

Digital Literacy for State Apparatus in Supporting Makassar City as a Metaverse City: Case Study at the Makassar City Communication and Informatics Office



Literasi Digital Bagi Aparatur Negara Dalam Mendukung Kota Makassar Sebagai Kota Metaverse: Studi Kasus pada Dinas Komunikasi dan Informatika Kota Makassar

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Abstract

Background: This research addresses the readiness of civil servants (ASN) in welcoming the government's initiative to make Makassar City as a Metaverse City. **Purpose:** The objective of this study is to illustrate the competencies of ASN in contributing to digital literacy improvement in Makassar City. **Method:** The research methodology uses a qualitative approach with a descriptive method that explores ASN literacy information in Makassar City using the DQ Institute indicators, namely: Skill, Knowledge, and Attitude. Descriptive reinforcement is achieved through data triangulation. The data analysis techniques used are data reduction, data presentation, and conclusion drawing. **Findings:** The findings in the Knowledge dimension indicate that ASN has fulfilled the indicators of information needs and data validity, demonstrating a cautious approach to manage information to avoid critical errors. In the Skill dimension, it was found that employees are proficient in operating digital system of ICT. In the Attitude dimension, the research discovered a high level of competency in producing accurate, tested information sources and effectively managing that information to achieve specific goals. **Conclusion:** This study concludes that the competence of ASN in building digital literacy within the Communication and Informatics Office of Makassar City has progressed effectively. Overall, ASN can adapt to use digital systems in public services and actively participate in digitally-based service innovations.

Keywords: ASN; Metaverse City; Digital Literacy; Artificial Intelligence.

Abstrak

Latar Belakang: Penelitian ini mengangkat permasalahan mengenai kesiapan ASN guna menyambut gagasan yang diusung pemerintah kota Makassar dalam mewujudkan Kota Metaverse. **Tujuan:** Tujuan dari penelitian ini adalah untuk menggambarkan bagaimana kompetensi ASN dalam membangun kompetensi literasi digital di Kota Makassar. **Metode:** Metode penelitian menggunakan metode kualitatif dengan pendekatan deskriptif yang menggali informasi literasi ASN di Kota Makassar menggunakan indikator Kompetensi DQ Institute yaitu: *Skill, Knowledge and Attitude*. Penguatan deskriptif menggunakan triangulasi data. Teknik analisis data yang digunakan adalah Reduksi data, penyajian data, dan penarikan kesimpulan. **Hasil:** Temuan peneliti pada dimensi *knowledge* bahwa ASN telah memenuhi indikator kebutuhan informasi dan validitas data, serta berhati-hati dalam mengelola informasi untuk menghindari kesalahan fatal. Pada dimensi *Skill* ditemukan bahwa pegawai mampu melakukan digitalisasi kekompetensian TIK. Pada dimensi *Attitude* ditemukan bahwa tingkat ahli kompetensi yang mampu menghasilkan sumber informasi yang akurat, teruji dan mampu mengelolah informasi tersebut agar tepat sasaran. **Kesimpulan:** Penelitian ini menyimpulkan bahwa kompetensi ASN dalam membangun kompetensi literasi digital ASN Diskominfo Kota Makassar telah berjalan dengan baik. Secara umum para ASN mampu beradaptasi dengan digitalisasi dalam pelayanan publik dan partisipasi dalam inovasi pelayanan berbasis digital.

Kata kunci: ASN; Kota Metaverse; Literasi Digital; Kecerdasan Buatan.

I. INTRODUCTION

Background Digital literacy phenomenon has become a trend during the pandemic Covid-19 as it can overcome society's culture shock (Rahardaya, 2021; Yulianti et al., 2021). The digital system transformation in society's life in various fields and public services held by the government has occurred during the pandemic. Both society in general and the public service apparatus are forced by the pandemic to operate advanced ICT to fulfil their needs (Eti Sumati and Wijonarko, 2020). Civil servants are now required to have knowledge about digital technology development and able to identify hardware and software to support work. This ability can become references and provisions for civil servants to increase their quality and competency in carrying out public services. However, there are civil servants at government agencies who have poor digital knowledge, such as in the Ministry of Communication and Information (Kominfo) (Rumata & Nugraha, 2020). The ministry in 2020 created an innovation on the guideline of Digital Literacy which can be used as a reference in digital literacy development which prevails for civil servants.

