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Application Design for Thesis Submissions in Higher Education Based on Prototype of Android System Information Technology

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Abstract:

This study aims to analyze and develop an innovative prototype design based on Android system information technology to improve organizational performance in universities, especially in managing thesis submissions that have been done manually. This research uses a qualitative approach and literature study. The research location is at the Islamic University of Malang, Indonesia, which involves several informants: lecturers, the administration department, and students. This research was conducted by identifying and describing the manual system of workflow for the thesis submission process at the university and making design recommendations to change the manual system to Android information technology. The results showed that the thesis handling process at the Islamic University of Malang, Indonesia, was running too slowly and had been detrimental to the parties, especially for students, lecturers, and administration. The existence of universities in public services is considered ineffective, inefficient, and inappropriate. Therefore, for the best solution, it is necessary to use a new design to change the old manual thesis submission to be more sophisticated and modern in Android information technology. This will ensure the interests of all parties at the university and make it easier for all parties to complete their respective roles and tasks.

Keywords: service innovation, information technology, performance, higher education, undergraduate thesis.

基于安卓系统信息技术原型的高等教育论文投稿应用设计

摘要:

本研究旨在分析和开发基于安卓系统信息技术的创新原型设计，以提高大学的组织绩效，尤其是在管理手动完成的论文提交方面。本研究采用定性方法和文献研究。研究地点在印度尼西亚玛琅伊斯兰大学，涉及几位线人：讲师、行政部门和学生。本研究通过识别和描述大学论文提交过程的工作流程手动系统并提出

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设计建议以将手动系统更改为安卓信息技术来进行。结果表明，印度尼西亚玛琅伊斯兰大学的论文处理过程运行太慢，对当事人不利，尤其是对学生、讲师和行政人员。大学在公共服务中的存在被认为是无效、低效和不恰当的。因此，对于最好的解决方案，必须使用新的设计来改变旧的手动论文提交，使其在安卓信息技术中更加复杂和现代。这将确保大学各方的利益，使各方更容易完成各自的角色和任务。

关键词：服务创新、信息技术、绩效、高等教育、本科论文。

1. Introduction

Innovations have been adopted and implemented by public and private organizations to improve the quality of services for their users. Knowledge of the process of adopting innovations and innovative organizational characteristics has developed into public service (Choi & Chandler, 2020; De Vries et al., 2016; Khan & Khan, 2019; Liang et al., 2018). Studies on whether the innovations adopted have positive results, or vice versa, are still growing. However, despite various findings from qualitative and quantitative studies that have not been unanimous, they show a positive relationship (Aquino et al., 2016; Cortimiglia et al., 2016; Krämer et al., 2017; Sotsaka, 2019) The quality of public services provided by public organizations shows the performance of public organizations. The main task of public organizations is to provide excellent public services. The higher the quality of services provided, the better the performance of the organization, and vice versa.

Organizational performance is influenced by various internal and external factors. Pasolong (2020) found that organizational performance is influenced by each individual's ability, willingness, energy, technology, compensation, clarity of purpose, and security. He mentioned that the main thing that most influences organizational performance is the internal factors of the organization or the organization's resources. However, external factors will also more or less affect organizational performance. Armstrong and Baron (Stoyanova & Angelova, 2018) explained that performance is strongly influenced by the ability of each individual in the organization, leadership, team/workgroup, system, and situation. The statement was also supported by Garcia-Sánchez et al. (2018), who identified that organizational performance is also influenced by its external environment, such as economic, social, political, legal, and security.

Organizational performance is measured at different hierarchy levels and can be assessed for individuals, groups, and the entire organization. Performance can manifest itself at different levels and in different forms (Argyris, 2017; Mekler et al., 2017). It can be described as how well a person, a group of persons, or an object works or acts (Bentzen et al., 2016). Organizations can be defined as purpose instruments (Vveinhardt & Gulbovaite, 2016).

Based on the description above, it can be concluded that innovation is needed to improve service management to improve the performance of public organizations in realizing excellent service quality. One

of the innovations that can be adopted is using information technology, which has recently become a basic need of the community. The utilization of information technology will improve the quality of service management, which ultimately improves the performance of public organizations.

Public service innovation in higher education is needed to create quality public services. As an educational service provider, higher education should provide good education services. However, higher education bothered by many academic problems becomes a portrait that has become common knowledge. Although tertiary institutions are often portrayed in an environment full of academic life, especially among university students, they are often portrayed with academic preoccupations starting from the mentoring process requiring a long time, the obligation to provide more time to wait for lecturers, etc. Many studies in recent years have shown that public service performance is influenced by organizational variables such as structures, processes, and strategies (Hodgkinson & Hughes, 2019).

It also applies to higher education services in preparing final research or a thesis. The thesis service has many problems. The administrative process takes long and must come to campus. Each student's development and achievements are difficult to monitor. It is difficult to know the number of students mentored by each lecturer, evaluate the supervisor, determine students' expectations and preferences; it is difficult for the leadership to reward and punish them directly. There is no student evaluation of the supervisor. Each supervisor does not know the students' weaknesses.

