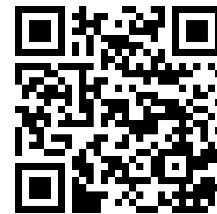# Identification of Determining Factors for the Success of Digital Transformation in the Electronic Land Certificate Program at the Ministry of ATR/BPN

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ABSTRACT: With the rapid development of information technology, the government of the Republic of Indonesia issued Ministerial Regulation ATR/Ka BPN No. 1 of 2021 on Electronic Certificates and Government Regulation No. 18 of 2021 on Management Rights, Land Rights, Apartment Units, and Land Registration. Electronic land registration is a necessity to increase productivity and efficiency in the Indonesian land registration system. This regulation transitions the land registration system from a paper-based process to an electronic one.

This study aims to identify the determining factors for the success of the electronic land certificate program at the Ministry of ATR/BPN. Additionally, it seeks to provide recommendations for the Ministry of ATR/BPN in implementing the electronic land certificate program.

The study identifies four main factors: (1) Human Resources (HR), (2) technology, (3) the integration of IT with business processes, and (4) digital leadership. A qualitative research method was used. Data collection was conducted through in-depth interviews with three informants from the Ministry of ATR/BPM and the community of users and prospective users of electronic land certificates. Interviews were carried out directly between researchers and informants.

The study findings indicate that the primary factor contributing to the success of digital transformation in the electronic land certificate program at the Ministry of ATR/BPN is human resources. Nevertheless, the expertise and strategic role of technology, as well as the integration of IT with business processes and digital leadership, also constitute critical determinants of success in this program.

KEYWORDS: Digital transformation, digital transformation factors, electronic land certificate

I. INTRODUCTION

Digital transformation in Indonesia, according to Kwon & Park (2017), involves changes driven by digital strategies, processes, and technologies such as AI, IoT, and blockchain. Despite challenges like the digital talent gap, opportunities abound, as evidenced by significant growth in internet users and Indonesia's top ranking in McKinsey's digital adoption index. At the Ministry of ATR/BPN, digital transformation aims to enhance public service efficiency through electronic government policies, leading to initiatives like electronic land certificates that require robust IT infrastructure, human resources, and digital leadership.

Digital transformation in Indonesia, driven by technological advancements like AI, IoT, and blockchain, has significantly impacted various aspects of life, including business, education, and healthcare, despite challenges such as the digital talent gap. The Indonesian government, through initiatives like the Roadmap Digital Indonesia 2021-2024 and the implementation of electronic government (SPBE), is accelerating this transformation to enhance public service efficiency. Specifically, the Ministry of ATR/BPN is undertaking digital initiatives, including the electronic land certificate program, which faces challenges in human resources, technology infrastructure, IT-business alignment, and digital leadership, making the identification of success factors critical for its effective implementation.

While significant progress has been made in digital transformation in Indonesia, particularly within the Ministry of ATR/BPN through initiatives like the electronic land certificate program, several gaps in knowledge remain. Specifically, there is limited understanding of how human resources, technological infrastructure, IT-business process alignment, and digital leadership collectively contribute to the success of this transformation. Although previous studies have identified these factors as crucial, the interplay between them within the context of the Ministry's digital initiatives has not been thoroughly examined. This research aims to address this gap by identifying and analyzing the determinants of successful digital transformation in the electronic land certificate program at the Ministry of ATR/BPN, thereby providing a comprehensive understanding of the factors that drive effective digital change in governmental services.

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Here we show that the success of the digital transformation in the electronic land certificate program at the Ministry of ATR/BPN hinges on four key factors: human resources, technology, IT-business process alignment, and digital leadership. Using qualitative research methods, including interviews, observations, and document analysis, we identified that human resources are crucial, with trust and commitment of the staff being primary indicators of success. The effectiveness of IT infrastructure and strategic alignment with business processes also emerged as significant factors, while strong digital leadership was found to be essential in driving the transformation forward. These findings underscore the importance of a comprehensive approach that includes continuous training, robust technological infrastructure, clear IT-business integration strategies, and effective leadership to ensure the success of digital initiatives in government services.

II. LITERATURE REVIEW AND FRAMEWORK

Digital transformation refers to the integration of digital technology into all areas of a business, fundamentally changing how organizations operate and deliver value to customers. According to Kwon & Park (2017), digital transformation involves all changes caused by digital technologies based on digital strategy, organization, process, business model, and culture. Henriette et al. (2016) define it as a disruptive or incremental change process that evolves into a holistic transformation of an organization. Hess et al. (2016) emphasize that digital transformation involves changes in a company's business model, resulting in altered products, organizational structures, or automated processes. Zhao et al. (2020) suggest that digital transformation requires more than resources and processes, often advocating for systematic socio-technical changes enabled by increasingly digital resources and workflows. Kwon & Park (2017) identify several factors influencing the success of digital transformation in the global industry, including:

1. Human Factors
   Trust and commitment are crucial for successful digital transformation. This involves building trust among employees and departments involved in managing and implementing the electronic land certificate system. Dedication to collaboration, knowledge sharing, and active stakeholder involvement, from IT developers to end-users, is essential.