There are four aspects in the framework of literacy guidelines: being capable of using digital media, performing good moral, having competency, and being safe when using digital media. The digital competency of civil servants is an ability to understand and know how to use ICT hardware, software, and digital operating system (Wulandari et al., 2022). It can also mean civil servants' ability to read, describe, adapt, study, and build national insight, Pancasila values, and Unity in Diversity in our lives. One of the efforts to improve digital literacy implemented by local governments is a resource program named *Juara Lahir dan Batin*. It has become West Java's eminent program for equipping a cultured society with education. People should be aware of literacy, especially by compiling steps to build a literacy generation who introduces the program of West Java Leader's Reading Challenge, which collaborates with The Crown in Right of the State of South Australia (Dharmajaya & Raharyo, 2019). A survey done in 2019, Program for International Student Assessment (PISA) by Organization for Economic Co-operation and Development (OECD) in 2019, stated that Indonesia places 62nd of 70 countries. This makes Indonesia on the low position as it has a low literacy level. Civil servants are required to increase their digital competency. These days, public services which transform into digital can produce more qualified civil servants, especially in mastering technology. It is also demanded that civil servants should be able to adapt to the development of industrial revolution by adjusting themselves with more relevant competency or quality related with information technology.

Ministry of Communication and Information attempts to build 4G tower. Statistics Indonesia (BPS) reported that there are 35.916 Base Transceiver Station (BTS) in all over Indonesia which has strong signal reception. It results Indonesia's average download speed of 64,3 Megabit per second (Mbps) for 5G connection. South Sulawesi province ranks on 5th position, which recorded as a province with the greatest number of villages having the strongest signal reception on its BTS tower. The towers are distributed in 1.569 villages or ward. The download speed is 3,9 faster than 4G and 10,8 faster than 3G. Then, 5G device users in Indonesia has average download speed of 19,6 Mbps, or 2,6 faster compared to 4G network with 7,4 Mbps. Makassar city ranks first on its mobile download speed in Indonesia. Its average mobile internet speed is the fastest in the third quarter of 2021. The average of mobile download speed in the city is up to 25,30 Mbps (<https://www.speedtest.net/global-index/indonesia,2021>).

This momentum of global technology advancement has provided opportunities for Makassar city in acquiring Makassar's *Sombere* and smart city of a concept-based world city. The term of world city is used because Makassar city has plus points which are comparative,

competitive, accessible, and inclusive, as well as highly attractive and impressive in many ways. For example its potential on natural resources and economy social infrastructure can ensure people's prosperity based on world standard Metaverse. The main idea of this vision can be accumulated as prosperity for its people according to the world standard. Starting from infrastructure improvement to public services, Makassar city is ready to prepare as a Metaverse city, shown by the MoU signing with WIR Group. Metaverse platform development is one of Makassar City Government efforts in implementing digital technology with virtual reality which will benefit its people. In 2021, the city government has created a digital-based public service innovation, called *Karaeng* (created by Tourism Agency) and *Dangkelor* (Library Office). Because of this innovation, the city government achieved an award from Administrative and Bureaucratic Reform Ministry for nomination of Innovation Government Award (IGA) 2021 and included to 12 cities which provided digital-based public services (Aprianty, 2016).

Research Problem. The present study which discusses problems on phenomenon of the aforementioned has supported Makassar city as a Metaverse City as it focuses on the digital literacy utilization of Makassar City.

