

# Service Quality and Digitalized System for Motor Vehicle Testing in Makassar (Case Study of the Makassar City Transportation Agency's Motor Vehicle Testing Technical Implementation Unit (UPTD) in 2024)

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**Abstract.** *This study aims to analyze the influence of service quality and the implementation of a digitalization system on the effectiveness of motor vehicle inspection services in Makassar City. The background of this research is based on the local government's efforts to improve transparency, efficiency, and accountability in the vehicle inspection process, in line with developments in information technology. The research method used is a qualitative approach with a descriptive method applied to users of vehicle inspection services, as well as interviews with technical officers. The results show that service quality comprising reliability, responsiveness, assurance, empathy, and tangible aspects has a significant impact on user satisfaction. In addition, the implementation of digital systems, such as online registration and integration of vehicle test data, has had a positive effect on time efficiency, ease of access, and the reduction of potential illegal levies. The conclusion of this study affirms that improving service quality and digitalization systems simultaneously supports the development of better, more transparent, and accountable public services in the motor vehicle inspection sector.*

**Keywords:** *Service Quality, Digitalization, Motor Vehicle Inspection*

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## INTRODUCTION

Motor vehicle testing plays a vital role in ensuring traffic safety and ensuring that vehicles operating on the road meet established technical standards (Abu et al., 2022). In Indonesia, including in Makassar City, the motor vehicle testing process often faces various challenges. In 2004, the South Sulawesi Provincial Transportation Agency (Dishub) delegated the management of Motor Vehicle Emission Testing to the South Sulawesi Provincial Transportation Agency (Dishub). However, operational constraints hampered implementation.

Makassar City's Technical Implementation Unit (UPTD) began implementing it in 2005, due to various obstacles, including the lack of technical expertise in the machinery. Ikhrum & Priyambodo (2025) said that, manual procedures are prone to inefficiency and a lack of transparency, and fraud occurs in the field. Recognizing the potential of digitalization to improve efficiency and service quality, the Regional Technical Implementation Unit (UPTD) for

Emission Testing in Makassar City has also begun moving towards implementing a digital system.

Information and communication technology has innovated, adopting digital solutions to improve the efficiency and quality of services provided to the public (Liu & Yuan, 2015; Gil-Garcia et al., 2014). This is an innovation implemented by the local government to enhance performance. In improving services, the key concept underlying digital governance theory is the use of Information and Communication Technology (ICT) to increase transparency, accountability, and responsiveness in public service delivery (Calista & Melitski, 2007; Sofyani et al., 2020; Tiwari et al., 2024).

According to Ancarani (2005) and Valle-Cruz (2019), With the rapid development of digital technology, various public service sectors have seen its positive impact in terms of increased efficiency, accountability, and service quality. Digitalization offers potential solutions to overcome various obstacles in the motor vehicle inspection system, such as through online registration and scheduling, cashless payments, and the provision of easily accessible test result information.

The development of digital platforms enables easier and faster access to public services. Through these platforms, the public can access various services without having to physically visit government offices, which in turn can increase efficiency, reduce bureaucracy, and reduce fraud (Asogwa, 2013; Clarke & Margetts, 2014). According to Kurniawati et al. (2015), service quality is a dynamic condition related to products, services, people, processes, and the environment, where quality assessment is determined during the delivery of public services.

Transparency in management is an indication that a public service has undergone significant change. This digital transformation not only creates administrative efficiency but also serves as a foundation for improving the quality of life and services for all citizens (Trung, 2024; Sarker et al., 2018). The Makassar City Transportation Agency (DISHUB) is a technical regional apparatus under the control of the regional head, who coordinates with the Regional Secretary and the Assistant for Economic and Development Affairs. One of the duties and responsibilities of the Makassar City Transportation Agency is to formulate policies in the fields of road traffic, road transportation, land, sea, and railway transportation networks.

One of the policies created is motor vehicle testing. The Makassar City Transportation Agency has an organizational structure for managing vehicle testing, also known as the Motor Vehicle Testing Technical Implementation Unit (UPTD). This unit is tasked with conducting periodic vehicle roadworthiness tests to establish a standard for vehicle operational feasibility testing to prevent accidents due to mechanical or technical failures (Chirilă et al., 2021). Conducting vehicle testing supports environmental sustainability and government programs. According to Broadbent & Guthrie (2008), the policies and regulations established by each region vary but are still intended to support public services. Customer satisfaction is crucial in the service sector, and this can be achieved by developing strategies to meet user expectations.