2. Technological Factors
   The importance of strong IT expertise within the organization and the ability to adopt and integrate new technologies to support efficiency and security in the land registration process. The strategic role of IT extends beyond operational support to driving organizational goals and improving service quality.

3. IT and Business Strategy Alignment
   Digital transformation capacity strengthens when IT and business strategies are aligned. Sharing information is vital in the strategic relationship between IT and business. Digital initiatives must align with broader organizational goals, such as enhancing transparency, efficiency, and user satisfaction.

4. Digital Leadership
   Effective digital leadership is crucial for driving digital transformation, involving top-down management approaches. Strong leadership is required to provide a clear vision of digital transformation benefits, organize necessary resources, and develop human resource capacity to support the change.

According to Polancik (2009), a conceptual framework serves as a systematic logical flow for developing the research theme. This framework is built on research questions reflecting a set of concepts or relationships between concepts. The following framework outlines the components and scope of this study:

Identification of Determining Factors for the Success of Digital Transformation in the Electronic Land Certificate Program at the Ministry of ATR/BPN
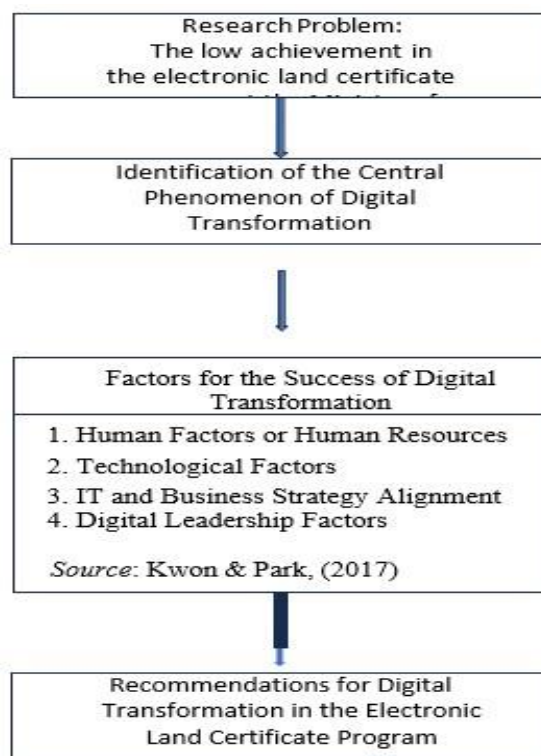

Fig. 1. Schema: Research Framework

The research offered practical recommendations to guide the Ministry of ATR/BPN in improving its digital transformation strategy and enhancing the success of the electronic land certificate program. These recommendations aim to help the ministry achieve maximum success in digital transformation, increasing efficiency and adding value to the entire organization. .

III. RESEARCH METHODS

This study utilizes a qualitative research method. Qualitative research involves data and analysis that are qualitative in nature. In qualitative research, the researcher themselves is the primary instrument. Therefore, the researcher must validate their readiness to conduct field research, which includes validating their understanding of qualitative research methods, mastery of the subject being studied, and the research object. Qualitative research views the object holistically (comprehensively) as every aspect is interconnected and cannot be separated (Sugiyono, 2018).

Based on its purpose, this research is descriptive. Descriptive research aims to describe the objects present in the studied event (Sugiyono, 2018). Regarding the researcher's involvement, this research does not intervene with the data. This is because the results obtained from the informants are primary data derived from interviews and observations. The interview results are not altered by the writer as they come directly from the informants, making them valid. The unit of analysis in this research is at the organizational level, specifically the Ministry of ATR/BPN. Based on the research setting, this study is conducted in a non-contrived setting. According to Indrawati (2018), a noncontrived setting means the research is conducted in a natural environment without data manipulation. As for the research timing, it is conducted as a cross-sectional study. A crosssectional study is when data is collected only once to answer the research questions.

