TECHNOLOGY MANAGEMENT: A DIGITAL SCHOOL PLANT FACILITY MAINTENANCE SYSTEM

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ABSTRACT. *The study aimed to develop a digital school plant facility maintenance system at Sultan Kudarat State University during the 2021-2022 school year. The study utilized descriptive and qualitative research approaches, with 50 campus maintenance personnel, 10 selected faculty, and ten selected experts from university partners. The instruments used were the Technology Acceptance Model (TAM), with questionnaires for Maintenance personnel, selected faculty, and selected experts. The questionnaires focused on the acceptability of the tool in maintenance, operations, facilities, work order systems, building use scheduling systems, and supplies. The researcher distributed the questionnaires personally to the maintenance personnel, selected faculty, and selected experts from university partners. The results showed that the Technology Management: A Digital School Plant Facility Management System at Sultan Kudarat State University meets the required standards and is a precise guide in campus maintenance. It is recommended that the Technology Management: A Digital School Plant Facility Management System be adopted and practised for maintenance personnel.*

Keywords: *Technology Management, Digital School Plant Facility Maintenance System, Maintenance Policy, School Plant, SKSU, Philippines*

, 1. INTRODUCTION

Technological advancements have significantly transformed how schools approach various tasks and processes, particularly in the area of facility maintenance. Gone are the days when maintenance solely involved manual labour and routine inspections. Today, many schools are adopting digital systems that streamline operations, automate tasks, and provide real-time data to improve efficiency and responsiveness.

School facility maintenance is more than just preserving bricks and mortar—it is about ensuring a safe, healthy, and conducive environment for students and staff [1]. Effective maintenance not only protects the institution's capital investments but also plays a vital role in supporting student achievement and staff productivity. Building administrators are now expected to balance traditional responsibilities with modern tools and strategies, recognizing that well-maintained facilities contribute directly to educational performance and overall school success [2].

As Philippine school buildings age, they face the growing challenge of maintaining school facilities at a level that enables our teachers to meet the needs of learners. While the construction of new school facilities supports this task, many older buildings have developed modularly over time [3, 4];. A 1920s-era school may have gotten an addition in 1950, which in turn got an addition in 1970, and yet another addition in 1990. The task of caring for these old school buildings, some of which are historically or architecturally significant, at a level that supports contemporary instructional practices is substantial. At the same time, maintaining the finely tuned workings of new, more technologically advanced facilities also demands considerable expertise and commitment.

Thus, it is perhaps not surprising that facility issues arise at all educational levels, from post-secondary through college, at all sites, including both school buildings and administrative offices. Challenges arise in new and old facilities, although the concerns may differ [5]. For example, even a brand-new building may have problems with inadequate air circulation, which can lead to indoor air quality (IAQ) problems unless remedied. Older buildings, on the other hand, older buildings face age-related issues such as inefficient energy systems that can lead to uncomfortable indoor climate and high utility bills.

The administration is presently encountering problems in the campus such as the proper way of requesting to repair building parts, the correct person to respond to building concerns, building maintenance procedures, environmental conditions and, a lack, of maintenance funding contributing to building deterioration [6, 7]). However many facilities problems are not a function of geography or socio-economic factors but are, instead, related to maintenance staffing levels, training, and management practices.

Routine and unexpected maintenance demands are bound to arise, and every educational organization must proactively develop and implement a plan for dealing with this inevitability [8]. Thus, an organization must plan to meet the challenges of effective facilities maintenance.[9] It is simply too big of a job to be addressed haphazardly. After all, the consequences affect teaching and learning, student and staff health, day-to-day building operations, and the long-range fiscal outlook of the organization.

From this, the researcher's action to have the proposals to make a research study on "Technology Management: School Plant Facility Maintenance System" serves as evidence that school facilities are, cared for appropriately. On the other hand, negligent facilities maintenance planning can cause real problems. Large capital investment can be squandered when buildings and equipment deteriorate or warranties become invalidated. Failing to maintain school facilities adequately also discourages future public investment in the education system.

However, school facilities maintenance is concerned about more than just resource management[10]. It is about providing clean and safe environments for the students. It is also about creating a physical se an appropriate and adequate physical setting. A classroom with broken windows and cold drafts doesn't foster effective student learning. However, neither does a state-of-the-art classroom that is plagued with

uncontrollable indoor temperature swings affect student and instructor alertness, attendance, and even health.

