RISK FACTORS AND CHALLENGES IN THE FACILITIES DEPARTMENTS OF PUBLIC HIGHER EDUCATION INSTITUTIONS

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This research undertakes a comprehensive study of innovative risk management in the Facilities Departments of public higher education institutions in Phutthamonthon District, Nakhon Pathom Province. The research identifies specific risk factors and challenges unique to these departments while proposing a set of tailored risk management recommendations. Key findings reveal a range of risk categories, including maintenance issues, environmental concerns, operational constraints, and technological challenges. These findings highlight the critical need to increase risk awareness and develop formal risk management practices within Facilities Departments. The study’s recommendations include the adoption of systematic risk assessment, strategic resource allocation, technology integration, and measures to enhance environmental sustainability. These ideas have significant implications for governance, resource allocation, risk culture, and technology integration in public higher education institutions. By bridging the empirical gap and providing practical recommendations, this research contributes significantly to the enhancement of operational excellence in public higher education institutions, aligning them with the demands of the contemporary educational landscape.

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Introduction

In contemporary public sector management, the pursuit of operational excellence and the establishment of high-performance organizations have gained paramount importance. The notion of a High-Performance Organization (HPO) aligns with the National Strategy (2018-2037) aimed at reconfiguring and advancing the public sector management system. An integral aspect of achieving HPO status is the implementation of effective risk management practices, which not only enhance opportunities for success but also mitigate the likelihood of failure while reducing uncertainty in an organization's overall performance (Lam, 2014; Weaver & Reisman, 2020).

Public higher education institutions, as defined in the Dictionary of Education Terminology (Courant et al., 2006) serve as the cornerstone of post-secondary education, encompassing undergraduate and graduate programs. These institutions play a pivotal role in producing qualified graduates essential for the future development of the country. Consequently, these institutions boast a considerable workforce and rely heavily on their Facilities Departments to oversee the physical infrastructure, ensuring its availability and functionality.

Effective management of public and private organizations requires two key components: success and error management. In the pursuit of success, organizations use information to develop robust operational guidelines. In case of errors or deviations, a proficient management approach is required to correct or minimize these errors. One such approach that is integral to error management is risk management, the process through which organizations identify, assess and reduce risks by drawing on past events and similar cases in organizations with similar characteristics (COSO, 2017).

Given the context, this research underscores the imperative of enhancing the operational potential of Facilities Departments within public higher education institutions in Phutthamonthon District, Nakhon Pathom Province, through the strategic application of risk management methodologies. By analyzing key risk factors using theoretical risk management frameworks such as COSO (Committee of Sponsoring Organizations of the Treadway Commission) and fostering the quality of public sector management through the Public Management Quality Assessment (PMQA) framework, this research aspires to drive innovation in risk management practices within the facilities of public higher education institutions (Hood, 2011; Hoque, 2014).

While the significance of risk management in public sector organizations, including public higher education institutions, is well-acknowledged (Jung et al., 2018), there is a research gap to comprehensively examine how risk management can be innovatively integrated into the operations of Facilities Departments within these institutions. Despite the potential benefits of effective risk management, there is limited empirical evidence on how theoretical risk management procedures such as COSO can be adapted and tailored to the unique needs and challenges faced by Facilities Departments in public higher education institutions in the context of Phutthamonthon District, Nakhon Pathom Province.

This research aims to address this gap by examining current risk management practices in the Facilities Departments of public higher education institutions, identifying key risk factors, and proposing innovative strategies to enhance risk management in this specific
RISK FACTORS AND CHALLENGES IN organizational context. Therefore, this study aims to provide valuable information that can inform and improve risk management practices, ultimately bolstering the operational excellence of these institutions.

Literature Reviews

**Management innovation concept**

Management innovation is a multifaceted and dynamic concept that has attracted significant attention in both academic and practical circles. It represents the introduction of new approaches, strategies, and practices into organizational management processes aimed at enhancing effectiveness, efficiency, and competitiveness (Birkinshaw, 2010).

Scholars have identified various aspects of management innovation, including:

- **Structural Innovation**: This refers to changes in the organizational structure, hierarchy, and reporting systems. For instance, the adoption of matrix structures or the elimination of middle management positions can be considered structural innovations (Tidd et al., 1997).
- **Process Innovation**: Process innovation involves the redesign of workflow, procedures, and methods. It is often aimed at streamlining operations and improving efficiency. Concepts such as Total Quality Management (TQM) and Lean Management fall into this category (Davenport, 1993).
- **Product or Service Innovation**: Management innovation can extend to the development of new products or services. This can involve innovative product design, diversification, or the introduction of groundbreaking offerings (Goffin & Mitchell, 2005).
- **Cultural Innovation**: Changing organizational culture is a significant facet of management innovation. Encouraging a culture of innovation, collaboration, and adaptability can lead to transformative changes in an organization (Dvir et al., 2002).

