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# AN ANALYSIS OF ELECTRONIC SERVICES QUALITY IN INTELLECTUAL PROPERTY USING GAP ANALYSIS AND IMPORTANCE PERFORMANCE ANALYSIS (IPA) AS PUBLIC SERVICE QUALITY IMPROVEMENTS

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## ABSTRACT

This study measures the quality of Intellectual Property (IP) service accessed through websites (e-services) as the main characteristics of services. It is conducted by reviewing the expected service and the perceived service of service users. The research used an instrument adapted from the E-GovQual model and which was modified according to the characteristics of IP e-services. The calculations and analysis of this study was carried out using gap analysis and importance performance analysis (IPA) techniques on 404 user ratings through online surveys. The results of this research show that the quality of IP e-services implementation has not fully met the needs and expectations of users (96% conformity level or 100%). The main cause of gap in the quality of IP e-services today is caused by gap in the dimensions of support for the public (citizens support; gap score -0.29) and efficiency (efficiency; gap score -0.26). In terms of the IP service standard policy, several important components have not been fully and clearly regulated, both in the delivery process and in the management of services organized electronically. As a priority aspect, building public trust and confidence need to be improved. The supports to the users through information, interaction and transactions are needed to be optimized. Improving service standard policy is a strategy that DGIP needs to consider in meeting the current needs for a better quality of IP e-service.

**Keywords: public service quality; e-government; intellectual property, DGIP**

## INTRODUCTION

### Background

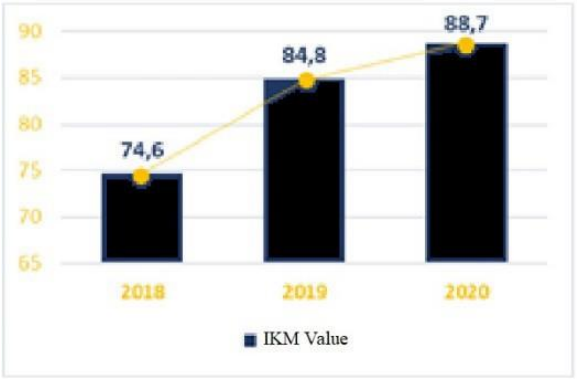
Government's main pressure these days is to obtain high public satisfaction and achieve excellent performance in public service delivery. In particular, this pressure faced by the Directorate General of Intellectual Property (DGIP) as the service provider of the Ministry of Law and Human Rights in the field of intellectual property. As has been reported in several previous studies, such as in Jazuli's study, the efforts to realize excellent public services that have been carried out by GDIP have not succeeded in improving the quality of services significantly. There were various challenges faced in the implementation process. In the end, the efforts to improve the quality of services have not been able to eliminate the existing problems. [1]

1 Ahmad Jazuli, "Penyelesaian Permohonan Pendaftaran Paten Dalam Rangka Peningkatan Layanan Publik," *Jurnal Ilmiah Kebijakan Hukum* 12, no. 3 (2018): 234.

In line with this, the results of a study conducted by Nizar revealed that as a very complex service provider, the innovation in providing online-based services by DGIP is not yet parallel with the achievement of high public satisfaction perceptions, especially regarding the aspect of service completion time.[2] This means, regardless various innovations in improving service quality, including transforming service delivery for the service users through information and communication technology, these innovations are not enough to achieve optimal result. They are insufficient in encouraging the realization of excellent service quality and in obtaining a high perception of community satisfaction as a whole.

By looking through the data of public satisfaction towards DGIP in the last three years (2018-2020), it shows that the community satisfaction index (IKM) towards DGIP service experienced a significant increasing trend in the 2018-2020 period.

**Graph 1. Trends of the DGIP Community Satisfaction Index in 2018-2020**




Source: *The 2018 DGIP SME survey report data and the 2019-2020 community satisfaction index (IKM) survey results data from the 3A Balibangkumham (Agency of Research and Development of Ministry of Law and Human Rights) application, processed by researchers.*

2 Nizar Apriansyah, "Jurnal Ilmiah Kebijakan Hukum," *Jurnal Ilmiah Kebijakan Hukum* 14, no. 1 (2020): 127.

However, if the results from the assessment of community satisfaction perception towards the services are seen as a feedback to improve service quality, they can be valuable information for the organization in determining corrective steps and improving the quality of services. There are some things that need attention, especially related to several elements and aspects of services that are always identified as obstacles in increasing community satisfaction. For example, by looking at the results from people's perceptions assessment of satisfaction in the last three years, the continuous low performance score is related to the aspects of the procedure / service flow, the period of service completion, and handling complaints.[3] [4] [5]

On the other hand, in the context of public organizations, there are several factors that make the managers (leaders) of the organization unable to formulate and determine steps to improve service quality appropriately by utilizing the results of measuring community satisfaction. One of which is the managers do not get complete and specific information from the results of service quality measurement that has been carried out. This condition results on the

3 DJKI dan Balitbangkumham, *Laporan Tim Pelaksana Survei Indeks Kepuasan Masyarakat Dan Indeks Persepsi Korupsi Direktorat Jenderal Kekayaan Intelektual Kementerian Hukum Dan Ham* (Jakarta, 2018), 21, https://dgip.go.id/index.php/unduhan/download/laporan-survey-kepuasan-masyarakat-pada-direktorat-jenderal-kekayaan-intelektual-kementrian-hukum-dan-ham-tahun-27-2018 di akses pada tanggal 26 Februari 2021

4 3AS Survey Management, Indeks Kepuasan Masyarakat dan Indeks Persepsi Korupsi DJKI tahun 2020, https://survei.balitbangham.go.id/ survey di akses pada tanggal 26 Februari 2021.

