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Enhancing IT Change Management through Communities of Practice and Social Learning: A Case Study at a University

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Abstract

As information technology (IT) is taking over numerous aspects of our lives, handling IT changes becomes more and more urgent for the higher education institutions. The study that aims to explore the influence of social learning within a Community of Practice (CoP) in IT change management at the University X in Jakarta was conducted. Through a case study approach that involves document analyses, semi-structured interviews, and participant observations, it was shown the pivotal role of CoPs in facilitating the IT changes by promoting social interaction and collaboration. The CoP can help to find the problem early and build a risk-reduction plan around it. This research finds that despite challenges maintaining consistent procedures, inter-departmental coordination, and the necessity of broadened training and communication, integrating CoPs with COBIT 2019 principles can offer a unified approach to IT transformation for the universities. The integration will allow universities to have better plan around changes in technology and offers practical examples for other higer education institutions.

Keywords: IT Changes, IT Change Management, Social Learning, Communities of Practice, Case Study

1. INTRODUCTION

As the process of adopting new technologies grew more complicated, IT change management became integral to achieving success as organizations needed to plan effectively and execute precisely for minimum disruptions and intended results [1]. Moreover, IT change implementation in higher education institutions is an important part that needs changes not only technically but must be adapted among the academic and administrative staff too [2], [3]. Furthermore, social learning and the concept of a community of practice are increasingly being recognized as important, as learning can occur through social interaction and collaboration [4], [5], [6].

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Incorrect IT changes can cause major disruptions in the normal course of business. The IT changes process should therefore be carried out in a structured and controlled manner to minimize the risks that will cause harm to organizational operations, respectively. Social learning and CoP can be used to create an environment for university members share knowledge and experiences. Teams can define and recognize many factors of potential problems in addition to a mutual understanding around the effective IT change processes. [7], [8]

CoPs are valuable for promoting interaction and cooperation among university members, thus can help to facilitate IT change through social learning. Studies have also demonstrated the importance of CoPs to enable knowledge-sharing and collective learning [9-13].

University X, which is the case study in this research, has implemented IT change management, but still faces significant problems. Some of the key issues faced were frequent system downtime, loss of critical data, decreased productivity, and reputational and financial losses. Although University X had adopted IT change management procedures, these challenges arose due to several key factors: lack of inter-departmental coordination, inconsistent procedures, lack of training and effective communication.

This study explores the impact of social learning within CoPs on the implementation of managed IT change at University X in Jakarta, by integrating COBIT 2019 principles to create a unified approach to IT transformation. Research that investigates social learning within CoPs as it relates to managed IT changes in educational contexts is still relatively modest. Hence, this research intends to fill the gap in the literature and offer actionable advice that can be implemented at other universities in the same situation.

COBIT (Control Objectives for Information and Related Technologies) is commonly used IT change management framework. COBIT provides comprehensive guidelines for IT governance and management [14], [15]. COBIT is fundamentally based on the Plan-Do-Check-Act (PDCA) cycle, which helps to provide a logical organizing principle for effective IT management planning and evaluation [16], [17]. However, while COBIT offers robust process models for managing IT changes, it does not address the socio-technical aspects of how social learning and communities of practice can enhance these managed IT changes. To fill this gap, this study evaluates current practices as part of the "Check" phase to inform future planning and improvements. By using COBIT 2019, the latest version, as a reference, the study aims to integrate structured IT management with social learning dynamics, optimizing IT change management to leverage both technical and social dimensions.

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The following is the scope of the research questions:

1) How can social learning and communities of practice impact the implementation of managed IT changes in a university?
2) What are strategies and practices that support the effective implementation of managed IT changes?

The BAI (Build, Acquire, and Implement) domain on COBIT 2019 has BAI05 (Managed Organizational Change) and BAI06 (Managed IT Changes) that important for IT change management. These processes underline the importance of effective communication, training, and support to ensure that changes are accepted and implemented smoothly. By combining the principles from COBIT 2019 with a social learning approach in a CoP, universities can ensure that IT changes are managed well, and operational risks are minimized.