Literature Review. Research about digital literacy is not new. For example, Firmansyah research which discuss about analysis of digital literacy concept and its implementation to increase the quality of public service, uses qualitative approach with descriptive analysis for method of research, based on the literature study compiled and then being analyzed (Firmansyah, 2021). Then, Sumiati & Wijonarko's research focus on the effect of Covid-19 pandemic in Indonesia, especially on lockdown policy and regional quarantine implemented by government to minimize Covid-19 virus spread. The pandemic causes online learning adaptation by using electronic devices. The research method used is descriptive, with the purpose to explain the benefits of digital literacy during the pandemic Covid-19 (Sumiati & Wijonarko, 2020). The next research is conducted by Maulana. It discusses the analysis of various definition on digital literacy, its policy system, and technology advancement in several countries (Maulana, 2015). Novia Maulana & Setyaningrum conduct research on the importance of digital literacy for Argosari Village government officials to prevent hoax. The research method used is descriptive analysis with qualitative approach (Novia Maulana & Setyaningrum, 2023). Next is Rumata and Nugraha also conduct a study on the low level of digital behavior of civil servants at the Ministry of Communication and Information. The research which used online survey and involved 752 respondents was held in August 2019 to measure their digital literacy. The survey findings show that 44,9% of respondents have good digital literacy, while 13,7% of respondents have low level of digital literacy. This study uses online survey as research method to measure digital literacy of civil servants in the Ministry of Communication and Information (Rumata & Nugraha, 2020).

Statement of Novelty. The present study is new and has never been done previously. Previous research done by Ardy Firmansyah discusses about Digital Literacy done by government to improve the quality of public service. The basic difference is from the research problem, which is the design of digital literacy ability aspects for regional government to increase public service quality (Firmansyah, 2021). The next dissimilarity is the research uses Eshet's Theory (2004) which underlined that digital literacy should be more than an ability to use various digital sources effectively. Digital literacy is a form of particular way of thinking in assessing the roles of Communciation and Informatics Office in

building civil servants' competency (Sumiati & Wijonarko, 2020). Next is the research by Maulana which discusses the benefits and important elements in digital literacy. This is used in finding beneficial information in order to increase knowledge and help in better decision making (Maulana, 2015). Ade Novia and Setyaningrum conduct research on the importance of digital literacy for village government officials in preventing hoax. This study also found out several actions in order to increase digital literacy of the village government officials is dissemination and webinar (Novia Maulana & Setyaningrum, 2023). Then, the next research titled "Low Digital Behaviour of Civil Servants at The Ministry of Communication and Information: A digital literacy survey at a government agency". The similarities are of the theory used, that is Digital Literacy of UNESCO year 2018 which focuses on the digital literacy of civil servants at the central government. And the difference is the research method and approach, namely a descriptive statistic research with quantitative method as well as the research locus.

Purpose. The research purpose is to describe, know, understand digital literacy competency of civil servants with indicators from UNESCO which covers knowledge, skill, and attitude (Wulandari et al., 2022). This research offers the concept of digital literacy, so the researcher conduct a comprehensive study on digital literacy competency in society during the pandemic Covid-19.

II. METHODS

The present study which uses qualitative method aims to explore civil servants' competency (Creswell, J. W. 2014). The description of digital competency of research locus becomes basic assumption to formulate digital literacy model using descriptive method. The researchers use qualitative descriptive research method. This method has a natural setting as the main data source (Wheeler and Checkland, 1990). The research method is a procedure and research plan which have steps namely extensive assumption and detailed method in the collecting, analyzing, and interpreting data.

A concept usually consists of indicators. The following table is the indicators:

Table 1
Indicators of Concept Operation

Concept	Dimension	Indicator
Digital Literacy Concept by Unesco (2018)	Skill,	1. Basic Knowledge Information 2. Basic Knowledge Using and Filtering Data
	Knowledge	1. Digitalization of ICT Use 2. Competency Support Digitalization of the State Civil Service Attitude
	Attitude	1. Mitigation Risk before Distribute information 2. Communication behavior Digitally

Source: processed by researchers. 2022

The table explains the concept operational of competency components according to UNESCO. It is divided into three dimensions, namely knowledge, skills, attitude in which all of them will be the main concept of this study. The data were collected using observation technique and interview to related parties.

Data source of this research is interviews which were determined by purposive sampling technique. The determination of main respondents is based on the research data needs for people who know and understand the problem of interview technique, and then with observation and documentation which can support research data. There are 15 interviewees which consist of Head of Communication and Informatics Office, Secretary of Communication and Informatics Office, Division Head of Application, Division Head of Encryption, Division Head of Electronics Data Management, Division Head of Public Relations, Informatics, and Public Communication, Public Relations Officer 1 and 2, IT Officer 1 and 2, Staff of Information Application 1 and 2, Staff of Encryption 1 and 2, and Staff of Data Management Division. Then, the data were analyzed by simplifying the data obtained or by implementing data reduction. It means the researcher choose or simplify data which are not used or not relevant with the present study. After that, the data were presented and conclusion was drawn (Basrowi and Suwandi, 2008). The selected research location is at Communication and Informatics Office of Makassar City, and the study was conducted for 2 months from January to February 2023.

