

## Technology Adaptation Process on E-Office Application of INTRA BRIN (2022-2023)

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### ABSTRACT

INTRA is an e-office application used by employees at BRIN. Employees use applications that contain special menus to carry out daily tasks. The aim of this research is to find out the innovation diffusion process and what menus are used by employees in the application. The theories of organizational communication, technology adoption, and diffusion of innovation are used in this research as a theoretical framework. The research approach used is qualitative with a post-positivist paradigm and the method used is a case study starting from 2022 to 2023. Researchers conducted interviews with informants, namely employees who use the INTRA application. The research results are that the employees interviewed require different amounts of time in the process of using the INTRA application and it depends on the device used and the employee's education level. Apart from that, not all employees use all the features of the application and it depends on the type and work needs of the employees. The conclusion of this research is that the adoption of e-office applications used by BRIN employees has been successfully implemented even though it sometimes experiences problems such as application systems that suddenly cannot be used when employees need them or internet network disruptions occur.

**Keywords:** Diffusion, Innovation, Organizational, Communication, Technology

### INTRODUCTION

The Electronic Based Government System (SPBE) carried out at BRIN is carried out through an application called INTRA. INTRA can be accessed via smartphone or laptop by entering an account using Single-Sign-On (SSO). In INTRA there are features that can be used by BRIN employees as a means of supporting work. Apart from that, INTRA can be used as a medium or means of communication between work units within BRIN.

The legal basis for the use of INTRA is regulated in a Decree Head of BRIN Number 190/HK/2022 of 2022 (Decree of the Head of BRIN, 2022) which was previously regulated in Law Number 95 of 2018 concerning SPBE (Ministry of State Secretariat, 2018). The National SPBE master plan is part of the Grand Design for Bureaucratic Reform 2010-2025 which aims to create one area of change for good governance. (Republic of Indonesia, 2010)

To achieve this, efforts to implement good governance within the government require a process through various stages and communication channels so that it can be accepted by users, most of whom are new users. In this case, with the implementation of the SPBE Intra application within the BRIN environment, not all employees use the features in it and this depends on the type of task being carried out.

Based on this, the author will conduct research on the diffusion of innovation in the Intra application in which there are stages of the innovation process and they are divided into two stages, namely: the initiation stage (agenda setting and matching) and the implementation stage (redefining/restructuring, clarifying, and routinizing)(Rogers, 2003).

The focus of the research examined in this paper is how technology adoption affects the innovation process carried out by employees in using the Intra BRIN application as well as the following research questions:

1. What features do employees use when carrying out work using INTRA BRIN?
2. What is the adoption process for using INTRA BRIN features by employees to complete work?
3. How long can employees accept the innovation process?

## **LITERATURE REVIEW & THEORY**

The literature review used in this research is as follows.

**Table 1. Literature Review**

No.	Journal title	Writer	Publication Year
1	Implementation of Mobile Applications for Employee Performance Reporting in Support of E-Government(Rohmah & Eriyanto, 2020)	Maulidatur Rohmah and Eriyanto	2020
2	Innovation Diffusion Process for Institutional Level Financial Application System Program (Sakti): Case Study at the Directorate General of Treasury in the Special Region of Yogyakarta in 2018(Wibowo, 2019)	Imam Tri Wibowo	2019
3	Social Acceptance of Dual Land Use Approaches: Stakeholders' Perceptions of The Drivers and Barriers Confronting Agrivoltaics Diffusion(Torma & Aschemann-Witzel, 2023)	Gabriele Torma and Jessica Aschemann-Witzel	2023