School facility maintenance affects the physical, educational, and financial foundation of the school organization and should, therefore, be a focus of both its day-to-day operations and long-range management priorities. Thus, the purpose of this study is to investigate how a digital school plant facility maintenance system can be developed and implemented using technology management principles. This study seeks to address the gap by determining its effectiveness:

1. What is the development of the Physical Maintenance System as to:
   - 1.1 facilities to be developed,
   - 1.2 technology utilized,
   - 1.3. cleanliness,
   - 1.4. orderliness,
   - 1.5. safety, and
   - 1.6. the cost-effective.
2. What are the functions of the school facilities maintenance system as to:
   - 2.1. maintenance and operations,
   - 2.2. managing facilities,
   - 2.3. work order system,
   - 2.4. building use scheduling system, and
   - 2.5. managing supplies?
3. As perceived by the identified respondent groups, what level of acceptability of the Technology Management: A Digital School Plant Facility Maintenance System?
4. What are the barriers and challenges of a Digital School Plant Facility Maintenance System?
5. Based on the findings, what technology management can be adopted?

2. Methodology

This study utilised the Descriptive method of research to gather facts relevant to attaining the details in planning, designing, monitoring and inventory of the school A normative survey was the mode of acquiring data and the questionnaire served as the main instrument. Descriptive research methods particularly survey research were employed in this study. Questionnaires were given to 70 maintenance personnel, 10 faculty, and 10 maintenance experts from university partners for evaluation. The respondents of this study were determined by randomly selected techniques as a requirement for the intended study. It includes (50) Campus Maintenance Personnel, (10) Selected Faculty, (10) Selected Experts from University Partners. They are considered as skilful in their field. Gathered data was treated using total weighted points, and weighted mean.

The researcher prepared a letter of request asking permission to conduct the research study. The ocular inspection and distribution of questionnaires to the community were done. Collection of questionnaires, weighing and use of the numerical rating scales was done. After collecting and tallying the data, the researcher collected all comments and suggestions based on the findings and recommendations on what instructional model applied. In the flow of the study, the researcher adopted and used the illustrated In-process-out flow to enhance the Technology Management: A digital School Plant Maintenance System for the use of the whole University including extension campuses. The study was conducted at the Sultan Kudarat State University (SKSU) formerly Sultan Kudarat Polytechnic State College.

The instruments used in this study were adopted from the Technology Acceptance Model (TAM). There is one set of questionnaires for the Maintenance Personnel, Selected Faculty, and Selected Experts from University Partners. The questionnaires for the identified respondents have the proximity of content. It asked for responses only on the acceptability of the tool according to its maintenance and operations, managing facilities, work order system, building use scheduling system, and managing supplies. It differed only on the last part of the questionnaire which is used for informal and formal interviews and other documentary analysis to clarify uncertain information.

3. RESULTS AND DISCUSSION

The result of the survey and the return demonstration of the Technology Management: School Plant Facility Management survey in identified by the respondent groups was the basis for the recommendation. Respondents are those individuals who complete a survey or interview for the researcher, or who provide data to be analyzed for the research study. Respondents can be of any age, but determined by the scope of the study, and must agree to informed consent to participate. Age influences, and can enhance or diminish, a person's capacity to exercise his or her rights. The protection risks affect an individual differently depending on age.

Table 1: Age and GenderN=90

Age Bracket	**Identified Respondent Groups**					
	Selected Maintenance Personnel (70)		Selected Faculty (10)		Selected Experts from University Partners (10)	
	Male	Female	Male	Female	Male	Female
41 years old and below	5	10	1	1	1	1
31 to 40 years old	7	15	1	2	1	2
26 to 30 years old	3	10	1	2	1	2
25 years old and Below	2	10	1	1	1	1
Total:	***17***	***45***	***4***	***6***	***4***	***6***
Percentage:	***24.28%***	***64.28%***	***40%***	***60%***	***40%***	***60%***

Table 1 shows the "Age and Gender" of the identified respondents. It shows that there were four Age Brackets such as 25 years old and Below, 26 to 30 years old, 31 to 40 years old, and 41 years old and below. Based on the results, there were 17 or 24.28% males and 45 or 64.28% females for Selected Maintenance Personnel; 4 or 40% males and 6 or 60% females for Selected Faculty; and 6 or 60% females for Selected Experts from University Partners.

Therefore, the effect was only a few male respondents answered in terms of "Age and Gender".

Educational attainment refers to the highest level of education that an individual has completed. This is distinct from the level of schooling that an individual is attending.

