

Development of a Housing Legal and Licensing Information System for Efficient Administrative Processes

Akhmad Sayuti¹, Robi Krisna², Efniar³, Dora Indah Triana⁴

^{1,4}Computer Engineering, Institut Teknologi dan Bisnis (ITB) Bina Sriwijaya Palembang, Indonesia

²Digital Business, Institut Teknologi dan Bisnis (ITB) Bina Sriwijaya Palembang, Indonesia

⁴Informatics Management, Institut Teknologi dan Bisnis (ITB) Bina Sriwijaya Palembang, Indonesia

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ABSTRACT

The housing permit administration process often encounters challenges such as bureaucratic complexity, long processing times, and poor information integration between systems. These issues create inefficiency, data overlap, and limited transparency. To address this, this study aims to integrate legal information systems with the housing permit process through the development of a web-based platform. The proposed system synchronizes legal data related to housing regulations with administrative mechanisms, enabling faster and more reliable services. The research applies the Waterfall method, consisting of needs analysis, system design, implementation, testing, and maintenance. The system is designed with key features, including online permit applications, automatic validation of legal documents, real-time application tracking, and digital document archiving. These functions provide applicants and agencies with better access to information, while ensuring that legal and administrative aspects remain aligned with regulatory provisions. Case study implementation demonstrates that system integration can reduce processing time, minimize administrative errors, and accelerate decision-making. Additionally, the platform enhances transparency by allowing applicants to monitor their application status directly, thereby fostering accountability in public administration. The results highlight that digital transformation in housing permit services not only improves efficiency but also strengthens legal certainty and administrative order. This approach contributes significantly to optimizing governance in regional development and can serve as a model for other digital permit systems within the government sector. Ultimately, the integration of technology and legal frameworks creates a more efficient, transparent, and accountable housing permit process.

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Corresponding Author:

Akhmad Sayuti,

Teknik Komputer,

Institut Teknologi dan Bisnis (ITB) Bina Sriwijaya Palembang, Indonesia

Jl. Mayjen HM Ryacudu No.24, 8 Ulu, Kecamatan Seberang Ulu I, Kota Palembang, Sumatera Selatan
30111

Email: macesmad@gmail.com

I. INTRODUCTION

In today's digital era, the use of information technology in government administration has become an urgent need. Previously manual administrative processes are now being directed towards a more integrated, faster, and more efficient system. One area requiring technological innovation is the management of housing permits, which are closely linked to legal aspects and government regulations. Housing permits are a crucial process that encompasses the legality of development, land use, and compliance with applicable laws. However, in practice, this process often faces various obstacles such as lengthy bureaucracy, delays in document verification, and a lack of transparency between applicants and relevant agencies. This situation not only slows down the housing development process but also has the potential to give rise to legal disputes due to inconsistencies in data or procedures.

To address these issues, a legal information system capable of digitally integrating the housing permitting process is needed. The development of this system aims to simplify administrative procedures, increase service efficiency, and provide accurate and structured legal documentation. This system is expected to facilitate communication between agencies, reduce human error, and expedite decision-making in the permitting process. With an integrated legal information system, the government can provide more transparent, efficient, and accountable services to the public. Furthermore, business actors in the housing sector will also find it easier to access information, apply for permits, and monitor the status of their applications in real time. Therefore, the development of a legal information system for housing permitting is a strategic step in supporting digital transformation in the government and public service sectors.

The rapid development of information technology has encouraged various government sectors to adopt digital systems to improve the efficiency and transparency of public administration. One sector in dire need of digital transformation is the legal and housing licensing sector. Currently, the housing permit process is often carried out manually, leading to delays, data duplication, and a lack of transparency. These issues impact the slowness of public services and potentially create legal loopholes due to a lack of control and accurate documentation. Therefore, an information system is needed that can integrate legal aspects with the housing permit process electronically, in order to improve the efficiency, accuracy, and accountability of the administrative process. The housing permit process is a crucial aspect of regional development and residential infrastructure development. In many areas, this process is still carried out manually and involves various agencies and complex legal documents, resulting in delays, inefficiencies, and the potential for administrative errors [1]. This inefficiency not only impacts the public as permit applicants,

but also the performance of government agencies responsible for managing permits and related laws [2].