III. RESULTS AND DISCUSSIONS

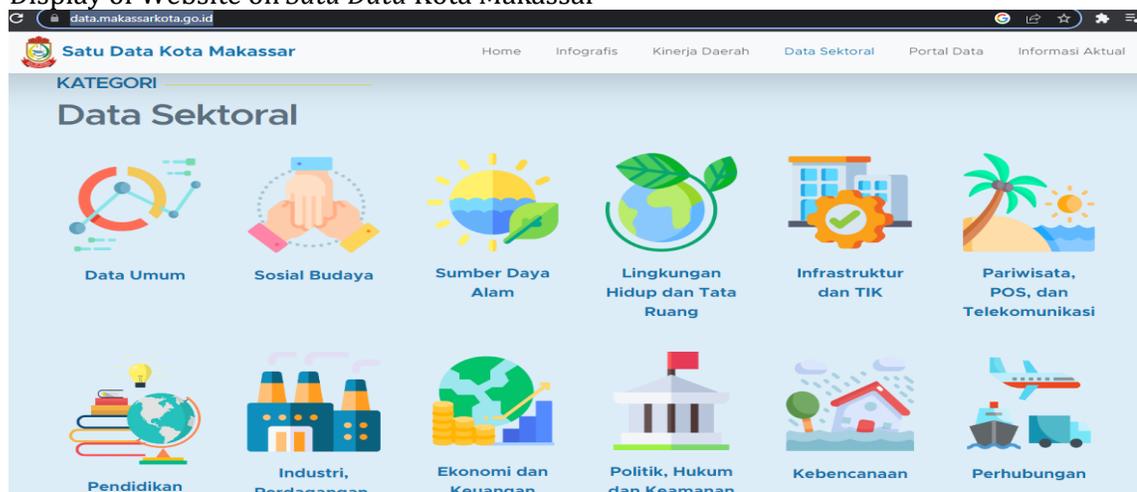
The research uses indicators competency of UNESCO which involves competency of knowledge, skill, and attitude.

Civil Servants Knowledge Competency. Knowledge competency for employees can be measured with two indicators, namely basic knowledge about information and basic knowledge on the data usage and sorting which later accumulated according to standard of components on digital literacy competency (Hadiansah et al., 2021). Knowledge competency is demanded in the process of employee competency in creating digital system. In this competency, knowledge concept is a basic ability to communicate or manage information and access according to its needs. The purpose of knowledge competency is to answer the level of maturity for employee in finding information needs, how employee determine media/information source and information validity test.

The demand of information happens to answer question of a phenomena happening. The information source is a data, so it needs a model which will be grouped and discussed to generate accurate information (Agustin, 2019). This will portray the quality of an employee of how to answer social phenomenon happening depends on the information demanded. The basic information needs for employee is sectoral data, sectoral statistics, the most advanced IT, Electronic Information and Transaction (ITE) law and regulations, information about job position, staffing, and policy documents (*walidata* roles). The information is associated with tasks, principal, and functions of each division which always needs the most updated information and a cross check from the superiors. Sectoral and statistic sectoral data should have an accurate information. Then, the information is delivered to Communication and Informatics Office of South Sulawesi Province in order to be disseminated to the public using one data portal or website and KominfoTV Youtube Channel.

The picture below shows the display of one data portal of Makassar City, a place for information dissemination for the category of sectoral data and sectoral statistic after information validation test. On the website of Makassar City one data, it can be seen the sectoral data information on each division. Data will be entered according to its type and field after doing information validity test before disseminating it. Besides website, Communication and Informatics Office also has its own Youtube channel named KominfoTV. The youtube channel presents the statistics information in general with interesting display. People can also type their responses in the channel's comment section. The information was divided into internal information and public information. Internal information is delivered into the superior or those authorized parties in accessing a data protected. Thus, in accessing the information, a letter should be prepared for the government officials in the local government.