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4	The Crisis Management Strategies of Indonesian Event Organizers in the Face of COVID-19(Haryono & Wijaya, 2023)	Cosmas Gatot Haryono and Cindy Wijaya	2023
5	Diffusion of Public Relations Innovations of the Ministry of Social Affairs of the Republic of Indonesia in Disseminating E-Warong Program Innovations(Caesarany et al., 2019)	Nadya Caesarany, Devia Roselina, Garry Vardy Karwur	2029
6	Mobile Electronic Traffic Law Enforcement (ETLE) as a Diffusion of Innovation, Interoperability Towards National ETLE (Study of Mobile ETLE Implementation in the Central Java Province Region)(Nugroho, 2022)	Agus Suryo Nugroho	2022
7	Communication Strategy in the Process of Diffusion of Fish Cultivation Innovations in Buckets in Lampung Community(Tuti et al., 2023)	Sri Astuti, Anna Gustina Zainal, Nina Yudha Aryanti, Fri Rejeki Noviera	2023
8	Introduction of HPV Vaccination by the Indonesian Coalition to Prevent Cervical Cancer Using the Diffusion of Innovation Theory Approach(Sutjipto & Pinariya, 2019)	Aldila Maharani Sutjipto, Janette Maria Pinariya	2019
9	Strategic Marketing Approaches for The Diffusion of Innovation in Highly Regulated Industrial Markets: The Value of Market Access(Schiavone & Simoni, 2019)	Francesco Schiavone and Michele Simoni	2019
10	Building a Healthy Environment in the Sawarna Beach Tourism Area(Ganiem & Pandjaitan, 2020)	Leila Mona Ganiem and Rosmawaty Hilderiah Pandjaitan	2020
11	The Diffusion Of E-Government Innovation In The Framework Of Public Service (A Study On Population Administration Services and Civil Registration in Kediri Regency)(Sujana et al., 2024)	Dede Sujana, Agus Suryono, Lely Indah Mindarti, and Fadillah Amin	2024
12	Adoption of e-government Services at Different Maturity Levels: A Qualitative Study in India(Kumar et al., 2023)	Rajiv Kumar, Amit Sachan and Arindam Mukherjee	2023
13	Diffusion of Bureaucratic Organizational Innovation Case Study: SIVIKA Application-Based Employee Performance Assessment System (Performance Visum Information System) at BKKBN(Ulummy, 2019)	Dwi Ulummy	2019
14	Use of the Peduli Protect Application by the Elderly in View from the Diffusion of Innovation Theory(Malik et al., 2022)	Chici Herlina Malik, Nadhira Faza Auliya, and Mochamad Iqbal	2022
15	Challenges of Regional Government Public Relations in Efforts to Publicize Smart City Program Innovations(Wahid & Amalia, 2020)	Umaimah Wahid and Nurzahara Amalia	2020

Brief theories:

### 1.1 Organizational Communication

R. Wayne Pace and Don F. Faules(Ruliana, 2016)defines organizational communication as the interpretation of messages originating from communication units within a hierarchically

connected organizational environment. Next, W. Charles Redding(Mumby, 2013)Characterizing an organization as having four basic features consisting of interdependence, differentiation of tasks and functions, goal orientation, control mechanisms (direct control, technological control, bureaucratic control, ideological control, and disciplinary control).Dennis J Mumby added one characteristic to organizations, namely the communication process which is the basis for determining organizational life which is not just a physical container where people communicate, on the contrary, organizations exist because people communicate, thus creating a complex system of meaning called "organization."

### *1.2 Technology Adoption Process*

Katherine Miller(Miller, 2015)consider several approaches in the use of organizational communication media adoption, namely the first approach views media choice as a process of adapting various media aspects in the form of richness and symbolic value to aspects of the task, work group and organization. The second approach emphasizes the role of communication and social relationships in creating and maintaining attitudes and behavior related to communication technology.

### *1.3 Diffusion of Innovation*

Everett M Rogers(Rogers, 2003) explains diffusion as a process of innovation that is communicated through certain channels between members of a social system. The four important elements in it include firstly innovation, secondly communication channels, thirdly the time dimension involved in diffusion which consists of the innovation decision making process, individual innovativeness, and adoption level. Lastly the social system.In the diffusion of innovation, there are value characters from the categorization of adapters or innovation, namely innovation, early adapter, early majority, late majority, and laggards.

## **METHODOLOGY**

The paradigm used in this research uses the post-positivism paradigm(Hasibuan et al., 2022)which views that a researcher can be an independent observer of the social world and argues that the ideas and even the particular identity of a researcher influence what they observe and impact what they conclude. This article uses a qualitative approach. The research method used is case study which is a strategy or method in research relating to

how and why questions whose research focus lies on contemporary phenomena in real life contexts. Apart from that, in case study research there are three types, namely explanatory, exploratory and descriptive case studies (Yin, 2014).

## RESULTS AND DISCUSSION

### *Various Organizational Communications at BRIN*

W. Charles Redding divides the characteristics of an organization into four basic features. The first is interdependence or dependence occurs when all work units in an organization communicate with each other and there is integration that determines the success or failure of the organization. In this case, all work units at BRIN use INTRA as a communication tool to connect each work unit with other work units. For example, in activities to formulate public service standards in one of the programs at the Deputy for Innovation Facilitation and Research, coordination between the relevant echelon II is required. So the work unit that handles public services at BKPUK (Public, General and Secretarial Communications Bureau) coordinates with one of these directorates by involving them in formulating public service standards. By using INTRA, the distribution of communications related to these activities is carried out by marking the official in question in the TNDE feature so that the official can make a disposition to the person assigned. As in the following image.

