

THE EFFECTIVENESS OF DIGITAL-BASED PUBLIC SERVICE INNOVATION: A STUDY OF THE IMPLEMENTATION OF 5G APPLICATIONS IN THE PRIOR LEARNING RECOGNITION PROGRAM AT THE OPEN UNIVERSITY

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Abstract

The implementation of Recognition of Prior Learning (RPL) is a strategic public policy in human resource development through the recognition of formal, non-formal, informal learning experiences, and work experience. The Open University developed a 5G application as a digital-based public service innovation to manage the entire RPL process in an integrated manner. This study aims to analyze the effectiveness of the 5G application as a public service innovation in the implementation of the RPL program and its impact on the quality of academic services. The study used a descriptive qualitative approach with data collection techniques through in-depth interviews, observations, and documentation studies of academic staff, assessors, system developers, and students. The analysis was conducted using Sutrisno's program effectiveness theory which includes indicators of program understanding, target accuracy, timeliness, goal achievement, and real change. The results of the study indicate that the 5G application is functionally effective in increasing efficiency, transparency, and integration of RPL services, but is not optimal in terms of timeliness and consistency of assessment.

Keywords: *public service innovation, program effectiveness, RPL, 5G applications, Open University.*

Introduction

Digital transformation in public services is a strategic agenda in modern bureaucratic reform. Digitalization is no longer understood simply as the use of information technology, but rather as a systemic effort to improve the effectiveness, efficiency, transparency, accountability, and quality of public services. From a public administration perspective, digital-based public service innovation is a crucial instrument for realizing responsive governance that is oriented toward the needs of service users (citizen-centered service). In the higher education sector, academic services are a part of public services with special characteristics, as they relate not only to administration but also to academic processes that directly impact the rights, obligations, and future of students. One form of strategic academic service is Recognition of Prior Learning (RPL), a public policy that provides recognition of learning achievements obtained through formal, non-formal, informal education, and work experience. RPL functions as an instrument for accelerating study, recognizing competency, and expanding access to higher education within the framework of lifelong learning . At the national level, the legal basis for RPL is regulated in Regulation of the Minister of Education, Culture, Research, and Technology Number 41 of 2021 concerning Recognition of Prior Learning (RPL), which aims to provide the broadest possible opportunity for every individual to pursue formal, non-formal, and informal education through lifelong learning facilities and to provide opportunities for equivalency towards certain qualifications. This policy is reinforced by various supporting regulations, including Decree of the Director General of Learning and Student Affairs Number 123/B/SK/2017 concerning Guidelines for RPL Implementation Procedures and Regulation of the Minister of Research, Technology, and Higher Education Number 26 of 2016. In line with this, Universitas Terbuka (UT), as a pioneer of distance learning in Indonesia, has established Rector's Regulation Number 519 of 2022 concerning RPL

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within the Open University Environment. This regulation replaces the previous regulation (Number 900 of 2021) by adapting to national regulatory developments and the university's internal needs. As a state university offering open and distance learning, Universitas Terbuka (UT) faces more complex service challenges than conventional universities. The diverse nature of its students, spread across Indonesia, and largely comprised of workers and adult learners, demands a flexible, fast, transparent, and digitally integrated academic service system. In the context of RPL implementation, these challenges are further exacerbated by the process involving document verification, academic assessment by lecturers, decision-making, and the integration of results into the academic system and student transcripts.

