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Digitalization and Innovation of the Service Process

The Efforts to Improve the Quality of Higher Education Services in Kalimantan Island

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Abstract: The law mandates public services that implement its principles. Digitalization and innovation of the service processes are necessary in today's digital era. There are still many public reports on digital services in general, and there are still many private universities in Kalimantan that have category C/Good/Unaccredited, indicating that the process of digitization and service innovation in higher education services in Kalimantan has challenges that are not easy. This research aims to reveal how the efforts of the Higher Education Service Institution (LLDIKTI) Region XI in improving the quality of higher education services in Kalimantan Island and to find out the success factors and inhibiting factors in this effort. The method in this research is qualitative, with interviews and observations as primary data, while secondary data uses documentation and literature studies. Data analysis techniques use triangulation with data collection, reduction, presentation, and verification stages. The results showed that 1) There are five service digitization innovations intended for stakeholders or service users that continue to be developed to accommodate all types of services in accordance with service standards, 2) Service process innovation is carried out by changing the process flow in service standards from 12.4 days to 7.5 days, 3) The main supporting factors are digital leadership and human resources, 4) The main inhibiting factors are commitment and digital literacy. This shows that efforts are needed that must be supported by all aspects of an organization to carry out sustainable digitalization and service innovation.

Keywords: Public Service; Process Innovation; Digital Leadership.

1. Introduction

Public service is the main task of government to its citizens. This is stated in Law Number 25 of 2009 concerning public services. Public services are actions the government takes through related institutions to meet community needs (Harsoyo & Suparno, 2021) and provide satisfaction (Sari, 2021; Wahyudianto, 2015). The principles of public services include public interest, legal certainty, equal rights, the balance of rights and obligations, professionalism, participation, equality of treatment, openness, accountability, facilitation and special treatment for vulnerable groups, timeliness, speed, convenience, and affordability. Public services that apply principles will provide good, superior, and professional governance (Fauzan et al., 2022).

Realizing this public service principle, the government seeks to carry out bureaucratic reform; bureaucratic reform has the aim of creating a government that is professional, adaptive, has integrity, high performance, clean, and free from Corruption, Collusion, and Nepotism supported by the development of information technology. In Germany, digitization in the public sector is the most important part of bureaucratic reform, where advances in digitization have brought significant changes in the way the government interacts with its citizens (Mergel, 2021).

Digitalization is currently massive in public services and is the main focus of improving service quality (Mislawaty et al., 2022). Information and Communication Technology (ICT) is a necessity in a government agency regarding internal services, between agencies, and external services to the public or the private sector (Gil-Garcia, 2012). Several studies show the importance of digitization in the public service sector (Gapsalamov et al., 2020; Wandaogo, 2022). The increasing need for ICT in the government process in Indonesia or digitalization is evident from the value of the e-Government Development Index (EDGI) index, which continues to increase every year. The EDGI index has increased rapidly by 78.1% over the past decade, where in 2010, the EDGI value was 0.402, and in 2022, the EDGI value was 0.716.

The increase in the EDGI score reflects that the digitization process in government processes continues to be developed and adopted. Digitalization of government processes in public services certainly has a variety of challenges that must be faced (Rizki & Kurniawan, 2023). Digitalization does not necessarily only transform services from conventional to ICT-based services. This is because digitization involves not only technological shifts but also cultural shifts that create a re-evaluation of work processes and create new social and cultural patterns (Sokolov, 2022).

However, along with the increased EDGI value, public reports to the Ombudsman have also increased rapidly. From 2014 to 2022, the increase was 232%, from 6,669 community reports in 2014 to 22,197 in 2022. According to Crosby (as cited in Chandra et al., 2020), the quality of service, good and good and according to what is expected by service users, is the low number of complaints or complaints given. Digitalization in this massive government service process has not been able to fully provide its benefits due to the many public reports related to the service process, from the lack of clear information submitted on digital services, inappropriate service days, service officer response, and others. Maintaining the sustainability of digital services must, of course be driven by various parties involved, both internal parties, stakeholders, and policymakers.