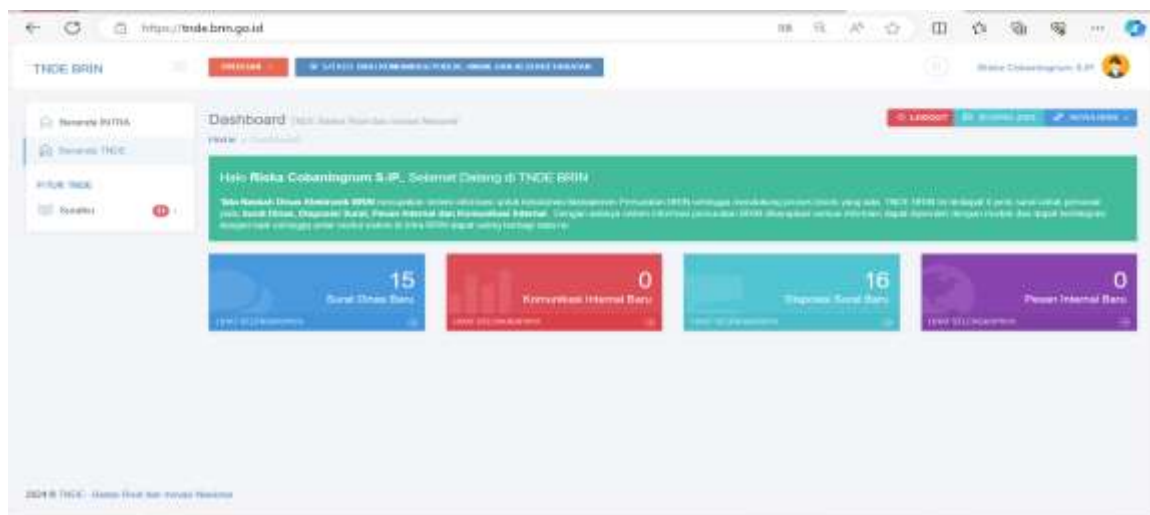


Figure 1.

The second characteristic is differentiation of tasks and functions that occurs when within an organization there is a division of labor operation whose members carry out certain tasks and the organization as a whole is divided into several divisions. Not all employees at BRIN use all INTRA features. For example, staff in the Planning and Finance Bureau work unit do not use the Rinjani feature in carrying out their daily tasks because this feature can only be used by staff who work in the overseas official travel administration work unit.

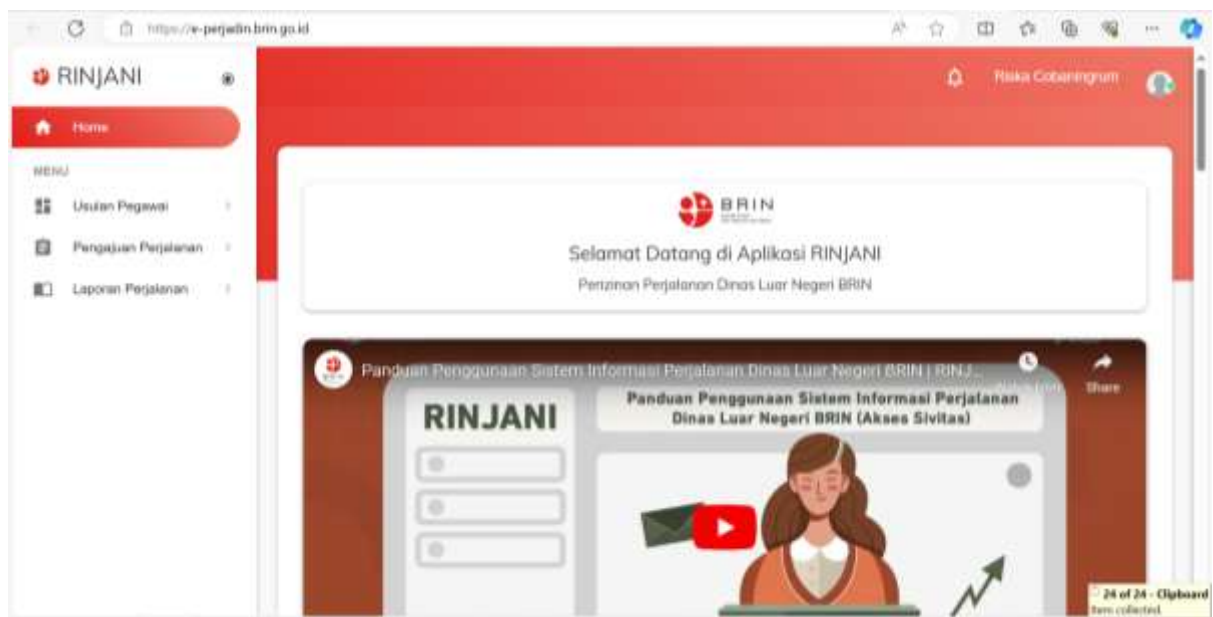


Figure 2.

The third characteristic is goal orientation which arises when there are people able to communicate with each other within an organization who are willing to contribute to action and achieve common goals. This is shown in the BRIN discussion forum feature in the following image.