The rapid development of information technology provides enormous opportunities for universities to reduce these problems. The need for electronic information technology is very urgent to be immediately realized to support organizational performance. Its existence will have the advantage of ensuring speed, accuracy, accuracy, and ease of service delivery. Besides, the utilization of information technology has also been proven to increase employee efficiency and effectiveness. Adoption of innovation through technology is a necessity that must be met to improve the performance and quality of public services. The campus or university certainly wants to give good service to the students as users of their education services. Universities need to embrace an approach to innovation and its management that reestablishes them as perceived innovation centers (Corso & Gluth, 2017).

According to Obungu (2016), "information and communication technology provides several facilities and possibilities for educational administrators to do their tasks." Pohekar (2018) highlighted the importance of information technology (IT) as a modern-day techno-management tool that would benefit higher education institutions in India. Information and communication technology (ICT) plays a vital role in supporting powerful, efficient management and administration in the education sector. It is specified that technology can be used from student administration to resource administration in an educational institution. David et al. (2019), Shyam and Das (2016) reported that Spanish and Indian universities had changed fast due to new information and communication technologies. ICT helps in providing a good communication system in the higher education system (Pandey et al., 2019). Information administration was identified as one of the important functional areas in higher education institutions. Managerial usage of appropriate information technologies could improve higher education institutions' overall environment and operational efficiency. It helps improve the following functional areas (not limited to): inventory control, allocation of resources, fiscal management, communications, pupil/personnel services, student records, employee productivity, etc. (Lo-Iacono-Ferreira et al., 2018).

This study attempts to arrange the model for designing innovation through information technology. It can enhance the performance of higher education organizations. The initial step is modeling one of the services available in tertiary institutions. Therefore, the undergraduate thesis service was chosen as the type of service in this study, considering the various problems that arise during the service. Besides, the undergraduate thesis must be passed by every student. This study results in models and prototypes ready to be tested on students.

2. Theoretical Background

2.1. *Public Service Innovation*

Organizational innovation is a necessity that must be carried out continuously, which, according to Morris (2006), is a permanent innovation. Morris's term seems very reasonable because the organization must still carry out innovative actions in any condition to satisfy all its members and stakeholders. In line with this, Wood et al. (1998) stated that "innovation is the process of creating new ideas and putting them into practice." For this reason, what is referred to as renewal or innovation is a creative process pursued by all organization members to find new ideas or thoughts that can be applied to real activities that are practiced in the organization.

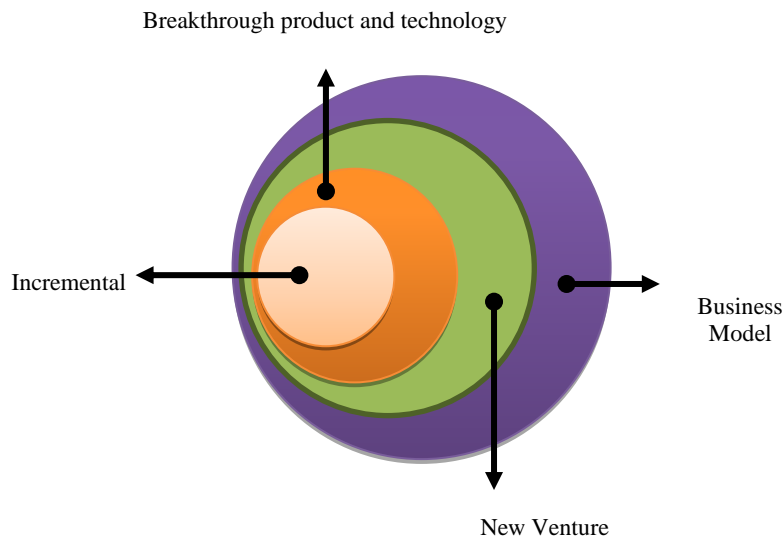


Figure 1. Innovation types (Morris, 2006)

In line with what was revealed by Wood et al. (1998), in the opinion of Morris (2006), "innovation is the process of creating new ideas and turning them into new business values," namely the process of creating new ideas that aim to apply to new business values. With new thoughts or ideas, the management can find new ways or strategies for organizational activities in producing new products in the form of goods or services that can satisfy the customer, user, and citizen to bring positive implications for the organization.

2.2. *Performance and Influencing Factors*

Performance is the result of work that can be achieved by a person or a group of people in an organization, following their respective authorities and responsibilities to achieve organizational goals legally, not violating the law, and following the norms and ethics. Lo-Iacono-Ferreira et al. (2018) stated that performance results from the quality and quantity of

work an employee achieves in carrying out their duties by their responsibilities.