Housing permits are a crucial stage in the development process, for both developers and the general public. This process encompasses various legal and administrative aspects, from fulfilling legal requirements and verifying documents to issuing official permits by relevant government agencies. However, in practice, the housing permit administration system often faces various obstacles, such as complicated bureaucracy, lack of integration between agencies, and delays in data and information processing. These problems are exacerbated by the suboptimal use of information technology in managing legal data and permit administration.[3] Many government agencies still use manual systems or separate applications, leading to inefficiency, data duplication, and the potential for errors in decision-making. This not only makes things difficult for the public as applicants but also burdens the performance of government employees.

A legal information system integrated with housing licensing services can be an effective solution to accelerate administrative processes, improve data accuracy, and reduce administrative workloads [4]. The development of this system is expected to provide an accurate legal database, a clear licensing flow, and transparent monitoring of application status. In addition, this system also plays a role in ensuring that each licensing process remains within the applicable legal corridor, as well as providing easy access to information for all parties involved. Therefore, a legal information system integrated with the housing licensing process is needed to support administrative efficiency and effectiveness. This system is expected to be able to manage legal data digitally, simplify the licensing flow, accelerate the verification process, and provide open and transparent access to information for all stakeholders. With a structured and technology-based information system, the licensing process will be faster, more accurate, and more accountable [5].

The development of this information system aims not only to modernize public services but also to strengthen the legal aspects of every licensing administration process. By integrating legal regulations and procedures into a digital system, every process can be monitored and controlled in accordance with applicable provisions. This will provide legal certainty for both the public and the government, and encourage better governance.

PT Hutama Cipta Abadi is a company engaged in the trade of goods, construction, building materials, engineering, mechanical, electrical, heavy equipment, machinery and work safety equipment. PT Hutama Cipta Abadi is located in the PTC Mall Shopping Complex, Block H 66, 8 Ilir Village, Ilir Timur II District, Palembang. It was founded by Mrs. Yorshaliza Thanzil Ankasiwi as President Director on December 8, 2014. Currently, PT Hutama Cipta Abadi Palembang is conducting various types of housing development. The processing of house sales data, facilities

and services provided by PT Hutama Cipta Abadi Palembang is still conventional, namely recorded using books and document sheets. However, in making reports, Microsoft Office Word and Excel applications are used.

II. METHODOLOGY

Descriptive methodology is a research method used to describe or explain a particular phenomenon, event, object, or condition systematically, factually, and accurately, without seeking causal relationships or manipulating variables [6]. The purpose of this method is to provide a clear picture of a situation as it is, based on data collected from observations, interviews, documentation, or questionnaires. A research method is a scientific way used by researchers to collect, analyze, and interpret data to answer research questions or test hypotheses. This method includes strategies, approaches, and systematic steps designed to achieve research objectives in a valid and objective manner [7].

The research method is very important because it is the basis for developing a focused and accountable research framework. The selection of the right method will determine the quality of the research results and the accuracy in solving the problems being studied. This research uses a software engineering approach with the Prototype development method. This method was chosen because it allows intense communication between developers and users through the creation of an initial version of the system (prototype) which is then tested, evaluated, and refined gradually until a final system is achieved that meets the needs [8]. The Prototype method is one model in information system development that focuses on the creation of an initial version (prototype) of software, which is then evaluated and refined gradually based on feedback from users [9].

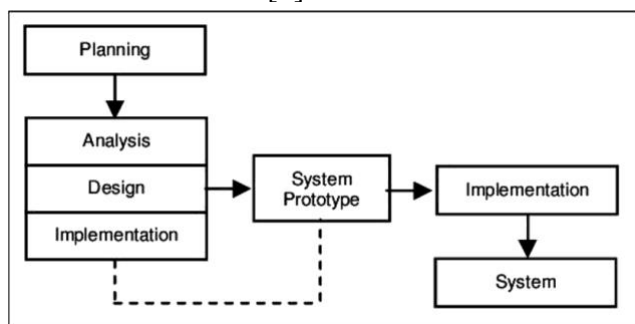


Fig. 1 Prototype Method

The main objective of this method is to iteratively clarify user requirements before the system is fully developed. The Prototype method has the following main stages:

a) Requirement Gathering: This initial stage is conducted to identify system requirements through interviews, observations, and document review. The primary focus is on a thorough understanding of the legal and administrative processes for housing permits.