5 Markplus Indonesia, *Laporan Akhir Analisis Hasil Survey Indeks Kepuasan Masyarakat Direktorat Jenderal Kekayaan Intelektual ( DJKI )* (Jakarta, 2019), 11, https://www.dgip.go.id/unduhan/download/hasil-survey-kepuasan-masyarakat-djki-2019-di-6-provinsi-oleh-lembaga-independen-27 di akses pada tanggal 26 Februari 2021

lack of identification on what service quality should be improved first and how to improve it appropriately in order to meet the expectations and needs service user community.[6]

Winiewski defines that service quality in the public sector has a wider scope. It has more complex services and heterogeneous service user segments. Therefore, measuring service quality in the public sector is much more complex than in the private sector.[7] In addition, the surveys conducted tend to focus on measuring public perceptions or how people feel about the services they received. The results of this measurement are important as evidence of service delivery accountability to the community. However, for service provider organizations, the information obtained from the survey results is inadequate to be used in formulating and appropriately determining improvement strategies to meet the expectations and needs of service users. It is because the results of this survey do not provide an opportunity for service users to articulate expectations (expectations and needs) directed to the service provider.[8] Therefore, the complexity of costumer satisfactory in public service, according to Gaster, is not only a matter of expressing perceptions of services but also finding out undisclosed needs, setting priorities for improvement, allocating resources to improve service quality and being accountable for what has been implemented to the community.[9]

Previous studies have helped in expanding the view in public service sector quality. These studies not only focus on public experienced perception but also on public needs or expectation towards the services they received. Comparing the two can illustrate how far the service quality has met the public expectations of service users. For example, the study conducted by Shafira, et al. observed the gap between expectations (services that will be expected) and perceptions (perceived services) of service users in measuring the quality of E-KTP services.[10] Saputra et al., Wahyuni, et al., Wijatmoko and Siregar, measured the quality of government electronic services (E-Government) which was accessed through website, using the E-GovQual dimension (E-Government Quality) and observed the gap between public expectations and perceptions of service users.[11][12][13]

This study attempts to do similar research to previous studies in a different public service area. Moreover, there have not any studies which specifically review the quality of Intellectual Property electronic

6 Mik Winewski Alan Neilson, Diane McGriffen, Derek Stewart, *Can't Get No Satisfaction? Using a Gap Approach to Measure Service Quality* (Edinburgh: Accounts Commision for Scotland, 1999), 3, publications@scot-ac.gov.uk.

7 Mik Wisniewski, "Using SERVQUAL to Assess Customer Satisfaction with Public Sector Services," *Managing Service Quality: An International Journal* 11, no. 6 (2001): 380–388.

8 Alan Neilson, Diane McGriffen, Derek Stewart, *Can't Get No Satisfaction? Using a Gap Approach to Measure Service Quality*, 3.

9 L. Gaster, Quality in Public Services: Managers' Choices, Buckingham: Open University Press (Public Policy and Management), 1995. https://doi.org/10.1002/hpm.4740100213, 147-148.

10 Shafira Rizq, Moh Djemdjem Djamaludin, and Yani Nurhadryani, "Analysis of Service Quality Satisfaction of E-Ktp Service At Public Administration and Civil Registration Office of Bogor District," *Journal of Consumer Sciences* 3, no. 2 (2018): 55.

11 Rino Agus Saputra, Suprapto, and Aditya Rachmadi, "Penilaian Kualitas Layanan E-Government Dengan Pendekatan Dimensi EGovqual Dan Importance Performance Analysis (IPA) (Studi Kasus Pada Pemerintah Provinsi Nusa Tenggara Barat)," *Jurnal Pengembangan Teknologi Informasi dan Ilmu Komputer* 2, no. 5 (2018): 1794–1802.

12 Evi Wahyuni EDW, Dharma Pradana, and Yasina Karina, "E-Government Service Evaluation of Batu City Health Dept.Using e-Govqual Approach and IPA Analysis," *Proceeding of the Electrical Engineering Computer Science and Informatics* 5, no. 5 (2018): 734–737.

13 T.E. Wijatmoko & M.U. Siregar, "Evaluation of E-Government Service Quality Using e-GovQual Dimensions," *IJID International Journal on Informatics for Development* 8, no. 2 (2019): 55–61.

services using the gap model approach and the E-Govqual dimension as an instrument. Several studies that have been conducted, for example by Nizar and Jazuli, applied different measurements and instruments in reviewing Intellectual Property of public services.[14] [15] By using the gap approach and the dimensions of E-Govqual as a measurement instrument, this study seeks to obtain more adequate information about the public expectations and perceptions of users who accessed government electronic services through websites.