Based on some literature, there are four factors that can be a reference in the process of digitization and service innovation, namely 1) Digital Leadership; in this era, to be an effective leader requires a digital mindset and high critical ability (Hensellek, 2022) which has a significant impact on traditional work models (Iveroth & Hallencreutz, 2020). Digital leadership is able to create a digital culture and transform business

process strategies or work processes (Araujo et al., 2021; Cortellazzo et al., 2019). This type of leadership requires special traits and experience and is characterized by the ability to create and deliver service user value quickly through digital services (Tanniru, 2018). 2) Human Resources, in the research of Altukhova et al. (2018) highlighted the importance of employees developing competencies in accordance with the demands of the digital era. Digitalization requires a variety of different competencies, and leadership has a very important role (Edelmann et al., 2023), which refers to the technological, cognitive, and social knowledge, skills, and attitudes required in using information technology to investigate, solve problems, and develop further knowledge (Hofmann & Ogonek, 2018) and skills are very important in adapting to the modern world (Avni & Rotem, 2019). In addition, there are eight competencies of public administrators, such as putting others first, leading others, integrity, decision making, planning, coordination and execution, problem solving, self-awareness and self-control, and innovative thinking to adapt to the digital era (Gupta et al., 2018). Digital competence specifically refers to the technological, cognitive, social, skill and attitude knowledge required in using information technology (Hofmann & Ogonek, 2018). 3) Commitment, the concept of commitment to change, which emphasizes the importance of individual development in the form of commitment (Feng et al., 2020). Further exploration of the interactive effects between commitment and perceptions of change which showed that commitment is more closely related to change readiness when the target of commitment experiences greater change (Seggewiss et al., 2019). As well as organizational commitment and intention to support change (Straatmann et al., 2018). This shows that commitment is a very important role in an organizational context that needs to be emphasized in triggering successful change. 4) Digital Literacy, Digital literacy is a set of abilities that must be possessed by individuals in order to actively participate in a digitally connected society (Julien, 2018) which involves skills and awareness in dealing with the digital era (Grefen, 2021). Several studies have recommended the use of digital government services by citizens (Gasova & Stofkova, 2017). There is a clear difference in ICT skills between engaged and unengaged citizens in using government digital services (Lallmahomed et al., 2017). In the remote or rural areas of a country, the digital divide arises from low ICT literacy, poor physical access to technology, and lack of awareness.

LLDIKTI XI, a work unit of the Ministry of Education, Culture, Research and Technology of the Republic of Indonesia, has the task of facilitating the improvement of the quality of higher education in its working area. LLDIKTI XI's work scope covers five provinces on the island of Kalimantan. LLDIKTI XI provides services to the academic community of both State Universities and Private Universities totaling 165 Private Universities (PTS), 14 State Universities (PTN), 8102 Foundation Lecturers (DY), 301 DPK LLDIKTI PNS Lecturers. So, from the broad scope of the work area, service digitization and service process innovation are needed to achieve one of the objectives of bureaucratic reform: fast, easy, and integrated services.

Based on Private Higher Education (PTS) Accreditation data, both Institution Accreditation and Study Program Accreditation from 2019 to 2023, there are still many Accreditations which are assessments of higher education quality standards in the C/Good/Unaccredited category (see Table 1 and Table 2). The higher quality of education is a measure of the success of LLDIKTI XI in carrying out its duties and functions in organizing higher education.

Based on the description above, this research aims to reveal how LLDIKTI XI digitizes services, innovates service processes, and finds supporting factors and inhibiting factors in efforts to improve the quality of higher education on the island of Kalimantan with digitization and service innovation.

Table 1. PTS Institution Accreditation Data (AIPT) LLDIKTI XI

Description	2019	2020	2021	2022	2023
The Accreditation of Higher Education Institutions	Institutions	Institutions	Institutions	Institutions	Institutions
A or B or Very Good	16%	18.1%	20.3%	19.2%	19.4%
	167	166	168	167	165
C/Good/Unaccredited	84%	81.9%	79.7%	80.8%	80.6%
	167	166	168	167	165

Table 2. PTS Study Program Accreditation Data (APS) LLDIKTI XI

Description	2019	2020	2021	2022	2023
Study Program Accreditation (APS)	Study Program	Study Program	Study Program	Study Program	Study Program
A or B or Very Good or Excellent	44%	49%	43.2%	40.1%	42.2%
	575	612	634	681	683
C/Good/Unaccredited	56%	51%	56.8%	58.3%	57.8%
	575	612	634	681	683

2. Methods

This research uses a qualitative approach. Qualitative research is an approach to the focus of research problems in which researchers conduct systematic, meaningful, and in-depth studies guided by a conceptual or theoretical framework (Sholihah, 2019). Data collection uses in-depth interview techniques as primary data, documentation, and observation of literature studies as secondary data. In this study, two types of data were distinguished: primary and secondary. Primary data refers to data generated through oral speech data and expressions from subjects or informants involved in the research and observation. Meanwhile, secondary data comes from literature studies, external information, such as photographs or documents that can be used, and literature studies as a complement to primary data. This research was conducted at the LLDIKTI XI. The informants in this interview are IT managers and developers, employees who use information systems, and employees involved in bureaucratic reform. The collected data were then analyzed and interpreted in accordance with the stages of data collection, reduction, presentation, and verification (Miles et al., 2014).