According to a digital media page, "Now, the public or vehicle owners no longer have to visit the UPTD PKB office to make transactions. They simply need to scan the barcode on an e-commerce platform partnering with this program," he said on Monday, July 4, 2022. The UPTD PKB Makassar Transportation Agency (Dishub Makassar) stated that this transaction is not only simpler because payments are now digital, but also offers a wide variety of methods. This type of transaction is safer and easier for every mobile phone/smartphone user. Complementing the advancement of technology, QRIS has also emerged as a digital currency acceptance tool for service providers, such as vehicle roadworthiness inspections. QRIS stands for Quick Response Code Indonesian Standard.

The effectiveness of the vehicle roadworthiness inspection service at the Makassar City Transportation Agency's Motor Vehicle Testing Technical Implementation Unit (UPTD), based

on the flexibility indicator, is considered ineffective. This is evident from the inadequate public outreach by relevant parties to promote the digital system that facilitates online registration. Consequently, some people still register conventionally, visiting the UPTD in person, and even using brokers to assist them with their vehicle testing.

A flexible digital vehicle testing system overcomes the limitations of traditional working hours and accommodates diverse user schedules, allowing them to register, check status, and access information at any time. With a flexible testing schedule, users can choose a time that best suits their needs. This is especially important for commercial vehicle owners who want to minimize disruption to their operations. This situation is a current phenomenon, with many shortcomings still needing to be addressed by the UPTD, which has been implementing a digital system for the past three years.

The effectiveness of digital system services in motor vehicle testing at the UPTD Motor Vehicle Testing in satisfaction indicators is considered quite effective, related to the benefits of online registration services, people do not need to come twice to the testing location, they just register online from home and come to the transportation office at the same time test their vehicles, related to the service has been assessed as good as seen from the way the officers provide services and also which has been proven by the results of the public satisfaction survey related to the services provided in motor vehicle testing. UPTD Motor Vehicle Testing of the Makassar City Transportation Agency which has implemented a digital system for motor vehicle testing through statistical data from Makassar City in Figures can be seen the achievement of the realization of vehicles that have been tested in the table of the number of motor vehicles

According to Arini (2022), services in motor vehicle testing at the Makassar City Transportation Agency can be seen from Convenience, Security, Reliability, Personal attention, Problem-solving approach, Fairness, Fiscal responsibility, Citizen influence. In addition, research shows that special attention is still needed to customer desires in online transactions, namely processing documents and following online payments, as well as attention to the security of informants in carrying out tasks, as well as understanding the procedures in the motor vehicle testing process for both informants and customers, and there are still informants who do not understand the use of tools in motor vehicle testing, therefore.

The recommendation from this study is to provide education to customers and informants in the form of public service announcements to pay special attention to the motor vehicle testing process so that services are provided sincerely, friendly and non-discriminatory without discriminating against customers so that it can provide satisfaction for the community as service recipients. Thus, this digitalization effort is in line with the goal of improving the quality of motor vehicle testing services at the Makassar City Technical Implementation Unit (UPTD). This research is important to examine more deeply how the implementation of this digital system can contribute to improving the quality of service and identify the factors that influence its success. Based on the results of observations over the past 3 years from BPS (the Central Statistics Agency), there has been a decline in public awareness of motor vehicle emission testing which will examine what causes it by raising the Title "Service Quality and Digitalization System of Motor Vehicle Testing in Makassar (Case Study of Uptd Motor Vehicle Testing of Makassar Transportation Department in 2024)".

## **METHODS**

In this thesis proposal research, the researcher conducted research at the UPTD Motor Vehicle Testing Office of the Makassar City Transportation Service, South Sulawesi, which is located in the Daya Regional Terminal Complex, Biringkanaya District.

### **Data Sources**

Data is a crucial element in research, consisting of existing facts that are used to obtain data that is tested for its relevance and completeness. According to Wahyuni & Retnowaty (2018),

qualitative data is data expressed in the form of words, sentences, and images. Data in the form of words or images can be obtained from in-depth interviews, field notes, and other supporting documents. Based on data sources, according to Yuniendel et al. (2022), data collection can be sourced from primary and secondary sources.