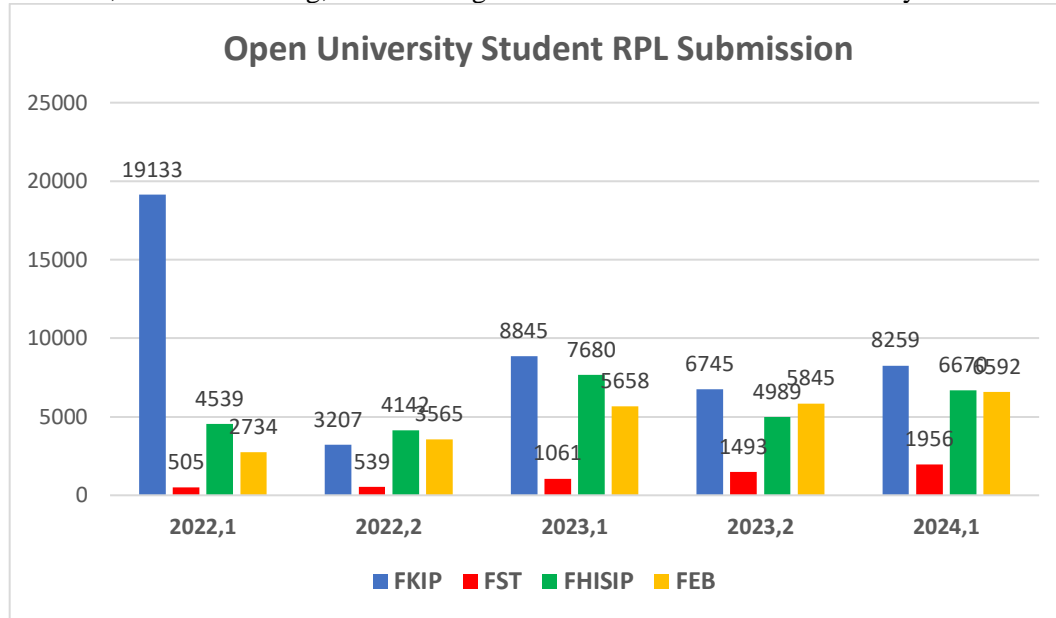


Table 1. RPL for Each Faculty at the Open University

To address these challenges, Universitas Terbuka (Open University) developed a 5G application as a digital-based public service innovation that integrates all stages of RPL services, from admission and document submission, multi-layered validation, assessment by assessors, the objection period, to the determination of results and synchronization with the main academic system. The 5G application is positioned as an instrument for RPL service reform, expected to increase process efficiency, strengthen transparency, ensure assessment accountability, and improve the quality of academic services for students. However, the presence of digital innovation does not automatically guarantee effective service delivery. Various public administration studies show that the success of service innovation is heavily influenced by organizational readiness, the quality of human resources, clear operational standards, and consistent policy implementation. In the context of RPL, differences in understanding among actors, limited number of assessors, varying workloads, and technical system constraints have the potential to impact the timeliness of service delivery, consistency of assessment results, and equitable distribution of benefits to students.

To date, research on RPL in higher education has focused more on aspects of educational policy or technical studies of information systems. Studies specifically analyzing RPL as a form of public service innovation and evaluating its effectiveness using a program evaluation theoretical framework are still relatively limited, particularly in the context of open and distance higher education, which relies entirely on digital systems. Thus, there is a research gap in understanding the extent to which application-based public service innovations are truly effective in achieving policy objectives and improving the quality of academic services. Based on this background, this study aims to analyze the effectiveness of 5G applications as a digital-based public service innovation in the implementation of the Prior Learning Recognition program at the Open University. The analysis was conducted using Sutrisno's program effectiveness theory as a grand theory, which assesses effectiveness through five main indicators, namely program understanding, target accuracy, timeliness, goal achievement, and tangible change. This framework is considered relevant because it is able to evaluate not only the technical output of the system, but also the implementation process and the impact of services perceived by users.

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The scientific contribution (novelty) of this research lies in the interpretation of 5G applications not merely as an academic information system, but as a form of public service innovation that is comprehensively evaluated through a program evaluation approach. This research also adopts a multi-actor perspective by involving academic staff, assessors, system developers, and students, thus providing a more complete picture of the dynamics of digital-based RPL policy implementation. Thus, the research results are expected to enrich the treasury of public administration studies, particularly in the development of evaluation models for the effectiveness of digital public service innovations in the higher education sector.

Literature Review and Theoretical Framework

Digital-Based Public Service Innovation

Innovation in public services is understood as a renewal process that results in significant changes in the way public organizations design, deliver, and manage services to enhance public value . Osborne and Brown (2011) emphasize that public service innovation is not only related to technology adoption, but also includes changes in processes, organizational structures, and patterns of interaction between service providers and users. In the context of modern governance, information and communication technology (ICT)-based innovation is one of the main drivers of bureaucratic reform through the development of e-government and digital government. The digitalization of public services aims to improve operational efficiency, speed up service times, expand access, and strengthen transparency and accountability. Heeks (2006) explains that the successful implementation of digital systems in the public sector is largely determined by the alignment between technological design, organizational capacity, human resource competency, and user needs. Without such alignment, technological innovation has the potential to create a gap between policy objectives and the reality of implementation. In the higher education sector, digital-based public service innovation is realized through integrated academic information systems, online services, and the automation of administrative and academic processes. These innovations serve not only as technical tools but also as policy instruments to improve service quality, equitable access, and the efficiency of institutional management. The 5G application at Universitas Terbuka (Open University) can be understood as a form of digital public service innovation because it integrates previously scattered and partly manual RPL processes into a single, standardized, documented, and real-time monitorable system.