3. Results and Discussion

3.1. Digitization of Services to Stakeholders

Digitalization is important for increasing efficiency, reducing expenses, and making control easier (Wandaogo, 2022). Digitalization is integrating and advancing ICT in daily activities, especially in government management (Gil-Garcia et al., 2018). Digitalization is an important factor in good governance. There are several ways digitalization can improve government effectiveness. First, it facilitates internal and external collaboration between different administration segments. Second, digitization offers a higher storage capacity for documents and archives, thus enabling more effective action facilities as long as the storage remains centralized. Third, digitization allows the government to improve and facilitate its interaction and engagement with individuals and companies while modernizing, thus promoting transparency, democracy, and freedom of action (Wandaogo, 2022).

3.1.1. Online Letter of LLDIKTI XI

Conventional correspondence between PTS throughout Kalimantan and LLDIKTI XI is very important. It has become a routine part of the process of requesting administrative services, reporting academic activities, and other administrative activities. Vice versa, LLDIKTI XI often makes policy notifications and planning activities using such correspondence. This process certainly requires enormous resources such as shipping costs, shipping time, and paper. In addition to requiring large resources, some problems continue to be faced, such as the delivery process and the quality of files received at universities.

Departing from this problem in 2018, LLDIKTI XI made a breakthrough by developing the first information system, Online Mail. Online letters aim to make it easier for PTS to send letters or files through an interactive and two-way correspondence information system, making it easier to track the process, fast delivery, very low costs, and paperless. In addition, with this online letter, LLDIKTI XI has knitted connectivity to 165 PTS spread across various regions in Kalimantan Island. Administrative services at universities have become faster by reducing the time of sending files, which usually takes 5 to 7 days. Currently, online letters are only for serving files from PTS that are not main services, such as invitations and notifications.

Figure 1. Number of Online Letters LLDIKTI XI

3.1.2. Online Lecturer Credit Score Assessment Information System - SINGKRON

The assessment of the credit score of functional lecturers is very important on the career path of lecturers and quality assessment at a university. LLDIKTI XI is tasked with facilitating the assessment of the lecturer's functional credit score with an assessment team that LLDIKTI has determined. PTS lecturers with Foundation status and DPK civil servant lecturers use this assessment service if they have met the predetermined credit score from teaching staff to Expert Assistants, Expert Assistants to Lecturers, Lecturers to Head Lecturers, and head lecturers to professors. Reporting for assessment, of course, must attach supporting files to prove the credit value that will be recognized by the lecturer, such as attaching Tridharma college files such as teaching files, research files, community service files, and other supporting files for credit value recognition. There are so many files that must be prepared and sent by the lecturer concerned in the reporting process, and it costs a lot of shipping costs that the lecturer must bear. On the other hand, there is a buildup of these files at the LLDIKTI office, including those that come, those that are in process, and those that have been assessed.

Departing from these problems, LLDIKTI XI developed an online Lecturer Credit Score reporting information system called Singkron. Not only reporting in this

application, but this system connects the three main roles involved in the assessment processing, namely lecturers, assessment teams, and LLDIKTI, to speed up services that previously required days of sending files from lecturers to LLDIKTI, then from LLDIKTI to the Assessment Team, from the Assessment Team to LLDIKTI to be faster. Along with the development of policies, Singkron is currently not only a file reporting but also developed in the making of determinations by officials to determine the assessment of the credit score (PAK) of lecturers and the making of PAK determination decision letters.

