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Google Trends Analysis of SIMKAH Search Patterns as an Indicator of Digital Transformation in Indonesian Marriage Registration Services

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ABSTRACT

Digital transformation in public services has driven significant changes in public information-seeking behavior and the utilization of technology-based government services. This study analyzes search trends for the SIMKAH application through Google Trends on Web and YouTube platforms over the period 2019 to 2024, as an indicator of digital transformation in Indonesian government marriage registration services. Using a quantitative descriptive approach based on Google Trends secondary data, the analysis identifies search patterns by time, platform, and geographic region. The findings indicate a shift from text-based to video-based information-seeking behavior, reflecting changes in digital literacy and technology adoption. The Web platform dominated during 2019 to 2021 as a formal information medium, while YouTube recorded sustained growth from 2022 to 2024 as a tutorial and visual learning source. Geographic analysis shows that provinces in Sumatra and Sulawesi recorded the highest search interest on both platforms. These trends confirm Rogers' diffusion of innovation stages, whereby public adaptation to digital government services occurs through different platforms according to literacy levels and informational needs. Critically, search volume is interpreted as a behavioral proxy rather than a direct measure of service adoption. The study recommends multiplatform communication strategies integrating official textual content with community-based video tutorials to accelerate digital transformation in Indonesian government marriage registration services.

Keywords: *Digital Transformation, Google Trends, Government Marriage Registration, Search Behavior, SIMKAH*

INTRODUCTION

The development of digital technology has accelerated the adoption of electronic-based services across various sectors of public administration (Sain et al., 2025). The digital era has brought fundamental changes to the way people access information and public services, including in the areas of population administration and marriage registration. Digital services enable the public to access information more easily, flexibly, and without the constraints of space and time (Maslamah, 2023). This condition is one of the primary factors driving the adoption of digital-based public services such as SIMKAH. One manifestation of digital technology in the religious sector is the development of the Marriage Management Information System (SIMKAH) application by the Ministry of Religious Affairs of the Republic of Indonesia, which was designed to facilitate online marriage registration. This application is expected to increase the efficiency, transparency, and accessibility of marriage services for the Muslim community in Indonesia (Aprilisma, 2021).

Although the SIMKAH application was launched in 2018 and adopted by thousands of Religious Affairs Offices (KUA) across Indonesia, its utilization has remained uneven and fluctuating. This unevenness indicates that the level of public acceptance and understanding of digital services still varies considerably, and therefore warrants analysis through the digital traces left by users when searching for information about these services (Safitriany et al., 2022). This phenomenon is particularly relevant given the observable shift in information-seeking behavior from conventional media to digital platforms such as web search engines and YouTube. Web platforms tend to present information in formal, procedural text, while YouTube offers visual content in the form of tutorials, which are generally considered easier to understand by certain user groups (Boté-Vericad, 2026; Shoufan & Mohamed, 2022). The differing characteristics of these two platforms provide insight into the transformation of digital literacy and the stages of public service innovation adoption in society (Juneldi & Sururie, 2020).

Several previous studies have examined the effectiveness of SIMKAH implementation from the perspective of service quality and user satisfaction. Anafi and Winarno (2020) found that the intention to use online marriage registration services was influenced by motivational factors and system convenience. Aprilisma (2021) and Kartini and Rijali (2020) further supported the argument that SIMKAH implementation could improve the quality of KUA services and received positive public appreciation. However, these studies focused primarily on evaluating implementation at the local level using a quantitative survey approach, and therefore did not explicitly reveal long-term patterns of digital search behavior or the dynamics of platform shifts among users. Furthermore, no prior study has specifically examined cross-platform search trend dynamics as a measurable indicator of digital transformation in Indonesian government marriage services.

This gap is significant, as understanding how the public searches for and engages with SIMKAH across different platforms can inform more targeted and effective dissemination strategies for digital public services.

To address this gap, this study employs Google Trends data as a behavioral proxy to analyze public search interest in SIMKAH across Web and YouTube platforms over the period 2019 to 2024. Google Trends is positioned as an instrument for capturing the public's digital footprint through search volume patterns, enabling temporal and geographic analysis without relying on self-reported survey data (Adzhari & Priatna, 2025). SIMKAH is understood in this study as a form of digital-based public service innovation in the field of marriage registration. To theoretically frame the process of public acceptance and innovation dissemination, this study draws on Rogers' Diffusion of Innovation Theory, which posits that adoption occurs through five sequential stages: knowledge, persuasion, decision, implementation, and confirmation. Within this framework, shifts in search patterns across platforms are interpreted as behavioral indicators of the innovation diffusion process and of public adaptation to digital marriage registration services.