### **Type of Research**

This type of research uses a descriptive method with a qualitative approach. This research provides an accurate description and explanation of the conditions or symptoms encountered. According to Safarudin et al. (2023), qualitative research methods are research methods used to examine natural object conditions, where the researcher serves as the key instrument, data collection techniques are triangulated (combined), data analysis is inductive, and qualitative research results emphasize meaning rather than generalization. According to Bogdan and Biklen in Niam et al. (2024), descriptive qualitative research methods collect data in the form of words or images, thus de-emphasizing numbers. After analysis, the collected data is then described for easy understanding. This research aims to provide an overview, describe, and interpret the situation regarding the Quality of Service and the Digitalization System for Motor Vehicle Testing in Makassar (Case Study of the Motor Vehicle Testing Unit of the Makassar City Transportation Agency).

### **Data Collection Techniques**

The researcher's references were obtained during the research process, namely Data Collection Techniques. According to Juhanah et al. (2022), there are generally four types of data collection techniques: observation, interviews, documentation, and combination/triangulation (observation and interviews).

#### **Observation**

According to Nasution in Haki & Prahastiwi (2024), observation is a condition in which researchers conduct direct observations to better understand the context of the data within the overall social situation, thus obtaining a holistic (comprehensive) view.

#### **Interviews**

According to Esterberg in Pratiwi et al. (2022), an interview is a meeting between two people to exchange information and ideas through questions and answers, thereby contributing meaning to a particular topic. The informants selected by the researcher can be seen in Table 3.2 below.

#### **Documentation**

According to Yonggom (2024), documentation is the collection of records of past events, whether in writing, drawings/photographs, or monumental works by a person or institution.

#### **Triangulation**

According to Nurfajriani et al. (2024), triangulation is a data collection technique that combines various existing data collection techniques and data sources. In triangulation, researchers use different data collection techniques to obtain data from the same source.

## **RESULTS AND DISCUSSION**

This was aimed at learning how the process of the digitization of motor vehicle testing in Makassar interacts with service quality dimensions, which were tangibility, reliability, responsiveness, assurance and empathy. The results show significant change in service provision with also some remaining tensions between digital innovation and inertial bureaucracy.

## Quality of Service by using the Digitalization of Motor Vehicle Testing System for vehicle users in Makassar City

*"The UPTD ensures that services are met by implementing strict standard operating procedures (SOPs) and overseeing every stage of the service process. Furthermore, coordination between departments and regular monitoring are carried out to ensure all processes run according to schedule and meet expected quality." Some frequently encountered obstacles include limited human resources, inadequate equipment, and technical challenges such as IT system disruptions. Furthermore, high customer volumes at certain times can also impact service speed. When errors or service failures occur, the UPTD has a handling mechanism that includes rapid evaluation, clarification with customers, and immediate corrective follow-up. This process is supported by a complaints system that makes it easy for customers to report problems directly" (Thursday, June 5, 2025).*

In addition to informants, researchers also interviewed vehicle users regarding service issues. a vehicle user, explained:

*"Yes, I have experienced service issues, such as delays in processing. However, when I filed a complaint, the staff responded quickly, provided explanations, and immediately made corrections, so the problem was resolved satisfactorily. There are clear SOPs that guide staff in carrying out their duties. These SOPs help maintain consistent service standards and ensure customer reliability." (Thursday, June 5, 2025).*

Furthermore, researchers interviewed other informants regarding physical evidence of the vehicle testing service. The interview results are as follows:

*"The physical appearance of the office is quite good and representative. The room looks clean, neatly arranged, and gives a professional impression. The service area is also quite comfortable for visitors. The equipment used is generally quite modern and functional. The computers, queuing system, and other supporting devices function well and help expedite the service process.*

*The staff appear neat and polite. They wear the required uniforms and demonstrate a professional attitude in serving the public. The communication materials are quite attractive and informative. The brochures are clearly organized, and the information on the website is relatively easy to understand. However, it would be better if the content is updated more regularly to maintain its relevance." (Thursday, June 5, 2025).*

Further interviews were conducted with other informants regarding the physical evidence of motor vehicle inspection services. The interview results are as follows:

*"The Technical Implementation Unit (UPTD) routinely cleans the facilities, both in the service area and internal workspaces. Cleaning staff are assigned daily, and there is a regular inspection schedule to ensure the environment remains clean, tidy, and comfortable for the public. In general, the equipment used in the service is in good condition. The UPTD conducts routine checks and maintenance on work equipment to ensure optimal function. Any damage is usually immediately addressed by the technical department. The UPTD sets appearance standards for staff, such as wearing uniforms, ID cards, and maintaining personal grooming. This aims to create a professional impression and make it easier for the public to recognize staff. "Regularly update communication materials, such as brochures, banners, information boards, and digital media. Updates are made in line with changes in policies, procedures, or new services, and are coordinated by the information or public relations department." (Monday, June 7, 2025).*

Regarding the question regarding the responsiveness of informants in implementing vehicle testing services, the researcher obtained information related to this from informants, as follows:

*"The staff responded fairly quickly. Every question I asked was answered within a reasonable time, and there were no annoying delays. The staff seemed ready and ready to help. They understood my problems and provided appropriate solutions without making me wait too long. I felt the staff provided adequate attention. They listened well and showed they cared about my needs." (Monday, June 7, 2025).*

Furthermore, the researchers also obtained information from informants regarding responsiveness. The interview results are as follows:

*"The UPTD provides training focused on rapid response skills, including case management simulations, effective communication training, and an introduction to service systems that support work efficiency. Staff are also trained to prioritize urgent or important requests. The UPTD has established standard operating procedures (SOPs) for handling complaints and urgent requests. These SOPs include the steps to be followed, the deadline for resolution, and who to contact if a case requires further investigation. Work schedules and task allocations are organized using shifts or rotations to ensure staff are always available during operating hours. Furthermore, staff attendance is regularly monitored to ensure optimal service delivery. Within the established limits of authority, staff have the freedom to make direct decisions to resolve customer issues quickly. For more complex cases, they are directed to immediately coordinate with their superiors to ensure the resolution process remains efficient." (Thursday, June 10, 2025).*

A similar sentiment was echoed by another informant, Asdar. The following is an interview with him:

*"The UPTD regularly provides information and updates to staff regarding the latest services, policies, and procedures. Furthermore, manuals or work guides are provided to ensure staff fully understand their responsibilities and service flow. Regular training is conducted covering communication skills, public service ethics, and how to handle customer complaints professionally. This training aims to improve the quality of interactions between staff and the public. The UPTD builds trust by maintaining consistent service, providing clear and transparent information, and responding to complaints or feedback responsively. A commitment to fair and friendly service is also part of the effort to build public trust. Within certain limits, staff are given the authority to make decisions directly related to daily services, such as simplifying procedures or expediting services if necessary. For larger decisions, staff can submit recommendations to their superiors for prompt action." (Thursday, June 7, 2025).*

One informant's statement regarding the empathy received from motor vehicle inspection service officers, as follows from an interview:

*"The staff were quite understanding of my needs. They not only followed general procedures but also tailored the service to my specific situation and needs, providing me with personal attention. I felt like I was being served with a humane approach, not just as part of an administrative routine. I felt like this agency was trying to see my side. They listened with empathy and didn't jump to conclusions before fully understanding the problem, and I felt valued and treated well. The service I received demonstrated that my presence as a customer was important, not just a formality." (Tuesday, June 15, 2025).*

### **Supporting and Inhibiting Factors of the Quality of Motor Vehicle Testing Services at the UPTD PKB, Makassar City Transportation Agency**

The following are the results of internal interviews conducted by researchers with several informants regarding the supporting and inhibiting factors for the quality of motor vehicle inspection services at the Makassar City Transportation Agency's Technical Implementation Unit (UPTD PKB).

The Acting Head of the Makassar City Transportation Agency's Technical Implementation Unit (UPTD PKB), Abd. Asis Sila, outlined the supporting and inhibiting factors as follows:

*"We continue to improve our services, both in terms of human resources, facilities, and digital systems. We have implemented an online queuing system and the e-KIR application. We are also committed to maintaining integrity in our services. We have competent human resources; our inspection officers have certification and technical training that meets national standards. We have experienced and professional staff. The most prominent supporting factor is the availability of certified and experienced staff. We also have nationally standardized testing equipment. Support from the Agency and the Ministry of Transportation also strengthens the development of electronic-based services."*