Recognition of Prior Learning as Public Policy

Recognition of Prior Learning (RPL) is a public policy in higher education that focuses on recognizing competencies acquired through various learning pathways. This policy aligns with the paradigm of lifelong learning and the development of human resources that adapt to the dynamics of the workplace. From a public administration perspective, RPL is not only an academic mechanism but also a form of public service that must meet the principles of effectiveness, efficiency, fairness, transparency, and legal certainty. RPL implementation involves various actors, from students as service users, administrative staff as technical implementers, assessing lecturers as academic assessors, to the information technology unit as system administrator. The complexity of these actors and process stages makes RPL a policy that requires good governance and the support of a reliable information system. Therefore, 5G application development is positioned as an instrument to strengthen RPL governance through process integration, workflow standardization, and digital documentation.

Sutrisno's Theory of Program Effectiveness

To assess the success of digital-based public service innovations in RPL implementation, this study uses Sutrisno's theory of program effectiveness as the primary analytical framework. Sutrisno (2018) defines effectiveness as the degree to which predetermined goals are achieved through program implementation that is precise, targeted, and has a tangible impact. Effectiveness is measured not only by the success of the output but also by the appropriateness of the process, the accuracy of the targets, and the resulting changes for the beneficiary group.

Sutrisno put forward five main indicators of program effectiveness, namely:

1. Program Understanding, which reflects the extent to which implementers and targets understand the program's objectives, mechanisms and procedures;
2. Targeting Accuracy, which indicates the suitability between the beneficiary group and the policy target;

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3. Punctuality, which relates to the speed and certainty of completing the process according to established standards;
4. Achievement of Objectives, which describes the level of realization of program objectives substantively;
5. Real Change, namely the concrete impact felt by service recipients after the program is implemented.

This framework is relevant for evaluating 5G applications because it allows for a comprehensive analysis of the technical, organizational, and social dimensions of public service innovation. Using these indicators, the effectiveness of 5G applications is assessed not only by system functionality but also by service quality, assessment consistency, timeliness, and perceived benefits for students as primary users.

Research Framework

Based on the theoretical description above, this study views 5G applications as a form of digital-based public service innovation implemented in the RPL policy. The effectiveness of this innovation is analyzed through five indicators of the effectiveness of the Sutrisno program. The conceptual relationship of the study can be formulated as follows: digital innovation (5G applications) influences the RPL implementation process through system integration, procedural automation, and transparency of service flows, which in turn determine the level of program effectiveness in improving the quality of academic services. Thus, the quality of academic services is positioned as the outcome of the effectiveness of the implementation of digital-based public service innovation.

Research methods

This study uses a descriptive qualitative approach with the aim of gaining an in-depth understanding of the effectiveness of 5G applications as a digital-based public service innovation in the implementation of the Prior Learning Recognition (RPL) program at the Open University. The qualitative approach was chosen because this study focuses on the processes, experiences, and meanings constructed by actors in policy implementation, as well as to explore the dynamics of RPL service implementation that cannot be measured quantitatively alone (Sugiyono, 2019).

The research location is the Faculty of Teacher Training and Education, Universitas Terbuka (UT). This was purposively selected due to its high number of RPL applications compared to other faculties and its heterogeneous student characteristics, including educational background, work experience, age, and domicile. These conditions make FKIP UT a relevant context for assessing the effectiveness of digital-based public service innovations on a large scale and across regions.

Research informants consist of four main groups, namely:

- (1) academic staff directly involved in the administration of RPL,
- (2) lecturers/assessors as key actors in the academic assessment process,
- (3) a system development team from the information technology unit responsible for the development and maintenance of 5G applications, and
- (4) students as users of RPL services.

The selection of informants was carried out purposively by considering direct involvement and experience in the RPL process through 5G applications.

Data collection techniques included in-depth interviews, observation, and documentation studies. Interviews were used to explore informants' perceptions, experiences, and assessments of the effectiveness of 5G applications. Observations were conducted to understand the RPL service flow and user interactions with the system. Documentation studies included a review of RPL guidelines, policy documents, system reports, and relevant academic service archives. Data analysis was conducted using the Miles and Huberman interactive model, which includes data reduction, data presentation, and conclusion drawing. Data obtained from various sources were analyzed thematically based on five indicators of program effectiveness according to Sutrisno: program understanding, target accuracy, timeliness, goal achievement, and tangible change. To maintain data validity, this study applied triangulation of sources and techniques, so that the resulting findings can be scientifically accounted for. With this approach and procedure, this research is expected to provide a comprehensive picture of the effectiveness of 5G applications as a digital public service innovation in the implementation of RPL policies, as well as its implications for the quality of academic services at the Open University.

