS), Electronic document management EDM, computerize maintenance management System (CMMS ).

# Objectives

- ▶ To evaluate the understanding, preparedness and commitment to achieving the objectives of the maintenance unit of the University
- ▶ To evaluate the information technological tools being used that can be adapted for use in maintenance unit of the university.

# Background

Maintenance management systems in Mut'ah University is not IT based, it is traditional process using paper and file documentation and the transfer of documents to work requests from the colleges and maintenance unit to departments of maintenance done by the postman. The unit of maintenance conduit and work implement more than 2300 work orders during the last year with average 200 work order monthly as in figure below.

## Monthly work orders conducted by Mut'ah university maintenance unit



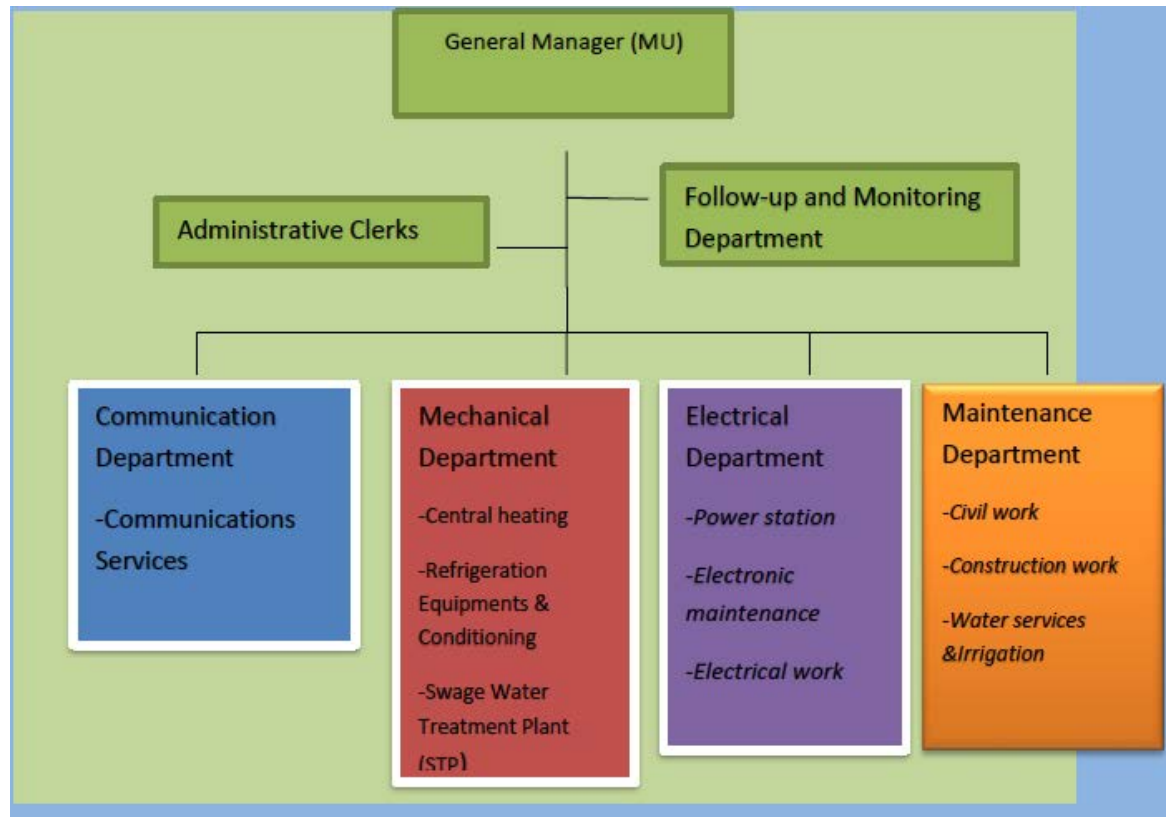
## Methodology

This research followed a case study approach which is a very useful tool to collect detailed and contextual information Labib A.W. (2004)