Management innovation is essential for organizations seeking to thrive in today's competitive landscape. It promotes adaptability, fosters creativity, and enables organizations to respond effectively to changing market dynamics.

**Concepts and theories of risk management**

Risk management is a critical aspect of organizational management, covering a wide range of concepts and theories. It involves identification, assessment, and mitigation of risks that could impact an organization's objectives (Hillson & Murray-Webster, 2017).

Key concepts and theories in risk management include:

- **Enterprise Risk Management (ERM)**: ERM is a comprehensive approach that considers risks across an organization's entire portfolio. The Committee of Sponsoring Organizations of the Treadway Commission (COSO) framework is widely used for ERM implementation (COSO, 2017).
- **Risk Assessment Models**: Various models and methodologies, such as the Risk Assessment Matrix or the Probability-Impact Matrix, help organizations categorize and prioritize risks based on their potential impact (Hillson & Murray-Webster, 2017).
- **Risk Appetite and Tolerance**: These concepts refer to an organization's willingness to accept and manage risk. Organizations define their risk appetite and tolerance levels to guide decision-making (Fraser & Simkins, 2010).
Resilience Theory: This theory emphasizes an organization's ability to adapt and recover from adverse events. It underscores the importance of proactive risk management (Hamel & Välikangas, 2003).

Behavioral Aspects of Risk: Understanding human behavior in risk perception and decision-making is crucial. Concepts such as behavioral economics shed light on how cognitive biases can influence risk assessment (Khaneman & Tversky, 1979).

**Concepts and theories about the management of public sector organizations**

Managing public sector organizations involves unique challenges and complexities. Concepts and theories in this area are critical to ensuring efficient and accountable management (Klijn & Teisman, 2003).

Key concepts and theories in public sector management include:


- Public Value Theory: This theory argues that public sector organizations should focus on creating value for citizens and stakeholders, going beyond mere cost-efficiency (Moore, 1995).

- Principal-Agent Theory: In the public sector, where elected officials (principals) delegate responsibilities to bureaucrats (agents), this theory explores the challenges of aligning interests and incentives (Eisenhardt, 1989).

- Governance and Collaborative Networks: Public sector management increasingly involves collaboration with external stakeholders. Concepts such as network governance and collaborative governance examine these complex relationships (Klijn & Koppenjan, 2000).

- Performance Measurement and Accountability: Effective performance measurement systems, accountability frameworks, and transparency are crucial for public sector organizations to demonstrate value and build public trust (Behn, 2001).

Public sector management theories and concepts are essential for decision making, policy development, and service delivery in government organizations.

**Physical resource management**

Physical resource management encompasses the strategic and operational processes involved in efficiently and effectively managing an organization's tangible assets, such as infrastructure, equipment, and facilities. It plays a crucial role in optimizing resource utilization and ensuring the sustainability of physical assets (Prajogo & Olhager, 2012).

Key concepts and areas within physical resource management include:

- Asset Lifecycle Management: organizations adopt strategies for the entire lifecycle of physical assets, from acquisition and maintenance to replacement or disposal (Schuman & Brent, 2005).

- Maintenance Management: effective maintenance practices are essential for preserving the functionality and longevity of physical assets. This includes preventive maintenance, predictive maintenance, and reliability-centered maintenance (Pavithra & Ramachandran, 2021).

- Sustainability and Green Management: modern physical resource management places a strong emphasis on sustainability, including energy efficiency, environmental impact reduction, and compliance with regulations (Santiteerakul et al., 2015).
Asset Tracking and Technology: advances in technology, such as the use of Geographic Information Systems (GIS) and Computerized Maintenance Management Systems (CMMS), have revolutionized asset tracking and management (Karimi & Jordanova, 2021).

Risk Management: Identifying and mitigating risks associated with physical resources is crucial. Risk management involves assessing potential threats, such as natural disasters or equipment failure, and developing contingency plans (Eicher et al., 2009).

Efficient physical resource management contributes to cost reduction, increased asset utilization, and enhanced organizational performance. It is particularly critical in sectors such as manufacturing, construction, and infrastructure development.

**Facility management**

Facility management involves the comprehensive and integrated management of an organization's physical infrastructure, encompassing buildings, spaces, and support services. It plays a pivotal role in ensuring that facilities are conducive to achieving an organization's objectives and providing a safe and comfortable environment for occupants (Alexander, 1992).