Figure 1
Display of Website on *Satu Data Kota Makassar*



Source: <https://data.makassarkota.go.id>

Excluded information menu list involves officials' or people's personal data. The data needs which highlighted by employee of Communication and Informatics Office is sectoral data, information in the most advanced technology, sectoral statistics, issues on the national or provincial level, and information on each division roles to manage data and ensure the information quality obtained. The employee has determined the information source using local government officers, respondents included, governments official websites, and official articles on agency cooperation (PT. Indikator Indonesia).

Information facilitation for employees is provided in the form of weekly articles, in collaboration with Communication and Informatics Office of South Sulawesi Province. The publication is about weekly issues in the province, for example establishing cooperation with online media PT. Media Indonesia Indikator which covers all of Communication and Informatics Offices in South Sulawesi. Daily report usually publishes the most recent issue, such as news on government matters, superiors, superiors' issue recommendation, and local government. The Office also collaborates with the province office in creating a podcast on key issues of Makassar City. After the needs of information fulfilled, the next thing to do is data management to filter the information by carrying out coordination with other parties or information validity test to compare the data obtained with the reality.

From the observation result, it can be inferred that the employees are very cautious in managing information before published to avoid fatal mistakes in achieving the information goals. Publication error can cause data misuse by irresponsible parties. Misuse on information distribution can lead to data leak and identity theft as stipulated in the regulation on personal data protection. The aim of knowledge dimension is to assess employees' capability when publishing information in the digital space and to increase competency in line with Circular Letter of the Minister of Administrative and Bureaucratic Reform Number 58 of 2020. The urgency of digital literacy needs for civil servants is quite high, as technology development is unpredictable. The components of knowledge dimension are as follows: Level 1 is basic understanding of technical tasks without special training. Level 2 is basic ability of technical tasks after basic training. Level 3 is the middle ability in a more specific technical tasks but limited in analysis. Level 4 is the more advanced level which involves concept development and technical problem solving. Level 5 is the expert level which covers creative works and interdisciplinary ability (J. Simarmata, 2021). The civil servants of Communication and Informatics Office are categorized to the level 5 of knowledge components in digital literacy. The employees are skilful enough to manage information in the digital space, whether in circulation for fellow employees or for public in general, by implementing data validity test.

Information processed by validity test is considered as data. The data usage and sorting refers to when the information disseminated to the public, followed by the considerations whether the published data is suitable for the public's needs.

Figure 2
Excluded Information

ID	Title	Date	Source	Action
1	Cara mengambil mangga tetangga	16/02/2023	Dinas Tanaman Pangan, Hortikultura dan Perkebunan Provinsi Sulawesi Selatan	Download
2	SK DAFTAR INFORMASI DIKECUALIKAN OPD BKD TAHUN 2022	20/10/2022	Badan Kepegawaian Daerah Provinsi Sulawesi Selatan	Download
3	Daftar Informasi yang Dikecualikan Berdasarkan Hasil Pengujian Konsekuensi	14/10/2022	Dinas Kebudayaan dan Kepariwisata Provinsi Sulawesi Selatan	Download
4	Uji Konsekuensi	10/10/2022	Rumah Sakit Umum Daerah (RSUD) Labuang Baji	Download
5	Sosialisasi Uji Konsekuensi	10/10/2022	Rumah Sakit Umum Daerah (RSUD) Labuang Baji	Download
6	SK Dokumen yang dikecualikan	01/07/2022	Rumah Sakit Umum Daerah (RSUD) Labuang Baji	Download
7	Dokumen yang dikecualikan	01/07/2022	Rumah Sakit Umum Daerah (RSUD) Labuang Baji	Download
8	Daftar Informasi yang di Kecualikan	21/06/2022	Badan Perencanaan Pembangunan, Penelitian Dan Pengembangan Daerah Provinsi Sulawesi Selatan	Download
9	Daftar Informasi Dikecualikan	22/12/2021	Dinas Kependudukan dan Pencatatan Sipil Provinsi Sulawesi Selatan	Download

Source: <https://ppid.sulselprov.go.id/informasi/100> 2023

The above picture shows the excluded information, or in this menu covers the data of population and civil registry, information security of local government encryption, data of development planning, research, and local development which are prone to data theft. Accumulation of observation result shows that employees are careful enough to manage information before published. It is done to avoid fatal errors when delivering the information. Publication error can also cause data misuse by irresponsible parties. Moreover, distribution misuse can lead to data leak and identity theft as stipulated in the regulation of personal data protection.