Meanwhile, inhibiting factors include the continued overlapping of testing between neighboring districts, damaged testing equipment that takes a long time to repair and lacks regular calibration, the large number of vehicles required to be tested exceeding the dimensions and load limits that do not comply with applicable laws and regulations, and the lack of awareness among vehicle owners/users about timely vehicle testing (Thursday, June 17, 2025). Haryadi also made a statement regarding the supporting and inhibiting factors for the quality of motor vehicle testing services at the Makassar City Transportation Agency's UPTD PKB. The interview results are as follows:

*"Supporting factors related to service quality and the digitalization of motor vehicle testing systems include the existence of automated and digitalized systems for process efficiency, an integrated and digital service system, and the use of applications or information systems for vehicle registration and scheduling. Leadership commitment and clear regulations also significantly influence service quality, as well as support from the leadership of the UPTS (Service Unit) and the Makassar City Transportation Agency for improving service quality. This is clearly demonstrated by the existence of clear and consistently implemented Standard Operating Procedures (SOPs).*

Muh. Irhas expressed a similar sentiment regarding the above. The following is an interview:

*"I see that one of the supporting factors for service quality and the digitalized motor vehicle inspection system is the high level of public satisfaction and positive feedback from the public due to the fast, transparent, and professional service. Furthermore, there is no longer any collection of fees or brokering practices." (Thursday, June 17, 2025).*

## **Discussion**

### ***Service Quality Using the Digital Vehicle Testing System for Vehicle Users in Makassar City***

The methodological framework used in the study is based on qualitative research methodological approaches in which the research process provides descriptions of data. Qualitative inquiry is descriptive in nature; its methodological processes entail defining the subject, phenomenon, or the socio-environmental context of the research interest in narrative form. The research in question uses descriptive qualitative research design. Descriptive data are collected in mass in written form, obtained possibly through interview transcripts, field notes, photographs, personal records, and collateral official records. The methods of data-collection include semi-structured interviews, participant observations, and documentary analysis. The analytical stage is carried out in three major processes, namely data condensation, data presentation, and inferential synthesis, which follow validation processes. Credibility is assessed through long-term interaction, continued observation, triangulation, cross-checking, negative case analysis, referential adequacy, as well as member checks, and the evaluation of transferability, dependability and confirmability.

The authors of the study list tangible indicators as one of the main measurements of service success. In the sphere of service quality, tangible indicators are those physical evidence

or material qualities of service that customers can perceive, detect and evaluate in real time to construct customer perceptions. The following physical factors create a perception and regulate the judgment of customers towards the service quality. Within the context of Makassar City Vehicle Testing Unit (UPTD), tangible aspects include: (a) physical evidence in the form of the UPTD building, furniture in the waiting area, testing venue, and space layouts; (b) physical appearance of the premises, including cleanliness and comfort, that has an impact on what customers think of the quality of testing services; (c) physical testing equipment such as testing machines, waiting area furniture used; (d) person-uniformity, personal hair and hygiene, which are salient observable characteristics; (e) documentation arte Physical signs are usually the first impression that the customers face when they interact with a service provider. The perception of professionalism and the quality of services directly depend on the condition of physical facilities and the overall staff appearance. Although the quality of the procedures and friendliness of the staff cannot be neglected, the tangible features provide the physical and visual clues about the excellence of the service provider.

The Makassar City Technical Implementation Unit (UPTD) recognizes tangible manifestations, in other words, physical evidence of service as having a number of key components. This includes physical amenities like office blocks, waiting bays, washrooms and parking facilities. The condition of these facilities such as their hygiene and the degree of comfort is a direct measure of the quality of the services. Physical features also have a close relationship with the equipment used to test the motor vehicles which are emission test devices, braking systems, illumination units, speedometers, and other auxiliary equipment. Such equipment cannot be done away with, as its completeness, excellent condition, and calibration are critical factors in obtaining valid and reliable test results. The looks and proper arrangement of the service staff also form a part of the tangible aspect; neat uniforms and easily recognizable name tags bring a sense of business-like attitude and inspire a level of trust in the recipients of the service. The availability of informative brochures, informational panels, forms also belong to the tangible realm. The convenience that the general population will experience when accessing information related to the procedures, requirements, costs, and testing dates will have immense rewards.