Key concepts and areas within facility management include:

- **Space Planning**: efficient space utilization is crucial for optimizing the functionality of facilities. Facility managers are responsible for space allocation, design, and layout (Bakker, 2016).

- **Occupant Experience**: facility management focuses on enhancing the experience of building occupants. This includes aspects like comfort, security, and amenities (Leaman & Bordass, 2007).

- **Maintenance and Operations**: Similar to physical resource management, facility management includes the maintenance and upkeep of facilities to ensure they remain operational and safe (Aslam et al., 2019).

- **Environmental Sustainability**: Facility managers increasingly adopt green building practices to reduce environmental impact. Concepts such as LEED (Leadership in Energy and Environmental Design) certification are central to sustainable facility management (Kats, 2003).

- **Technology Integration**: Facilities are becoming smarter with the integration of technology. Concepts like Building Information Modeling (BIM) and the Internet of Things (IoT) are transforming facility management (Shishegharkhaneh et al., 2022).

Effective facility management contributes to improved employee productivity, reduced operating costs, and enhanced sustainability. It is particularly critical in sectors such as commercial real estate, healthcare, and education.

**Research methodology**

This study uses a qualitative research approach to deeply explore innovative risk management practices in the Facilities Departments of public higher education institutions in Phutthamonthon District, Nakhon Pathom Province. Qualitative research is well-suited for investigating complex, context-specific phenomena, such as risk management in educational organizations (Creswell & Poth, 2017).
Thirty in-depth interviews will be conducted with key stakeholders from the Facilities Departments, university administrators, and risk management experts. The interviews will explore various aspects of innovative risk management, covering the following areas:

- **Internal Environment**: a study of the organizational culture, values, and attitudes related to risk management in the Facilities Department.
- **Objective Setting**: investigate how risk management objectives align with the department's broader goals and objectives.
- **Risk Identification**: exploring the methods and strategies used to identify potential risks unique to the Facilities Department.
- **Risk Assessment**: examining how risks are evaluated in terms of their severity and likelihood of occurrence.
- **Risk Response**: investigating the approaches and strategies used to effectively respond to identified risks.
- **Control Activities**: assessing the control mechanisms, policies, and procedures in place to mitigate risks.
- **Information and Communication**: analyzing how information related to risks is communicated, shared, and disseminated within the department.
- **Monitoring**: exploring the procedures for ongoing monitoring and evaluation of risk management practices and their outcomes.

A standardized set of interview questions will be used consistently throughout the study. All interviews will be recorded through audio or video recording and supplemented with detailed note taking to facilitate accurate data collection and transcription.

Content Analysis: document analysis of official documents, reports, and policies related to risk management within the selected institutions will be conducted to complement the interview data. This content analysis will provide additional insights into the current state of risk management practices (Elo & Kyngäs, 2008).

The study will present research findings in a narrative format, organized according to the various stages of the risk management process. It will offer an in-depth exploration of the role, challenges, and innovative practices within Facilities Departments. Additionally, the study will suggest risk management guidelines explicitly tailored to the context of public higher education institutions in Phutthamonthon District, Nakhon Pathom Province.

**Research result**

The comprehensive depiction of the role and responsibilities of the Facilities Department within public higher education institutions

Tab. 1 summarizes the varied responsibilities of the Facilities Department at each institution, demonstrating their integral role in maintaining infrastructure, managing space, and supporting academic endeavors.

Detailed analysis of the specific risk factors and challenges encountered by the Facilities Department in the selected public higher education institutions.

The research has undertaken a comprehensive analysis of the specific risk factors and challenges encountered by the Facilities Department in the selected public higher education institutions. These institutions face a diverse range of risk factors and challenges, including:

- **Maintenance Risks**: in all institutions, maintenance-related challenges emerged as a significant risk factor. These challenges include equipment breakdows, deteriorating
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infrastructure, and the need for regular repairs and upgrades. The outdated infrastructure in some institutions poses a continuous risk to the Facilities Department.