2. METHODS

Managed IT changes are a systematic approach to coordinating changes to the information technology infrastructure of an organization to ensure that the least number of problems are introduced to the operation [7][12]. This process is even more important in institutions of higher education in which IT infrastructure underpins upper-level academic and administrative operations. Managing changes to the IT environment requires a clear way of how and what technical requirements need to be considered, as well as the potential impact and strategies to mitigate risk [1], [7], [8], [18-20]. Uncontrolled IT changes can result in serious operational disruptions that lead to system downtime, data breaches, decreased work performance, and monetary loss, as the literature suggests [7], [18].

Using a qualitative case study, this research will explore the effect of social learning within a CoP on the implementation of managed IT changes. The entire research journey spanned five months, which provided ample time for extensive data collection and analysis.

Step 1: Document Analysis

The first step is to analyze documents related to IT change management in University X, which encompass Standard Operating Procedures (SOPs), incident reports and change records, and IT policies. This helps to understand the existing framework for IT changes, gaps in the current procedures and how these documents align with COBIT 2019 principles.

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Step 2: Semi-Structured Interviews

This is followed by a set of semi-structured interviews across a range of stakeholders, from IT staff to academic and administrative personnel. These interviews are intended to collect some insights about their experiences with IT changes, the role of Communities of Practice, and the challenges they face. This semi-structured format balances the flexibility needed for in-depth participant-centered perspectives and focused questions that address the specific aims of the research. A total of 15 individuals were interviewed: 5 IT staff members, five academic personnel, and five administrators. Table 1 shows a list of questions used for semi-structured interviews.

Step 3: Participatory Observation

Step three involves conducting participatory observations of CoP meetings, and IT change management events. In these sessions, the researcher observes how interactions occur and how decisions are made. This activity can give a real-time understanding of how CoP works, how members collaborate, and how social learning takes place. Observations reflect the flow of the sessions and the potential for discussion and real-world situations that came out of collaborative work.

Step 4: Analysis and Interpretation

In the qualitative data analysis, specific themes are synthesized and categorized by IT change management, social learning, and communities of practice (CoP) activity. The analysis focused on how social learning in CoPs aids IT change, the implementation of COBIT 2019, and the issues faced by the team. We develop insights in terms of how different social learning practices interplay with structured IT frameworks.

Step 5: Reporting and Recommendations

The results are then summarized together in a comprehensive report. The report identifies the success of IT change, the pain points at University X, the relevance of CoPs, and the incorporation of COBIT 2019 principles. Recommendations on improving IT change management practices are created with the help of the analysis. These recommendations are intended to enhance training, communication, stakeholder engagement, and the overall effectiveness of CoPs in facilitating IT changes.

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Tabel 1. List of Questions for Semi-Structured Interviews.

Part 1: Experience with Managed IT Changes 1. Can you describe the biggest IT change you've experienced at University X? 2. What were the major challenges you faced during that IT change? 3. How was this IT change planned and managed? 4. Were there any incidents or issues resulting from poorly managed IT changes? If yes, what were the impacts? 5. How would you assess the effectiveness of existing procedures in IT change management at University X?
Part 2: Role of Community of Practice (CoP) 1. Are you involved in the Community of Practice (CoP) at University X? If yes, what is your role within it? 2. How does the CoP assist you in facing and managing IT changes? 3. Could you provide specific examples of how the CoP contributes to solving IT change-related issues? 4. How does the CoP facilitate social learning among its members?
Part 3: Integration of Social Learning with Managed IT Changes 1. How does social learning within the CoP influence your understanding and readiness for IT changes? 2. Are there any specific sessions or activities within the CoP that you find particularly helpful in the IT change process? 3. How does communication and collaboration within the CoP help mitigate risks during IT changes?
Part 4: Implementation of COBIT 2019 Framework 1. Are you familiar with the COBIT 2019 framework? If yes, how is this framework implemented at University X? 2. How are the principles of COBIT 2019, especially BAI05 (Managed Organizational Change) and BAI06 (Managed IT Changes), implemented in IT changes? 3. Are there any gaps or areas for improvement in the implementation of COBIT 2019 at University X?
Part 5: Evaluation and Recommendations 1. In your opinion, what has been successful in managed IT changes at University X? 2. What recommendations do you have to enhance the effectiveness of IT change management at University X? 3. How can the role of CoP be improved in supporting managed IT changes?