This study therefore contributes to the existing literature in two ways. First, it offers a novel application of Google Trends as a non-intrusive, real-time instrument for monitoring the progress of digital public service adoption in Indonesia. Second, it provides empirical evidence of cross-platform behavioral shifts that reflect broader changes in public digital literacy, with implications for communication strategy design in government service innovation. Based on this foundation, this study addresses the following research question: How do search trends for the SIMKAH application differ between the Web and YouTube platforms during the 2019-2024 period?

LITERATURE REVIEW

The SIMKAH application is a digital technology innovation in the religious sector designed to manage marriage data at the national level (Subeitan et al., 2024; Zahraamadhani & Mursyidah, 2025). This application offers several advantages, including connectivity to the national population database, the capability for online marriage registration, and the provision of a digital marriage certificate verified through a QR code (Kementerian Agama Republik Indonesia, 2019). The core principles of SIMKAH include data accuracy, information security, and increased service transparency. However, the success of a technology-based system is determined not only by its technical aspects, but also by the extent to which society accepts and integrates that technology into everyday social practices. In this context, the SIMKAH application is understood not merely as a technical artifact, but as a sociotechnical system that mediates the relationship between the government, KUA officers, and prospective couples seeking marriage registration services (Lolyta & Prabowo, 2019).

Google Trends is a big data analysis tool that provides information on the relative popularity of search terms within the Google search engine (Franzén, 2023). Unlike conventional survey data, Google Trends captures the digital traces of user behavior in real time and enables both temporal and geographic analysis (Gummer & Oehrlein, 2023). Within the contemporary qualitative paradigm, Google Trends data can be analyzed not only quantitatively but also as a representation of user meanings, needs, and concerns captured through natural language queries. Choi and Varian (2012) and Jun et al. (2018) have demonstrated Google Trends' potential for predicting and understanding social change. However, its application to analyze the transformation of public services in Indonesia, particularly in the religious sector, requires further exploration.

The Diffusion of Innovation Theory developed by Rogers (2003) provides a framework for understanding how technological innovations spread and are adopted within a social system. Rogers (2003) identified five categories of adopters: innovators, early adopters, early majority, late majority, and laggards. In the digital context, these categories are no longer understood as static classifications, but rather reflect society's position on a spectrum of technology adaptation influenced by digital literacy, access to information, and platform mediation. The shift in usage from the Web to YouTube in searching for SIMKAH-related information can be interpreted as a dynamic of innovation diffusion shaped by the evolution of societal learning needs, from textual literacy toward visual and audiovisual literacy.

RESEARCH METHODOLOGY

This study employs secondary data obtained from Google Trends to analyze search trends related to the Marriage Management Information System (SIMKAH) as an indicator of public interest in digital marriage services in Indonesia. Keywords were purposively determined based on their relevance to the research object, namely “SIMKAH,” “SIMKAH Kemenag,” “online marriage registration,” and “SIMKAH tutorial.” Each keyword was entered as an individual query into Google Trends and subsequently compared to observe relative levels of search interest over time. These keywords were not derived from the related queries or rising queries features of Google Trends, but were predetermined by the researchers to maintain conceptual relevance and the validity of the comparative analysis.

Data collection was conducted across two search platforms available within Google Trends: Web Search and YouTube Search. This approach was adopted to identify differences in user information-seeking behavior across platforms. Search parameters were defined as follows: the region of Indonesia, the all categories option, the respective search types (Web Search and YouTube Search), and the observation periods of 2019 to 2022 for Web Search data and 2022 to 2024 for YouTube Search data. Data analysis was conducted using a quantitative descriptive approach (Creswell & Guetterman, 2024). The Google Trends index, which operates on a scale of 0 to 100, was used to measure relative search interest, where

a value of 100 indicates the highest level of popularity for a given keyword within a specified period and region. The analysis focused on identifying patterns of rising and declining search trends, comparing popularity levels across keywords, and examining fluctuations in search activity over time. The results were subsequently interpreted as indicators of public attention and information-seeking behavior regarding SIMKAH services in the context of the digital transformation of wedding services in Indonesia. To ensure data validity, all queries were analyzed using identical parameters across both platforms.