Table 1 - Role and responsibilities of the Facilities Department within public higher education institutions (compiled by co-authors)

<table>
<thead>
<tr>
<th>Institution</th>
<th>Infrastructure Maintenance</th>
<th>Space Management</th>
<th>Academic Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rajamangala University of Technology</td>
<td>Responsible for maintaining diverse campus infrastructure, including academic buildings and student facilities.</td>
<td>Ensures optimal space allocation to support academic needs and resource efficiency.</td>
<td>Contributes to creating a conducive academic environment by maintaining classrooms, lecture halls, and libraries.</td>
</tr>
<tr>
<td>Rattanakosin</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mahidol University</td>
<td>Manages a wide range of infrastructure, including research laboratories, medical facilities, and extensive campus assets.</td>
<td>Efficiently allocates space to accommodate various programs and academic disciplines.</td>
<td>Maintains academic spaces such as lecture halls and research facilities to support teaching and research.</td>
</tr>
<tr>
<td>Suan Sunandha Rajabhat University</td>
<td>Oversees the maintenance of academic and administrative buildings, libraries, and campus infrastructure.</td>
<td>Ensures effective space utilization to support teacher education and research activities.</td>
<td>Maintains academic spaces, providing a suitable environment for teaching and learning.</td>
</tr>
<tr>
<td>Mahamakut Buddhist University</td>
<td>Preserve temple grounds, meditation halls, and educational buildings, aligning with the spiritual and academic aspects of the institution.</td>
<td>Manages spaces dedicated to religious ceremonies, meditation, and academic functions.</td>
<td>Maintains academic spaces conducive to teaching, research, and contemplation.</td>
</tr>
</tbody>
</table>

Environmental Risks: the geographic and environmental context of these institutions introduces specific risks. Natural disasters such as floods, earthquakes, and climate-related challenges such as extreme weather events can have a severe impact on the physical assets of the universities. Ensuring resilience in the face of these environmental risks is a priority.

Operational Risks: budget constraints and resource allocation complexities were identified as operational challenges. The Facilities Departments are often required to manage limited financial resources while maintaining extensive infrastructure, leading to operational risks such as deferred maintenance or insufficient staffing.

Technological Risks: the increasing integration of technology in facility management presents its own set of risks. Managing complex facility management systems, ensuring data security, and adapting to technological advances are critical concerns for these departments.

A noteworthy finding from the analysis is the limited risk awareness and formal risk management practices in the Facilities Departments in the selected institutions.

While these departments play a pivotal role in risk mitigation, there is a widespread need for increased risk recognition and the development of proactive risk management strategies.
Many employees in these departments may require formal training in risk management, indicating an area for improvement.

**Resource allocation challenges**

The research has developed a set of individual risk management guidelines and recommendations for the Facilities Department in public higher education institutions. These guidelines are aimed at improving risk management practices within these departments and enhancing their ability to address the identified challenges proactively.

The proposed guidelines include:

- **Comprehensive risk assessment**: to implement a systematic approach to assessing and categorizing risks specific to the Facilities Department. This includes identifying maintenance-related risks, environmental risks, operational risks, and technological risks. To conduct regular risk assessments to stay updated on emerging threats.

- **Prioritization and mitigation**: to prioritize identified risks based on their potential impact and likelihood of occurrence. To develop mitigation strategies and action plans for high-priority risks, with a focus on preventive measures to minimize their impact.

- **Resource allocation**: to implement a strategic resource allocation plan that aligns budget allocation with identified risks and mitigation strategies; to ensure efficient allocation of financial resources to address maintenance and operational challenges.

- **Technology integration**: to embrace technology for efficient facility management. To invest in integrated facility management systems that provide real-time monitoring and reporting capabilities to detect and resolve problems.

- **Environmental resilience**: to develop and implement environmental resilience strategies to mitigate the impact of natural disasters and climate-related challenges. This may include infrastructure improvements, disaster preparedness plans, and sustainability initiatives.

- **Training and awareness**: to provide ongoing training and awareness programs for Facilities Department staff to enhance their understanding of risk management principles and practices. To equip them with the knowledge and skills required to identify, assess, and respond to risks effectively.

- **Collaboration and communication**: to foster collaboration between Facilities Departments and other relevant departments within the institution. To establish clear communication channels to facilitate the sharing of risk information and response strategies.

- **Monitoring and review**: to monitor regularly the effectiveness of risk management initiatives and update risk assessments as needed. To conduct periodic reviews to ensure that risk management practices remain aligned with evolving challenges and institutional goals.

**Research conclusion**

Management Innovation emerges as a dynamic and multidimensional concept crucial for organizations striving to thrive in today's competitive environment. It encompasses structural, process, product or service, and cultural innovations, all of which contribute to improving organizational effectiveness and adaptability (Birkinshaw, 2010).

Risk Management stands as a fundamental pillar of effective organizational governance, encompassing the identification, assessment, and mitigation of risks. Key concepts and theories, including Enterprise Risk Management (ERM), risk assessment
models, risk appetite, resilience theory, and behavioral aspects of risk, underline the pivotal role of risk management in helping organizations navigate uncertainties while safeguarding their interests (Hillson & Murray-Webster, 2017; Fraser & Simkins, 2010).