Utin and Yosepha (2019) stated that performance results from work achieved by a person carrying out the tasks assigned to them based on skill, experience, sincerity, and time. Shen and Benson (2016) stated that performance results from work produced by employees or actual behavior displayed by their role in the organization. Parashakti and Ekhsan (2020) stated that performance results from work achieved by workers carrying out their tasks and work. Based on some of these definitions, it can be concluded that employee performance is the result achieved by someone in carrying out the tasks assigned to them under predetermined criteria.

2.3. Academic Services Management in Higher Education

The administration is organizing activities to realize the plans/decisions by organizing work and directing the people who carry it out. Academic administration covers the process from admission to graduation of students. Academic services are educational services directly related to primary customers (students) from tertiary institutions, including curriculum, syllabus, lecture quality design, presentation material units, material presentation, evaluation, practicum, and guidance. Higher education as an educational institution should provide better educational services. Improving the quality of education becomes a prerequisite in the administration of higher education organized by the government and the community. The main stakeholders of higher education are students, so students should get appropriate services. For students to gain the expected, the university must synergize students' expectations with the organization's vision, mission, and goals (Amin, 2017). Students' expectations and the interests of tertiary institutions will be achieved if the academic services carried out prioritize aspects of quality, adequate facilities, and professional management.

3. Material and Method

This is descriptive research with a qualitative approach and literature study. In this study, researchers will describe the work system and flow in submitting the undergraduate thesis by students in the form of a model of application software based on Android applications. The focuses of this research are:

(a) Modeling the undergraduate thesis service to improve the performance of higher education organizations: standard operational procedure, work system, control and evaluation system;

(b) Prototype of appropriate information technology innovation for undergraduate thesis service at the Department of Public Administration at the Faculty of Administrative Science, Universitas Islam Malang (Islamic University of Malang, Indonesia): application and maintenance.

The research site chosen is the Department of Public Administration, Administrative Sciences Faculty, Islamic University of Malang, Indonesia. For system design, at this stage, the system design and application design consist of:

(a) Identification and output design explaining the identification of outputs containing an output description of the academic information system program, its workings, the output data or information displayed, and the program description. Then, the output process identification results are used at the stages of output design, describing the resulting output layout;

(b) Identification and design of inputs, explaining the identification of inputs containing input descriptions. The results of these inputs are used at the input design stage to create an interface layout that will be used to input data;

(c) Identification and process design, identifying processes in the academic information system, including the process description, input, output, flow. At this stage, architectural diagrams are made for mapping the system environment model worked on.

4. Result and Discussion

4.1. Implementation of the Undergraduate Thesis at the Islamic University of Malang, Indonesia

Preparing the undergraduate thesis at the Islamic University of Malang, Indonesia, particularly at the Department of Public Administration, provides a unique and complex dynamic for the manager, supervisor, and students. Undergraduate thesis writing at Unisma is mandatory for every student to get a bachelor's degree (S1) in their respective fields. Undergraduate thesis writing at the Islamic University of Malang Indonesia has consisted of 5 credits. Besides, there are several general criteria in preparing the undergraduate thesis at the Islamic University of Malang, Indonesia:

- 1) The work originality, (partial) plagiarism absence;
- 2) Relevance to the science of administration, especially public administration;
- 3) Theoretical and practical significance;
- 4) Following scientific principles;
- 5) Standard Indonesian;
- 6) The minimum required number of pages.

The minimum number of pages is 60 pages, not including the opening and closing sections of the undergraduate thesis. The proportion of the number of pages is as follows: a). Chapter I: 10%, b). Chapter II: 25%, c). Chapter III: 10%, d). Chapter IV: 50%, e). Chapter V: 5%.

In general, every student who has finished the undergraduate thesis and passed has the right to take the graduation. Graduation is the stage where a student is declared to have passed his studies at the undergraduate level (S1). Graduation is an announcement of grades to students as the final process of all courses taken by students and the determination of grades in academic

transcripts, as well as for deciding whether or not a student should study for a certain period determined by the competent authority resulting from the decision of Judicial meeting.

4.2. Administration of Undergraduate Thesis Work

Preparing the undergraduate thesis at the Islamic University of Malang, Indonesia, includes four main stages: submitting titles and supervisors, making proposals, conducting research, and conducting examinations. Submitting the title and the undergraduate thesis examination involve several stakeholders among students, supervisors, and managers. For the other stages, the greatest intensity is only between students and supervisors.

The undergraduate thesis title is submitted to the Department of Public Administration (Islamic University of Malang, Indonesia) by completing the title submission form. Submission of the title must be submitted by each student individually. Every student who is entitled to prepare an undergraduate thesis is a student who has registered in the academic year and has programmed the Undergraduate thesis in the Study Plan Card (KRS). Besides, each student must meet the following requirements:

- 1) Passing at least 130-140 credits;
- 2) Passing the research methodology course and completion of all the prerequisite courses as determined by the department;
- 3) A cumulative IP of at least 2.00;
- 4) No courses with an E-value;
- 5) Subjects with a D-value may not exceed 20% or 10 of the total required subjects;
- 6) Covering the administrative costs of undergraduate thesis guidance.