Even though digitalization is a systemic innovation, the host to digitalization, the hardware of computers, monitors, printers, and the interface of the digital system (such as monitors at registration counters and electronic queuing systems) are physical evidence, which is experienced by the service users. The pace and dependability of these devices are also factors that affect service quality perceptions. In the departmental success, reliability refers to the ability to provide the promised services accurately, consistently and reliably. Based on this, Makassar City Vehicle Inspection (KIR) testing unit (UPTD) should be in a position to perform motor vehicle inspections according to the developed standard operating procedures (SOPs). Some of the features that can be seen as reliability in KIR inspection services include: adherence to schedule during the inspection as per the queue assigned, and meet the schedule on the procedures and processes as discussed; correct test results that follow the standards of the safety in using motor vehicles without faults; application of consistency and uniformity of testing processes to every vehicle without any unnecessary flexibility; access to the testing services by those who require them during the authorized times and accessibility of the same; speedy and precise solution of any problems or challenges that might arise during the testing process; and information available on KIR test prerequisite In the case of a digitalized system (e -KIR ), reliability of the system should be of paramount importance; the system should work properly, data should be stored safely, and information should always be easily retrievable.

In the context of service quality in Makassar Motor Vehicle Testing Unit (UPTD), reliability may be said to be the ability of the UPTD to make its services available in a consistent, accurate, and timely manner in accordance with the regulation standards and promises that the UPTD made to the people, and hence reflects the extent to which people can trust the UPTD to discharge

its duties. As revealed in the interview, reliability indicators at Makassar Technical Implementation Unit (UPTD) are likely to highlight several critical aspects: the interviews are likely to highlight whether the motor vehicle testing (KIR) processes are standardized and consistent to all applicants and they are not discriminatory. Reliability is also related to accuracy of test results whereby the tools and methods used are assured to produce valid and responsible data. This makes sure that only vehicles that go through the test are actually road worthy, and the vice versa. Reliability, in the context of digitalization occurs in close connection with the stability and optimal operation of the digital systems that have been deployed (such as online registration system, vehicle database, or electronic payment system). The interviews can emphasize the rate of system malfunctions, the rapidity of the system response, or the user-friendliness of the digital applications. A reliable system is one with minimum downtimes, and constant availability whenever the service is needed.

Timeliness of the testing process is also included in the aspect of reliability. This includes the length of the queue and the time lag taken to pass through all the stages of testing, that is, registration until the receipt of the KIR book or electronic certificate. When the service time is within the time that is estimated or even greater, it means increased reliability. Stability of officers in following procedures is another aspect; in interviews one can evaluate whether officers follow relevant SOPs consistently. Trustworthy officers know their roles and duties, do not make mistakes in procedures and provide some valid information to the applicants. Reliability is also depicted in the ability of the UPTD to effectively and responsively respond to the complaints or issues that come up. In case of data errors, human errors, or technical problems, how the UPTD will react and solve them within a short period of time and satisfactorily will reflect the level of reliability. According to the interviews, responsiveness at Makassar Motor Vehicle Testing Unit (UPTD) refers to the enthusiasm and eagerness of the UPTD and the people working in it to support the applicants to provide timely, accurate, and responsive services to the emerging requirements or complexities. This does not just relate to physical high speed but also the mental alertness and willingness to provide help.

Based on the interviews, we can point at such indicators of responsiveness in Makassar UPTD: the pace of registration processing, tests, and publication of results; the duration of waiting in the queue and in the testing room; and how this speed can be expected to be increased with the digitalization system. The concerns about the duration of the process indicate that the responsiveness would have to be improved. Such responsiveness also includes the readiness and timeliness of officers to answer questions, give advice, or help applicants who have problems, be it in the filing of forms, the use of the online platform, or in the understanding of how things work. An attentive officer will be proactive to provide help without the need of him or her being solicited a number of times. Handling complaint and problem is also indicated in terms of effectiveness and rapidity of the UPTD to pursue complaints or problems lodged by applicants. Responsiveness can be reflected by the availability of a clear mechanism of complaints and the expediency of responses and resolutions. Lack of responsiveness manifests itself through a sluggish or insufficient response. The indicator also includes the availability of the information required by the applicants easily, either by informational boards, brochures and electronic systems, or by the availability of the staff that can be contacted in case of need or clarification. An active UPTD will guarantee that applicants do not face any challenges in finding information or employees when they are needed. The responsiveness can also be considered in some contexts as the ability of UPTD to adjust to the situation or needs of the applicants within the framework of regulatory limitations, that is, in case of any unexpected technical problem or urgent need which can be met.