Based on data from 2020 to 2023, the total number of lecturers served by LLDIKTI XI using Singkron services is 2,090 lecturers with details of 1,792 lecturers who are served to obtain AA and Lector positions, and 298 lecturers who are served to have Head Lecturer and Professor positions. The functional position of lecturers greatly affects the quality assessment of each university, so the speed of the lecturer functional position service process in Singkron greatly affects the quality of higher education on the island of Kalimantan.
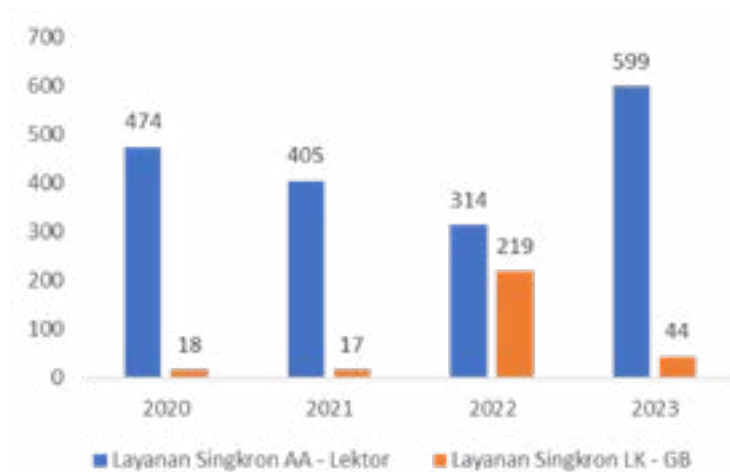

Figure 2. Singkron Services of LLDIKTI XI Year 2020 to 2023

3.1.3. Lecturer Performance Report Assessment Information System - Sibeken

A lecturer performance report (LKD) is a report that is mandatory for a lecturer who has a functional position and is certified. Lecturers to LLDIKTI XI carry out LKD reporting, then LLDIKTI will submit the LKD to the LKD assessment team. The files submitted are also very much related to the tridharma activities of lecturers that must
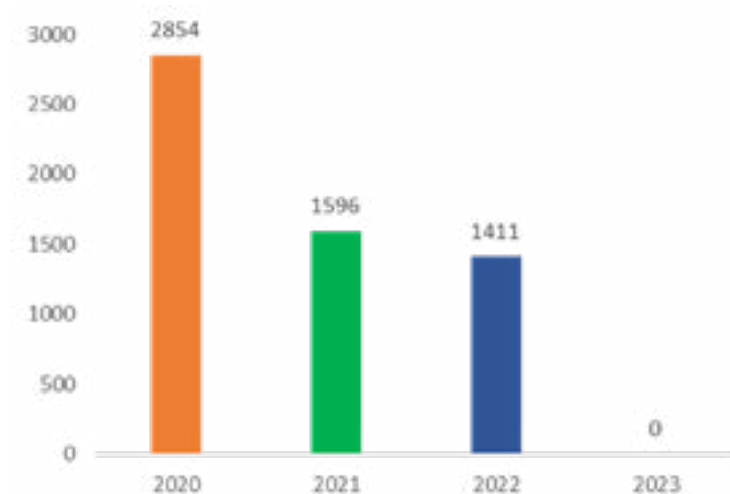

Figure 3. Sibeken Services for LLDIKTI XI Year 2020 to 2023

be reported every semester. Due to the large cost burden and the long delivery time due to lecturers scattered on the island of Kalimantan, 2019, a Lecturer Performance Report Assessment Information System was also developed, abbreviated as Sibeken. Sibeken connects lecturers, LLDIKTI, and the assessment team in the same digital space. Currently, in 2023, along with the new policy by the Ministry regarding LKD reporting, which must be done in SISTER from the Ministry, the LKD reporting of LLDIKTI lecturers is not carried out in Sibeken. Based on data from 2020 to 2022, there were 5,861 lecturer performance reports verified by LLDIKTI XI through Sibeken.

3.1.4. Service Consultation and Live Chat

The COVID-19 pandemic has also limited offline services due to travel, mobilization, and face-to-face restrictions. This caused the offline service process to be severely hampered, and the Integrated Service Unit (ULT) at the LLDIKTI XI Office was closed. Therefore, LLDIKTI XI created an online service consultation information system and live chat to solve this problem to make it easier for all stakeholders on the island of Kalimantan to conduct consultations related to LLDIKTI services. Until now, online consultation and live chat services have also continued to be developed. Online consultation services are currently integrated with the main website, and live chat services that were previously not integrated with WhatsApp are now integrated with WhatsApp.