As stated by Freddy Harris, when serving as Director General of Intellectual Property, considering the complexity of the services provided, there are still many things that need to be upgraded in terms of improving the quality of services. Thus, more complete and specific information are needed from community satisfaction measurement result. They are needed to improve the quality of Intellectual Property services.[16] As a complex service provider that has various service delivery procedures and face heterogeneous service user segments, it can be understood that DGIP requires more specific and in-depth information from the results of service quality measurements. Accordingly, the results of this measurements can be used to identify and set a priority of the areas or service aspects that need to be improved. They can also be used for DGIP to be able to perform appropriate improvement, in accordance with the expectations and needs of the community.

Based on this background, the measurement of the quality of services organized by the DGIP needs to be carried out specifically and in-depth, through a study and utilization of specific instruments (measuring instruments) to measure the quality of government electronic-based Intellectual Property services which sent through the service website, as well as adopting the E-GovQual Model instrument which has been designed and developed by Papadomichelaki and Mentzas.[17] In addition, this measurement should be adapted according to the characteristics of the DGIP service which is delivered in full through the service website (e-service).

A more in-depth analysis is conducted to see the gap between the public's perception of the perceived service and the community's expectation of the service provided (gap analysis). Then, observations are made on the service standard policies that have been set and compare them with the arrangements related to the preparation, determination and implementation of public service standards in Indonesia. Mapping is carried out to identify areas and aspects that require top priority in improving the quality of current services by using importance-performance analysis (IPA). The results of this study are expected to provide more complete and specific information to assist DGIP in determining the appropriate service quality improvement strategy, in accordance with the expectations and needs of the current service user community.

## Research Questions

Based on the background of the study, there are two research questions in conducting this study:

14 Nizar Apriansyah, "Analisis Layanan Publik Permohonan Pendaftaran Kekayaan Intelektual," *Jurnal Ilmiah Kebijakan Hukum* 14, no. 1 (2020): 75–90.

15 Ahmad Jazuli, "Penyelesaian Permohonan Pendaftaran Paten Dalam Rangka Peningkatan Layanan Publik."

16 Humas DJKI, https://dgip.go.id/index.php/artikel/detail-artikel/tingkatkan-kualitas-kepuasan-pelayanan-publik-djki-gandeng-balitbang-hukum-dan-ham?kategori=Berita%20Resmi%20Paten diakses pada tanggal 24 Februari 2021.

17 Xenia Papadomichelaki and Gregoris Mentzas, "E-GovQual: A Multiple-Item Scale for Assessing e-Government Service Quality," *Government Information Quarterly* 29, no. 1 (2012): 107, http://dx.doi.org/10.1016/j.giq.2011.08.011.

1. How is the quality of Intellectual Property electronic services (e-services) in meeting the expectations and needs of the community? Is it in accordance with the principles and components of public service standards in Indonesia?
2. What is the right strategy to improve current Intellectual Property electronic services (e-services)?

**Objectives**

Based on the research questions, the objectives of the study are to:

1. Obtain more comprehensive information of DGIP electronic service (e-service) quality level based on the perceptions and expectations of the current service users.
2. Draw a strategy to determine corrective steps and improve service quality appropriately, in particular to meet Intellectual Property service user's expectation and needs sent through website.

**Research Methods**

**1. Approach**

This study employed quantitative approach. According to Creswell, quantitative approach allows researchers to gather numerical data using instruments and sample, and statistically analyze relation between variables or hypotheses.[18]

**2. Method of Collecting the Data**

Cross Sectional survey method was used to collect primary data. The survey was only conducted once to the sample.[19]

**3. Scope**

In this study, the measurement of service quality focused on three types of Intellectual Property services. They are registration of trademarks, patents and copyrights. The reason of choosing the three types of services is based on the main characteristics of similar services. They are delivered in full through the service website (e-services). This means that all phases in the service delivery process, starting from the delivery of information, service delivery and delivery of the final service product to service users are carried out electronically through the website.[20]

**4. Sample collection technique**

The target population in this study includes a segment of electronic Intellectual Property services users, both internal and external. These users already received complete services or have received (downloaded) an Intellectual Property registration electronic certificate (e-certificate) in 2020. Internal user segment, or Intellectual Property service operators, are IP Consultant and IP Centre. External users include personal/ communities or business entity who directly access electronic service.

The probability sampling with a disproportionate stratified random sampling approach was used in determining the number of samples. The calculation of the sample size of the target population (global sample) and each sub-target population using measures (formulas) refer to the sampling method applied to social research developed by Prijana[21]. Based on the calculations, using an error rate of 5% and the chances of being selected/ not selected to be a sample of 50% each, the results are obtained as shown in the following table:

18 John W. Creswell, *Research Design : Qualitative, Quantitative, and Mixed Methods Approach*, 3rd ed. (London: SAGE Publications, Inc, 2009). 145-146.

19 Ibid. 146.

20 A. Parasuraman, Valarie A. Zeithaml, and Arvind Malhotra, "E-S-QUAL a Multiple-Item Scale for Assessing Electronic Service Quality," *Journal of Service Research* 7, no. 3 (2005): 217.