Besides meeting the various requirements mentioned above, each student must also fulfill the requirements set by the faculty. Each student is given two semesters to complete their undergraduate thesis, counted since it is programmed in *KRS*. Extension of time can be done by getting approval from the Vice-Dean after getting a recommendation from the main supervisor.

The supervisor's decision is determined directly by the chair of the department. The determination is based on the suitability of the theme with the competency of the prospective supervisor. In general, each student will have two lecturer-supervisors, of which one supervisor is the head of the supervising commission, and the other is a member of the supervising committee. The Chairperson of the supervising commission is a lecturer who has competence according to the proposed field of study and holds a doctorate or master's degree with positions as low as the Associate Professor. In carrying out their duties, the working relationship between the Chairperson and members of the supervising commission is an academic colleague whose division of tasks is directly regulated by the two supervisors. That means that there are no fixed rules regarding the

division of tasks. The Chairperson and members of the supervising commission in administering undergraduate thesis services at the Islamic University of Malang, Indonesia, have the same responsibility.

After the student's undergraduate thesis title obtains approval, followed by the assignment of the supervisor, each student can directly prepare a research proposal. The research proposal must be prepared by taking into account the direction of two supervisors by showing them by filling out a consultation card signed by each supervisor. Aside from being proof of guidance, the consultation card serves as a control card for developing undergraduate thesis preparation. Therefore, the control card must be filled in until completing undergraduate thesis guidance. Each research proposal must be prepared by the research proposal format set by the faculty. So it can be concluded that all departments at the Islamic University of Malang, Indonesia, have the same proposal format. The proposal preparation process ended with the holding of the seminar proposal.

Proposal seminars are conducted openly, attended by supervisors and students. Every student who prepares a proposal must pay attention to the proposal both from the supervisor and seminar participants. Therefore, often the proposal compiler must revise the proposal after the seminar. Besides, the seminar proposal ensures that the research conducted by students is feasible and can be carried out properly. Besides, organizing a seminar proposal also provides a learning process for other students who will prepare the undergraduate thesis. The feasibility of the research is determined by the supervisor.

If the undergraduate thesis proposal has been declared feasible, the student can conduct research and write a research report. The research implementation must be based on the research proposal that has been prepared because the research proposal is a guideline for every student who conducts research. However, there will likely be a change in the research report due to changes at the research locus. Writing the research report must follow the undergraduate thesis writing manual applications at the Islamic University of Malang, Indonesia. The preparation guidelines and components that must be written in the undergraduate thesis have been arranged in the undergraduate thesis preparation manual.

The final stage of the undergraduate thesis is the undergraduate thesis examination (commonly referred to as the comprehensive examination). The undergraduate thesis that has been approved and signed by the two supervisors can be proposed for the Undergraduate thesis examination. Submission of examinations addressed to the department of state administration. Every student who will take the undergraduate thesis examination has at least done a work internship and has sufficient English skills. Work internships are indicated by a certificate of work apprenticeship. Sufficient English proficiency is

indicated by a TOEFL certificate with a minimum grade of 450. The undergraduate thesis approval is determined by a panel of examiners read by the Chair of the Board of Examiners. The Chair of the Board of Examiners is the Chairperson of the Supervising Commission.

Students must have a research plan aimed at the department. The research plan is arranged in the form of an outline. The outline preparation can be done with the guidance of the supervisor.

After submitting a title accompanied by an outline, title approval is next. Approval of the title is carried out by the chair of the department. This was evidenced by the department head's signature. The title approval is followed by the supervisor assignment by the department based on the expertise area corresponding to the student's research plan. The supervisor assignment is validated through the Dean's Decree (SK) of the FIA Unisma. Therefore, the department proposes a supervisor to the faculty to obtain approval and an endorsement by issuing the decree.

Besides, students can conduct mentorship with a designated supervisor. When students have problems preparing proposals or research reports, the guidance process can be carried out. After the proposal prepared by students is sufficient and feasible, a proposal seminar will be held. Proposal seminars are open to students. In the seminar, there were no examiners. There are only two supervisors. In the seminar, each student can submit input and questions, related to the research proposal prepared, to the proposal compiler. If there is still something missing in the proposal, the student drafting it must revise it without repeating the seminar. The revision is done by asking for the consideration of the supervisor. This was done to ensure that the undergraduate thesis writing was directed according to the rules in force at the Islamic University of Malang, Indonesia.

The next step is the core stage, namely preparing research reports. At this step, students directly go to the field where research is conducted to capture the phenomenon and find answers to research questions. In conducting research, students must pay attention to the research methods that have been made in previous research proposals. Research proposals should be used as a guideline for conducting research. However, this is not absolute. That is because students must adapt to the situation and conditions that develop in the field. Changes related to research must be in the control of the supervisor. Furthermore, students must write the research results obtained in the field in the form of research reports. Preparation of research reports must follow guidelines for writing research reports determined by the faculty. Students can use the undergraduate thesis preparation manual to ensure the writing of a research report does not deviate from established rules. Besides, at this stage of preparation, students' cognitive abilities are tested. The preparation of research reports must also be carried out under the guidance of the two supervisors.