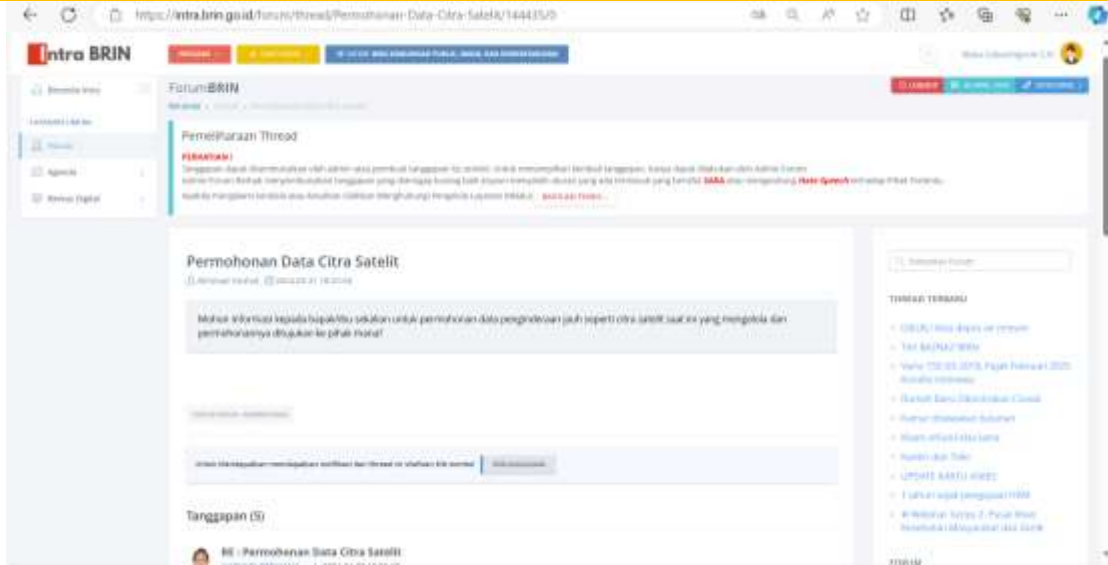


Figure 3.

The fourth characteristic is the control mechanism (direct control, technological control, bureaucratic control, ideological control, and disciplinary control). Direct control mechanism directly employees explicitly and monitor behavior to ensure their performance is adequate. This can be seen in the following image which displays an employee's performance assessment for one year in the Performance Management Information System used by each employee.

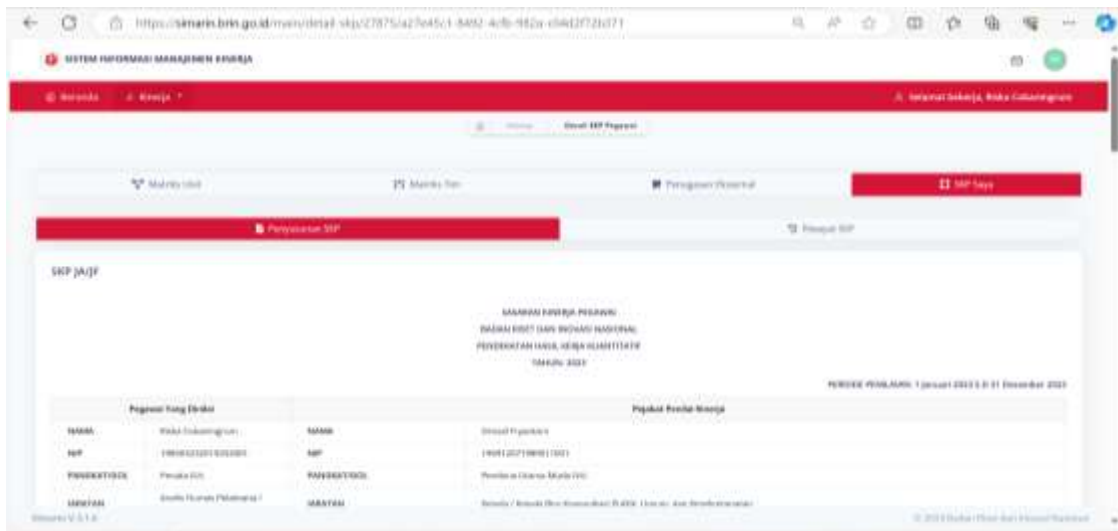


Figure 4.

Technological control mechanisms has the dual benefit of being able to assess employee production levels and limiting employees to certain locations thereby limiting employees' ability to socialize with other employees. For example, the duties of a staff member in one work unit are actually different from the duties of a staff member in another work unit because this depends on the duties and functions of the work unit coordinator and this can be seen in the same features in the performance management information system image.