RESULTS AND DISCUSSION

SIMKAH Application Search Patterns on the Web Platform

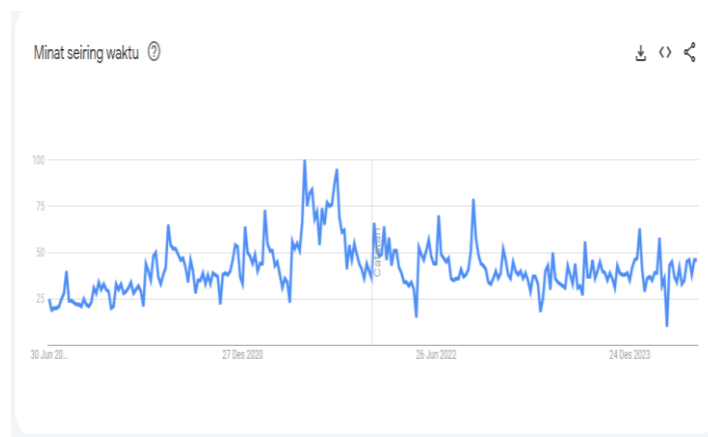


Figure 1 Graph of SIMKAH Application Search Patterns Using Google Trends on the Web Platform

Source: Google Trends

The analysis of Google Trends data on the Web platform reveals that search interest in the SIMKAH application experienced significant dynamics during the period 2019 to 2024. From 2019 to 2021, search interest increased considerably, with peak interest recorded at the end of 2020 and mid-2021. This surge corresponds with the onset of the COVID-19 pandemic in early 2020, during which social restrictions and recommendations to avoid physical gatherings prompted the public to turn to online services as a preferred alternative for marriage registration. The increase in 2021 further correlates with rising COVID-19 case numbers and the intensive socialization campaign conducted by the Ministry of Religious Affairs regarding the obligatory use of SIMKAH (Kementerian Agama Republik Indonesia, 2020). The dominant search queries during this period were procedural and informational in nature, including terms such as “requirements for registering for SIMKAH,” “how to register for marriage online,” and “SIMKAH application from the Ministry of Religious Affairs.”

From 2022 to 2024, however, Web search trends showed a gradual decline, albeit with seasonal fluctuations. This decline does not necessarily indicate a failure

of adoption, but rather reflects the public's transition from the initial exploration stage toward an adaptation stage characterized by a shift to other platforms. This pattern suggests that users in the early and late majority phases were beginning to encounter technical challenges requiring practical solutions beyond procedural information, prompting a migration toward more accessible content formats.

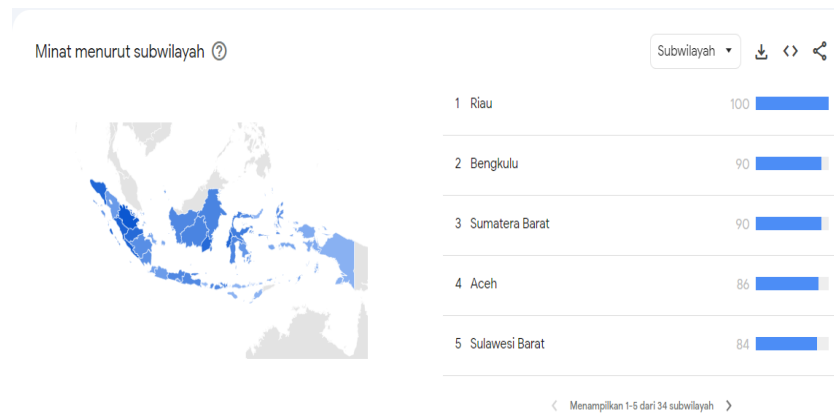


Figure 2 Search Interest by the Top Five Subregions on the Web Platform over the Last Five-Year Period

Source: Google Trends

From a geographic perspective, the five provinces with the highest search interest on the Web platform are Riau, Bengkulu, West Sumatra, Aceh, and West Sulawesi, as illustrated in Figure 2. Darker shades indicate higher search interest, while lighter shades correspond to lower interest levels. The high concentration of search activity in Riau, Bengkulu, and West Sumatra suggests that SIMKAH utilization in these regions is influenced by demographic factors, population mobility, and geographic characteristics that make digital services a more efficient alternative to physical access to KUA offices.