On the whole, the interview findings on responsiveness at Makassar UPTD give a picture of the UPTD pro-activeness and timeliness in addressing the needs and expectations of the applicants and responsiveness to different scenarios during the vehicle inspection service delivery process. According to the interview findings, assurance in Makassar Motor Vehicle Testing Unit (UPTD) will be defined as the ability of the staff to instill trust and confidence to the

applicants based on his or her knowledge, qualitative behavior and certainty in the services provided. The construct is related to the fact that the UPTD is able to assure the citizens that they are under safe hands and that the process of proceedings and consequent results are trustworthy. Some of the indicators of assurance that will be present at Makassar UPTD will include the following: the interview data will focus on whether the applicants believe that the people in charge of the examination and other personnel have technical and procedural background knowledge. When the staffs provide the answers properly to the questions, define the procedures clearly, and demonstrate the command over the appropriate regulations, the level of confidence that the applicants have towards the reliability of the provided service is likely to increase. Another element of assurance includes the good manners, cordiality as well as professionalism that is displayed by employees. Incivility in communications, positive body language and personal credibility (e.g. no sign of extortion or favoritism) are expected to have a significant strengthening effect on trust. The candidates must hence feel that the employees are moral and reliable.

Assurance also includes the feeling of insecurity by the applicants in the UPTD location and this in terms of physical security (e.g. there are secure testing zones, security guards) and in terms of security of personal information and vehicle documents submitted. This later translates to the security of the systems and the privacy of the data typed in the context of digitalization. Interviews can also bring about the general perception of the UPTD in the general public. An excellent reputation, which is based on positive experiences with the previous clients or positive comments, will automatically increase the feeling of confidence among the new candidates. On the other hand, the broadcasting of adverse matters may cripple this facet. Although it shares the same element as reliability, the assurance dimension also encompasses the consistency of the UPTD in implementing the rules and testing standards without any discrimination. Once the applicants will see that all the vehicles are checked in accordance with the same criteria and that there are no such practices as backstabbing, they will gain confidence that the process is fair and the results are legitimate. As a whole, the interview findings about assurance in Makassar Technical implementation unit (UPTD) will provide a summary of how the UPTD has performed in building public trust and confidence hence giving the applicants a feeling of safety and certainty that the KIR inspection services they are provided with are accurate, honest, and professional.

According to the findings of the interview, empathy at Makassar UPTD Motor Vehicle Inspection Unit (UPTD) is the capacity of the staff members to understand and feel the emotions of the applicant and to pay personal and individual attention. This involves having employees go past the administering of procedural services and expressing true concern and attempts to place themselves in the mindset of the applicant. According to the interviews, the hints of empathy in the Makassar UPTD will likely bring to light the following aspects: the interview data will most likely show how the officers pay sufficient attention to each applicant, and do not see them as numbers in the queue. This may be traced in the way how the officers welcome them, listen to complaints or the questions asked, and show the awareness of the individual circumstances of the applicant. Empathy also is expressed in the ability of the officer to speak directly and in a calm manner using the language that can be easily understood by a very wide audience of applicants. Being presented with technical terms, a person with empathy as an officer will strive to make explanations easier or give unmistakable instructions. It is especially essential with applicants who might not be as acquainted with technology or procedural complexity.

A compassionate police officer will attempt to find out the particular issues or needs of the applicant. As an example, does the officer show a level of understanding and suggest solutions where possible, in case the applicant seems rushed? Or does the officer of his/her own initiative assist an applicant when the latter is confused? Empathy is based on friendliness and respect. The interviews can tell whether the officers are always polite and non-judgmental and respectful to every applicant, irrespective of his/her background. The lack of empathy would be conveyed by cold or indifferent attitude. Although such established procedures exist, there are some situations that sometimes require flexibility or extra initiative on the side of officers. Empathy could be

expressed through the willingness of the officers to go the extra mile such as giving directions on where to go in another part of the building when that area would need specific location when it would need its own separate area of the building or even giving some practical advice on the services after the test is done as long as it is within their authority and ethical boundaries of offering the service. In general terms, the outcomes of the interview related to empathy in the Makassar UPTD will provide the general picture of how UPTD employees strive to develop positive relationships with applicants, show their actual interest, and make the latter feel valued and heard during the KIR test service process.