Table 2: Educational Attainment, N=90

Educational Attainment	**Identified Respondent Groups**					
	Selected Maintenance Personnel (70)		Selected Faculty (10)		Selected Experts from University Partners (10)	
	x	%	x	%	x	%
Doctoral Degree	0	0	1	10	2	20
Master's Degree	1	1.42	4	40	3	30
College Degree	49	70	2	20	2	2
Vocational Graduate	20	28.57	3	30	3	30
Total:	***70***		***10***		***10***	
Percentage:	***100%***		***100%***		***100%***	

Table 2 presents the "Educational Attainment" of the identified respondents. It shows that there was four Educational Attainment as Vocational Graduate, College Degree, Master's Degree, and Doctoral Degree. Based on the results, there were 70 or 100% for Selected Maintenance Personnel; 10 or 100% for Selected Faculty; and 10 or 100% for Selected Experts from University Partners.

The implication was there are college degrees answered in terms of educational attainment.

Table 3: Work experience related to building maintenance, N=90

Number of Years of Experience	**Identified Respondent Groups**					
	Selected Maintenance Personnel (70)		Selected Faculty (10)		Selected Experts from University Partners (10)	
	x	%	x	%	x	%
21 years and above	0	0	5	50	3	30
11 to 20 years	11	15.71	2	20	4	40
6 to 10 years	39	55.71	2	20	2	20
5 years and below	20	28.57	1	10	1	10
Total:	***70***	***100%***	***10***	***100%***	***10***	***100%***

Table 3 presents the "Work experience related to building maintenance" of the identified respondents. It shows that there were four Educational Attainments 5 years and below, 6 to 10 years old, 11 to 20 years old, and 21 years and above. Based on the results, there were 70 or 100% for Selected Maintenance Personnel; 10 or 100% for Selected Faculty; and 10 or 100% for Selected Experts from University Partners.

The implication was there were respondents experienced in building maintenance from Selected Maintenance Personnel with 6 to 10 years.

Properly trained employees know when and how to perform preventive maintenance. This alone prevents costly repairs due to incomplete inspection, for example, when the employee overlooks key signs of impending equipment issues.

Table 4: Training and seminars attended related to building maintenance, N=90

Training and Seminars Attended	**Identified Respondent Groups**					
	Selected Maintenance Personnel (70)		Selected Faculty (10)		Selected Experts from University Partners (10)	
	x	%	x	%	x	%
General Building Construction Training	20	28.57	5	50	4	40
Electrical and Plumbing Systems	40	57.14	4	40	2	20
Building Maintenance Systems	10	14.28	1	10	4	40
Total:	***70***	***100%***	***10***	***100%***	***10***	***100%***

Table 4 presents the "Training and seminars attended related to building maintenance" of the identified respondents. It shows that there were four Educational Attainments General Building Construction Training, Electrical and Plumbing System, and Building Maintenance System. Based on the results, there were 70 or 100% for Selected Maintenance Personnel; 10 or 100% for Selected Faculty; and 10 or 100% for Selected Experts from University Partners.

The implication was "Need to send the maintenance personnel for the Building Maintenance System" for the benefit of the campus.

Years of Service means the total number of full years in which a Participant has been employed by one or more Employers.

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Table 5: Number of years in the service, N=90

Number of years in the service	Identified Respondent Groups					
	Selected Maintenance Personnel (70)		Selected Faculty (10)		Selected Experts from University Partners (10)	
	x	%	x	%	x	%
12 years and above	10	14.28	2	20	3	30
8 to 11 years	10	14.28	3	30	2	20
4 to 7 years	40	57.14	3	30	4	40
3 years and Below	10	14.28	2	20	1	10
Total:	***70***		***10***		***10***	
Percentage:	***100%***		***10%***		***10%***	

Table 5 presents the “Number of years in the service” of the identified respondents. It shows that there was four Educational Attainment as 3 years and below, 4 to 7 years, 8 to 11 years, and 12 years and above. Based on the results, there were 70 or 100% for Selected Maintenance Personnel; 10 or 100% for Selected Faculty; and 10 or 100% for Selected Experts from University Partners.

The effect was "Need to have additional experience from the maintenance personnel" by acquiring more hands-on training for the development of the campus.

The school facility consists of not only the physical structure, and a variety of building systems, such as mechanical, plumbing, electrical, and power.

