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RESEARCH ARTICLE

Electronic Submission in Construction: Government Approval Practice and Potential Issues in Malaysia

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ABSTRACT - Post-COVID-19 has strongly impacted the construction industry worldwide; many parties took alternatives to facilitate the relatively overdue work arrangements. The Malaysian construction industry has been directly affected and has had to increase the adoption of One-Stop Centre (OSC) electronic submissions. According to the Malaysian online system submission policies, it is necessary to obtain construction approval from the OSC through the implementation by town councils. Not understanding the process and documents involved in this procedure might result in ineffective submissions. Hence, the study objectives are to identify: 1) The current submission process and documents for construction approval to town councils, and 2) Issues related to the e-submission process. Semi-structured interviews were conducted with individuals from twenty town (20) city councils in Malaysia to achieve those objectives. The results indicate that the general process includes submitting the required documents through the OSC, validation of submittals, and meeting approvals. The required documents include planning permissions, drawings, engineering plans, environmental management plans, landowner documents, and approvals by other government agencies. Finally, the issues with the e-submission include technical problems and the lack of experience of all involved stakeholders. These findings can be used by policymakers to improve the submission system and industry practitioners in acquiring construction approvals.

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1.0 INTRODUCTION

In Malaysia, the government implemented the Movement Control Order, which restricted the mobility of individuals. Post-pandemic, there was a widespread reassessment of work approaches by everyone. The local government tries to introduce how to work by submitting online [1]. The Malaysian government has developed an efficient way to process application proposals or submit proposals for construction projects online [1]. Besides, town councils can increase or improve any construction management [2,3]. Applicants who submit the building plan to the One-Stop Centre (OSC) must ensure that the application contains complete information and complete documents under the checklist listed [2].

The permit process typically begins with the building department [4]. The officer will accept the application and double-check that all essential documents are attached. In most cases, a permit application for a new building must include the following documents: site plan, structural drawings, and technical specifications [4]. Construction details and planning are more complex since the building process is dynamic as the site and the physical facility change over time through the construction phases [3]. The design and planning teams must define the costs, time, quality, and reliability of different options while at the same time ensuring technical feasibility to obtain all the required approvals [4].

The town council's current issues focus on the delays in building plan application [5, 6]. The OSC procedure was the main reason for this delay. The complication in the submission process is one of the critical challenges for anyone, especially if they are not familiar with the submission process [5, 6]. Besides the submission process's problem, the process involves too many departments' approvals, such as the Town Planner Department and Civil Engineering Department [6]. All the documents must be submitted to several departments to check for approval [6]. This study tries to find solutions to these issues. Hence, the study objectives are 1) the current submission process and documents for construction approval to town councils and 2) issues related to the e-submission process for construction approval to town councils. The research outcomes could guide industry practitioners and policymakers to overcome current e-submission process issues, which results in improving and facilitating the overall submission process.

2.0 RELATED WORK

In Malaysia, the approval of a plan is a critical step in the development process [1]. This covers the development permission application, building plan approval, infrastructure plan approval, and other necessary steps to guarantee that the principal submission plan in charge of the building follows all government rules and regulations [3]. Following the issuance of a building permit, the owner must display a notice of commencement on the construction site [2]. On the

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initial visit to the site, the building inspector should see a sign. In addition, the authorized drawings should be accessible to the building inspector, who may want to verify them on-site [3].

2.1 Town Council

The town council is the local government in Malaysia. It is the lowest tier of government, governed by states and federal territories, which are controlled by the national tier. The Town Council is the local authority that has been upgraded from municipal council status after successfully achieving specific criteria [7,8]. The following are some of the powers to improve and maintain existing amenities on the common property and develop locations and facilities for recreation, relaxation, and other educational and cultural purposes [7,8].

2.2 History of Local Government in Malaysia

The spread of British influence in the region coincided with the emergence of local administration in Malaysia. It started in Peninsular Malaysia and subsequently extended to Sabah and Sarawak. Its evolution may be divided into two phases before and after local government restructuring [8]. Restructuring Prior, the concept of local government was first established in Malaysia in the Straits Settlement in 1801 with the formation of the Committee of Assessors, an ad hoc voluntary entity. The body was tasked with overseeing Penang's planning and development. The Committee of Assessors was established in 1827. The Committee of Assessors was promoted to the Municipal Rates Act in 1884. Sanitary Boards were established in 1907. In 1930, Town Boards took their place. The Local Authorities Election Ordinance of 1950 was used to turn part of the Town Boards into town councils. In addition, with the Local Councils Ordinance of 1952, Local Councils were established in kampungs and new villages. Local government in Sarawak began in 1922 with the establishment of a Sanitary Board in Kuching. However, it was eventually renamed a Municipal Board ten years later [8].