SIMKAH Application Search Patterns Using Google Trends on the YouTube Platform

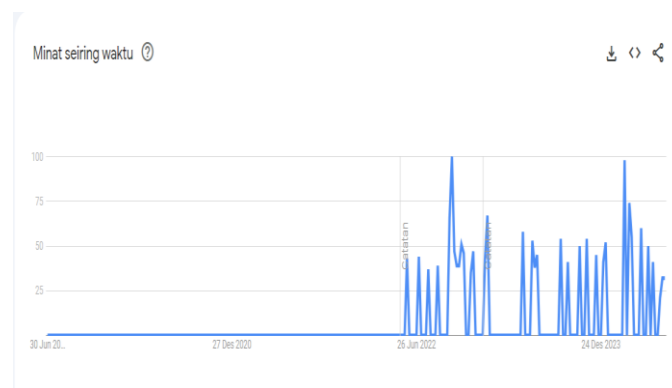


Figure 3 SIMKAH Application Search Patterns Using Google Trends on the YouTube Platform

Source: Google Trends

The YouTube platform exhibits trend characteristics that differ substantially from those observed on the Web platform. From 2019 to 2021, search interest in SIMKAH on YouTube remained relatively low and insignificant. A consistent and sustained increase began only from mid-2022 and continued through 2024, as shown in Figure 3. This growth coincided with the emergence of video tutorials produced by content creators and KUA officers, which explained SIMKAH registration procedures in a step-by-step visual format. The dominant search queries on YouTube were tutorial-based, including terms such as “SIMKAH registration tutorial,” “how to fill in complete SIMKAH data,” and “online marriage registration experience.”

User comments on these tutorial videos demonstrate a social learning dynamic, in which users actively shared solutions to technical problems encountered during the registration process. This pattern indicates that YouTube has functioned not merely as an entertainment platform, but as a space for informal learning and communal knowledge construction regarding government digital services, particularly among prospective couples navigating SIMKAH for the first time.

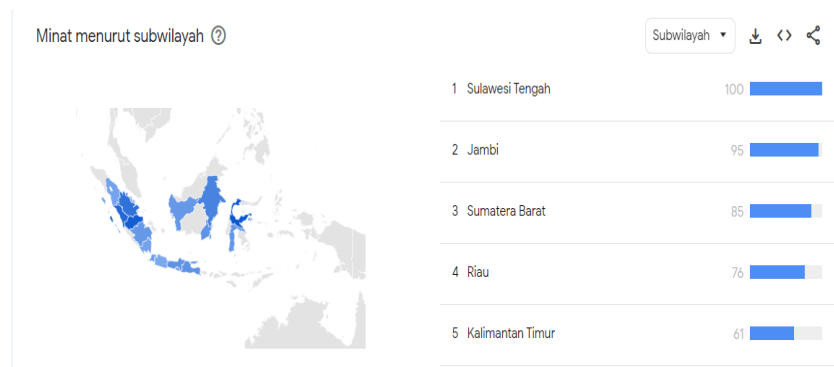


Figure 4 Search Interest by the Top Five Subregions on the YouTube Platform
Source: Google Trends

As presented in Figure 4, the provinces with the highest search interest on YouTube include Central Sulawesi, Jambi, West Sumatra, Riau, and East Kalimantan. This geographic distribution largely overlaps with that observed on the Web platform, but with notable differences in proportions that reflect varying platform preferences across regions. Provinces recording high YouTube search interest tend to indicate populations that are more responsive to visual and demonstration-based learning content.

Shifting Trends and the Transformation of Digital Literacy

The findings reveal a fundamental shift in the manner in which the public accessed information about SIMKAH across the study period. The period from 2019 to 2021 can be characterized as a phase of textual literacy dominance, during which the public relied primarily on Web platforms to understand policies, administrative requirements, and formal registration procedures. The dominance of

this approach during the early period indicates that text-based technology via the Web was regarded as the more effective medium for the dissemination of formal government information. The Web during this period functioned as a top-down educational and campaign medium through which government agencies communicated procedural information to the public.

In contrast, the period from 2022 to 2024 marks a transition toward visual and audiovisual literacy. The public, particularly young people and prospective couples, demonstrated a clear preference for video tutorial content on YouTube, which was perceived as easier to understand, more personally relevant, and capable of providing concrete solutions to specific registration problems. This shift aligns with broader arguments in the digital literacy literature that literacy practices are not static but evolve in response to technological developments and changing user needs. YouTube in this context served as a mediating platform that enabled embodied, experiential learning, transforming procedural knowledge into practical, imitable knowledge.

Within the framework of Rogers' Diffusion of Innovation Theory, this platform shift reflects a transition between stages of adoption. The Web platform proved to be an effective medium for innovators and early adopters, who are highly motivated to seek formal and procedural information. As the innovation diffused to the early and late majority, however, the demand for accessible, experience-based content increased, positioning YouTube as a more effective diffusion channel for these adopter groups. This finding is consistent with Rogers (2003) argument that different communication channels serve different adopter categories at different stages of the diffusion process, and extends this argument to the context of digital government service adoption in a developing country setting.