Table I. Research Characteristics

No.	Research Characteristics	Type
1	Based on Method	Qualitative
2	Based on Purpose	Descriptive
3	Based on Researcher Involvement	Non-interventionist
4	Based on Setting	Non-contrived Setting
5	Based on Unit of Analysis	Organization
6	Based on Time	Cross-sectional

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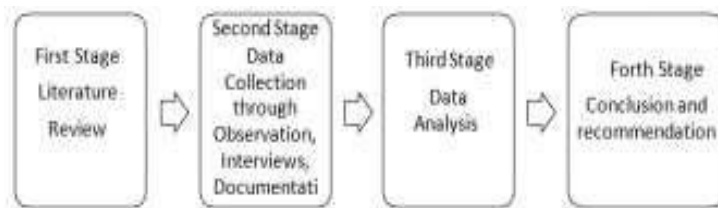

Fig. 2. Research Stages

The data processing model used in this research follows the Interactive Model by Miles and Huberman, where data analysis is conducted simultaneously with data collection. During interviews, the researcher analyzes the responses. If the analysis is not satisfactory, further questions are asked until certain points are clarified. Activities in data analysis include data collection, data reduction, data display, and data verification (Sugiyono, 2018).
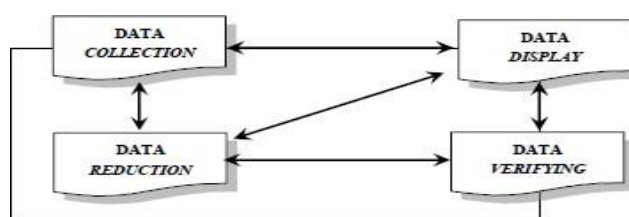

Fig. 3. The Interactive Model by Miles and Huberman

IV. RESULTS

Human Resources (HR) as a Determining Factor for the Success of Digital Transformation Human resources (HR) in this study refer to various aspects related to individuals and groups involved in the digital transformation process of land certificates at the Ministry of ATR/BPN. Based on the research results, HR is identified as both a significant barrier and a driving factor for the success of digital transformation at the Ministry of ATR/BPN. Within the HR variable, two important aspects serve as indicators of the success of digital transformation in the electronic land certificate program (Sertel) at the Ministry of ATR/BPN: trust and commitment.

1. Trust

   Trust is a variable that influences digital transformation at the Ministry of ATR/BPN. Trust among human resources and between human resources at the Ministry of ATR/BPN is crucial for successful digital transformation. Additionally, trust fosters good cooperation among individuals. Building trust requires significant time. From the interviews with the Ministry of ATR/BPN officials (N1), it is evident that trust in the Ministry's ability to carry out digital transformation is highly influenced by continuous training, socialization, education, leadership commitment, technological infrastructure support, technical support, and the availability of adequate facilities.

   Trust is a determining factor for the success of digital transformation in the electronic land certificate program at the Ministry of ATR/BPN. The trust of HR in the Ministry's ability to execute digital transformation is significantly influenced by continuous training, socialization and education, leadership commitment, technological infrastructure support, technical support, and the availability of adequate facilities.

2. Commitment

   Commitment in IT governance refers to the level of participation from human resources in the digital transformation. This includes the responsibility towards their work and enthusiasm in participating in the digital transformation. Commitment encompasses the active involvement of all stakeholders, from IT developers to endusers of the system. This requires clear communication of the transformation goals and benefits, as well as the significant role of each individual in making this transition successful. From the interviews with the Ministry of ATR/BPN officials (N1), it is evident that the HR at the Ministry is committed to digital transformation, with efforts to enhance competencies and support from leadership, as well as stakeholder collaboration.

   Commitment is a determining factor for the success of digital transformation in the electronic land certificate program at the Ministry of ATR/BPN. HR commitment is significantly influenced by their active participation in competency enhancement through training. The willingness of HR to continuously learn, socialize, implement technology, and improve the quality of the Sertel program demonstrates their strong determination to ensure the success of this digital transformation.

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Technology as a Determining Factor for the Success of Digital Transformation The technological factor also influences the digital transformation in the Sertel program at the Ministry of ATR/BPN. Two important aspects can be measured in this context: IT expertise and the strategic role of IT.

1. IT Expertise

   IT expertise emphasizes the importance of having strong IT skills within the organization and the ability to adopt and integrate new technologies that can support efficiency and security in the land registration process. The Ministry of ATR/BPN must ensure that the technology used is up-to-date, capable of handling large volumes of data, and ensures the security of sensitive information. From the interviews with the Ministry of ATR/BPN officials (N1), it is evident that IT skills are crucial in various aspects of digital transformation, from data validation to the development and implementation of digital innovations.

   IT expertise is a determining factor for the success of digital transformation in the electronic land certificate program at the Ministry of ATR/BPN. IT skills are crucial to ensure the reliability, security, and ability of the system to meet user needs and support efficient and effective operations.