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3. RESULTS AND DISCUSSION

3.1. Overview of University X

University X is a private university located in Jakarta. University X manage its own servers and storage systems, they also utilize virtualization technology platform. This infrastructure allows for a provision of various educational digital services, but also brings challenges in IT change management. The university has a history of major downtime and data loss because of unmanage IT changes. Here are some of the root causes:

1) No Inter-Departmental Coordination: When there are no established policies, different departments usually do not adhere to the same procedures which cause interferences in IT changes deployment
2) Non-Standard Process: Execution of IT change management processes that are not definite, particularly when it comes to urgent and immediate changes, leads to vagueness in implementation.
3) Staff Not being Trained and Communicated With: Staff are also not trained on IT changes, leading to operational errors and taking a long time for change. This lack of communication however makes it worse because the staffs are still untrained and prepared for what is needed to be done.

Learn from their experience, university X considers the active CoP as key elements that enable IT staff and academic personnel and administrators to share their knowledge and their experiences in resolving IT change challenges. This research will investigate the role of communities of practice and social learning incorporate COBIT 2019 to facilitate IT change management. The CoP at University X includes members from various roles: IT staff, faculty, operational units (administrative staff), and university management.

3.2. Findings from Semi-Structured Interviews

Based on semi-structured interviews with different stakeholders at University X, we got an overview of how the stakeholders manage IT changes and where the Community of Practice (CoP) might fit in that process. The CoP includes IT staff, academics, and administrators, who each offer their thoughts on how to manage technological change. Most said the CoP presented an opportunity to deal with many new problems. Participants described weeks of system down time and data corruption resulting from IT changes that executed poorly. This highlights the importance of proper planning and communication to prevent major operational issues. They also discussed the importance of the CoP for exchanging knowledge and experience, which is critical when facing a number of technical and operational challenges.

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Our analysis of the interviews identified several themes related to IT changes and social learning within CoPs:

1) IT Change Management and Planning, some participants argued the importance of planning and management for IT changes.
2) Communication and Collaboration in CoPs, CoPs act as platforms to discuss good practices or exchange information to identify problems early, brainstorm, and resolve them in a collaborative environment. These not only enhance technical learning but also strengthen bonds with members.
3) Skill Development and Social Learning, Participants pointed to the importance of social learning in building the competencies required to manage IT changes successfully.

3.2.1 Implementation of COBIT 2019

Participants talked about how the COBIT 2019 framework is used as a reference for IT changes management at University X, and such principles as BAI05 (Managed Organizational Change) and BAI06 (Managed IT Changes) assist in standardizing procedures and enhancing the compliance level. They also mentioned the need for better training and ongoing support.

3.2.2 Positive Effect of CoP on IT Change Management

CoP is very important for IT change management. The CoPs are catalyst in social learning and foster a collaborative environment thereby supporting innovation and adaptation to technological changes.

These findings indicate that social learning through CoPs is a key element in IT change management at University X. The analysis also pinpoints various potential courses of action for improved IT change management at the university, such as broader use of principles from COBIT 2019 and more support for CoPs with social learning.

3.3. Participatory Observation Analysis

Participatory observation sessions at University X show that members of the newly established and piloted Community of Practice (CoP) worked with enthusiasm and cooperation. IT staff, academic personnel, and administrators who were CoP members met on a regular basis to discuss issues related with IT change. Each session started with a short presentation on selected topic, followed by small group discussions. The sessions are very supportive and open where every member can speak and contribute without fear or pressure. These interactions

demonstrated great trust and a common commitment to achieve better results together.