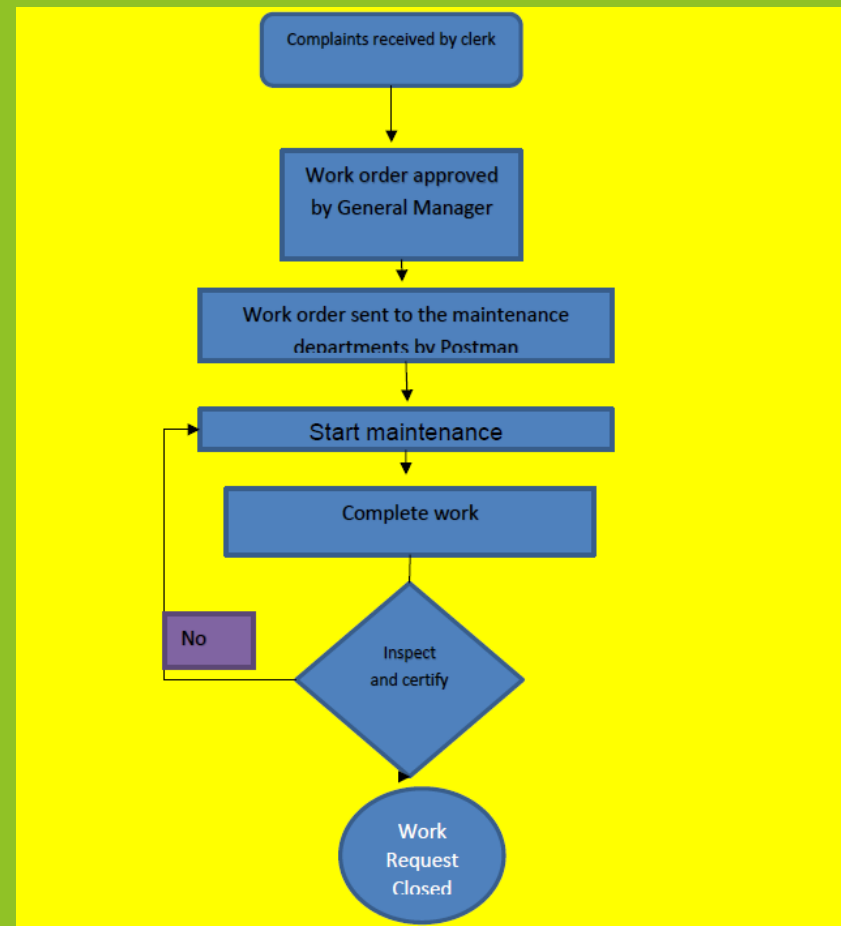
## Mut'ah University Case Study

- ▶ The Unit of Maintenance was established with five departments. The Maintenance Unit is responsible for maintenance of buildings, engineering services as in the Organization Structure below.