b) Initial Prototype Creation: Based on the gathered requirements, an initial prototype is created in the form of a simple interface (mockup/wireframe) that displays the main system flow, such as permit applications, legal document verification, and process notifications.

c) User Evaluation and Feedback: The prototype is tested by users to obtain feedback on the appearance, workflow, and functionality. This feedback serves as the basis for improvements.

d) Further Improvement and Development: The prototype is gradually refined until the system fully meets user needs, from a technical, legal, and administrative perspective.

e) Implementation and Testing: Once approved, the system is fully developed and tested using black-box testing methods to ensure proper functionality.

f) Maintenance: The final stage involves maintaining the system for bug fixes, adapting to new legal policies, and adding features if necessary [10].

The advantages of the Prototype Method are reducing the risk of errors in understanding needs, increasing user satisfaction because they are directly involved and the development process is more flexible to changing needs [11]. The disadvantages of the Prototype Method are that it can create dependence on temporary prototypes, the repeated iteration process can be time-consuming if not controlled and is not suitable for systems that already have very clear requirements specifications from the start. In this study, the data collection method used aims to obtain accurate information related to the housing permit administration process and the underlying legal aspects, in order to support the development of an appropriate information system [12]. The methods used are as follows:

a. Observation, conducted by directly observing the housing permit process at the relevant agencies, both manually and system-based (if applicable). Through this method, researchers can understand the obstacles frequently encountered in implementing the administrative process and identify system requirements [13].

b. Interviews, conducted in structured and semi-structured ways with several relevant parties, such as: Licensing service officers, Legal departments handling regulations and legality, Prospective housing permit applicants [14].

The purpose of the interviews is to gather in-depth information regarding legal procedures, administrative obstacles, and expectations for the information system to be developed.

c. Documentation Study, conducted by reviewing various documents related to the permit process and legal aspects, such as: Housing permit Standard Operating Procedures (SOPs), Applicable regional regulations or legislation, Administrative forms and archives, Legacy information system documents (if available) [15].

This step helps ensure the developed system complies with applicable laws and policies.

III. RESULT AND DISCUSSION

Based on a needs analysis, design, and development process using a prototype method, PT Harapan Baru Group has successfully developed a web-based information system that supports integrated housing permit management with legal aspects. This system is designed to facilitate the application process, document validation, legal verification, and permit issuance digitally.

Some of the system's key features include:

- Administrative Dashboard: Displays real-time permit status and a summary of application data.
- Online Permit Application Form: Users can complete forms and upload documents directly through the system.
- Legal Document Verification and Validation: Legal officers can digitally check the completeness and validity of housing documents.
- Process Tracking: Applicants can monitor the progress of their permit process.
- Automatic Notifications: The system sends application status notifications to applicants and officers.
- Data Management and Reports: The system can generate periodic reports regarding the number of applications, processing time, and permit status.

The development of this information system has proven to contribute positively to improving administrative efficiency, particularly in terms of the speed and accuracy of licensing services. By adopting a digital approach, processes previously prone to delays, lost documents, or recording errors can be minimized. The integration of legal aspects into the system also provides additional advantages, as each licensing document is reviewed against applicable regulations, and the system can be updated to reflect the latest legal policy changes. This is crucial to ensure that administrative decisions remain compliant with laws and regulations. Furthermore, user involvement in the development process through a prototype method allows the system to better align with field needs. User feedback serves as the basis for refining the system's interface and functionality.

The development of a website-based legal information system integrated with housing permits is a strategic step in bringing efficiency to government administrative processes. Implementation of this system has significantly improved service delivery, particularly in terms of speed of service, data accuracy, and ease of public access.