21 Prijana, *Metode Sampling Terapan Untuk Penelitian Sosial*, 1st ed. (Bandung: Humaniora, 2005) 42.

**Table 1. Sample Calculation and Allocation Results**

| P | E-Service Type | Global Population Sample | | Sub-population Sample (disproportionate stratified sample) | |
|---|---|---|---|---|---|
| | | Frequency | Percentage | Frequency | Percentage |
| $P_1$ | Brand service Users | 79 | 20,61% | 114 | 30% |
| $P_2$ | Patent service Users | 1 | 0,38% | 76 | 20% |
| $P_3$ | Copyright service Users | 301 | 78,97% | 191 | 50% |
| | *Total* | 381 | 100% | 381 | 100% |

Source: Directorate General of Intellectual Property (DJKI). Processed by researchers based on Trademark, Patent and Copyrig of 2020 e-service users data

## 5. Method of Analyzing the Data

GAP analysis- Service Quality Model[22] and Importance Performance Analysis (IPA)[23] are used to analyze the data.

### a. Gap Analysis

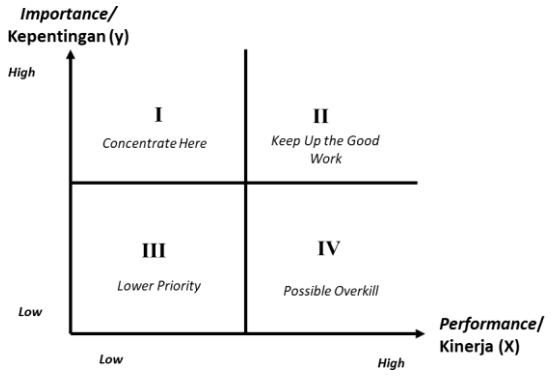
According to Parasuraman and Zeithaml, service quality from the perspective of Gap is defined as the difference between customer expectations and perceptions of perceived service. If expectations are greater than service performance, the quality is sensed to be less satisfactory, which then lead to the occurrence of customer dissatisfaction.[24] Gap score is calculated by comparing perception mean value and expectation mean value ***[ G=P-E ]***. Gap Score analysis is carried out on three levels, based on Shafira,et al. study, the three levels are[25]:

- Gap on each service aspect
- Gap on each service dimension
- Independent calculation on service quality to compare it with each observed service type

### b. Importance Performance Analysis-IPA

IPA was performed to highlight the needs for improvement area based on users' needs and expectations. As Yulianti said, this analysis technique is used to identify the priority on service quality improvement by finding which elements of the service considered poor, which elements in need of improvement and which elements are well performed and should be maintained.[26] The analysis is performed by mapping all the expectations and perceptions mean values (mean) into the four quadrants of the Cartesian diagram. Cartesian diagram is devided into four quadrants as explained by Martilla and James:

**Picture 1. Cartesian Diagram of Importance-Performance Analysis (IPA)**




22 A Parasuraman and Valarie A Zeithaml, "A Conceptual Model of Service Quality and Its I-Mplications for Future Research" 49, no. 1979 (1985): 41–50.

23 John Martilla and John James, "Importance-Performance Analysis: An Easily Applied Technique for Measuring Attribute Importance and Performance Can Further the Development of Effective Marketing Programs.," *Journal of Marketing*, 1977. 78.

24 Parasuraman and Zeithaml, "A Conceptual Model of Service Quality and Its I-Mplications for Future Research."

25 Shafira Rizq, Moh Djemdjem Djamaludin, and Yani Nurhadryani, "Analysis of Service Quality Satisfaction of E-Ktp Service At Public Administration and Civil Registration Office of Bogor District," *Journal of Consumer Sciences* 3, no. 2 (2018): 58.

26 Yayu Yulianti, "Analisis Kualitas Pelayanan Pendidikan Dengan Menggunakan Gap Analysis Dan Importance Performance Analysis (Ipa) Pada," *Jurnal Pendidikan Ekonomi,* 6, no. 2 (2017): 127.

Source: Adapaion of Martilla and James's "Importance Performance Analysis", Journal of Marketing, 1977.

The explanation of each quadrant is presented below:

- Quadrant I *Concentrate here - high importance & low performance*. Services features in this quadrant are considered very important by service users, but the perceived performance is still very low. Therefore, service features in this quadrant are considered to affect service user satisfaction and service providers must make improvement on the featured on this quadrant priority to enhance service quality.
- Quadrant II K*eep up the good work - high importance & high performance*. Service features in this quadrant are user satisfaction supporting factor. Thus, service provider must maintain features performance that fall in this quadrant
- Quadrant III lower priority - *low importance & low performance*. The service features in this quadrant have a low level of satisfaction and is considered not very important or not very expected by service users. Thus, the service features in this quadrant can be made a second priority in improving the quality of service. The service features in this quadrant can be done after the service provider improves and enhances the service features in quadrant I and quadrant II.
- Quadrant IV Possible Overkill - *low importance & high performance*. Service features in this quadrant are considered excessive, despite having a high level of performance satisfaction, service users consider these features are not very important or not needed at this time. Thus, service providers can reallocate resources on this feature to other features that require effort and in priority to be improved or that are more important in supporting current service user satisfaction (for example, on service features in quadrant I or II).