Purpose of dimension knowledge is to measure employees proficiency when publish information in the digital space and to improve the competency according to Circular Letter of Minister of Administrative and Bureaucratic Reform Number 58 of 2020. Civil servants of Communication and Informatics Office are categorized to the 5th level, seen from their competency of digital literacy of components knowledge. Civil servants can manage information in the digital media between fellow employees and can disseminate to the public using data validity testing.

Civil Servants Competency Skills. Skill Competency Civil Servants. Skill competency of civil servants emphasizes the ability to adapt with technology and infrastructure in the information service, and ability to create digital system process (Das and Halik, 2021). The foundation to deepen the digital literacy development which is more updated is a mastery of technical ability in the ICT. For example, able to adapt in carrying out digital system work culture. It involves ability to use teleconference media and entertainment in the digital space. Teleconference media used is usually WhatsApp and Gmail, while entertainment media is Instagram. Entertainment media of Instagram can upload photos and videos followed by captions. Aside from that, the contents can be saved in a form of feed, highlight, or reels, so it can facilitate people to do feedback, especially on the comment section (Nur Alam Tajang, etc, 2022).

The intensity of digital space usage has become employees' routine in daily life. The usage of barcode scan is to add number or account ID. This barcode can obtain information, allow interaction between user, and write news. The digital space can be a virtual communication tool which is more effective for employees. Information exchange and data sending can be done rapidly in the different space. The media has user interface which can be easily understood by various people so virtual communication can be done practically.

The researcher concludes that digital space is quite user friendly and familiar for public, especially when people use them for connecting to the internet, it can be considered cheaper than using prepaid phone. The utilization of digital space for employees can be used to share information, data confirmation for other agencies, internal coordination between employees, and an information sharing tool for the public. Digital space can be used to interact virtually and to test data validity by comparing articles in obtaining the most updated information. Information display by government agencies used to be physically displayed such as using newspaper, magazine, poster, and nowadays it changes into articles, e-paper, infographic, short video such as Instagram reels. In the information menu of civil servants as seen in the above picture, civil servants can also post news on the website, whether in the form of policy, announcement, and information service, so that the pop-up notification of main information can be displayed. The service feature can facilitate people in finding information so that information dissemination can be done faster and easier.

Challenges found when using digital space is, according to Head Division of Application and Informatics, internal factors which cause digital space cannot be accessed because of network. The unstable network can cause disconnection, so the uploaded message or file are delayed. The researcher concluded that the internal factors are not categorized as factor which can decrease the employees' competency. It is because the competency more focus on how capable the employees in adapting with digital system using ICT. To increase the employee competency, the office provides an opportunity for its employees to participate in a training called Government Transformation Academy (GTA) and Digital Talent Scholarship (DTS).

Communication and Informatics Office in Makassar City has created digital innovation, in the form of Metaverse concept. This innovation is a war room which are controlled by 53

experts. It operates 24 hours with 4 shifts which can detect a system disruption. Currently it is still developed to be integrated with data from several agencies which connects to Big Data and in line with room operation which aims as a center of data-based policy making. This innovation makes the Mayor of Danny Pomanto receive Digital Innovation Award 2022 from MNC Portal Indonesia for his effort in creating and developing digital based innovation. The digital innovation room or known as War Room is managed by 58 experts to supervise system disturbance and data from malware attack for 24 hours.

War room is a program of Metaverse City in Makassar which use CCTV with face recognition technology. This technology can be used as a surveillance of criminal actions. Besides, it can recognize people's face as well as identify someone suspicious. The findings of digital literacy on competency dimension are that Communication and Informatics Office employees' skills is on level 5. In general, it was categorized as carrying out digital system usage with ICT in the digital space for fellow employees or public in digital based service and digital innovation development.