IT change management at University X has been heavily influenced by the social learning process within the CoP, this social learning comes from observing, discussing, and thinking together. The members of the CoP learn from the practical experiences and examples shared by their respective peers. Take the example of when CoP members are addressing incidents related to badly implemented IT changes - they will then explore root causes, exchange best practices they have used to work through such similar challenges and collectively develop risk management strategies for going forth. This process not only enhances the technology literacy of members but also improves members' resiliency to change and decision-making capabilities.

We can clearly observe the effect of this social learning on improved IT change management capabilities of CoP members. Members who may have been hesitant to touch some IT changes now have more confidence and are better trained. They are also better equipped to take on new challenges and can adapt much faster to new technological trends. Social learning within the CoP further strengthens the professional network among members, creating continuous social and technical support.

The observation indicates that the CoP at University X operates as an effective medium for social learning and collaboration that contributes significantly to the capacity of the institution to cope with change in its IT environment. Through this structured and interactive learning process, organizations will not only overcome their technical issues but will also grow a collaborative culture that enables continuous innovation and adaptability. For University X, this makes the CoP a successful instrumental in managing IT changes.

3.4. Document Review and Findings

3.4.1 IT Change Documents

The documents analyzed consist of Standard Operating Procedures (SOP), Incident reports and Change records. University X has a very detailed SOP that explains from planning to implementation to the evaluation of IT changes that must be followed. While they are comprehensive, they are usually not consistently implemented, especially in cases of sudden changes or emergencies. Most incident reports refer to problems that result from bad coordination and ineffective communication between the technicians and stakeholders. Change records can be used to show patterns in IT change management, identifying a need for

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improvements in things like documentation and monitoring before and after changes are implemented.

3.4.2 IT Policies and Procedures

The evaluation of IT policies and procedures at University X demonstrates that, while the institution has a strong IT change management framework in place, it has also identified multiple areas for improvement. Current IT policies address essential components such as risk management, change management, and emergency response. Policies are put in place to enforce a well-defined and well-controlled execution of every IT change to reduce as many operational incidents as possible. But some steps may fail to work. Such as systems of incident reporting, with poor (or no) follow-up and continuing (and similar) incidents occurring as a result. There is also a lack of training and socialization of policies as most staff in the organization hardly understand what the policies mean and how to be compliant with them.

Although existing policies and procedures lay a great groundwork for managed IT changes, these must be enforced consistently, and continued efforts be conducted to enhance communication and training efforts. Management support is equally important in the effective implementation of these policies and procedures. Hence, these should not only be on paper but repeated daily practice. University X can consider these sides to effectively address this and consequent changes in IT to minimize the risks that come with the changes and ensure IT operations for better quality IT services.

3.5. Implementation of COBIT 2019

In this part, we evaluate the application of COBIT 2019' BAI05 and BAI06. It provides a snapshot of the way things are happening at University X today, identifies the areas which could be enhanced and assesses the maturity level of these processes in the institution. Its purpose is to create a broad picture of how these principles come into play and impact on an organization's IT change management.

3.5.1 BAI05: Managed Organizational Change

Ensure organizational changes are well-managed, so that every IT change is accepted and understood by all university members. Implementation at University X:

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1) Training
   a) The university has developed various training programs to help staff understand IT changes.
   b) Note: These trainings are often inconsistent and lack comprehensiveness, resulting in some staff members not receiving adequate information.
2) Communication
   a) Efforts are made to communicate IT changes effectively.
   b) Note: Ongoing communication is still lacking, resulting in information not being evenly distributed to all staff.
3) Impact Assessment of Changes
   a) Impact assessments are conducted to understand the effects of IT changes on various parts of the university.
   b) Note: Impact assessments are often conducted ad hoc and lack structure.
4) Maturity Level:
   Processes have been documented, socialized, and understood by staff; University X is at Level 3.