2. Strategic Role of IT

   The strategic role of IT is not only as operational support but also as a main driver in achieving the organization's strategic goals. For the Ministry of ATR/BPN, IT should be strategically integrated not only to support operations but also to improve service quality and identify and address weaknesses in the electronic land certificate program implementation. From the interviews with the Ministry of ATR/BPN officials (N1), it is evident that the strategic role of IT is crucial in supporting digital transformation, enhancing efficiency, transparency, and security in land management in Indonesia.

The strategic role of IT is a determining factor for the success of digital transformation in the electronic land certificate program at the Ministry of ATR/BPN. The strategic role of IT in supporting digital transformation encompasses improving efficiency, data security, better decision-making, and continuous innovation and technological development.

Integration of IT with Processes The use of information technology in government institutions like the Ministry of ATR/BPN has benefits for policy strategy determination, program objectives, and information sharing if done correctly. Digital transformation strengthens when the relationship between IT and business strategy is reinforced. Information sharing is crucial in the strategic relationship between IT and business. In program planning stages, systems must be able to cooperate with IT. It is important that digital initiatives align with broader organizational goals, such as increasing transparency, efficiency, and user satisfaction. From the interviews with the Ministry of ATR/BPN officials (N1), it is evident that most digital transformation processes at the Ministry have utilized IT, although not entirely.

The integration of IT with processes is a determining factor for the success of digital transformation in the electronic land certificate program at the Ministry of ATR/BPN. The use of IT in the electronic land certificate services is crucial for achieving modernization, enhancing efficiency and transparency, and ensuring the security and effectiveness of services.

Digital Leadership Digital leadership involves strengthening digital transformation when leadership is engaged in the strategic relationship between human factors, technology, and IT business. Effective leadership is essential for guiding and motivating the entire organization to adopt changes. Strong leadership at the Ministry of ATR/BPN provides a clear vision of the benefits of digital transformation, organizes necessary resources, and develops human resource capacity to support this change. Digital leadership is used for decision-making within the organization, such as resource management, setting company vision, and technology investment for implementing digital transformation. From the interviews with the Ministry of ATR/BPN officials (N1), it is evident that leadership plays a significant and active role in various aspects of the electronic land certificate program, from socialization to the use of technology to improve services.

Digital leadership is a determining factor for the success of digital transformation in the electronic land certificate program at the Ministry of ATR/BPN. Overall, digital leadership at the Ministry plays a crucial role in various aspects of the electronic land certificate program, from communication and training to supervision and strategic partnerships.

V. CONCLUSIONS
From the discussion and analysis conducted, the researcher concludes from the statements provided by the seven informants, as well as from observations and documentation, that this study aims to identify the determining factors for the success of digital transformation in the electronic land certificate program at the Ministry of ATR/BPN. The key factors for successful digital transformation in the electronic land certificate program are human resources, consisting of trust and commitment; technology, consisting of IT expertise and the strategic role of IT; IT alignment with business processes; and digital leadership. The study examines these four variables: (1) Human Resources (HR), (2) Technology, (3) IT alignment with business processes, and (4) Digital Leadership.

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1. **Human Resources (HR)**: HR is deemed the most critical factor in ensuring the success of digital transformation at the Ministry of ATR/BPN. Trust and commitment are the primary indicators. The trust and commitment of HR are significantly influenced by continuous training, socialization and education, leadership commitment, technological infrastructure support, technical support, and the availability of adequate facilities. Strong trust and commitment among HR at the Ministry of ATR/BPN ensure that digital transformation progresses successfully and provides maximum benefits to society.

2. **Technology**: Technology, including IT expertise and the strategic role of IT, is a major determinant of success in the digital transformation of the electronic land certificate program at the Ministry of ATR/BPN. IT skills are crucial to ensuring the system is reliable, secure, and capable of meeting user needs while supporting efficient and effective operations. The strategic role of IT includes enhancing efficiency, data security, better decisionmaking, and continuous technological innovation and development. With adequate IT expertise and a strong strategic role of IT, digital transformation at the Ministry of ATR/BPN can proceed successfully and provide maximum benefits to society.

3. **IT Alignment with Business Processes**: IT alignment with business processes is another key factor in the success of digital transformation in the electronic land certificate program at the Ministry of ATR/BPN. The use of IT in electronic land certificate services is essential for achieving modernization, improving efficiency and transparency, and ensuring service security and effectiveness.

4. **Digital Leadership**: Digital leadership is a crucial determinant of success in the digital transformation of the electronic land certificate program. Overall, digital leadership at the Ministry of ATR/BPN plays a pivotal role in various aspects of the electronic land certificate program, from communication and training to oversight and strategic partnerships. Effective leadership is essential for guiding and motivating the entire organization to adopt changes, providing a clear vision of the benefits of digital transformation, organizing necessary resources, and developing human resource capacity to support this change.

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