Results and Discussion

Effectiveness of 5G Applications Based on Sutrisno's Program Effectiveness Indicators

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An analysis of the effectiveness of 5G applications in the implementation of the Prior Learning Recognition (RPL) program at the Open University was conducted using five indicators of program effectiveness according to Sutrisno: program understanding, target accuracy, timeliness, goal achievement, and tangible change. The results showed that the effectiveness of 5G applications was partial, with some indicators being met well, while others still faced implementation challenges.

Program Understanding

The research results show that the level of understanding of 5G applications as an RPL service instrument is not evenly distributed among the actors involved. Academic staff and the system development team have a relatively comprehensive understanding of the application's purpose, flow, and functions due to their direct involvement in system management and development. In contrast, assessors and students tend to understand the application only in areas directly relevant to their roles, such as course assessment and document uploading. This limited understanding is influenced by the lack of standardized official guidelines and the lack of ongoing training. This situation results in varying interpretations of RPL procedures and criteria, which ultimately impacts service consistency. This finding aligns with Sutrisno's view that program understanding is a key prerequisite for effectiveness, as without a shared understanding, program implementation tends to be uneven.

Target Accuracy

In terms of targeting accuracy, the 5G application is considered to have reached the target groups targeted by the RPL policy: adult students, workers, and individuals with prior study or work experience. The digital system serves as an administrative screening mechanism, ensuring that only students who meet the requirements can proceed with the RPL process. However, the study also found that not all students have the same ability to access and utilize applications. Students with low digital literacy, limited device availability, or those in areas with unstable internet connections still experience difficulties. This indicates that while the policy's objectives are appropriate, the aspect of equitable access as part of public services has not been fully met. In Sutrisno's framework, this situation indicates that accurate targeting requires support for access to optimize program effectiveness.

Punctuality

Timeliness is the most telling indicator of inconsistency in 5G application implementation. Some students reported that the RPL process was very fast due to automated validation and completeness of documents. However, others experienced delays of up to a month or more. These delays were caused by several factors, including the limited number of assessors compared to the volume of RPL applications, the high academic workload, repeated document revisions, and the lack of standard assessment times. The impact of these delays is significant, affecting course registration, taking advanced courses, and student study planning. These findings reinforce Sutrisno's view that punctuality is a crucial indicator of program effectiveness, as delays can degrade service quality even when the system is technically operational.

Achievement of Program Objectives

The primary goal of developing the 5G application is to increase the efficiency, transparency, and integration of RPL services. Based on research results, these objectives have been achieved in both administrative and technical aspects. Process digitization reduces manual procedures, improves data traceability, and facilitates inter-unit coordination. The 5G application also provides transparency for students to monitor the status of RPL applications online. However, from an academic perspective, the goal of achieving assessment consistency and outcome certainty has not been fully achieved. Variation in assessments between assessors and uncertainty in completion times indicate that the program's effectiveness remains partial. This indicates that achieving program objectives depends not only on technology but also on the governance and capacity of implementing actors.

Real Change

Students experienced tangible changes as a final indicator of the program's effectiveness differently. Some experienced significant benefits in the form of accelerated processing, easier access, and savings in study time and costs. However,

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others experienced delays, incompatibility of recognized courses, and limited information regarding the assessment process. These differences in experience indicate that the impact of digital public service innovations is not evenly distributed. From Sutrisno's perspective, tangible change is a crucial measure because it reflects the extent to which a program delivers substantive benefits to its intended audience. This finding confirms that the effectiveness of 5G applications still requires strengthening to ensure that positive changes are consistently felt by all service users.

Summary of Findings Based on Effectiveness Indicators

In summary, the research findings can be summarized as follows:

- Program understanding: not yet evenly distributed among actors.
- Target accuracy: achieved, but access is not yet completely equitable.
- Punctuality: not yet consistent.
- Achievement of objectives: effective administratively, partially academically.
- Real change: positive, but not yet widespread.

This discussion shows that 5G applications as a digital public service innovation have brought significant improvements in RPL services, but their effectiveness is still influenced by non-technical factors such as human resources, operational standards, and policy implementation governance.