## DISCUSSION

### Results of Validity and Reliability Tests

Prior to the main study—a quality assessment survey of Intellectual Property electronic services, a pilot study was carried out to obtain validity and reliability level of the assessment instruments design. Despite the instruments being adopted from E-GovQual which has been developed and validated through a strict process by Papadomichelaki and Mentzas, validity and reliability tests are still required because of the adjustments made for the study. The adapted instrument, E-GovQual, is a four-dimensional multiple-item scale to assess performance quality of a web-based governmental electronic service (e-Government) and is consisted of the following aspects: efficiency, reliability, trust, and citizen's support.[27] These dimensions are then modified according to electronic service business processes (service standards) of Intellectual Property. Hence, a pilot study on instruments design is important to ensure the validity and reliability level which will be used on data collection survey in the main study.

A pilot study was performed using data from 30 respondents of the population and using assessments from 3 (three) selected experts (expert judgement). Obtained data were then processed using IBM SPSS version 26 with Pearson product moment correlation coefficient and Cronbach's alpha test.

It is shown that $r_{count}$ values obtained from each item are greater than (>) 0,361 ($r_{table}$ value with a significance level of

27 Papadomichelaki and Mentzas, "E-GovQual: A Multiple-Item Scale for Assessing e-Government Service Quality," 108.

5%) on both expectation and perception questionnaire assessments (Table 2). Thus, it can be concluded that all assessment items (indicators) used in the study instruments are valid. Meanwhile, reliability test results are shown in Table 3.

**Table 2. Validity Test Results**.

| Dimension | Item | Corrected Item Total Correlation | | Description |
|---|---|---|---|---|
| | | Expectation | Perception | |
| Efficiency | EF.1 | 0,607 | 0,371 | Valid |
| | EF.2 | 0,803 | 0,433 | Valid |
| | EF.3 | 0,685 | 0,786 | Valid |
| | EF.4 | 0,720 | 0,733 | Valid |
| | EF.5 | 0,926 | 0,75 | Valid |
| | EF.6 | 0,683 | 0,824 | Valid |
| Reliability | RE.1 | 0,802 | 0,742 | Valid |
| | RE.2 | 0,659 | 0,771 | Valid |
| | RE.3 | 0,648 | 0,762 | Valid |
| | RE.4 | 0,770 | 0,662 | Valid |
| | RE.5 | 0,912 | 0,893 | Valid |
| | RE.6 | 0,894 | 0,789 | Valid |
| Trust | TR.1 | 0,731 | 0,681 | Valid |
| | TR.2 | 0,786 | 0,749 | Valid |
| | TR.3 | 0,783 | 0,779 | Valid |
| | TR.4 | 0,876 | 0,801 | Valid |
| Citizen Support | CS.1 | 0,794 | 0,877 | Valid |
| | CS.2 | 0,844 | 0,847 | Valid |
| | CS.3 | 0,762 | 0,797 | Valid |
| | CS.4 | 0,835 | 0,845 | Valid |
| | CS.5 | 0,875 | 0,805 | Valid |
| | CS.6 | 0,737 | 0,848 | Valid |

**Table 3. Reliability Test Results.**

| | Cronbach's Alpha Score | Destription |
|---|---|---|
| **Expectation** | 0,971 | Reliable |
| **Perception** | 0,969 | Reliable |

From the table above, it is shown that Cronbach's alpha scores of both expectation and perception instruments are greater than (>) 0,70. Therefore, it can be concluded that all items in the questionnaire are reliable study instruments. As recommended by Nunally, constructs or variables with Cronbach's alpha score of >0,70 are considered reliable.[28]

As previously mentioned, a second assessment in this pilot study was expert judgement. Selected experts included Officials from three government agencies which have concentration in the field of work of: evaluation of public services (Deputy for Public Services of the Ministry of Administrative and Bureaucratic Reform), information technology of government service applications (Directorate of Government Informatics Applications Services of the Ministry of Communications and Informatics), and survey methodology development (Directorate of Census and Survey Methodology Development of the Central Bureau of Statistics). Assessment was performed by using Delphi method through instrument assessment questionnaires and discussions. Consensuses were achieved upon several corrections on content and statement structures of the composed instruments (Table 4).

**Table 4. Assessment Instruments of Intellectual Property Electronic Services (e-services) Quality.**

| Dimension | Code | Item |
|---|---|---|
| Efficiency | EF.1 | Service website can be accessed easily |
| | EF.2 | Service website has clear and simple content |
| | EF.3 | Service website is well-adjusted to user's needs and corresponding service |
| | EF.4 | Service website has an effective searching feature |
| | EF.5 | Service website provides detailed standards and procedures which can be found easily |
| | EF.6 | Service website provides a real-time service status |
| | EF.7 | Displayed information is accurate and regularly updated |
| Reliability | RE.1 | Service website is always available and can be accessed anytime |
| | RE.2 | User account registration can be done easily and quickly |
| | RE.3 | Website services completion matches the displayed status |
| | RE.4 | Forms and e-certificates can be downloaded easily and quickly |
| | RE.5 | Service website page loads lightly and adjusts seamlessly to any device |
| | RE.6 | All functions in the service website operate and work normally in my browser |
| Trust | TR.1 | Service website pledges upon the warranty of user's account security and personal information |
| | TR.2 | Service website has sufficient security settings |
| | TR.3 | Requested data by the service website are appropriate to corresponding service requirements |
| Citizen Support | CS.1 | Service website provides complete and easy-to-follow guides or instructions for procedures of service |
| | CS.2 | Service website has a comprehensive Frequently-Asked-Questions (FAQ) page |
| | CS.3 | Service website has features to input complaints and questions |
| | CS.4 | Service employee responds swiftly to complaints and questions |
| | CS.5 | Given responses answer or resolve received questions and problems |
| | CS.6 | Website services are reliable and ensuring service requests to be processed accordingly well |