The findings of this study both support and extend the conclusions of prior research on SIMKAH adoption. Anafi and Winarno (2020) demonstrated that user intention to adopt online marriage registration was shaped by perceived system convenience and motivational factors. The present study complements this finding by providing behavioral evidence, through Google Trends data, that public interest in SIMKAH increased substantially during periods of heightened motivation, particularly during the COVID-19 pandemic when online alternatives became a practical necessity. The surge in Web search activity between 2020 and 2021 observed in this study can therefore be understood as a large-scale behavioral manifestation of the motivational factors identified by Anafi and Winarno (2020).

The findings further extend the work of Safitriany et al. (2022), who identified geographic disparities in SIMKAH implementation effectiveness across regions. The geographic distribution of search interest observed in this study, with Sumatra and Sulawesi provinces consistently recording the highest search volumes on both platforms, provides independent, non-survey-based corroboration of these regional disparities. Rather than reflecting uniform national adoption, the data suggest that digital engagement with SIMKAH remains concentrated in specific regions, a

pattern that warrants targeted policy attention from the Ministry of Religious Affairs.

This study also partially contradicts the assumption, implicit in several prior studies, that declining Web search interest signals declining public engagement with SIMKAH. The analysis demonstrates that the decline in Web searches from 2022 onward was accompanied by a simultaneous and sustained rise in YouTube searches, indicating a platform migration rather than a disengagement from the service. This finding introduces a cross-platform behavioral dimension that has not been captured in previous survey-based studies and represents a methodological contribution to the field. It further suggests that evaluations of digital public service adoption that rely on a single-platform or single-method approach may systematically underestimate the actual scope of public engagement.

Implications for the Digital Transformation of Wedding Services

These findings carry important implications for understanding the trajectory of digital transformation in Indonesian wedding services. First, Google Trends has demonstrated validity as a proxy indicator for detecting stages of digital innovation adoption and shifts in public literacy at the national scale. Second, digital transformation in public services does not occur as a linear process, but rather through dynamic, platform-specific adaptations that are shaped by user characteristics and broader social contexts. Third, the future dissemination of SIMKAH can no longer rely solely on text-based communication strategies but must integrate video-based visual content involving local content creators and digital communities (Prasetyo et al., 2024).

The transition from a text-based phase on the Web to a visual and audiovisual phase on YouTube reflects a dynamic process of public adaptation. On text-based platforms, the emphasis is placed on formal information and administrative procedures. On YouTube, the focus shifts toward practical guidance and shared personal experiences. This trajectory suggests that as SIMKAH adoption matures, communication strategies must evolve in parallel to meet the changing informational needs and literacy profiles of different adopter groups across Indonesia's diverse geographic and demographic landscape.

CONCLUSION

This study concludes that search trends for the SIMKAH application via Google Trends on the Web and YouTube platforms from 2019 to 2024 reflect a digital transformation of wedding services shaped by the evolution of public digital literacy and the staged adoption of innovation. The Web platform dominated the initial phase as an educational and campaign medium, before experiencing a decline in search interest as the innovation entered broader adoption stages. In contrast, the YouTube platform recorded significant growth as a source of tutorials and visual learning, reflecting a public shift in need from procedural information toward

practical, experience-based guidance. Geographic analysis further revealed regional variations in adoption patterns, influenced by demographic factors and differential access to KUA services. These findings confirm that the diffusion of SIMKAH follows the social adaptation pattern proposed by Rogers, with distinct platform characteristics serving different adopter groups at different stages. The practical implication of this study is the need for the Ministry of Religious Affairs and KUA offices to develop a multiplatform communication strategy that integrates official textual content with participatory, community-based video tutorials, particularly involving local content creators in regions with high digital engagement.

Nevertheless, this study carries an interpretive limitation that must be acknowledged. Search volume data from Google Trends captures information-seeking behavior, not actual service adoption, and these two phenomena are not equivalent. A rise in searches for SIMKAH-related terms may reflect genuine adoption interest, but it may equally reflect public confusion, technical difficulties, or unresolved frustration with the registration process. This distinction means that Google Trends data should be understood as a behavioral proxy rather than a direct measure of adoption progress. Future research is therefore encouraged to triangulate Google Trends findings with primary data sources, such as KUA registration records or user surveys, to produce a more complete and valid account of digital transformation in Indonesian marriage services.

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