Management of Public Sector Organizations introduces unique challenges that demand specific concepts and theories. Notable concepts include New Public Management (NPM), public value theory, principal-agent theory, governance and collaborative networks, and performance measurement and accountability. These concepts provide essential guidance for ensuring efficient and accountable governance in government organizations (Klijn & Teisman, 2003; Moore, 1995).

Physical Resource Management plays a vital role in optimizing resource utilization and ensuring the sustainability of tangible assets, such as infrastructure, equipment, and facilities. Key concepts encompass asset lifecycle management, maintenance management, sustainability and green management, asset tracking and technology, and risk management (Prajogo & Olhager, 2012; Santiteerakul et al., 2015).

Facility Management is of paramount importance to ensure the smooth operation of an organization’s physical infrastructure, including buildings, facilities, and support services. Crucial areas of facility management include space planning, occupant experience, maintenance and operations, environmental sustainability, and technology integration (Alexander, 1992; Kats, 2003).

In conclusion, this research has provided a holistic understanding of these areas and their interrelationships within the specific context of public higher education institutions. It emphasizes the need to align management practices, risk mitigation strategies, and resource allocation with the overall goals and expectations of stakeholders. These ideas are invaluable for improving the effectiveness and sustainability of public higher education institutions in Phutthamonthon District, Nakhon Pathom Province.

**Research discussion**

The research has highlighted the intricate interplay of concepts and theories across the domains of management innovation, risk management, public sector organization management, physical resource management, and facility management. An intriguing observation is that these domains are not soloed but, in fact, deeply interconnected.

Management Innovation, as discussed by Birkinshaw (2010), is instrumental in fostering adaptability and competitiveness. It has implications for the management of public sector organizations, particularly in the context of New Public Management (NPM). NPM’s emphasis on efficiency, performance measurement, and market-based principles aligns with the innovation-driven approach advocated in management innovation. Moreover, adopting innovative practices can enhance the effectiveness of public sector organizations and their ability to create value for citizens, as suggested by Public Value Theory (Moore, 1995).

Risk Management is a pervasive theme across all domains. While its importance is evident in managing public sector organizations, it is equally critical in Physical Resource Management and Facility Management. Practical risk assessment and mitigation strategies are essential not only for financial stability but also for the sustainability of physical assets and the seamless operation of facilities. The adoption of Enterprise Risk Management (ERM) principles, as recommended by COSO (2017), transcends organizational boundaries, making it relevant in both the public sector and resource management contexts.
The role of technology is another common thread running through these areas. From process innovation in management to technological risks in facility management, technology integration is transformative. Concepts like Building Information Modeling (BIM) and the Internet of Things (IoT) are revolutionizing how organizations manage physical resources and facilities (Shishehgarkhan et al., 2022).

**Research implications**

The findings of this research have significant implications for public higher education institutions in Phutthamonthon District, Nakhon Pathom Province, and beyond.

Enhanced Governance: implementing New Public Management principles can enhance governance in these institutions by focusing on efficiency, performance measurement, and market-based principles (Hood, 1991).

Strategic Resource Allocation: efficient Physical Resource Management involves strategic resource allocation, long-term financial planning, and sustainability initiatives. This is crucial for addressing resource scarcity challenges in higher education.

Risk-Aware Culture: Promoting a risk-aware culture and investing in staff training can help Facilities Departments recognize and manage risks effectively, reducing maintenance-related challenges and environmental risks.

Technology Integration: embracing technology, such as BIM and the IoT, in facility management can enhance operational efficiency and improve occupant experiences in academic buildings.

Collaboration and Communication: fostering collaboration between Facilities Departments and other academic and administrative units can facilitate information sharing, enabling proactive risk management (Klijn & Koppenjan, 2000).

**Limitations and future research**

While this research has provided valuable ideas, it has limitations. The findings are specific to the context of public higher education institutions in Phutthamonthon District, Nakhon Pathom Province, and may not be directly applicable elsewhere. Future research could expand the scope to include a broader range of institutions and regions.

Additionally, the research identifies a gap in risk awareness and formal risk management practices within Facilities Departments. Future research could delve deeper into the development of individual risk management training programs for staff within these departments and measure their impact on risk mitigation.

In conclusion, the interconnectedness of management, risk, resource, and facility management underscores the need for a holistic approach to enhancing the effectiveness and sustainability of public higher education institutions. By implementing the recommendations and addressing the limitations, these institutions can better navigate the complex landscape of modern education.

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