28 I. H. Nunally, J. C., & Bernstein, *Psychometric Theory (3rd Ed)*, 3rd ed. (New York: McGraw-Hill, 1994). 84.

**Survey Results of Intellectual Property Electronic Services (e-services) Quality Assessment (Main Study)**

As many questionnaires as 5.193 were sent to Intellectual Property electronic services users (Registration of Trademarks, Patents, and Copyrights) through Whatsapp contacts and e-mails. Among them, 474 questionnaires had been filled and returned, but only 404 were acceptable for assessment and analysis.

Qualified obtained data show a representation of respondents' distribution in following categories: 1) service user category: dominated by respondents from external user sub-category consisted of individual users with 278 respondents (68%) followed by Business Enterprise users with 53 respondents (13%), while respondents from internal user sub-category are mostly coming from Intellectual Property Centres with 59 respondents (15%) then Intellectual Property Consultants with 14 respondents (4%); 2) service request category: dominated by public requests as many as 317 respondents (79%) and of micro, small, and medium enterprise (UMKM) requests with 87 respondents (21%).

Next is 3) service type category: more than half of respondents are copyright e-service users with 258 respondents (64%), followed by 105 respondents (26%) of trademark e-service users, and the remaining 41 respondents (10%) are patent e-service users; Respondents are also shown as returning users of 262 (65%) and new users of 142 (35%) in 4) user type category.

In addition to categories explained before, respondents are also consisted of 259 male respondents (64%), 207 millennial (age 26-40) respondents (51%), and 270 postgraduate respondents (66%) with their respective pairs.

Calculation and Analysis of Intellectual Property Electronic Services (e-services) Quality Assessment Survey Results

Quality assessment of Intellectual Property electronic services (e-services) was conducted by comparing between public expectation (expected service) and perception (perceived service) towards the practice of Intellectual Property electronic services (e-services). This assessment was applied to N:404 respondents' data from the survey. Expected service and perceived service are two main factors in assessing service quality whether ones being conveyed conventionally or electronically through a website.[29] Hence, according to Berry et al., comparing these factors can help obtaining specifications of service quality improvements reckoned by customers and ultimately providing services expected or needed by customers.[30]

**Intellectual Property Electronic Services (e-services) Quality Level**

According to survey results data (N:404), total respondents' perception score and expectation score are (∑Xi) = 47.497 and (∑Yi) = 49.614, respectively. Therefore, conformity rate percentage between user expectations and e-services practiced by Directorate General of Intellectual Property (DJKI) is 96%.

$$\sum Tki = \left(\frac{47.497}{49.614}\right) \times 100\% = 96\%$$

Diving deeper into the acquired conformity rate, there are indications of several service quality performance aspects that haven't met user expectations. As shown by gap score calculation results (Table 5), the average value of total gap score of service

29 Fuji Rahayu Wilujeng et al., "Meningkatkan Kepuasan Pelanggan Pada Dua Bisnis E-Commerce Terbesar Di Indonesia Dengan Menggunakan Analisis Servqual Dan IPA," *Prosiding Seminar Nasional Sains dan Teknologi* (2019): 2.

30 Usman Ahmad Qadri, "Measuring Service Quality Expectation and Perception Using SERVQUAL: A Gap Analysis," *Business and Economics Journal* 06, no. 03 (2015). 1.

quality is -0,24, a quite significant number. Even though, gaps are spread all across service aspects and dimensions, they are especially prominent on citizen support and efficiency dimensions with values greater than the average of -0,29 and -0,26, respectively. This answers the question of which aspects have already met user expectations.

In particular, the gap size in citizen support dimension (CS) is caused by a significant gap in the aspect of employee responses to problems and questions by e-service users (item CS.4; gap score of -0,37). Meanwhile, the reason behind gap size in efficiency dimension (EF) is the aspect of information accuracy and update displayed on service website (item EF.7; gap score of -0,32). There's a possibility that the gap in service quality is a result of nonoptimal capability of e-services technical functions in fulfilling sociological elements needed by users, whether it's collecting quality information directly from the website or interacting with admins in order to get accurate, needed, and valid information or solutions real-time.

Differ from the previous two, reliability and trust dimensions have lower gap scores than the total average, respectively -0,21 and -0,19 despite having a higher expectation score. This indicates that the current technological functions of e-services are sufficient. Whether it's supporting service processes through accessibility and security features, both can suppress a greater gap score occurrence.