Figure 3

War Room in the Communication and Informatics Office of Makassar City



Source: *mediaindonesia.com* (2020)

Competency of civil servants' attitude. Competency of Attitude is the last dimension which becomes the instruments of digital literacy success. From this competency, people can see employees' behavior in the digital space when performing an action or communicating in various digital media, both using sound, picture, or video and paying attention to risk mitigation before distributing information. The development of digital communication has their own characteristics on global communication which can pass the geographic border and competency border. On the other hand, every geographical and competency has different ethic limitations. With digital media, people can participate in various relationships with different people using the same digital space. People utilize digital media by using social media, blogging, vlogging, gaming, instant messaging, downloading, uploading, as well as sharing contents of their own creative result (Astuti, 2021; Kusumastuti et al., n.d.)

The employees who create relationship in the digital space such as collaborate with civil servants from other offices in providing digital services to the public. That is why, all digital activities in the digital space needs digital ethic. The ethic can be in a form of differentiating

which information contain hoax, hate speech, pornographic content, bullying, and other negative content. Media social monitoring can be done every day by Public Relations division. If there is ethical violation found in the digital space, the website/post/portal will be suspended by Communication and Informatics Office. The online media monitoring will be able to control values of civil servants themselves, especially in creating publication limitation. In 2018 there is an ethical violation of hate speech done by a politician from Makassar. The National Civil Service Agency (BKN) received the complaints of civil servants' participation in hate speech which can worsen the nation. Civil servants who found circulating hate speech and hoax are subjects to discipline violation. Thus, BKN has instructed all civil servants not to circulate hoax news and hate speech (of ethnicity, religion, race, and other social division) which is potentially to be split the nation.

Communication and Informatics Office has tried to overcome negative contents by using "Ais" to prevent the content. This machine monitors various contents circulated online and crawls negative contents to be blocked. Then they were removed in order that public cannot access the contents. However, some says that blocking negative content is not going to be effective if there is no cooperation with the public themselves. According to data from the Ministry of Communication and Information, until 31 December 2019 the ministry has blocked 1.857.907 negative contents on the internet. The employee of Communication and Informatics Office has participated on the collaboration of digital media aforementioned, as seen on the Circular Letter of the Minister of Administrative and Bureaucratic Reform Number 20 of 2021 which underlines the implementation of Core, Values, and Employer Branding of civil servants. The letter has become the basic framework strategies for civil servants' management transformation into a worldclass government. This transformation will be integrated with the similarity of basic values for civil servants and creating ethics code of *berAKHLAK*. The civil servants' behavior in the digital media is able to show the implementation of ethical code values. The civil servants of Communication and Informatics Office of Makassar City do not have any ethical cases in the digital media, and they are able to adapt their work patterns in line with bureaucratic reform.

The importance of producing and distributing a good message according to the ethics is also delivered by both Communication and Informatics Office and the public, using digital devices such as websites, social media, articles, or posters. Information to public should be delivered accurately and correctly according to its channels. This aims to minimize communication errors which can cause misinformation or even misperception between the sender and the receiver. Thus, it should be prevented, especially when delivering sensitive information. That is why an employee should understand risk management and data classification, which cannot be disseminated.

The researchers concluded that the employees who distribute information have performed an excellent job. It is because they do a data cross-check and review the sentences used in the news or before uploading them to the official website of the Communication and Informatics Office. The purpose is to give accurate information and avoid ambiguity or double meaning. So, it means that Attitude dimension of Communication and Informatics Office civil servants can be categorized as level 4 in the components of digital literacy. This level shows that they have the ability to produce accurate and tested information, as well as manage the accurate information.

Research Findings Discussion. It can be concluded that for the knowledge dimension, the employees are able to fulfil the indicators of basic information needs, usage, or data sorting process, which are measured from a process of finding information with a data validity test. The employees are very careful in managing information before published to

avoid fatal mistake in achieving information goals. Publication errors can cause data leak by irresponsible parties. Abuse of information distribution can lead to data leak and identity theft, as regulated in the Act of Personal Data Protection.

For skill dimension, the staffs can carry out using a digital system of ICT competency with the change of digital-based work competency and create digital innovation, which is appreciated by the government. Thus, researchers inferred that Communication and Informatics Office employees' digital literacy competency is categorized as level 4. Communication and Informatics Office civil servants in general have performed digital system usage competency by using ICT in digital rooms for fellow staffs and society for digital-based services, and digital innovation development.