Previously, the housing permitting process was manual, time-consuming, and prone to administrative errors and lost documents. With this website, applicants can submit permit applications online, attach digital documents, and monitor the status of their applications in real time. This significantly reduces time and costs for both the public and the agencies managing the legal and permitting processes.

The homepage is the main page that appears when this website is launched. The homepage appears as follows in Fig. 2.

In terms of administrative efficiency, this system has successfully simplified bureaucratic processes, which were

previously considered cumbersome. Legal documents, applicant data, and approval stages can be easily accessed and tracked within a single platform. Furthermore, notification features and application history help officers make quick and accurate decisions, in accordance with applicable regulations. However, the implementation of this system also faces several challenges, such as the readiness of human resources to operate the system, the need for intensive training for officers, and the availability of internet connections in certain areas. Furthermore, data security is a major concern, given that the system stores various important documents concerning legal and regulatory aspects.



Fig. 2. Homepage Operational Permit Page

Despite this, the positive impact of this website implementation is far more dominant. This legal information system, integrated with housing permits, is part of the digital transformation of public services, aligned with the e-Government concept. Going forward, the sustainability and maintenance of the system must be continuously monitored to ensure it remains adaptive to regulatory changes and public needs.

Thus, the development of this website not only improves administrative efficiency but also creates transparency, accountability, and better public service in the context of housing law and licensing.

Website testing in the development of a Legal Information System integrated with housing licensing plays a crucial role in ensuring the system's quality and reliability before its full implementation. The primary objective of this testing is to evaluate the system's ability to perform its core functions, provide user convenience, and support efficiency in the legal administration and licensing process.

Testing was conducted comprehensively across various aspects, from functionality and usability to responsiveness and system security. Technically, black-box testing methods were used to verify that each website feature functioned properly according to the designed process flow. Features tested included the online permit application form, document upload, application status tracking, user and admin login systems, and permit data management.

The Operational Permit page contains several supporting documents for an operational permit. All files are uploaded and can be viewed by visitors when visiting the website. These files include the Legal and Human Rights Decree, the Trade Business License, the Palembang Mayor's permit, and the PT registration certificate.



Figure 3. Homepage Logo Meaning Page



Fig. 4. Website Pages on Home Page

Test results showed that all key features functioned smoothly without significant errors. The website was able to accurately accept input data, process applications quickly, and display application statuses in real time. This demonstrates that the system is sufficiently ready to support administrative and public service activities in the legal and housing licensing sectors.

Furthermore, the testing involved direct user involvement in usability testing. Several users, both members of the general public and agency officials, were invited to try out the system. Observations revealed that the website had a simple interface, clear navigation, and an easy-to-understand workflow. This is crucial to ensure that the system is not only

technically functional but also usable by a wide range of users.

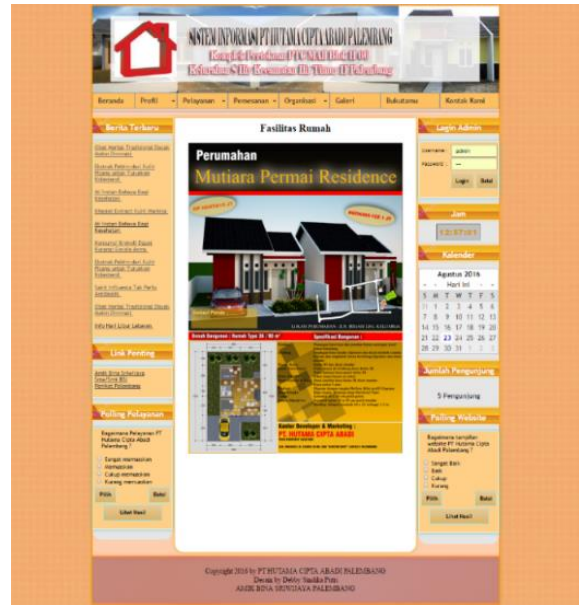


Fig. 5. Website Pages on Services – Facilities Page



Fig. 6. Website Core Page on Home Data Order Form Page

While testing generally yielded positive results, several improvements were identified. Several users suggested an automatic notification feature, either via email or text message, to inform them of permit status updates. Furthermore, increasing file upload capacity and optimizing access speed were proposed as further development options.