Theoretical Discussion

The research findings demonstrate that Sutrisno's theory of program effectiveness is strongly relevant in analyzing digital-based public service innovations, particularly in the implementation of 5G applications in the Prior Learning Recognition program at the Open University. Sutrisno's five effectiveness indicators are proven to comprehensively explain the dynamics of the program's success and limitations, from the policy understanding stage to the tangible impact felt by service users. From the researcher's perspective, the findings of this study confirm Sutrisno's view that program effectiveness cannot be measured solely by technical success or the achievement of administrative outputs. In the context of 5G applications, technological system success—such as data integration, process automation, and transparency of service flows—does not automatically guarantee substantive effectiveness if it is not accompanied by a widespread understanding of the program, consistent implementation, and certainty of service times. This shows that program effectiveness is multidimensional and depends on the interaction between technology, implementing actors, and organizational governance.

Findings regarding inconsistencies in timeliness and variations in assessment results broaden the meaning of Sutrisno's effectiveness indicators in the context of digital innovation. This research demonstrates that in technology-based public services, timeliness is determined not only by system speed but also by human resource capacity, organizational workload, and clarity of operational standards. Therefore, timeliness indicators need to be understood as the result of synergy between digital systems and organizational management, not solely a technical issue. Furthermore, the indicator of real change in Sutrisno's theory is empirically bolstered by the finding that the impact of digital public service innovations is not always felt equally by all users. Some students experienced significant acceleration and ease of service, while others still experienced delays and uncertainty. This situation emphasizes that real change as an indicator of effectiveness must be understood contextually, taking into account user characteristics, digital readiness, and the responsiveness of implementing units. In other words, program effectiveness is relative and can vary across target groups.

Based on these findings, researchers reconstruct the concept of program effectiveness in the context of digital public service innovation as a service ecosystem. Effectiveness is determined not only by the availability of technology, but also by the alignment between system design, the capacity of implementing actors, clear regulations, and monitoring and evaluation mechanisms. This reconstruction expands on Sutrisno's theoretical contribution by positioning digital technology as a contextual variable that both strengthens and challenges program effectiveness if not balanced by strengthened governance and human resources. Thus, this study makes a theoretical contribution to public administration studies by demonstrating that Sutrisno's theory of program effectiveness remains relevant and adaptive in analyzing public service policies and innovations in the digital era. These findings also indicate the need for a program evaluation approach that focuses not only on final results but also on the implementation process and user experience as integral components of the effectiveness of digital public services.

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Conclusions and Policy Recommendations

Conclusion

This study concludes that the 5G application as a digital-based public service innovation in the implementation of the Prior Learning Recognition (RPL) program at the Open University has been functionally and administratively effective, but its effectiveness has not been fully optimized substantively and evenly. Based on the analysis using Sutrisno's theory of program effectiveness, it was found that the indicators of target accuracy and achievement of administrative goals were relatively met, marked by increased process efficiency, transparency of service flows, and digital integration of academic data. However, indicators of program understanding, timeliness, and tangible change still show various limitations. Understanding of the RPL mechanisms and criteria is not evenly distributed among implementing actors and service users. Timeliness of services is inconsistent due to limited human resources, the high workload of assessors, and the lack of standard assessment times. Consequently, the tangible changes experienced by students remain uneven, with some experiencing significant benefits while others experience delays and uncertainty in service delivery. Theoretically, the findings of this study confirm that the effectiveness of digital public service innovation cannot be measured solely by technological success, but is highly dependent on organizational governance, human resource readiness, procedural clarity, and consistent policy implementation. Thus, Sutrisno's theory of program effectiveness proves relevant and adaptive for evaluating public service policies and innovations in the digital era, particularly in the context of open and distance higher education.

Policy Recommendations

Based on the research findings and conclusions, several policy recommendations can be put forward to increase the effectiveness of 5G applications in RPL services, namely:

1. Strengthening Standard Operating Procedures (SOP)

Open University needs to develop and implement standardized RPL SOPs, including assessment indicators, eligibility criteria, and completion time standards at each stage of the process.

2. Increasing Assessor Capacity and Availability

Increasing the number of assessor lecturers and arranging a proportional workload is necessary to ensure the timeliness and consistency of RPL assessment results.

3. Continuous Development of Guidelines and Training

Formal guidelines and regular training are needed for academic staff, assessors, and students to improve understanding of the program and minimize differences in interpretation of procedures.

4. System Optimization and Data Integration

Strengthening system stability, data synchronization, and service status monitoring features need to be improved so that users can optimally experience transparency and service certainty.

5. An Inclusive Approach to Digital Services

Open Universities need to provide special mentoring mechanisms for students with limited digital literacy, devices, or network access to ensure fairness and equitable distribution of the benefits of digital public service innovations.

With the implementation of these recommendations, it is hoped that 5G applications will not only function as a digital system supporting RPL, but will truly become an instrument of effective, fair, and sustainable public service innovation in improving the quality of academic services at the Open University.

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