Based on the data, 520 online service consultations and live chat are handled by LLDIKTI XI to facilitate service users or stakeholders who want to use LLDIKTI XI services both outside the city and outside the province at a very cheap and fast cost, requiring no phone credit or travel costs.
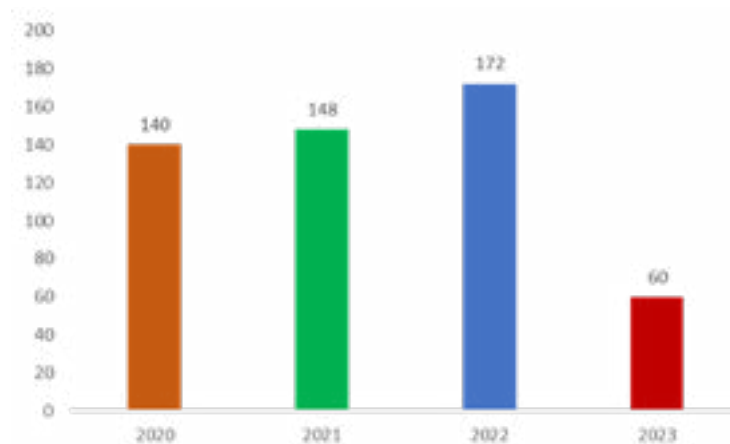

Figure 4. Online and Live Chat Consultations Year 2020 to 2023

3.1.5. Online Integrated Service Unit Information System - PINANDU

Based on the policy, LLDIKTI XI Service Standards are determined; LLDIKTI has 44 service standards, which means LLDIKTI has 44 types of services that will be provided to stakeholders or service users on the island of Kalimantan. It has been explained above that an information system developed by LLDIKTI, namely Singkron, accommodates two types of services for proposing Expert Assistant and Head Lecturer functional positions and proposing services for Head Lecturer and Professor functional positions. Meanwhile, 42 LLDIKTI services have not been digitized centrally and integrated.

Based on data from the Sakip LLDIKTI XI team during 2022, LLDIKTI XI has provided 6491 services to the academic community from 44 public services. With the following details, information system-based services (LLDIKTI) were 1944, information

system-based services (Integrated with Pusdatin Kemendikbudristek) were 1,688, and non-information system services (physical files) were 2859. Services that do not use information systems specifically use physical mail, centralized email, and Google Forms. In addition, the total number of conventional and non-digital services served by LLDIKTI XI from 2020 to 2023 totals 12,057 services.
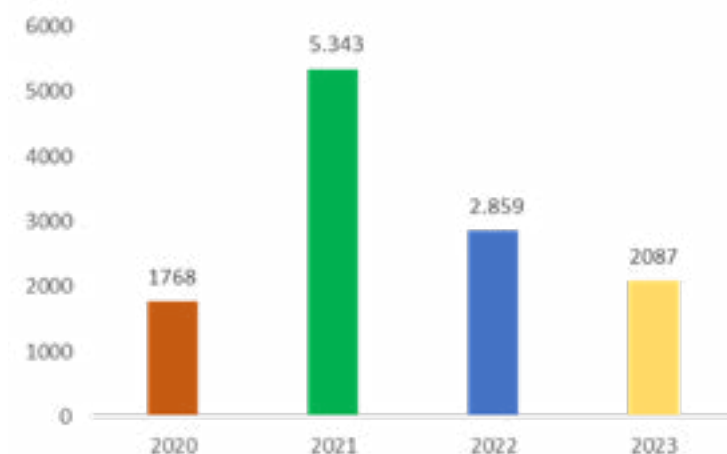

Figure 5. Number of Conventional or Non-Digital Services Year 2020 to 2023

Classic problems in the complexity of administrative management continue to color, such as tucked files, piles of files, lost files, damaged files, long time, and other problems that arise in conventional file management. Along with the spirit of bureaucratic reform in 2023, LLDIKTI developed an online integrated service unit information system called PINANDU. In this information system, LLDIKTI has successfully digitized all remaining types of services, namely 42 LLDIKTI services. These services are integrated with online service consultations, live chat, LAPOR complaints, and community satisfaction surveys (SKM).

The use of ICT in government, and the explosion of digital information reaching the entire society, provides an opportunity to achieve greater efficiency, transparency, and effectiveness in governance (Gil-Garcia et al., 2018). However, at the same time, this trend also challenges traditional concepts of administration and management in an organization.