Bureaucratic control mechanisms that can allow organizational members to earn rewards based on merit and not based on one's connections. This can be seen in the personnel management system (SIMPEG) feature where employees can see the results of their performance in the form of performance results and performance behavior values as follows. These results are the basis for obtaining performance allowances that employees receive and are paid every month after payment of the basic salary.

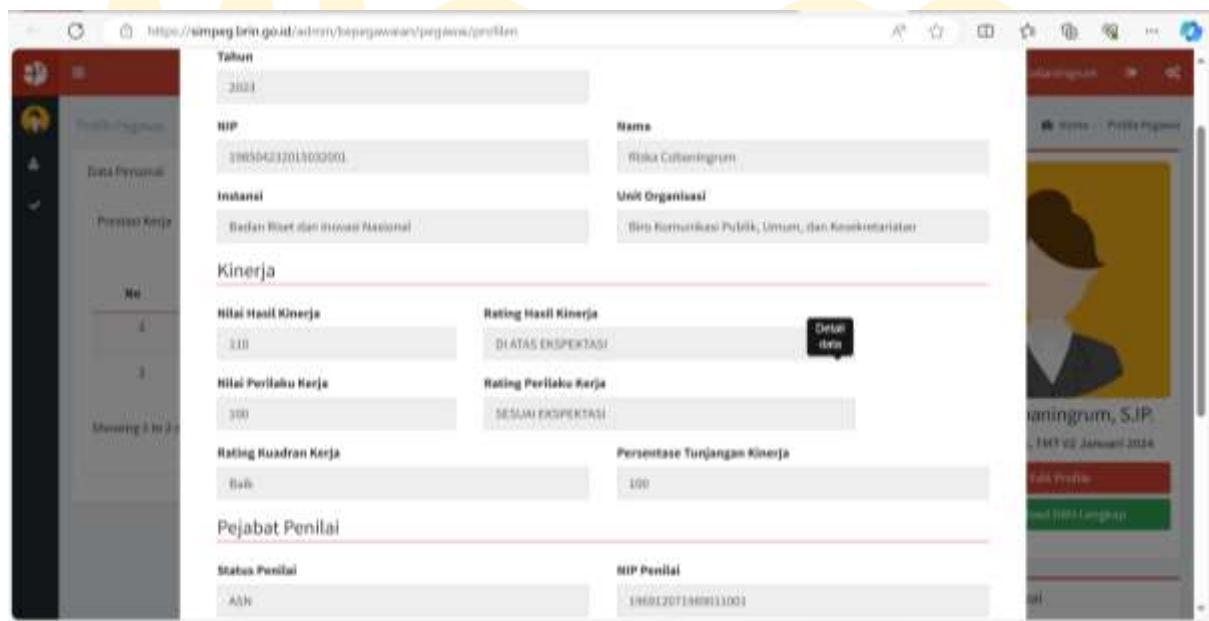


Figure 5.

The last characteristic is The communication process which is the basis for determining organizational life is not just a physical container in which people communicate. Instead, organizations exist because people communicate, thus creating a complex system of meaning

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called "organization." For example, this characteristic can be seen in the following image which explains the communication process in the MBKM (Free Learning Campus) activities carried out by the work unit of the Deputy for Development Policy and the Directorate of Talent Management in the E-Service Science (ELSA) feature.

Tanggal	Status	Jenis	Materi
04/07/2022 11:00:00	Selesai	Job Project	Manajemen
04/07/2022 11:00:00	Selesai	Job Project	Manajemen
04/07/2022 11:00:00	Selesai	Job Project	Manajemen
04/07/2022 11:00:00	Selesai	Job Project	Manajemen
04/07/2022 11:00:00	Selesai	Job Project	Manajemen
04/07/2022 11:00:00	Selesai	Job Project	Manajemen
04/07/2022 11:00:00	Selesai	Job Project	Manajemen
04/07/2022 11:00:00	Selesai	Job Project	Manajemen
04/07/2022 11:00:00	Selesai	Job Project	Manajemen
04/07/2022 11:00:00	Selesai	Job Project	Manajemen

Siswa	Materi (MB)	Nilai
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0

Figure 6.

Tanggal	Status	Jenis	Materi
04/07/2022 11:00:00	Selesai	Job Project	Manajemen
04/07/2022 11:00:00	Selesai	Job Project	Manajemen
04/07/2022 11:00:00	Selesai	Job Project	Manajemen
04/07/2022 11:00:00	Selesai	Job Project	Manajemen
04/07/2022 11:00:00	Selesai	Job Project	Manajemen
04/07/2022 11:00:00	Selesai	Job Project	Manajemen
04/07/2022 11:00:00	Selesai	Job Project	Manajemen
04/07/2022 11:00:00	Selesai	Job Project	Manajemen
04/07/2022 11:00:00	Selesai	Job Project	Manajemen
04/07/2022 11:00:00	Selesai	Job Project	Manajemen

Siswa	Materi (MB)	Nilai
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0

Figure 7.