For attitude dimension, the actions taken by employees before distributing information are viewed as correct. The action is for employees to do a data cross-check prior to distribution and a final check of sentences used in news or information before uploading them to the official office website. It is done to be right and does not create information ambiguity or double meaning. Thus, the attitude dimension of civil servants is categorized at level 4 of digital literacy competency components. This level means that the employee is able to produce an accurate and tested information source as well as manage the information in order to be correct. Employees, who do not have digital ethics violations seen from the law perspective, are able to become pioneers in the value deviation control of digital collaboration. In conclusion, the current research which is in line with UNESCO concept on digital literacy competency, found that Communication and Informatics Office civil servants can adapt to digital system usage competency in public service and participate in digital-based service innovation.

The difference with previous studies, such as Rumata, Vience Mutiara Nugraha, Dimas Aditya, is that the present study focuses on civil servants' digital literacy in information usage and personal data protection. Meanwhile, the previous study discussed civil servants' digital literacy in three dimensions, namely knowledge, digital ability, and behaviour. Naufal's research found that the research finding indicates that employees can fulfil basic information needs in the process of data usage or sorting. Rumata et al. research on the online survey research findings revealed that most of the respondents have high digital literacy level, while the rest have a low level (Rumata, et. Al, 2020). Then, Dr. Hj. Mudji Estiningsih, S.H, M.Hum conducted a study on civil servants' digital literacy about information usage, personal data protection, and digital media ethical implementation. Estiningsih research highlights the ethical codes and behaviour codes of civil servants when carrying out government projects, especially for civil servants of the Ministry of Communication and Information (Estiningsih, 2023). Ardy Firmansyah conducted research on civil servants' digital literacy in public service, e-Government implementation, and social media usage to disseminate information. It also emphasized the analysis of digital literacy concepts and digital literacy aspects in the context of public service (Firmansyah, 2021). Maulana's research focused on the aspects of information usage, personal data protection, and practical aspects of digital literacy and its benefits to support daily life in the office or in society (Maulana, 2015). Novia Maulana, Ade Setyaningrum, Vina Devi conducted a study on civil servants' digital literacy and their efforts to prevent hoax content spread for village's government officials. Novia & Setyaningrum focuses on preventing the hoax spread by carrying out activities which can increase digital literacy knowledge such as dissemination and webinars to the government officers in Argosari village (Novia Maulana & Setyaningrum. 2023). Sujai I, Aditiyawardman A, Nursetiawan I, Yuliani D research on digital literacy in Sadananya Village focuses on the usage of digital devices and platforms to disseminate information to the public. Sujai, et al., evaluated the digital literacy culture for

civil servants in the Sadananya village office and e-Government implementation level. The all-previous research has different focuses, approaches, and study findings on digital literacy and its implementation in various contexts and government agencies.

In general, analysis of six previous studies has shown several similarities with the present research. The main focus of all studies is the importance of digital literacy for State Civil Apparatus (ASN) or government officers in overcoming digital challenges to improve public services. Every research agrees that there is an urgency to increase digital literacy of civil servants or government officials, especially in the context of digital technology and communication utilization. Personal data protection and digital ethics become a highlight, and it underlines the caution of data usage, misuse of information prevention, and importance of privacy protection. There is a consensus that education, training, and dissemination on digital literacy need to be carried out to increase the understanding and government officials' ability when interacting with digital technology. The usage of social media and digital information sources is highlighted on several studies as vital elements in public services or information dissemination to the society. According to the research findings, the variation in digital literacy levels of respondents or government officers is quite consistent with some having a good literacy level and some having a low literacy level. E-Government implementation stands out as a vital aspect of digital literacy in the government agencies and highlights the urgency of digital transformation to carry out public services.

IV. CONCLUSION

The present research concludes that civil servants' competency in developing digital literacy at Communication and Informatics Office of Makassar City is quite good. In general, civil servants can adapt digital systems within the public service and participate in the innovation of digital-based service. The digital literacy competency of civil servants at Communication and Informatics Office Makassar City is still at stage or level 4. This can be categorized as understanding, knowing, and implementing work productivity. Besides, civil servants can manage information according to their needs, have high digital system adaptability, understand how to interact in digital space-based work patterns in the era of digital reformation, and achieve a milestone by creating the Metaverse City concept in Makassar.

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