In addition, progress in bureaucratic reform in Indonesia is also driven by the development of information technology. The utilization of information technology in improving public services provides great opportunities for regional development. The integration of information technology in regional operations will facilitate the service process, reveal regional potential, and encourage better interaction with the community and the business world (Febriyanti et al., 2023).

3.1.6. Service Process Innovation

Innovation does not have to be done by digitizing or transforming services using information technology or ICT; it can also be done very simply, namely, changing the flow of service processes in an organization. Service declarations at government agencies are outlined in service standards. Service standards are a measure used as a guide in service delivery and as a reference for assessing the quality of services that are the responsibility and promise of the organizer to the community (Anggraini & Rahayuningsih, 2021; Rahayuningsih et al., 2018). Innovation in services is divided into two parts: Product innovation refers to developing new things (Hutagalung & Hermawan, 2018), while process innovation is related to doing things differently

(Agarwal et al., 2015). In addition, there are three elements in service innovation, namely new concept innovation, new service process innovation, New technological systems innovation (Mahmoud et al., 2018).

LLDIKTI XI has service standards set in 2019 and revised again in 2022. The service standards amount to 44 service standards that have been determined. LLDIKTI XI carries out innovation in service standards by cutting the flow of simplified service processes, which greatly impacts the service time required. The average service day in 2019 is 12.4 days from 35 service standards, while after process innovation in 2022 service standards, the average service day is 7.5 days from 44 predetermined service standards. In this process innovation, LLDIKTI XI has cut service time to be faster by 4.9 days in carrying out the service process.
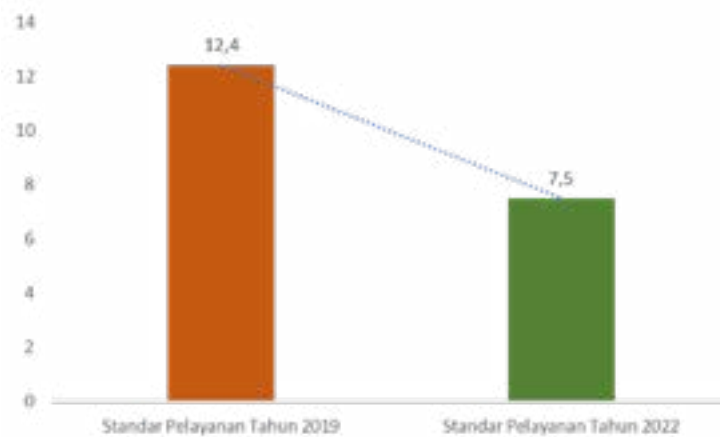

Figure 6. Average Days of Service in Service Standards Year 2019 and Year 2022

3.2. Supporting Factors

3.2.1. Digital Leadership

In the leadership process of an organization, it cannot be separated from the main role of a leader. Leadership attributes often influence how individuals perceive and react to a given policy (Fitriati & Marsanty, 2023). Based on the results, digital leadership is the most dominant leadership style during the leadership of LLDIKTI XI from 2019 to 2023. Leadership in LLDIKTI XI is at the top level and at the second and third layers of the organizational hierarchy. Apart from the central policy of digitalization, the political will of the leadership in LLDIKTI Region XI greatly influences the digital transformation that occurs from 2019 to 2023; this is due to the importance of the leader's desire and commitment (Satriawan & Syamsuri, 2023).

Digital leadership involves using information and communication technology and harnessing the potential of digital technology to achieve the organizational goals of LLDIKTI XI. Leaders at LLDIKTI XI are experienced in dealing with challenges and daily realities in this digital era. Field results also show that LLDIKTI XI leaders can listen, embrace, master the latest practices, and adapt to suit the context. So, digital leadership plays a key role in the leadership position in making decisions to create innovation for the organization. This is in accordance with the opinion stating that leaders need to have leadership and adaptability (Hesse, 2018), and top management leadership must be able to adapt to new ways of working and communication (Sahyaja & Rao, 2018).

In addition, digital leadership at LLDIKTI XI encourages creating a digital culture and transforming business processes or work processes that encourage digitization in the education service sector and service innovation. LLDIKTI XI leaders show an attitude

of acting quickly, being flexible in managing business processes, setting priorities, involving staff in decision-making, dealing with resistance, supporting training for IT staff, and seeing the importance of using digitalization. This is in accordance with the four challenges of digital transformation in higher education, namely Prioritization, Decentralized Decision Making, Human resistance to change, Gap in digital tech talent, narrow view of ROI (Alenezi, 2021) and digital leadership that has the ability to be fast and flexible in managing the organization (Klein, 2020).