Cleanliness

This means that there is no dirt, no dust, no stains, and no bad smells. The goals of cleanliness are health, beauty, absence of offensive odour, and avoiding the spreading of dirt and contaminants to oneself and others.

Table 6: Cleanliness of the Campus, N=90

Characteristics of Cleanliness	Identified Respondent Groups					
	Selected Maintenance Personnel (70)		Selected Faculty (10)		Selected Experts from University Partners (10)	
	WM	VD	WM	VD	WM	VD
Cleanliness promotes mental clarity.	3.21	HE	3.58	HE	3.66	HE
Regular handwashing can prevent the spread of infections.	3.22	HE	3.59	HE	3.64	HE
A clean environment automatically boosts our self-confidence.	3.22	HE	3.58	HE	3.60	HE
Cleanliness gives a fresh and good look to our surroundings.	3.26	HE	3.56	HE	3.64	HE
Wearing clean, and iron clothes protect you from skin infections.	3.26	HE	3.58	HE	3.64	HE
Total:	***3.23***		***3.59***		***3.64***	
Interpretation:	***H.E. – Highly Effective***					

Table 6 reveals the "Cleanliness of the campus" of the identified respondents. It shows that there were five Cleanliness of the campus as Cleanliness promotes mental clarity, Regular handwashing can prevent the spread of infections, A clean environment automatically boosts our self-confidence, Cleanliness gives a fresh and good look to our surroundings and Wearing clean, and iron clothes protect you from skin infections. Based on the results, there were 3.23 weighted means for Selected Maintenance Personnel; 3.59 weighted mean for Selected Faculty; and 3.64 weighted mean for Selected Experts from University Partners. Therefore, the interpretation was” H.E.- Highly Effective”.

It "Needs to monitor the cleanliness of the campus performed by the maintenance personnel".

Orderliness

Maintenance is a continuous operation to keep the school building, furniture, and equipment in the best form for normal use, and to ensure the use of the school building as a shelter in case of an emergency caused by natural hazard events. A quality that is characterized by a person's interest in

keeping their surroundings and themselves well organized, and is associated with other qualities such as cleanliness and diligence, and the desire for order and symmetry.

Table 7: The orderliness of the Campus, N=90

Characteristics of Orderliness	Identified Respondent Groups					
	Selected Maintenance Personnel (70)		Selected Faculty (10)		Selected Experts from University Partners (10)	
	WM	VD	WM	VD	WM	VD
Division of Work	3.21	HE	3.58	HE	3.66	HE
Coordination of the maintenance personnel	3.24	HE	3.58	HE	3.66	HE
Common Objectives	3.21	HE	3.58	HE	3.62	HE
Cooperative Relationship	3.25	HE	3.58	HE	3.66	HE
Well-Defined Authority-Responsibility Relationships	3.21	HE	3.58	HE	3.62	HE
Total:	***3.22***		***3.59***		***3.64***	
Interpretation:	***H.E.-Highly Effective***					

Table 7 presents the "Orderliness of the campus" of the identified respondents. It shows that there were eight Orderliness of the campus such as Division of Work, Coordination of the maintenance personnel, Common Objectives, Cooperative Relationship, and Well-Defined Authority-Responsibility Relationships. Based on the results, there was a 3.22 weighted mean for Selected Maintenance Personnel; a 3.59 weighted mean for Selected Faculty; and a 3.64 weighted mean for Selected Experts from University Partners. Therefore, the interpretation was" H.E.- Highly Effective". The effect was the "Need to implement maintenance forms to emphasize the orderliness of the campus".

Safety

There are some characteristics or elements of a Good Health Safety Program: Management Commitment and Employee Involvement. The manager or management team leads the way by setting up the policy, assigning and supporting responsibility, setting a positive example, and involving employees. Worksite Analysis.

Table 8: Safety of the Campus, N=90

Characteristics of Safety	Identified Respondent Groups					
	Selected Maintenance Personnel (70)		Selected Faculty (10)		Selected Experts from University Partners (10)	
	WM	VD	WM	VD	WM	VD
Safety is the highest priority.	3.26	HE	3.56	HE	3.64	HE
Everyone is accountable.	3.26	HE	3.54	HE	3.62	HE
On-site workers influence safety procedures.	3.26	HE	3.56	HE	3.64	HE
All levels of management understand safety.	3.28	HE	3.56	HE	3.64	HE
Safety supervisors receive support.	3.26	HE	3.54	HE	3.62	HE
Improvement is continuous.	3.24	HE	3.56	HE	3.64	HE
Management encourages communication.	3.26	HE	3.54	HE	3.62	HE
All employees support risk mitigation.	3.24	HE	3.56	HE	3.58	HE
Total:	***3.26***		***3.55***		***3.63***	
Interpretation:	***H.E.-Highly Effective***					