After the research report is completed, the student can submit the undergraduate thesis to the department for examination. The completion of the undergraduate thesis writing is indicated by the approval of the report by the two supervisors. After that, the department will propose the undergraduate thesis to the faculty for examination and issuing the Dean's Decree. Then, the department will hold the undergraduate thesis examination. It is held by two lecturer-examiners and two student lecturer-supervisors. In this stage, students must maintain the results of their writing. This greatly affects student graduation. Students can be declared graduated if the maximum gets a minor revision. If a student is judged not qualified in defending his writing, the student must repeat the examination on another day according to the rules, readiness, and agreement.

4.3. Model of Undergraduate Thesis Service at Islamic University of Malang, Indonesia

The undergraduate thesis service model at the Islamic University of Malang, Indonesia, is compiled based on the undergraduate thesis writing guidance. Based on the manual, the researcher can only formulate the undergraduate thesis submission flowchart model. Therefore, other models mainly related to the undergraduate thesis implementation flowchart model will be defined in the next sub-chapter, namely the alternative undergraduate thesis service delivery model.

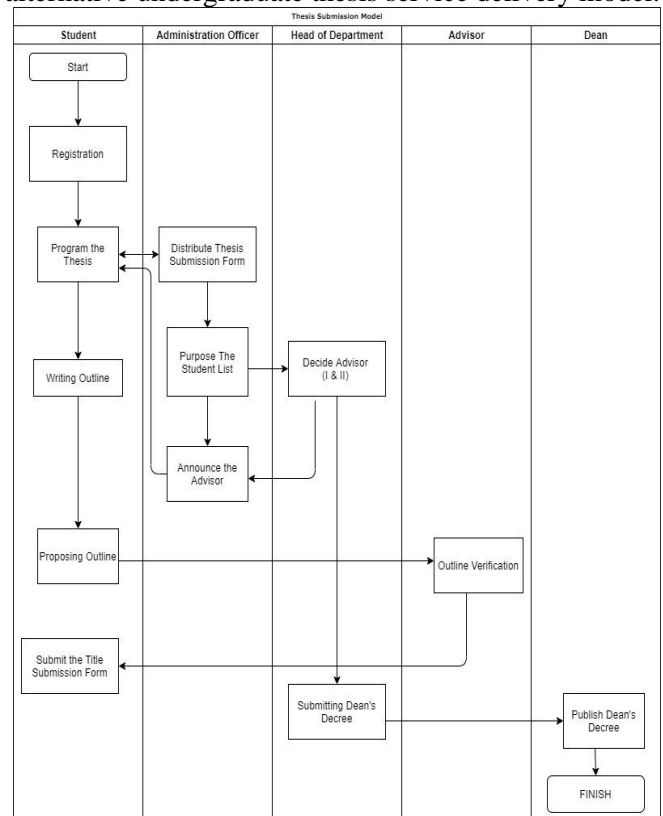


Figure 2. Flowchart model of the undergraduate thesis submission (Created by the authors)

In general, every student who has fulfilled the requirements can submit research proposals and supervisory commissions to the department. The submission process is as follows:

- 1) Students in Semester VII have fulfilled 121 SKS credits;
- 2) Administration (TU) provides the undergraduate thesis title submission form to students;
- 3) Data on students submitting the undergraduate thesis titles are submitted by TU to the Head of Department;
- 4) Head of the department distributes each supervisor 1 and 2 to students who will submit their undergraduate thesis titles;
- 5) TU gives an announcement of the acquisition of a supervisor to each student;
- 6) Students conduct title consultations to supervisors 1 and 2 until there is an agreement on titles to be examined by students;
- 7) After the title of the thesis is mutually agreed upon and determined by the supervisor, the student must submit the title submission form to the Chairperson of the Department of Public Administration for approval;
- 8) The department sends a letter of willingness or approval to each supervisor;
- 9) Each supervisor lecturer states his willingness, then determined by the Dean Decree, and then the guiding process can be carried out.

Based on the thesis submission model, it can be concluded that the process involved five actors. The actors included: the students themselves, the Administration, the Head of the Department, Prospective Advisors, and the Dean. The assignment of the supervisor is in the hands of the Head of the Department. However, this was ratified through the Dean's Decree.

4.4. Alternative Model of Undergraduate Thesis Service Implementation

This section will explain various alternative models for thesis service implementation, which cannot be defined through the Islamic University of Malang

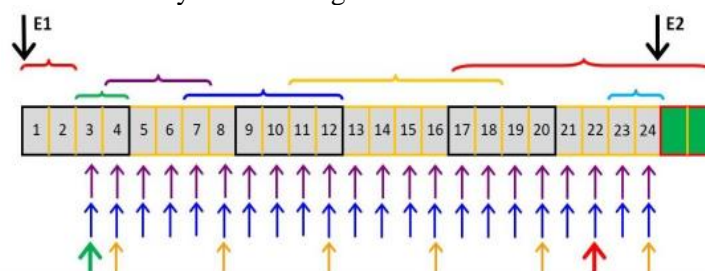
undergraduate thesis preparation guidance. The model is the main requirement to make a prototype of an academic information system for an academic thesis service. Besides, it explained the timeframe assignment used by the manager and students to ensure the thesis preparation order.