3.0 METHODOLOGY

3.1 Data Collection

In this study, open-ended interview questions are selected to collect data. Interviews are a qualitative research technique that involves asking questions to converse with respondents and collect elicit data about a subject [9,10]. The interviewer, in most cases, is the subject matter expert who intends to understand respondents' opinions [9,10]. This approach has been used in other works in construction management research, including identifying COVID-19 impacts on the construction industry and factors, challenges, and strategies of trust in BIM-Based construction projects [11,12]. The study starts by introducing the study objectives and problem statement. Data was collected using open-ended interviews.

The interviewees selected for in-depth interviews are professionals from town councils in Malaysia who are responsible for managing the city in terms of improving the quality of public and facilities. Three questions were asked of respondents: 1) what process is involved in obtaining a construction permit from the town council? 2) what are the necessary documents for the process? and 3) what the potential issues are if town councils are mandated to change to e-submission? The semi-structured interviews were made with twenty town council members. Appointments with the interviewees were scheduled at their convenience. Then, with the agreement of the interviewers, all information supplied by respondents throughout the interview portion was recorded using a notebook and a sound recorder so that the analysis might be more accurate and beneficial. Additionally, it helps prevent the loss of interviewee information. The details of the interviewed councils' names and locations are summarized in Table 1.

Table 1. Respondent profile

Respondent	Town Council	City	State
1	Majlis Bandaraya Kuantan	Kuantan	Pahang
2	Majlis Bandaraya Alor Setar	Alor Setar	Kedah
3	Majlis Bandaraya Subang Jaya	Shah Alam	Selangor
4	Majlis Bandaraya Seremban	Seremban	Negeri Sembilan
5	Majlis Bandaraya Ipoh	Ipoh	Perak
6	Majlis Bandaraya Johor Bharu	Johor Bharu	Johor
7	Majlis Bandaraya Petaling Jaya	Petaling Jaya	Selangor
8	Majlis Bandaraya Pulai Pinang	Pulai Pinang	Penang
9	Majlis Bandaraya Terengganu	Kuala Terengganu	Terengganu
10	Majlis Bandaraya Kota Bharu	Kota Bharu	Kelantan
11	Majlis Bandaraya Shah Alam	Shah Alam	Selangor
12	Majlis Bandaraya Kuala Lumpur	Kuala Lumpur	Kuala Lumpur

Table 1. (cont.)

Respondent	Town Council	City	State
13	Majlis Bandaraya Melaka	Melaka	Melaka
14	Majlis Bandaraya Tanjung Malim	Tanjung Malim	Perak
15	Majlis Perbandaran Kangar	Kangar	Perlis
16	Majlis Perbandaran Termeloh	Temerloh	Pahang
17	Majlis Perbandaran Tampin	Tampin	Negeri Sembilan
18	Majlis Perbandaran Ampang Jaya	Ampang Jaya	Selangor
19	Majlis Perbandaran Teluk Intan	Teluk Intan	Perak
20	Majlis Perbandaran Sepang	Sepang	Selangor

3.2 Data Analysis

Thematic analysis is used in data analysis, where raw data from interview questions are converted into themes [13-16]. It is typically used to describe a group of texts, such as interview transcripts [13-15]. This method is used in construction management research [17,18]. The steps of the thematic analysis can be summarized in the following steps.

1) The initial step involves recognizing and familiarizing oneself with the data.
2) Subsequently, the analysis entails actively searching for recurring themes, subjects, ideas, and patterns of meaning within the data.
3) Once themes are identified, they are carefully revised and precisely defined to capture their essence.
4) The final step involves articulating and describing the identified themes in the context of the study.

Throughout this process, the study meticulously analyzes the data, unveiling patterns and insights. The data is then organized and categorized into essential patterns using a suitable application or tool, often represented in a flow chart. This systematic approach ensures a thorough exploration of the data and the extraction of meaningful themes.

4.0 RESULTS AND DISCUSSION

The data were analyzed using thematic analysis. The data gathered for data analysis were from twenty (20) respondents from several town councils. In the following sections, the results will be discussed for each objective.

4.1 Current Submission Process and Documents

Planning permission is granted by the local planning authority for an area. For those in a municipal/district council/municipality, planning approval is issued by the relevant authority. Local authorities usually decide by an entire council or district meeting [20].