**Table 5. Total Average of Gap Score per Aspect and Dimension.**

| Dimension | Item | Average Perception Assessment | Average Expectation Assessment | GAP Score |
|---|---|---|---|---|
| Efficiency | EF.1 | 5,48 | 5,70 | -0,22 |
| | EF.2 | 5,36 | 5,61 | -0,25 |
| | EF.3 | 5,40 | 5,63 | -0,23 |
| | EF.4 | 5,32 | 5,55 | -0,23 |
| | EF.5 | 5,31 | 5,57 | -0,26 |
| | EF.6 | 5,21 | 5,52 | -0,31 |
| | EF.7 | 5,19 | 5,51 | -0,32 |
| *Average of Efficiency Dimension* | | **5,32** | **5,58** | **-0,26** |
| Reliability | RE.1 | 5,41 | 5,59 | -0,18 |
| | RE.2 | 5,42 | 5,64 | -0,23 |
| | RE.3 | 5,19 | 5,55 | -0,36 |
| | RE.4 | 5,49 | 5,67 | -0,18 |
| | RE.5 | 5,41 | 5,57 | -0,15 |
| | RE.6 | 5,43 | 5,60 | -0,18 |
| *Average of Reliability Dimension* | | **5,39** | **5,60** | **-0,21** |
| Trust | TR.1 | 5,46 | 5,58 | -0,13 |
| | TR.2 | 5,43 | 5,58 | -0,15 |
| | TR.3 | 5,46 | 5,60 | -0,15 |
| *Average of Trust Dimension* | | **5,45** | **5,59** | **-0,14** |
| Citizen Support | CS.1 | 5,38 | 5,59 | -0,22 |
| | CS.2 | 5,29 | 5,56 | -0,27 |
| | CS.3 | 5,26 | 5,54 | -0,28 |
| | CS.4 | 5,13 | 5,50 | -0,37 |
| | CS.5 | 5,22 | 5,54 | -0,32 |
| | CS.6 | 5,34 | 5,59 | -0,25 |
| *Average of Citizen Support* | | **5,27** | **5,56** | **-0,29** |
| **Total Average** | | **5,34** | **5,58** | **-0,24** |

Source: Based on data of 404 online survey respondents from 8 June–5 July 2021, processed by researcher.

Analysis data of respondents' answers to open-ended questions shows similar results. There are two service aspects which tend to be mentioned by e-service users while delivering their less pleasant or unsatisfactory experience. The first aspect is helpdesk performance, coded as many as 44,38% while the second aspect is service information with a coded frequency of 33,39%. This means that a lot of service users felt unsatisfied with current DGIP helpdesk performance and service information, especially in providing assistance and support to users, website's ease-of-access, and information quality.

Previous explanations have already emphasized that nonoptimal performance in citizen support and efficiency dimensions caused the occurrence of gaps and ultimately unattained conformity rate of overall Intellectual Property electronic services. Assistance to all segments of service user to get any information of the service is one of the most crucial factors in assessing e-services performance quality. Saha et al. explained in accordance to e-services quality that

service website is not only limited to facilitate service processes, but also a medium to communicate and share information to all of users.[31] Furthermore, according to Li and Suomi, information is the main aspect in any practice of service regardless of how it is being conducted (online or offline). Even though e-services differ from conventional services, they both depend on the flow of information interaction between users and service provider.[32] Therefore, prevention of having inadequate service quality in these particular dimensions or aspects should be taken into account.

### Service Quality Gap Difference

Other than gaps among aspects and dimensions, service quality gaps are also observed between service types and service users of Intellectual Property electronic services. In service types, quality gap is rather wide in Patent e-services with an average gap score of -0,57 (from average perception of 4,99 and average expectation of 5,56 (Graphic 2) and a lower conformity rate compared to Trademark and Copyright e-services. Meanwhile, the gap in Copyright e-services is far lower despite having the highest average user expectation (5,62) than the other two (Patent of 5,56 and Trademark of 5,51). This condition might be caused by a relatively shorter process from submission until completion in Copyright e-services compared to Patent and Trademark e-services. Because in both Patent and Trademark e-services, a verification process or an in-depth/detailed substantial examination is required.

The gaps in service quality that occur in Trademark, Patent, and Copyright e-services are primarily contributed by gaps within service aspects related to provided support to service users in obtaining quality information. This is included but not limited to the progress of requested service, but also appropriate solutions provided to problems faced by users in using Intellectual Property electronic services.

**Graphic 2. Gap Scores and Conformity Rates in Service Types.**

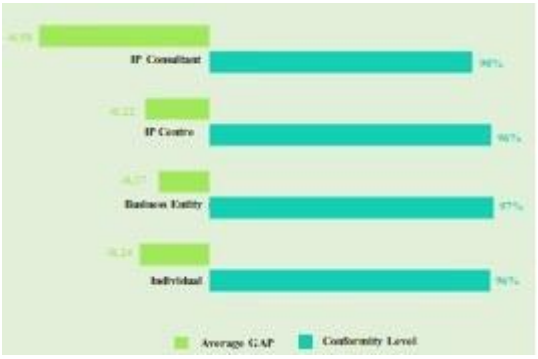

Source: Based on respondents' data of Trademark n:105, Patent n: 41, and Copyright n: 258, processed by researcher.

In the category of service users, a striking gap in service quality is seen on internal user sub-category, namely users of services from IP Consultants (Graphic 3). The data shows an average gap score of -0,58 and a lower conformity rate compared to other service user categories.

31 Parmita Saha, Atanu Nath, and Esmail Salehi-Sangari "Success of Government E-Service Delivery: Does Satisfaction Matter?," *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)* 6228 LNCS (2010): 204-215.