4.5. Timeframe

In the administration of thesis services, the deadline for completion becomes important. That guarantees that students will complete their thesis within the specified timeframe. The completion time affects the performance of the organization in educating students. Besides, ensuring the completion time makes it easier for management to plan both related and unrelated to implementing thesis services. For students, the deadline will help them focus on completing their thesis.

Nevertheless, this does not exist in the Islamic University of Malang, Indonesia. Meanwhile, the Islamic University of Malang, Indonesia, only provides a thesis deadline in general, namely two semesters with an unspecified extension period. The extension period only needs to be reported to the department with the supervisor's approval. The Islamic University of Malang, Indonesia, has not specified the timeframe for each stage. Therefore, they need to do that in administering the undergraduate thesis.

For the undergraduate thesis implementation order guarantee, a timeframe of 1-2 semesters is needed. In this timeframe, all activities related to the thesis throughout the period are explained. To guarantee orders, the department can also punish students who exceed the specified time limit. At the beginning of each semester, the exact time of each scheduled activity will be determined to provide certainty to all thesis stakeholders related to the time allocation required. The following figure will give an overview of the time allocation given to students.



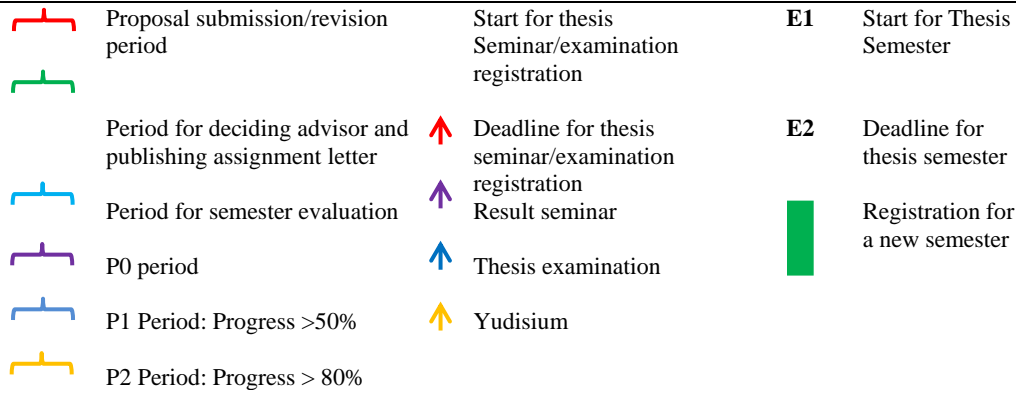


Figure 3. Undergraduate thesis implementation timeframes (Created by the authors)

The timeframe illustrated in the figure above uses assumed six months in each semester and four weeks in each month. Each box in the timeframe is equivalent to 1 week. At the beginning of each semester, there are approximately two weeks for students to re-register before the lecture begins. For each semester, the thesis will be as follows:

1. *Submission of Proposals*: Submission of proposals by students can begin from the last two months before the thesis semester until the second week of the first month of the thesis semester.

2. *Processing letter of assignment*: Assignment letters for guidance will be processed in the third to fourth week of the first month of the thesis semester after the cancellation/added period of KRS ends, so it is expected to have received KRS that has not changed again.

3. *Presentation of proposals (P0)*: Presentation by students in front of the supervisors on one day within the fourth week at the beginning of the eighth semester. This presentation is used to equalize the perceptions between students and all supervisors and determine the target of thesis achievement that will be conducted.

4. *Assessment of progress 1 (P1)*: Assessment is conducted among students and all supervisors (can be done separately with each supervisor) on one day between the beginning of the ninth week to the thirteenth beginning of the undergraduate thesis semester to evaluate the achievement of a minimum target of 50% of the undergraduate thesis as specified at P0.

5. *Progress assessment 2 (P2)*: Assessment is conducted among students and supervisors (can be done separately with each supervisor) on one day between the beginning of the eleventh week and the beginning of the nineteenth week of the undergraduate thesis semester to evaluate the achievement of a minimum target of 80%, as specified in P0.

6. *End of semester evaluation*: An evaluation of the sustainability of the thesis process that has not been completed is done by students. Evaluation is carried out by the supervisor or head of the study program in the last two weeks of the thesis semester for the undergraduate thesis that does not yet have a clear status of its progress. Its process can be continued in the

following semester if it meets the specified requirements.

7. *Seminar on results*: The seminar was conducted by a group of students to present the results obtained during the script completion process in a forum attended by other students and guided by a facilitator. The results seminar is scheduled for a certain day in the specified weeks.