# Organization Structure; Maintenance Unit University of Mut'ah



## The process flow of Maintenance work





## Example Time response for repair and closed work order

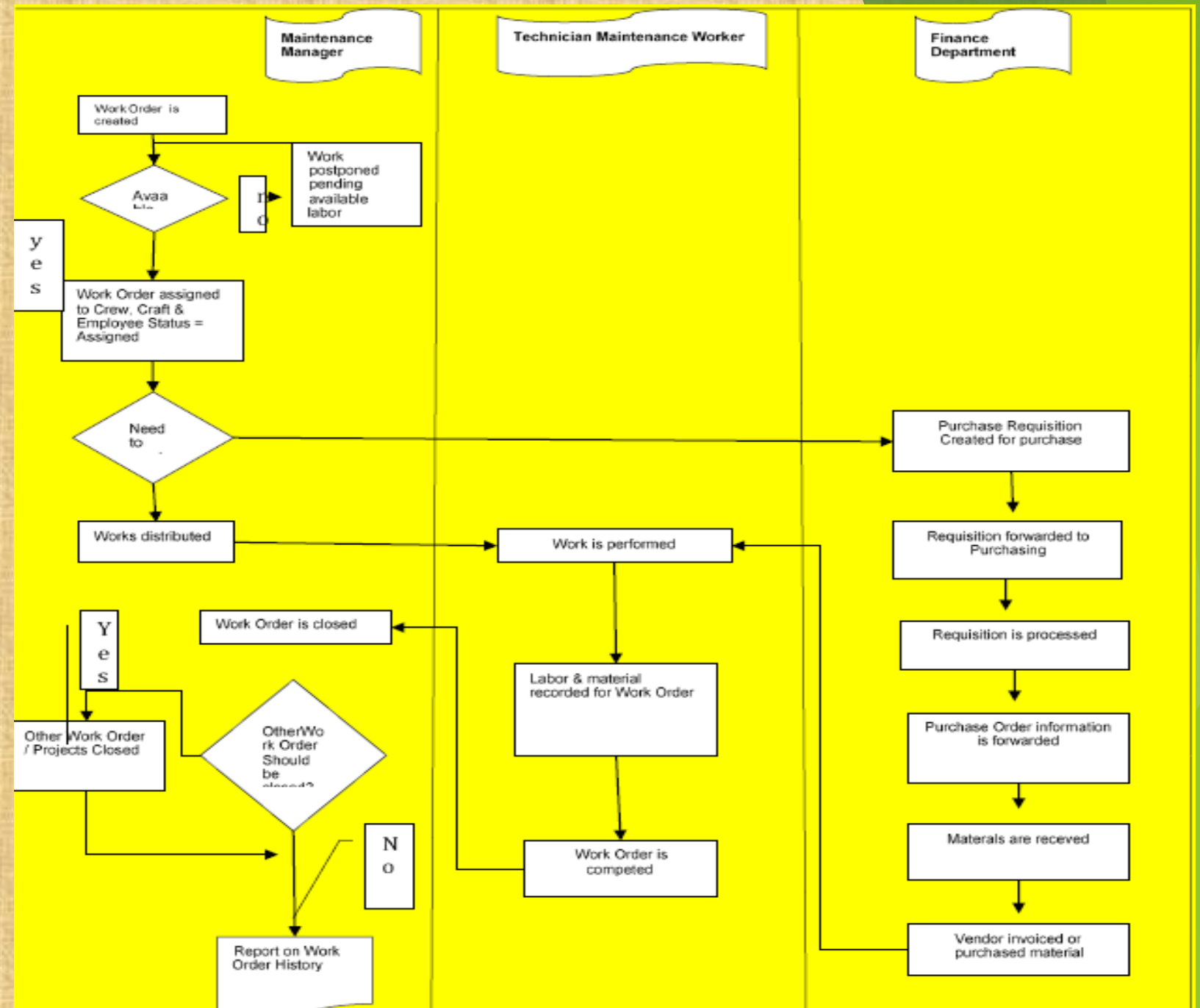
<b>Categories</b>	<b>Work in process (WIP) Minuets</b>	<b>Accumulated time for closed Work order ( Minuets)</b>
Complaints received by clerk	20	20
Work order approved by General Manager	60	80
Work order sent to the maintenance departments by Postman	60	140
Start maintenance & Complete work	120	260
Work Request Closed	60	320

# Computer - Aided Maintenance system.

Today, CMMS are used for all aspects of maintenance planning management and control. CMMS must be flexible and adaptable, because every organization is considered unique. Since, the relationships are complex between factors affecting maintenance activities and their interactions; a computer-aided model is developed with main purpose of determining (J.S. Burton, A. Bannered, and C. Sylla.1989) as in Figure below.