"Make an initial discussion on prepared development plan before it is officially submitted to the council. The process of obtaining permit might be complicated because it involves many departments." (Town council 2)

"Register application and upload documents by using OSC Online system or OSC 3.0 Plus Online system. Make sure all the documents that have been uploaded follow verified checklist" (Town council 9)

Figure 1 shows how the submission process starts until the end. First, applicants who want to get a permit for a construction project must locate the engineer and then the OSC to approve the submission. After the OSC checks all the required documents, all the documents will be distributed to several departments for some checking, which usually takes about one week. Finally, OSC will prepare the meeting for approval submission.

Some documents must be prepared before the online submission, depending on the local authority's requirements for different types of standard documents requested by the local authority. According to the checklist, the documents required must be certified by relevant parties as requested by the local authority. So, based on the interview about the necessary document or documents needed for OSC online submission. Table 2 provides a comprehensive overview of the required documents for various town councils, each identified by its unique code, including MBK, MPK, MBI, and others. The outlined categories encompass essential aspects of the documentation process. Firstly, all town councils mandate documents related to permission planning, drawing submissions, and engineering plans, reflecting the critical stages of project development. Environmental management plans are uniformly necessary, emphasizing the importance of adhering to environmental regulations in all council areas. Furthermore, documentation pertaining to land ownership is a typical prerequisite for every town council. Notably, JKR (Public Works Department) approval is generally required, with the exception of MBSJ and MBKL. Additionally, the table indicates specific town councils where compulsory electronic submission (E-submission) of documents is mandated. This systematic breakdown serves as a valuable reference guide for stakeholders, ensuring clarity and compliance with the diverse document requirements across various town councils. Figure 2 represents the submission requirements for a project or development. It is divided into two main categories: "Drawings" and "Document." Under "Drawings," specific focus areas include "Landscape" and the "Environmental Management Plan," indicating the need for detailed plans related to outdoor spaces and strategies for environmental

impact management. The "Document" category emphasizes the importance of "Planning Permission," a critical legal document granting official approval for the proposed project. Overall, the figure communicates the essential documentation necessary for regulatory compliance and project authorization.