8. *Thesis examination registration*: Thesis examination registration is done simultaneously with the result seminar by students after completing the undergraduate thesis thoroughly. Registration can be done at any time in the thesis semester up to the time limit allowed.

9. *Thesis examination*: Students conduct thesis examinations in the presence of the Undergraduate Thesis Examination Council on certain days in the weeks that have been determined.

10. *Judicium*: *Judicium* is conducted for students who have completed their obligations after passing the undergraduate thesis examination on a certain day on the fourth week of each month.

11. *Final deadline for undergraduate thesis examination registration*: The deadline for undergraduate thesis examination registration is still permitted, which is determined to be one day in the third week before the end of the semester.

At the beginning of the new semester, the academic faculty is expected to draft a thesis process schedule by determining the schedule under the timeframe described above. Specifically, submitting or revising the undergraduate thesis, the time is set at the beginning of the lecture period until the deadline is canceled or added to KRS. The Vice-Dean I can evaluate and approve the undergraduate thesis process schedule proposed by the academic faculty. If necessary, the academic faculty revises the draft made and submitted again for approval by the Vice-Dean I. In each mid-semester, the faculty and academic adjust the time for the proposal submission or revision to the date in the last 1 or 2 months of the semester.

4.6. Modeling of Undergraduate Thesis Service Implementation

As explained earlier, the thesis writing manual at the Islamic University of Malang, Indonesia, has not made

a detailed model of each process. Things that can be defined are only in the undergraduate thesis title submission model. Therefore, in this sub-chapter, the researcher will provide a design model of the undergraduate thesis service implementation that can be used to fulfill every process. The models include a flowchart undergraduate thesis processing model.

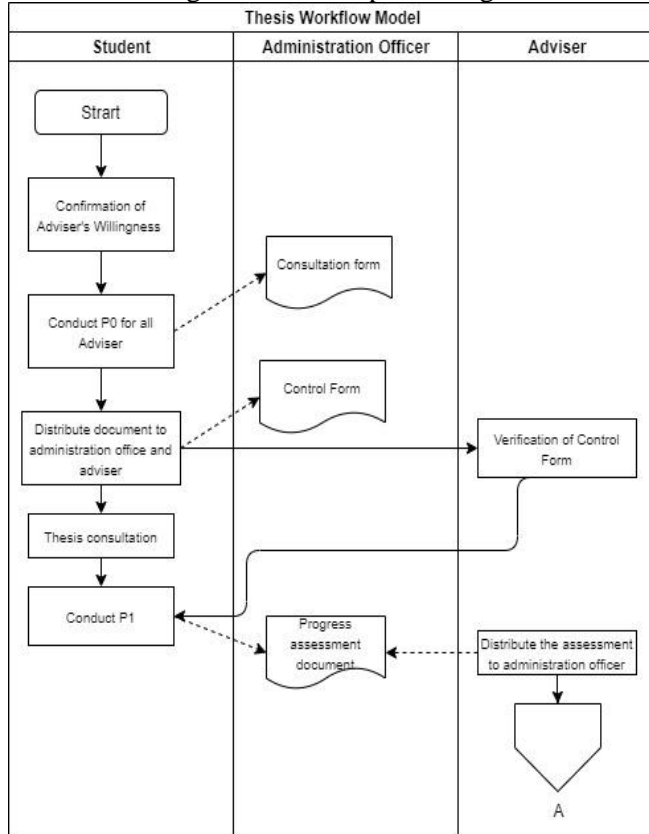


Figure 4. Flowchart model of the undergraduate thesis processing at Phase 1 (Created by the authors)

Based on the flowchart model above, it can be seen that the thesis process will involve three actors, namely: students, academic majors, and supervisors. Students must do several things, including preparing proposals, conducting research, and preparing research reports. At the stage of writing a research proposal, students must confirm the willingness of the two supervisors, write a research proposal, and disseminate the proposal in the seminar proposal. The process of writing a research proposal must be consulted with a supervisor. This ensures the quality of the proposal and the ease of conducting research. Consultation with a supervisor is proven by a thesis guidance control card. This controller card is used as evidence and submitted to the academic department. After the proposal is considered legal and has received approval from the supervisor, it must be disseminated in the proposed seminar. As explained earlier, this seminar proposal is open to other students. This is intended as a learning medium and to provide input to improve quality and confirm research to be conducted. This proposal seminar was attended by supervisors without examiners. If the seminar proposal has been conducted, students can proceed to the research stage in the field. However, if deemed

insufficient, it must be repeated to complete the preparation of the proposal. Students must complete several documents, including minutes of proposal consultations, undergraduate thesis guidance control cards, and progress assessment documents. They are collected in the academic department. The control card is prepared by the student, who must obtain verification from the supervisor. After the seminar proposal, the supervisor must submit an assessment to the academic department in the form of a progress assessment document. The document will be one of the components of the undergraduate thesis assessment in addition to the undergraduate thesis examination itself.