*INTRA BRIN Innovation Diffusion*

In obtaining information, the author conducted interviews with informants who met the criteria and really had the capabilities according to their experience using the INTRA application either via smartphone or laptop or PC (personal computer). There are several factors that influence interviewers, namely social characteristics, interviewing skills, motivation, and sense of security. Meanwhile, the factors that influence respondents are social characteristics, ability to understand questions, and ability to answer questions (Bajari, 2017)

Based on this, the author conducted interviews with 13 BRIN employees who came from the former Ministry of Research and Technology, BPPT, BATAN, LAPAN. Apart from that, the author did interviews with researchers from the former Ministry of Agriculture (Kementan) and the Ministry of Villages, Development of Disadvantaged Villages and Transmigration (KemendesPDTT) with the following characteristics:

**Table 2. Characteristics of informants**

Name of Interviewee (Initial)	Sex	Age	Education	Position
YSL	F	38	Master Degree	Coordinator
HWR	F	38	Master Degree	Staff
LF	F	35	Bachelor Degree	Staff
SU	F	39	Bachelor Degree	Staff
MM	F	38	Post Graduate Degree	Staff
W	M	43	Bachelor Degree	Staff
PS	F	32	Bachelor Degree	Staff
FDA	F	59	Post Graduate Degree	Researcher
IY	F	43	Master Degree	Researcher

NNR	F	57	Senior High School	Staff
STA	F	26	Diploma 1	Staff
SSS	F	38	Master Degree	Staff
SPK	F	25	Diploma 1	Staff

Based on interviews conducted by the author, all employees at BRIN access INTRA every working day when working in the office (WFO) or working at home (WFH). Apart from that, all employees interviewed said that adaptation using the INTRA application was easy to use and accessed at any time. INTRA's features facilitate employees in communicating not only in one work unit but also in other work units. In this research, the author found various employee experiences based on what features they use at work. One of the informants who is a researcher and also a coordinator for one of the deputies explained the adaptation using one of the features in INTRA. Because the informant was still unfamiliar with this application, he initially asked his colleagues. When he accessed the Simarin feature used for employee performance appraisals, he was worried that his staff would be confused by the system. Then he took the initiative to invite stakeholders, namely the Bureau of Organization and Human Resources (BOSDM) to organize technical guidance (bimtek) as a means to communicate tutorials on using Simarin. After the tutorial guidance was carried out, the staff understood and were able to complete the performance assessment independently. Apart from this, he also said:

*"Through the personnel system that has been integrated with INTRA BRIN, my promotion decree (SK) and periodic salary increases have been carried out properly. In fact, with this system, every employee no longer needs to collect physical file requirements for personnel matters because everything has been stored digitally in SIMPEG INTRA."*

Apart from the employees above, the author also conducted interviews with other employees who use the ELSA (E-Science Services) feature and the following are their answers.

*"The ELSA feature has helped me in accepting students who will undertake the MBKM (Independent Learning Campus) program in the unit where I work. With the existence of ELSA, I coordinate with other deputy work units, namely the Deputy for*

*Resource Management, Science and Technology (SDMI), through offering this program which requires students to collect certain requirements, then I as the supervisor submit qualifications that suit their needs."*

The Digital Signature (DS) or Electronic Signature (TTE) feature is used to validate important documents such as letters of assignment for official travel, service notes, decision letters, and other documents initialed and signed by each work unit head.

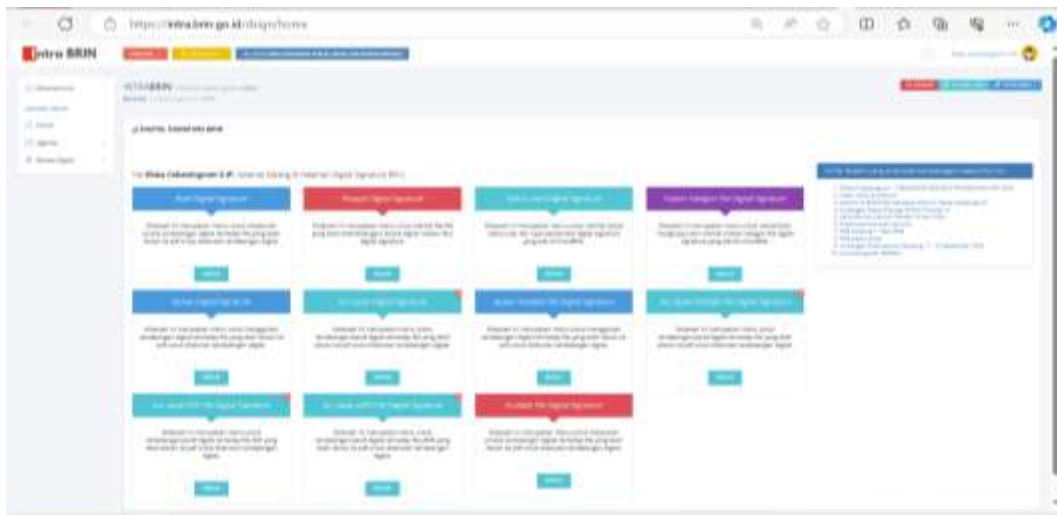


Figure 9.