### ***Supporting and Inhibiting Factors for the Quality of Motor Vehicle Testing Services***

Motor vehicle inspection services at the Makassar City Transportation Agency's Technical Implementation Unit (UPTD PKB) are a crucial part of the government's efforts to ensure the safety and roadworthiness of vehicles operating on the highway. To achieve excellent service, various factors influence service quality, both supporting and hindering its implementation. In general, several supporting factors have strengthened service quality at the Makassar City UPTD PKB. One of these is the availability of competent human resources, with testing officers having received certification and technical training in accordance with national standards. The availability of relatively adequate testing facilities and equipment, particularly modern equipment that meets Ministry of Transportation standards, contributes to the ease and speed of the testing process. Furthermore, the implementation of digital-based service systems, such as online registration, has helped improve service efficiency and transparency. The commitment of UPTD management and clear regulatory support also provide a strong foundation for professional task performance. Equally important, the high level of public satisfaction with the fast, friendly, and transparent process demonstrates a positive perception of the quality of service provided.

Motor Vehicle Inspection Services are a crucial part of the government's efforts to ensure the safety and operational roadworthiness of vehicles on the road. However, in its implementation, there are a number of inhibiting factors that affect the quality of services provided by the Regional Technical Implementation Units (UPTD) for Motor Vehicle Inspection. The following are some of the main factors hampering these services: One of the main obstacles is the limited number of inspection officers and uneven technical qualifications. In some cases, one officer must handle tens to hundreds of vehicles per day, resulting in slow and suboptimal service. Furthermore, some officers are not officially certified by the relevant agencies, which can affect the accuracy and quality of vehicle inspections. Some of the testing equipment used is old and has deteriorated, such as exhaust emission testers, brake testers, and speedometer testers. Lack of routine maintenance and delays in procuring new equipment disrupt the service process. This has a direct impact on service delays and diminished public trust. The Regional Technical Implementation Unit (UPTD) often faces budget constraints, particularly for maintaining testing equipment, developing information systems, and increasing human resource capacity.

As a result, service innovations such as digitizing queues, online-based applications, or continuing training for officers cannot be implemented optimally. Most service users still have little understanding of the importance of regular motor vehicle inspections. Many assume that paying vehicle tax covers the vehicle inspection (KIR) or only apply for the inspection after receiving a penalty. This highlights the need for more intensive public education and outreach. There is still widespread sharing of vehicle inspections between neighboring districts. e) These inhibiting factors are interrelated and can have a cascading effect, reducing the speed, accuracy, and public satisfaction with motor vehicle testing services. Therefore, a strategic and integrated approach involving technical, managerial, and public participation is needed to improve service quality comprehensively. However, despite these advances, several inhibiting factors remain, posing challenges to improving service quality. One major obstacle is the continued overlap of testing between neighboring districts, which leads to an imbalance in the number of mandatory

tests and potentially reduces service quality. Furthermore, the lack of regular calibration of some testing equipment also hinders the accuracy of vehicle test results.

## CONCLUSION

The impact of the service quality of the digital vehicle testing system consists of five indicators: tangible, reliability, responsiveness, assurance, and empathy. This is evident in the availability of facilities and infrastructure for the vehicle testing service that are readily accessible and accessible to vehicle users. This includes the availability of a representative testing building, the absence of long queues during the vehicle testing process, the use of standardized and calibrated testing equipment, certified and competent testing staff capable of addressing and providing solutions to user complaints, and consistent enforcement of applicable regulations. Consequently, vehicle users are satisfied with the service quality of the digital vehicle testing system. Supporting factors for the service quality of the digital vehicle testing system include: competent human resources, adequate testing facilities, an integrated and digital service system, leadership commitment and clear regulations, a high level of public satisfaction, free vehicle testing fees, and the elimination of brokering practices. Meanwhile, the inhibiting factors for the quality of service of the digitalization system for motor vehicle testing include: there is still a lack of testing between adjacent districts, damaged testing equipment takes a long time to be repaired and is not calibrated regularly, the large number of vehicles required to be tested exceeds the dimensions and load limits that do not comply with applicable laws and regulations, and the lack of awareness among vehicle owners/users to carry out motor vehicle testing in a timely manner.

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