Table 8 shows the "Safety of the campus" of the identified respondents. It shows that there were eight characteristics of Safety on the campus as Safety is the highest priority, Everyone is accountable, On-site workers influence safety procedures, All levels of management understand safety, Safety supervisors receive support, Improvement is continuous, Management encourages communication, and All employees support risk mitigation. Based on the results, there were 3.26 weighted means for Selected Maintenance Personnel; 3.55 weighted mean for Selected Faculty; and 3.63 weighted mean for Selected Experts from University Partners. Therefore, the interpretation was" H.E.- Highly Effective".

The effect was the "Need to implement safety of the campus during construction activities and must secure signages to aware people inside the campus".

Cost-effective

Cost-effectiveness analysis helps identify ways to redirect resources to achieve more. It demonstrates not only the utility of allocating resources from ineffective to effective interventions but also the utility of allocating resources from less to more cost-effective interventions.

.Table 9: Cost-effective of the Campus maintenance, N=90

Characteristics of Cost-effective	**Identified Respondent Groups**					
	Selected Maintenance Personnel (70)		Selected Faculty (10)		Selected Experts from University Partners (10)	
	WM	VD	WM	VD	WM	VD
Accuracy	3.26	HE	3.62	HE	3.62	HE
Timeliness	3.24	HE	3.56	HE	3.56	HE
Flexibility	3.26	HE	3.64	HE	3.64	HE
Acceptability	3.28	HE	3.56	HE	3.56	HE
Integration	3.24	HE	3.62	HE	3.62	HE
Economic feasibility	3.26	HE	3.60	HE	3.60	HE
Strategic placement	3.28	HE	3.54	HE	3.54	HE
Corrective action	3.24	HE	3.56	HE	3.56	HE
Total:	***3.26***		***3.26***		***3.59***	
Interpretation:	***H.E.-Highly Effective***					

Table 9 demonstrates the "Cost-effective of the campus maintenance" of the identified respondents. It shows that there was eight characteristics of Cost-effective of the campus maintenance of the campus such as Accuracy, Timeliness, Flexibility, Acceptability, Integration, Economic feasibility, Strategic placement, and Corrective action. Based on the results, there were 3.26 weighted means for Selected Maintenance Personnel; 3.26 weighted mean for Selected Faculty; and 3.59 weighted mean for Selected Experts from University Partners. Therefore, the interpretation was" H.E.-Highly Effective".

It "Needs to implement Cost-effective campus maintenance during construction activities and practice preparing detailed drawing and building specifications before the implementation of the projects".

School plant management ensures that school buildings and grounds, equipment, materials, and technical and other service systems, facilitate and support the provision of education by a school. The responsibility for managing the school plant rests with the head teacher or the school principal.

Maintenance and operations

Operations and Maintenance (O&M) is the performance of day-to-day activities required to maintain Bureau-owned and/or maintained facilities (buildings, grounds, equipment, systems) to the maximum extent possible for the benefit of the facility users.

Table 10: Maintenance and operations, N=90

Characteristics of Maintenance and operations	**Identified Respondent Groups**					
	Selected Maintenance Personnel (70)		Selected Faculty (10)		Selected Experts from University Partners (10)	
	WM	VD	WM	VD	WM	VD
Work order management.	3.28	HE	3.55	HE	3.52	HE
Empowering with technology.	3.26	HE	3.54	HE	3.53	HE
Gaining asset and maintenance intelligence.	3.28	HE	3.55	HE	3.54	HE
Transitioning from reactive to proactive maintenance.	3.29	HE	3.49	HE	3.53	HE
Total:	***3.28***		***3.53***		***3.53***	
Interpretation:	***H.E.-Highly Effective***					

Table 10 presents the "Maintenance and Operations" of the identified respondents. It shows that there were four characteristics of Maintenance and Operations of the Campus Work order management, Empowering with technology, Gaining asset and maintenance intelligence, and Transitioning from reactive to proactive maintenance. Based on the results, there were 3.28 weighted means for Selected Maintenance Personnel; 3.53 weighted mean for Selected Faculty; and 3.53 weighted mean for Selected Experts from University Partners. Therefore, the interpretation was" H.E.- Highly Effective".