In signing the document, the process is shown via a screenshot of the tutorial video delivered via the following YouTube channel.



Figure 10.

One of the employees at the Main Secretariat admitted that he did not understand the Multiple Digital Signature menu on the DS feature because the menu was not shown in the video. Finally, he tried to do this with the help of his colleagues so that the correspondence process was finally completed.

The e-attendance feature, all employees can access via laptop or smartphone based on Android or iOS. This feature is socialized via the YouTube channel. This feature was introduced in 2021. However, it was officially used in 2022 when most BRIN employees from the former LPNK and researchers from former ministries had been integrated.



**Figure 11.**



Figure 12.

After conducting interviews, the author found that more than one employee experienced problems when taking attendance via their smartphone, either an Android or iOS-based smartphone. This has an impact on the number of employee absences so that the absence is not one hundred percent. Then the employee reports the problem to the work unit that handles this, namely the Human Resources and Organization Bureau. The solution obtained is to access the e-attendance feature via the website with the following screenshot.

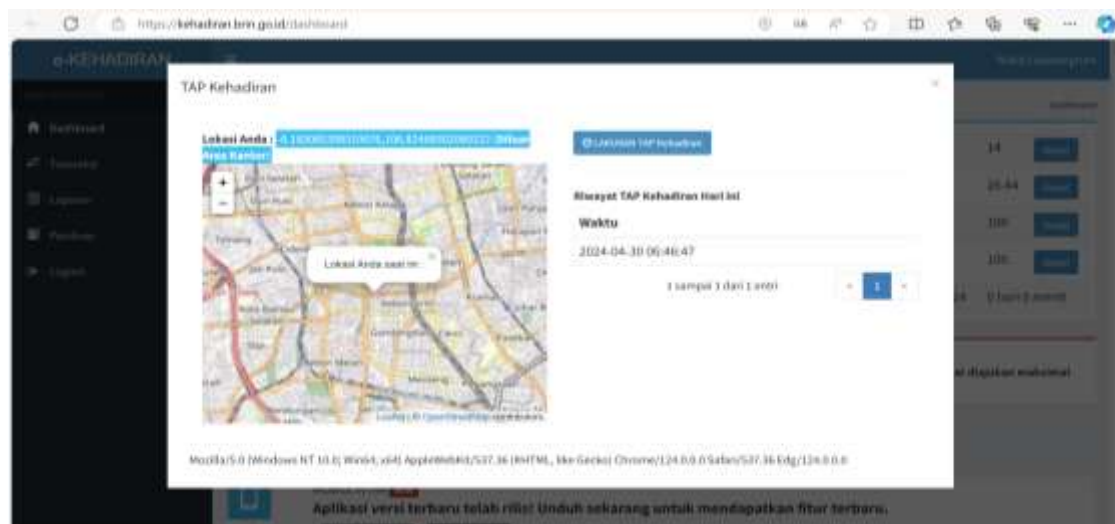


Figure 13.

If an employee experiences problems using one of INTRA's features, the employee can contact BRINITA which is managed by the Information Data Center work unit (PUSDATIN). The following is a screenshot of the socialization of BRINITA features through the BRIN Insight Every Friday (BRIEF) activity which is held once a week on Fridays.

Sometimes the e-attendance system is damaged which causes the server to experience problems. Here's a screenshot of e-attendance. I then asked my co-workers with the answer which has been shared several times as follows. This method is the final solution so that all employees can know this information.