Computer Maintenance Management System (CMMS) is a type of software for management functions as support management and monitoring operations and maintenance.

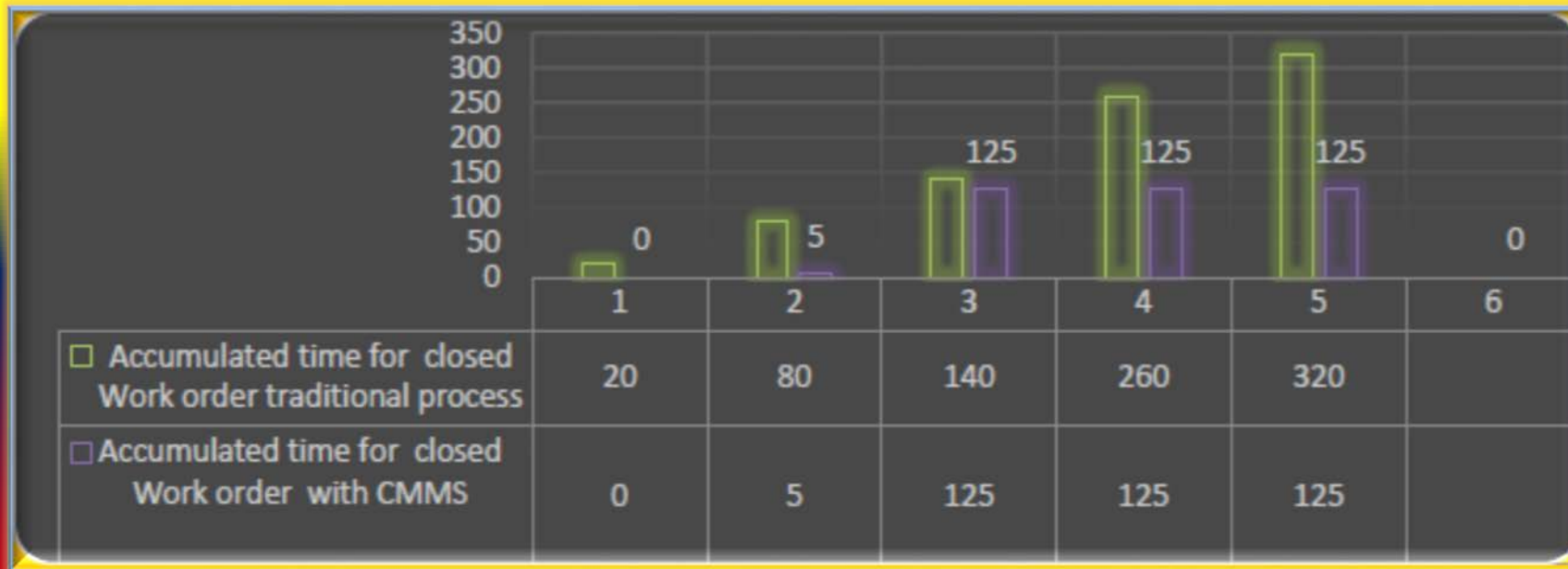
**Process Flow for standard maintenance procedure for work (CMMS).**



**New process for  
Time response for  
repair and closed  
work order**

Activity	Categories	WIP with CMMS  Minute	Accumulated time for closed Work order
1	Complaints received software	0	0
2	Work order approved by General Manager	5	5
3	Work order sent to the maintenance departments	0	5
4	Start maintenance & Complete work	120	125
5	Work Request Closed ,	0	125
6	system	5	Saved system by

comparative between the traditional process and CMMS for Time accumulated for repair and closed work order



## Results & Conclusion

Implement information technology like internet (email account) and computerize maintenance management System (CMMS) and Electronic document management (EDM) will enhance Work in process (WIP) and lean maintenance management by reducing the time 45% for response repair, cycle time for work and work orders, reducing paper documents with 85%, Increase production efficiency.

# References

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