It "Needs to implement Maintenance and Operations before, during and after construction".

Managing facilities

Concerning students, school facilities affect health, behaviour, engagement, learning, and growth in achievement. Thus, researchers generally conclude that without adequate facilities and resources, it is extremely difficult to serve large numbers of children with complex needs.

Table 11: Managing Facilities, N=90

Characteristics of Managing facilities	Identified Respondent Groups					
	Selected Maintenance Personnel (70)		Selected Faculty (10)		Selected Experts from University Partners (10)	
	WM	VD	WM	VD	WM	VD
Building and Premise Maintenance	3.22	HE	3.52	HE	3.54	HE
Space Management	3.24	HE	3.54	HE	3.54	HE
Sustainability and Environmental Improvements	3.28	HE	3.54	HE	3.52	HE
Capital Planning	3.26	HE	3.52	HE	3.54	HE
Health and Safety Compliance	3.28	HE	3.54	HE	3.56	HE
School Equipment	3.29	HE	3.52	HE	3.54	HE
Contractor and Sub-contractor Management	3.28	HE	3.58	HE	3.52	HE
Emergency Protocols	3.28	HE	3.54	HE	3.56	HE
Total:	***3.26***		***3.53***		***3.53***	
Interpretation:	***H.E.- Highly Effective***					

Table 11 shows the "Managing Facilities" of the identified respondents. It shows that there were eight characteristics of Managing Facilities of the Campus Building and Premise Maintenance, Space Management, Sustainability and Environmental Improvements, Capital Planning, Health and Safety Compliance, School Equipment, Contractor and user Management, and Emergency Protocols. Based on the results, there were 3.26 weighted means for Selected Maintenance Personnel; 3.53 weighted mean for Selected Faculty; and 3.53 weighted mean for Selected Experts from University Partners. Therefore, the interpretation was" H.E.- Highly Effective".

The effect of the table must properly monitor all the school facilities using the maintenance checklist guided by the preventive maintenance schedules.

Work order system

Work order management systems document basic processes - create work orders, request updates, and track task completions - which are then broken down into smaller tasks. These systems can be tailored to incorporate requirements necessary for auditing purposes, regulatory requirements or other business-specific concerns.

Table 12: Work Order System, N=90

Characteristics of Work order system	Identified Respondent Groups					
	Selected Maintenance Personnel (70)		Selected Faculty (10)		Selected Experts from University Partners (10)	
	WM	VD	WM	VD	WM	VD
Description of the task.	3.28	HE	3.56	HE	3.54	HE
The name of the person/party requesting the work.	3.26	HE	3.54	HE	3.56	HE
Estimated completion time.	3.28	HE	3.56	HE	3.54	HE
Name of the party responsible for completing the task.	3.26	HE	3.54	HE	3.56	HE
Location of the task/asset where the work is to occur.	3.28	HE	3.54	HE	3.54	HE

Total:	***3.27***	***3.55***	***3.55***
Interpretation:	***H.E.- Highly Effective***		

Table 12 manifests the "Work Order System" of the identified respondents. It shows that there were five characteristics of the Work Order System of the Campus Description of the task, The name of the person/party requesting the work, Estimated completion time, Name of the party responsible for completing the task, and Location of the task/asset where the work is to occur. Based on the results, there were 3.27 weighted means for Selected Maintenance Personnel; 3.55 weighted mean for Selected Faculty; and 3.55 weighted mean for Selected Experts from University Partners. Therefore, the interpretation was" H.E.- Highly Effective".

It must use the maintenance forms every time before the implementation of the campus projects.

Building use scheduling system

Ensures everyone is on the same page with tasks, dependencies, and deadlines. Highlights issues and concerns, such as a lack of resources. Identifies task relationships. Monitors progress and identifies issues early.