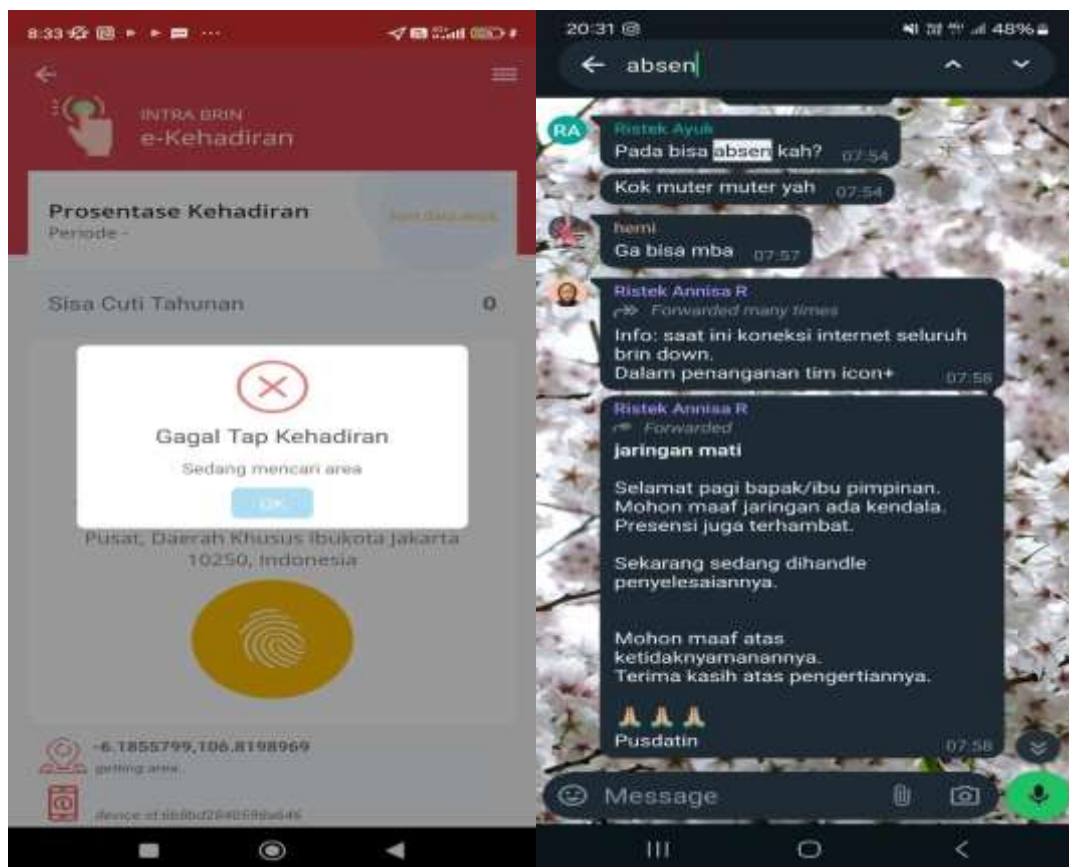


Figure 14.



Figure 15.

In interviews conducted by the author, most of the informants had experience in contacting BRINITA using the Digital Signature feature in the form of an e-sign which is a signature consisting of Electronic Information attached to, associated with or related to other Electronic Information issued by the Electronic Certification Organizer, namely the Electronic Certification Center which is part of the National Cyber and Crypto Agency. They experienced problems when they were about to sign an integrity pact to maintain the neutrality of BRIN employees ahead of the general election which will be held on February 14 2024. With the help of the BRINITA feature which is connected to the Whatsapp application, all employees who experienced this problem received a solution from the BRINITA admin in the form of guidance in Renew expired e-signs.

Apart from this, there was one employee who experienced difficulties with the computer facilities he used because he could not use the system used for BRIN's financial budget. However, this problem was not resolved quickly considering that BRINITA's support system experienced many queues. The employee was finally handled by BRINITA even though it took a very long time, namely several months.

Regarding the stages of the innovation process, there are five stages of the process that INTRA user employees must go through, namely the first stage *Agenda setting* which occurs when a common organizational problem creates a need resulting from innovation.

The problem that occurred in 2021 was that during the BRIN integration period, all systems from the five institutions were not well integrated.

The second stage is matching which occurs when problems from the organization's agenda are adjusted to the planned innovation. Finally, INTRA, which originated from the system used by LIPI, was used as a single SPBE used by all BRIN employees.

The third stage, Redefining/Restructuring, occurs when the innovation is reinvented so that it can more closely accommodate the needs and structure of the organization so that it can be modified to suit the innovation. With the existence of INTRA, which was originally a SPBE used by LIPI employees, this application can finally accommodate all employee needs with the features available to support employee facilities in carrying out work and as a communication medium between work units.

The fourth stage, namely Clarifying, occurs when innovation is used in an organization and the new idea is gradually carried out by members of the organization. The use of the INTRA application is carried out in stages through socialization on the YouTube channel so that it can be accessed by all employees. However, until now, not all features have been socialized, so sometimes employees experience problems.

The final stage is Routinizing which occurs when an innovation has been incorporated into the organization's routine activities and at that time the innovation process is complete. INTRA is currently part of the routine work activities of employees within BRIN and this system is well integrated with all features that make it easier for employees to coordinate between one work unit and another. After conducting interviews, the author can conclude the categories of innovation adapters, namely early adapters and early majority.

## **CONCLUSION**

This research tries to examine the adoption of SPBE within BRIN through the features used by all BRIN employees. Of all the employees interviewed, all employees were able to use this application well and were able to establish communication so that organizational communication at BRIN could be realized.

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