Thus, the results of this website testing confirm that the developed information system has successfully met basic quality standards to support administrative efficiency. The website not only provides easy access and accelerated services, but also increases transparency and accountability in the legal and housing licensing process. This testing phase forms a crucial foundation for the successful implementation of the system widely within relevant agencies.

The testing phase is a crucial phase in the development of a Legal Information System with housing licensing features. Testing is conducted to ensure that the system

operates optimally, meets user needs, and improves the efficiency of administrative processes. Without a sound testing process, the developed system can experience technical issues, functional inconsistencies, and even fail to achieve the primary goal of service digitization.

This system testing was conducted using a black-box testing approach, where system functions are tested based on input and output without considering the program code structure. Testing covered various key features such as the online permit application form, document validation process, application status tracking, and the admin login and data management system. Test results demonstrated that the system was able to correctly receive data, process documents efficiently, and display information accurately and in real time.

In addition to technical testing, usability testing was also conducted, involving several potential users from agencies and the general public. These testing results demonstrated that the system was quite easy to use, with an intuitive interface and a workflow that aligns with applicable licensing procedures. Users found the structured information and transparent permit status tracking helpful.

However, the testing process uncovered several important points for further evaluation and development. These included a request to add an automatic notification feature as a reminder to users, as well as a simplification of the form to make it more user-friendly. It was also recommended that the system's file storage capacity be increased to handle large legal documents.

Overall, the testing results indicated that the system met most of the success criteria in terms of functionality, usability, and administrative efficiency. This testing provided a strong foundation for the system's broader implementation and served as a reference for the development of additional features in the future.

IV. CONCLUSION

The development of a legal information system integrated with the housing permitting process has significantly improved administrative efficiency and public services. This system simplifies the previously complex permitting process, accelerates the verification and validation of legal documents, and enhances transparency and accountability in permit data management. With this system, previously manual and error-prone administrative processes can be automated, reducing processing time and the potential for human error. Furthermore, real-time permit tracking and digital document archiving facilitate inter-agency coordination and provide easy access for applicants. Overall, the development of this information system not only supports the modernization of government services but also represents a strategic step in strengthening permit governance that is law-based, effective, and oriented toward public service. This system also has the potential for broader implementation in other permitting areas within the public sector.