Table 13: **Building use scheduling system,** N=90

Characteristics of Building use scheduling system	**Identified Respondent Groups**					
	Selected Maintenance Personnel (70)		Selected Faculty (10)		Selected Experts from University Partners (10)	
	WM	VD	WM	VD	WM	VD
It's easily communicated	3.26	HE	3.53	HE	3.53	HE
It's flexible	3.28	HE	3.54	HE	3.54	HE
It commits the project team	3.26	HE	3.53	HE	3.53	HE
It shows interrelationships among tasks very clearly	3.28	HE	3.54	HE	3.54	HE
It's prepared in calendar time, not in the number of workdays	3.28	HE	3.53	HE	3.53	HE
It forces early deadlines	3.26	HE	3.50	HE	3.50	HE
It allows for revision time following each review	3.28	HE	3.52	HE	3.54	HE
It builds in time for slippage	3.26	HE	3.54	HE	3.50	HE
It correlates with other projects assigned to the team	3.26	HE	3.53	HE	3.54	HE
It extends beyond the due date of the contract	3.28	HE	3.54	HE	3.50	HE
Total:	***3.27***		***3.53***		***3.53***	
Interpretation:	***H.E.- Highly Effective***					

Table 13 presents the "Building use scheduling system" of the identified respondents. It shows that there were ten characteristics of the Building use scheduling system of the Campus. It's easily communicated, It's flexible, it commits the project team, It shows interrelationships among tasks very clearly, It's prepared in calendar time, not in the number of workdays, It forces early deadlines, It allows for revision time following each review, It builds in time for slippage, It has a correlation with other projects assigned to the team, and It extends beyond the due date of the contract. Based on the results, there were 3.27 weighted means for Selected Maintenance Personnel; 3.53 weighted mean for Selected Faculty; and 3.53 weighted mean for Selected Experts from University Partners. Therefore, the interpretation was" H.E.- Highly Effective".

The implication of the table must use maintenance scheduling and monitoring based on the approved maintenance plan.

Table 14: Managing supplies, N=90

Characteristics of Managing supplies	**Identified Respondent Groups**					
	Selected Maintenance Personnel (70)		Selected Faculty (10)		Selected Experts from University Partners (10)	
	WM	VD	WM	VD	WM	VD
Flexibility	3.26	HE	3.55	HE	3.55	HE
Speed of Delivery	3.28	HE	3.54	HE	3.54	HE

Campuses Reach	3.28	HE	3.55	HE	3.55	HE
Optimized Inventory	3.28	HE	3.54	HE	3.54	HE
Go Green and Sustainable	3.26	HE	3.59	HE	3.55	HE
Proactive Strategy	3.28	HE	3.54	HE	3.54	HE
Innovativeness	3.29	HE	3.59	HE	3.55	HE
Total:	***3.27***		***3.56***		***3.55***	
Interpretation:	***H.E.- Highly Effective***					

Table 14 shows the "Managing Supplies" of the identified respondents. It shows that there were seven characteristics of the Managing Supplies of the Campus Flexibility, Speed of Delivery, Campus Reach, Optimized Inventory, Go Green and Sustainable, Proactive Strategy, and Innovativeness. Based on the results, there were 3.27 weighted means for Selected Maintenance Personnel; 3.56 weighted mean for Selected Faculty; and 3.55 weighted mean for Selected Experts from University Partners. Therefore, the interpretation was" H.E.- Highly Effective".

The implication of the table must be strict and properly distribute supplies to the department and monitored based on the work breakdown schedules.

School plant management ensures that school buildings and grounds, equipment, materials, technical and other service systems, facilitate and support the provision of education by a school. The responsibility for managing the school plant rests with the head teacher or the school principal.

Level of Acceptability

The degree to which something is agreed or approved of by most people in a society.

Table 15: Level of Acceptability, N=90

Attributes of Level of Acceptability	**Identified Respondent Groups**					
	Selected Maintenance Personnel (70)		Selected Faculty (10)		Selected Experts from University Partners (10)	
	WM	VD	WM	VD	WM	VD
Perceived Usefulness	3.26	HE	3.54	HE	3.52	HE
Perceived Ease of Use	3.28	HE	3.56	HE	3.54	HE
User's Satisfaction	3.26	HE	3.54	HE	3.52	HE
Total:	***3.27***		***3.55***		***3.53***	
Interpretation:	***H.E.- Highly Effective***					

Table 15 presents the "Level of Acceptability" of the identified respondents. It shows that there were three attributes of the Level of Acceptability of the Campus such as: Perceived Usefulness, Perceived Ease of Use, and User's Satisfaction. Based on the results, there were 3.27 weighted means for Selected Maintenance Personnel; 3.55 weighted mean for Selected Faculty; and 3.53 weighted mean for Selected Experts from University Partners. Therefore, the interpretation was" H.E. - Highly Effective".

It must implement the maintenance forms for the development of the school campus by maintaining the school facilities.