3.5.2 BAI06: Managed IT Changes

Ensure all IT changes are carried out in a structured and controlled manner to reduce operational disruption risks. Implementation at University X:

1) Risk Assessment
   a) Before changes are made, the university assesses potential risks.
   b) Note: Although risk assessments are conducted, follow-up on these risk findings is often inadequate.
2) Change Planning
   a) Procedures for planning IT changes exist and are implemented.
   b) Note: Change planning is less detailed in some cases, especially in detailing risk mitigation steps.
3) System Testing
   a) Systems are tested before changes are implemented to ensure no issues arise.
   b) Note: Post-implementation testing is often not thorough, resulting in some issues going undetected.
4) Maturity Level:
   Processes have been documented, socialized, and understood by staff, with dependence on specific individuals; University X is between Level 2 and 3.

3.5.3 Alignment with COBIT 2019 Principles

1) Alignment of Business Objectives with IT Strategy
   a) Efforts: University X has attempted to align IT change objectives with business strategy.
   b) Note: This process often does not involve all stakeholders, leading to specific departmental needs being overlooked.
2) Risk Management
   a) Efforts: Risk management has become an integral part of change procedures.
   b) Note: The implementation of risk management needs to be strengthened, especially in terms of more proactive risk mitigation.
3) Continuous Improvement
   a) Efforts: The university has committed to continuous improvement in IT change management.
   b) Note: These efforts require improvements in ongoing training, more effective communication, and tighter monitoring.

3.6. Integration of CoP Findings and COBIT 2019

The analysis results from the Community of Practice (CoP), and the implementation of COBIT 2019 at University X indicates that they can complement each other and strengthen IT change management. CoP has proven effective as a platform for social learning, where members can share knowledge and experiences. Through this interaction, CoP members (especially IT staff, academics, and administrators) can identify issues early, collaborate on solutions, and develop better risk mitigation strategies. The CoP helps the implementation of COBIT 2019 principles throughout the organization by ensuring that all members of the organization are involved in the change, understand the objectives and the way and are interested in the success. On the other hand, COBIT 2019 brings a structured approach to managing IT-related changes completely and compliantly, from planning to evaluation. Here are the five main stages of the strategies representing the integration of CoP and social learning with COBIT 2019:

1) Stakeholder Identification and Engagement
   a) This process involves all relevant stakeholders, including IT staff, academics, administrators, management, and end-users.
   b) Integration: CoP act as common ground to include all stakeholders responsible for change process. While COBIT 2019 principles are used to ensure that the needs and concerns of all stakeholders are documented and well understood.

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2) Social Learning and Continual Learning
   a) CoP using social learning approach for continual learning related to IT change management.
   b) Integration: COBIT 2019 principles as reference for training material within CoP related to IT change management. Real case discussions and best practices in IT change management are based on COBIT 2019 guidelines.

3) Structured Planning Based on COBIT 2019
   a) Development of structured IT change plans with the application of COBIT 2019 principles, including risk assessment, resource allocation, testing, and impact evaluation.
   b) Integration: Adoption of COBIT 2019 as main reference for strategic planning of IT changes and inputs from CoP for potential problem and challenges.

4) Implementation and Monitoring
   a) Manage the IT changes to be executed by the authorized with the strict control to follow the defined procedures.
   b) Integration: CoP can provide direct feedback and suggestions for improvement in execution, which can be incorporated in monitoring based on COBIT 2019 principles.

5) Evaluation and Continuous Improvement
   a) Performing thorough post-execution assessments to determine the effectiveness of the changes and determine potential areas for improvement.
   b) Integration: All performance evaluations are shared within the CoP to ensure broader learning. This data can be used to improve the assessment process and continuous improvement of the principles of COBIT 2019.

3.7. Discussion of Key Findings

3.7.1 Successes and Challenges

University X has seen a lot of success in terms of controlled IT changes, but at the same time, it also faces some challenges. A specific case of success is implementing the COBIT 2019 reference model, which has contributed to a clearer and more controlled operation, reducing the risks of disruption in operational continuity and increasing compliance with IT standards. The most challenging aspect, however, is standardizing protocols and coordinating with different departments. Even though there are SOPs and IT policies, the implementation has been inconsistent,

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especially in the case of emergencies or sudden changes. Lack of continual training and effective communication causes some staff not to fully understand and then not follow the procedures, causing incidents that could have been avoided.