The next stage is preparing a thesis based on the results obtained in the field. Therefore, the work on the undergraduate thesis is carried out during and after taking to the field. In the process, every student can change the title and the focus of the study because of certain changes.

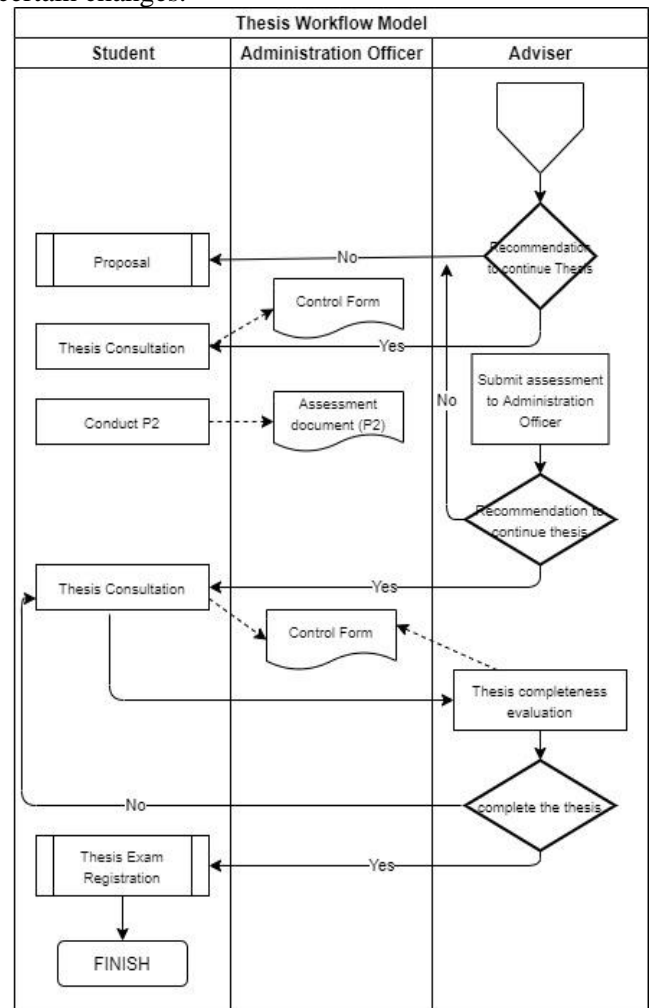


Figure 5. Flowchart model of the undergraduate thesis processing at Phase 2 (Created by the authors)

The model shows that the supervisor has three main tasks:

1. Guiding students while going to the field and compiling research reports;
2. Evaluating students through the grading of each process that has been determined;

3. Provide recommendations for the feasibility of each research process.

After receiving recommendations from the supervisor, the research continues, and the supervisor conducts routine consultations. That must be proven with the undergraduate thesis guidance control card. Therefore, at the time of mentoring, each student must carry a card. That way, it will be easier for the supervisor to provide input to students. The control card functions as a medical record for doctors. Therefore, the control card is also a tool to control students. Besides, the supervisor will also determine the completeness of the student's undergraduate thesis. If it is complete, students can submit the undergraduate thesis for the comprehensive examination. Its process is attended by two supervisors and two examiners.

5. Conclusion

The results showed that in the Islamic University of Malang, Indonesia, there is no model used to provide the undergraduate thesis services. The undergraduate thesis manual only presents general provisions for implementation. Therefore, it is necessary to provide a more specific explanation of the undergraduate thesis service delivery model at each stage. Nevertheless, researchers have tried to design the model by translating it from the available manuals. However, with limited information, the researchers can translate it into one model only: the undergraduate thesis submission model.

Therefore, to make it easier to prepare the undergraduate thesis service model prototype, it is necessary to arrange another model, especially related to the undergraduate thesis implementation model. This model is the basis for preparing other models that must be provided to develop thesis-based information system prototypes for undergraduate thesis services. Our undergraduate thesis implementation model is designed as an alternative model that needs to be adapted to the character and culture of the organization at the Islamic University of Malang, Indonesia. Errors in the preparation of alternative models affect the preparation of other models, such as the model of submission of examinations, the model of examination implementation, the model of submission of supervisors, the model of submission of supervisors and title changes, etc.

From the conclusions above, it can be seen that the models and alternative models designed still need adjustment to the characteristics and culture of the organization that exists in the Islamic University of Malang, Indonesia. Therefore, it is necessary to have an open discussion with stakeholders, especially the undergraduate thesis guidebook compiler. The discussion will produce a real model expected by the Islamic University of Malang, Indonesia.

As a follow-up, other models must be immediately compiled to perfect the main models already available. The availability of these models will make it easier to make prototypes. Several models must be developed,

such as the model of submission of assignment letters, the model of the title change, the model of the change of the supervisor, the model of submission of the proposal examination, the model of the proposal examination, and the undergraduate thesis examination model. All these models are very dependent on the core model that has been designed.

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