Facilities problems affect teaching and learning, student and staff health, day-to-day building operations, and the long-range fiscal health of the entire education organization. To some people's surprise, facilities problems are less a function of geography or socio-economics and more directly related to staff levels, training, and practices—all of which can be controlled by the organization. Thus, every school district should plan to meet the challenges of effective facilities maintenance. It is simply too big and too important of a job to be addressed haphazardly.

The expenses of using digital materials, both for schools and students at home, were the most commonly cited barriers to digital material use, with these barriers being particularly prevalent among teachers with more low-income students.

Students and staff can do better in an orderly, clean, and safe environment. However, maintenance staff needs to be mindful of the following challenges while planning and executing their work.

Table 16: Barriers and Challenges, N=90

BARRIERS	DESCRIPTION	CHALLENGES	RANKS
Excessive wear and tear on the facilities	School facilities have to withstand decades of wear and tear associated with crowds of students, many of which do not have enough respect for school property. Combine that with tight maintenance budgets and, with enough time, large-scale deterioration of school infrastructure is inevitable.	Utilize maintenance software. The best CMMS comes with a host of useful features like: 1. Work order management 2. Spare parts inventory and management 3. Report generation 4. Preventive maintenance planning and scheduling 5. Contractor and vendor management	1
Enforcing compliance with cleanliness and hygiene regulations	Cleaning and hygiene are vital for preventing illness in any building, especially in the pandemic era. Different states have specific hygiene guidelines for schools under their jurisdiction like this one for the state of Illinois. As most teachers will tell you, it can be tricky getting students to maintain their distance and comply with cleanliness and hygiene rules. On their part, the maintenance team can help to minimize the risks by maintaining strict cleaning and disinfection schedules and ensuring a steady supply of cleaning supplies (hand sanitisers, soap, tissue, etc.) in toilets.	Automate inventory management 1. Instead of wasting precious time and labour hours trying to manually figure out what parts you still have in stock, where they will be used next, or how soon you'll need to reorder, utilize software to centralize and automate your spare parts inventory. 2. A computerized maintenance management system helps with this as well. One of the major benefits of automating inventory management is that it helps minimize situations where spare parts run out and your technicians are left with no materials to complete urgent work.	2
The issue of maintaining IAQ	Organizations like UNICEF and WHO often quote research that shows student's lungs are susceptible to air pollution. Continuous exposure to pollutants in the community can lead to permanent respiratory health issues like asthma. In the US, the EPA regularly publishes information on this subject as well.	In a school environment, building maintenance can help to reduce potential problems by: Removing dust mites, pests, and mould Cleaning/replacing air filters when due Controlling humidity Installing, maintaining, and upgrading HVAC systems Installing air quality monitors	3

School maintenance problems affect both teaching and learning. Students and staff will directly feel the impact of poorly maintained structures on their health, such as the Indoor Air quality-related problems mentioned earlier.

Apart from the health implications, studies imply that there is a direct connection between the school environment and academic performance. Some of the benefits of school maintenance are:

1. Limiting unscheduled disruptions: Unscheduled shutdown of systems and major equipment can wreak havoc on student and staff productivity and interfere with the teaching year by disrupting classes, exams, and other important activities.

2. Preserving health: An efficient school maintenance program helps to keep students physically safe and minimizes their potential exposure to infections due to polluted water or air.

3. Saving money: School budgets are often tight. Maintenance helps to improve assets' running condition, thereby extending equipment lifespan and saving schools from unexpected, costly repairs.

At the end of the day, we all want to work in pleasant and functional environments. The maintenance department is here to try and make that a reality, even when the budgets aren't as big as they ought to be.

4. Summary of findings

This research aimed to assess the existing school building maintenance and determine the effectiveness of the

Technology Management: A Digital School Plant Facility Management Program at Sultan Kudarat State University during School Year: 2021-2022 towards University System Wide Maintenance.

The result showed that the subject of the study was determined by the purposive sampling method as a requirement for the intended study. Specifically, the school campus is in need of Technology Management: A digital School Plant Facility Management Program at Sultan Kudarat State University as a major part of the Maintenance.

5. CONCLUSION

Based on the findings and after careful analysis and interpretation of the research study, it is concluded that the Technology Management: A Digital School Plant Facility Management Program at Sultan Kudarat State University meets the required standards and is a precise guide in Campus Maintenance.

6. Recommendation

It is recommended that the Technology Management: A Digital School Plant Facility Management Program at Sultan Kudarat State University be adopted and practised for maintenance personnel.

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