REFERENCES

- [1] G. Pandelaki, T. Wawointana, S. Tarore, and J. Karouw, "Implementasi Program Sistem Informasi Manajemen Bangunan Gedung Pada Dinas Penanaman Modal Dan Pelayanan Terpadu Satu Pintu Kota Manado," *Jurnal Administro : Jurnal Kajian Kebijakan dan Ilmu Administrasi Negara*, vol. 5, no. 2, pp. 69–83, Dec. 2023, doi: 10.53682/administro.v5i2.8017.
- [2] N. Karniawati and F. Nurfazriah, "PENGAWASAN FUNGSI PERIZINAN OLEH DINAS PENATAAN RUANG KOTA BANDUNG DALAM PEMBANGUNAN APARTMENT THE MAJ COLLECTION," *Governance*, vol. 12, no. 1, pp. 26–36, Mar. 2024, doi: 10.33558/governance.v12i1.8328.
- [3] R. L. Gaol, "Pendekatan Strategis dalam Mengatasi Permasalahan Perumahan Kumuh di Kabupaten Muna," *Ranah Research : Journal of Multidisciplinary Research and Development*, vol. 7, no. 2, pp. 1194–1206, Jan. 2025, doi: 10.38035/trj.v7i2.1317.
- [4] R. Komalasari, "PERANCANGAN SISTEM PEMELIHARAAN DATABASE BANGUNAN DI DINAS PERUMAHAN DAN PERMUKIMAN KOTA BOGOR," *TEMATIK*, vol. 4, no. 2, pp. 1–17, Dec. 2017, doi: 10.38204/tematik.v4i2.175.
- [5] E. Hartanto, N. Safriadi, and M. A. Irwansyah, "MENDIRIKAN BANGUNAN (IMB) KOTA SINGKAWANG," *USTIN (Jurnal Sistem dan Teknologi Informasi)*, vol. 4, no. 3, 2016.
- [6] M. P. Bilyastuti, "PELAYANAN PUBLIK DINAS PENANAMAN MODAL DAN PELAYANAN TERPADU SATU PINTU (DPMPSTP) KABUPATEN PONOROGO DENGAN SIJITU (SISTEM INFORMASI PERIZINAN TERPADU)," *REFORMASI*, vol. 9, no. 1, p. 82, Jun. 2019, doi: 10.33366/rfr.v9i1.1346.
- [7] M. Devega, N. Nasution, and R. Saputri, "Sistem Informasi Perumahan pada PT. MAHKOTA HUTAMA PROPERTI Berbasis Web," *ZONAsi: Jurnal Sistem Informasi*, vol. 1, no. 1, pp. 38–47, Mar. 2019, doi: 10.31849/zn.v1i1.2374.
- [8] M. Rosalind and R. D. Pulong Sari, "Karakteristik Sistem Pre Project Selling Perumahan Ditinjau dari Asas Keseimbangan," *Jurnal Ilmiah Dunia Hukum*, vol. 7, no. 1, p. 22, Oct. 2022, doi: 10.35973/jidh.v7i1.3026.
- [9] F. R. Arfianto and F. Nugrahanti, "Rancang bangun aplikasi penjualan perumahan berbasis web pada cv. Grand permata residence magetan," in *Prosiding Seminar Nasional Teknologi Informasi dan Komunikasi (SENATIK)*, 2019, pp. 174–179.
- [10] S. C. Polanco and A. T. Priadika, "Rancang Bangun Aplikasi E-Marketing Berbasis Web Menggunakan Metode Sostac (Studi Kasus: Pt. Dimitra Adi Wijaya Bandar Lampung)," *J. Teknol. dan Sist. Inf*, vol. 3, no. 1, pp. 71–76, 2022.
- [11] D. S. Wahyuni and D. A. Megawaty, "Rancang Bangun Sistem Pendukung Keputusan Berbasis Web Untuk Pemilihan Perumahan Siap Huni Menggunakan Metode Ahp (Studi Kasus: Pt Aliquet and Bes)," *J. Teknol. dan Sist. Inf*, vol. 2, no. 4, pp. 22–28, 2021.
- [12] A. Amanita and B. Septiansyah, "PENATAAN SISTEM INFORMASI DAN ADMINISTRASI PERTANAHAN TINGKAT KELURAHAN DI KOTA CIMAHU DALAM RANGKA REFORMA AGRARIA," *Jurnal Caraka Prabhu*, vol. 4, no. 2, pp. 143–164, Dec. 2020, doi: 10.36859/jcp.v4i2.313.
- [13] A. Asmaran, B. Susetyo, and P. Eosina, "Sistem Informasi Pelayanan Surat Keterangan Imbg Berbasis Web," *IKRA-ITH Informatika: Jurnal Komputer dan Informatika*, vol. 3, no. 2, pp. 10–18, 2019.
- [14] A. R. Faturrohman, H. Budiawan, and E. Noviawati, "IMPLEMENTASI PASAL 2 AYAT (1) PERATURAN DAERAH KABUPATEN CIAMIS NOMOR 12 TAHUN 2016 TENTANG PENYELENGGARAAN RUMAH SEWA DAN RUMAH KOST TERHADAP IZIN RUMAH KOST HALAL NETWORK INTERNASIONAL DESA MEKARJAYA KECAMATAN BAREGBEG KABUPATEN CIAMIS," *Pustaka Galuh Justisi*, vol. 3, no. 1, pp. 240–258, 2024, doi:10.25157/pustaka.v3i1.4585
- [15] R. N. Warong, A. A. Musa, and D. W. Lumintang, "Tinjauan Hukum Efektifitas Kedudukan dan Kewenangan Pemerintah Daerah Terhadap Izin Pengelolaan Lingkungan," *Nuansa Akademik: Jurnal Pembangunan Masyarakat*, vol. 10, no. 1, pp. 211–222, Mar. 2025, doi: 10.47200/jnajpm.v10i1.2783.