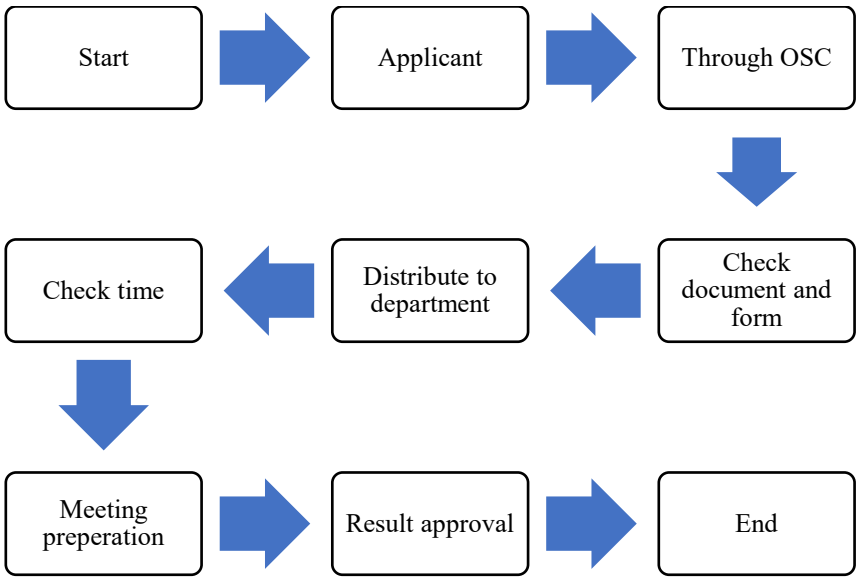

Figure 1. Construction approval process by town councils in Malaysia

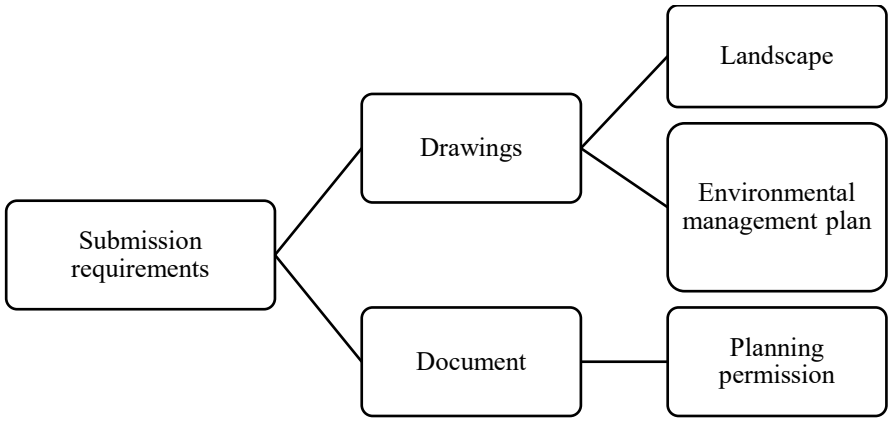

Figure 2. Overview of necessary documents for construction approval in Malaysia

Table 2. Documents for construction approval by town councils in Malaysia

Document	MBK	MPK	MBI	MBAS	MBS	MBSJ	MBJB	MBPJAYA	MBPP	MBKT	MBKB	MBSA	MBKL	MBM	MBTM	MPS	MPAJ	MPTEMERLOH	MPTI	MPTAMPIN
1. Permission planning	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
2. Drawing	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
3. Engineering plan	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
4. Environmental management plan	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
5. Landowner document	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
6. JKR approval	•	•	•	•	•	-	•	-	•	•	•	-	-	•	•	-	-	•	•	•
7. Compulsory (E-submission)	•	-	-	•	-	-	•	•	-	•	-	•	•	•	-	•	•	•	-	-

4.2 Issues in E-Submissions

In data analysis, most parties from the town council provide information that often happens, such as no internet or line slow when making any review of documents submitted by the applicant and when opening the town council website portal. Unfortunately, this kind of thing is difficult to deal with because the problem has been going on for a long time. Problems like this are everyday things that happen on every website [20]. "Potential issues might happen when access internet, another word is lack of connection of internet or line slow" (Town council 4). That occur are related to technical problems, including failure in the submission process. This problem needs to be resolved within the expected time required to avoid confusion in the process involved. So, try to overcome this by creating another method as well. "All staff in the OSC Department need to take time to familiarize themselves with the new system and process applications so not to conflict with the existing OSC client charter" (Town council 7)

"e-submission is tool facilitating the process of development but often occur technical problem" (Town council 16)

The issues about e-submission, when the Town Council is mandated to change, are primarily about technical problems and fewer authority skills, as shown in Figure 3. Technical problems often occur when it comes to the server. Most parties from the town council provide information that often happens, such as no internet or line slow when making any review of documents submitted by the applicant and when opening the town council website portal. At the same time, skill problems are related to the staff and other complex issues.

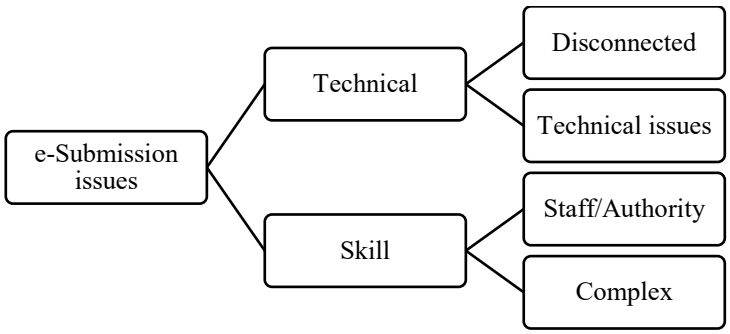

Figure 3. E-submission issues for construction approval in Malaysia

5.0 CONCLUSION

The OSC has played an essential role among organizations because the system allows related parties to obtain construction approval and then provide the information to the other departments involved. This study explores the process and documents involved. However, the challenge associated with the new system is that not all parties know how to use the new method. The new method is quite complicated for some individuals and authorities. Such problems need to be addressed because this system may be used in the future. In this study, the challenges to the implementation process of the e-submission in the town council have been identified. The challenges for implementing the e-submission system were obtained through analyzing the collected interview data with authorities from town councils. The challenges could be grouped into two categories: technical and skill. Most staff lack the skill or face problems due to the new system. Therefore, to implement the e-submission, town councils need to play their role by providing training to staff and fixing any system-related issues, which could lead to a better overall submission process.

6.0 CONFLICTS OF INTEREST

The authors declare no conflict of interest.

7.0 AUTHOR CONTRIBUTIONS

Saffuan Wan Ahmad: Conceptualization, Methodology, Visualization, Investigation

Nurillya Zahimi: Data curation, Writing- Original draft preparation

Rahimi A. Rahman: Supervision

Abdelrahman M. Farouk: Writing- Reviewing and Editing

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9.0 DATA AVAILABILITY STATEMENT

Some or all data, models, or code generated or used during the study are proprietary or confidential in nature and may only be provided with restrictions (e.g., anonymized data).

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