3.2.2. Human Resources

The acceleration of digital transformation in LLDIKTI XI to carry out its duties and functions is also influenced by the second factor, namely human resources. Based on the observations and the interviews, the results show that most employees at LLDIKTI XI have eight relevant administrator abilities in the digital era, as Gupta et al. (2018) mentioned. This is evident from the performance achievements of LLDIKTI XI employees in providing services to service users through various kinds of digitization, service innovations that have been developed, and the results of community assessments. In order to improve the ability of human resources, LLDIKTI XI proposed the procurement of CPNS who have the background and abilities in the field of ICT in 2021.

So that the entire road map carried out by leadership with a digital leadership style can be executed according to the needs of the organization and the needs of service users. Digital transformation in organizations no longer depends on third parties or ICT vendors and high costs to develop IT in the service process. In addition, training aimed at increasing employee digital competence and changing work culture is also carried out to encourage a paradigm shift or mindset of LLDIKTI XI employees. In addition, this method is carried out by LLDIKTI XI to shift employee abilities from traditional competencies to more relevant competencies in the digital era.

3.3. Inhibiting Factors

3.3.1. Commitment

The biggest inhibiting factor in the digitization of LLDIKTI XI services is commitment. Based on the interview results, commitment here is not commitment from the leadership but internal and external commitment. Straatmann et al. (2018) emphasize that commitment is important in driving success in an organizational context. LLDIKTI XI leaders' commitment to a dominant leadership style, namely digital leadership, will be supported by internal and external commitment. LLDIKTI XI's internal commitment is the commitment of all LLDIKTI XI employees involved in an organization, which supports every process of changing ways of working, work processes, and work rhythms.

In this internal commitment, it was found that there was still resistance from some employees who were still not ready for the changes that occurred in the organization, resistance that occurred such as no willingness to learn information technology, the mindset of asking for help from younger employees, and throwing responsibility to other employees. The external commitment of LLDIKTI XI is the commitment of all organizational stakeholders or service users in an organization to support and utilize the information system services that have been provided. It was found that in the implementation of service digitization, stakeholders still ask for traditional service processes and are not willing to study the digitization of LLDIKTI XI services, which are available yet.

3.3.2. Digital Literacy

The internal commitment and external commitment described in inhibiting factor number one cannot be separated from the digital literacy possessed by all parties involved in LLDIKTI Region XI. Based on the results of the research conducted. Internal digital literacy in LLDIKTI Region XI is still classified at a moderate level, and there is still a gap between senior employees (employees over 35 years old) and junior employees (employees under 35 years old). This digital literacy gap is an internal obstacle in digitizing and innovating services. Digital literacy plays a very important role in accessing and evaluating digital information. It involves the skills, knowledge, and attitudes required to be able to understand and use digital technology effectively.

In addition, it was found that external digital literacy is an obstacle that service users or stakeholders cannot understand or are proficient in an information system. This is in line with the fact that LLDIKTI XI has never conducted a comprehensive evaluation to measure the maturity level of all stakeholders within the LLDIKTI XI service area while measuring digital literacy for internal parties has been carried out. The last finding at this point is that there has been no follow-up on the evaluation of the digital literacy measurements that LLDIKTI XI has carried out. The importance of digital literacy levels in society affects the progress of digital transformation, and gaps in digital skills also contribute to the overall digital divide (Nazarova & Nazarov, 2021).

4. Conclusion

Realizing public services in accordance with the principles and spirit of bureaucratic reform that prioritizes digitalization in services requires an effort that must be supported by all aspects of an organization, especially in the management of services in higher education services in the LLDIKTI XI working area, which covers five provinces on the island of Kalimantan. Digitalization and service process innovation are key to providing excellent service to service users. Based on the research results, it is found that 1) There are five service digitization innovations intended for stakeholders or service users that continue to be developed to accommodate all types of services in accordance with service standards. The services are Online Mail, Singkron, Sibeken, Online Consultation and Live Chat, and Pinandu (Online Integrated Service Unit); 2) Service process innovation is carried out by changing the process flow in service standards from 12.4 days to 7.5 days so that services become more efficient and effective, 3) The main supporting factors are digital leadership and human resources, 4) The main inhibiting factors are commitment and digital literacy.

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