3.7.2 Impact of Social Learning

Social learning in a newly created Community of Practice (CoP) at University X has influenced IT change management. The CoP acts as a platform for these members to share their experiences, successes and struggles in identifying what works and what does not work in tandem. Likewise, members can increase their understanding of IT change procedures due to interactions in the CoP, and mistakes and successes can be learned from (or even avoided). Along with extensive social learning, this experience strengthens members' technical and managerial base and tends them to adapt to IT changes more efficiently.

Evaluation indicates that the CoP promotes the diffusion of information and knowledge and the development of a culture of collaboration. Members of the CoP feel more comfortable, more willing, and ready for change because they know they are not the only ones who care. Nevertheless, realizing the potential of social learning requires changes in CoP help and design. The design of CoP sessions could be narrower and more integrated with managerial support to make sure all its members can take part in it and benefit from that session fully.

3.8. Practical Recommendations

To improve the effectiveness of IT changes at University X, several strategies can be adopted:

1) Stakeholder Engagement
   Engage all stakeholders as early as possible in the change process. For example, via orientations to training, planning workshops and focus group meetings that would reveal specific data needs and pain points among different teams.
2) Responsive and Proactive Incident Reporting
   Enhance the timely and proactive response of the incident reporting system. Each and every reported incident should be followed up promptly to ensure that the issue is thoroughly understood, well as analysed to ensure that steps are included in future to prevent its re-occurrence.
3) Continuous Monitoring
   Implement continuous monitoring with frequent audits and KPIs. This is used to analyse whether the changings have some impact in the effectiveness and efficiency.
4) Enhancing CoP
   The following steps can be taken to improve the effectiveness of the Community of Practice (CoP) in backing up IT changes:

a. Strengthen CoP Structure and Facilitation
   Set up regular meeting times and ensure that there is a structured agenda for each session so that CoP is more focused and more productive.
b. Special Training for CoP Facilitators
   Train CoP facilitators on how to have better discussions and to help members identify and solve their problems.

5) Utilize Digital Collaboration Technology
   Use digital collaboration tools, such as online discussion and document sharing platforms, group members need to be able to interact in exchange knowledge even when not meeting in person.
6) Active Management Support
   Recognize and Reward CoP members who contribute and ensure active management support for CoP through provision of resources that enable them to participate.

4. CONCLUSION

This study aims to determine how social learning in Communities of Practice (CoPs) can influence IT change management at a private university called University X, Jakarta. The newly formed CoP has the potential to address some IT change challenges. This learning community actively supports a culture of continuous, collaborative learning and innovation, enabling members to operationalize their IT changes more efficiently, lower risks and ensure higher levels of resiliency across the entire university. CoP will allow the university to use its collective experience and knowledge of IT change management to identify problems before they happen and to develop a way of addressing the issue as standard before the risks become real. According to our studies, IT changes that are supported by CoP help address poorly managed incidents, enhancing service quality through adopting more effective technology. The study also revealed that University X struggled with achieving consistent procedure implementation and departmental coordination and it was suggested that University X would benefit from improved training and communication. A holistic approach to digital transformation can be obtained from CoP findings and COBIT 2019 principles integration. Practical insights provided by this study can be applied by other universities who face similar situations.

We have shown how the integration of social learning within CoPs into IT change management frameworks such as COBIT 2019 can inform wider aspects. This not only addresses current challenges but helps build IT environments which are more resilient and adaptable. Organizations can tame the technology transformation by focusing on two critical characteristics: Social dynamics and organized IT governance. This study has some limitations despite the positive results. Findings applied might not be generalizable to other institutions because the research was

completed at a single university site. It is necessary to extend this line of research with multiple universities. Contributions of future research Future studies could encompass the impact social learning and IT governance frameworks may have on organizations in terms of resilience and adaptability in long-term.

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