32 Hongxiu Li and Reima Suomi, "Evaluating Elextronic Service Quality: A Transaction Process Based Evaluation Model." *ECIME 2007: European Conference on Information Management and Evaluation* (2007): 331-339.

**Graphic 3. Gap Scores and Conformity Rates in Service Users.**




Source: Based on respondents' data of Individuals n:278, Business Enterprises n:53, IP Centres n: 59, and IP Consultants n:14, processed by researcher.

A significant difference in service quality gaps appearing in respondents from IP Consultants is contributed by the large gap that occurs in aspect of downloading convenience and speed of electronic certificates. Based on in-depth information obtained from open-ended questions, this gap is most likely be caused by changes in procedures in requesting and receiving e-certificates (trademark e-service) which can no longer be downloaded directly from service website. The procedure has to be done by requesting and downloading via e-mail. This is then considered to be less effective and efficient by service users, especially from IP Consultants. In contrast, gaps emerging in respondents from individual, Business Enterprise, and IP Centre categories are related to the timeliness of service completion.

However, through deep information processing, different perceptions were obtained among user on service completion time aspect. Some users who receive information and have reliable knowledge related to Intellectual Property service tend to be more receptive, including the process of completing Trademark and Patent services which take a relatively longer time.

Nevertheless, service users have high expectations for an increase in speed of service completion process. As stated by a respondent from a Business Enterprise who was using the Intellectual Property e-service for the first time, *"I am quite satisfied with the procedures implemented on the website which are quite clear and informative. So, every step can be followed properly. I suggest that the available information is easier to reach and understand, especially in a form of a simple and light FAQ (Frequently Asked Question).*" (IP.362-ed res).

The same thing was also expressed by a service user from an IP centre who had been using the service more than once. He stated that *the Trademark, Patent, and Copyright services were satisfactory, it's just the waiting time for the patent certificate was a bit long* (KI.283). Similar feedback was given by a respondent from the Individual category as a user who is new to Intellectual Property services (e-service Patents). "It's satisfying because the information is available. The process needs to be accelerated both from the checking time until it is finished" (KI.193).

From the differences in quality gaps that occur, it can be seen that each service and user require different handlings to improve the quality of current services. Therefore, it is important to create a balance by prioritizing quality improvements based on the needs of each service and the users who perceive the service. This will certainly close the gaps. Thus, all services provided have the same quality. In addition, all segments of service users have the same perception. They believe that applications for Intellectual Property services submitted through the service website will be processed properly, accurately, fair, and square.

In addition, the availability of a knowledge base related to the entire process of providing optimal, quality, and easy-to-access services, needs to be considered as something

important at this time. It is considered essential in order to build well-established knowledge for both service users and employee personnel involved in the process of addressing Intellectual Property services electronically. Moreover, the current condition shows that this matter in question tends to be an obstacle that always appears. It appears as a disturbance to the effectiveness and efficiency of an optimal Intellectual Property e-services implementation.

After that, the regulations related to the compiling, determination and implementation of public service standards need to be reviewed as the Ministry of State Apparatus Utilization and Bureaucratic Reform Regulation Number 15 of 2014 concerning Guidelines for Service Standards. Considering, the service standards that have been determined by the Director General of Intellectual Property to the three types of observed Intellectual Property electronic services show that the existing service standards have been composed by paying attention on the specifications of the service types which will be given to the public. It can be seen from the determination of the requirements, time, procedures and costs which in the Intellectual Property service standards are regulated in the Decree of the Director General of Intellectual Property of the Ministry of Law and Human Rights Number: HKI-01.OT.02.02 of 2017 Concerning the Determination of Property Service Standards, whether for Brands registration service (Trademark), Patents and Copyrights have different specifications among each other.

However, the service standard policies which are used as a guideline for service delivery and a benchmark or reference in assessing the quality of Intellectual Property service delivery have not yet fully paid attention to the important principles and components in the compilation, determination and implementation of public service standards. This condition happens both in the process of service delivery (services point) and service management (manufacturing) as regulated in Act Number 25 of 2009 concerning Public Services and technical arrangements related to guidelines for public service standards (Ministry of State Apparatus Utilization and Bureaucratic Reform Regulation RB No. 15 of 2014).

As related to the principle of sustainability, Intellectual Property service standards currently haven't regulated matters that correspond with the changes that happened. For example, regarding to the components in the service delivery process, arrangements related to systems, mechanisms and procedures in the settled Intellectual Property service standards have not yet adapted to the policies innovation of the implementation and Intellectual Property e-services as regulated in the Minister of Law and Human Rights Regulation Number 42 of 2016 concerning Intellectual Property Application E-Services.

Although, explanations related to the procedures, systems, mechanisms and Intellectual Property e-service application procedures have been included in the modules or guidelines in each type of service. In addition, they have been implemented in the current Intellectual Property services implementation. However, this has not been accompanied by the policy changes determination that becomes the basis of service delivery guidelines and community benchmarks in providing an assessment for the quality of Intellectual Property service delivery, especially the one that is delivered through website electronically. One of the examples, it is related to the delivery process of service product. There hasn't been any clearly settled standard related to the system, mechanisms, and delivery procedures of e-certificate of Intellectual Property registration as the final product of the service. This can be confirmed to be the main cause

of significant differences in service quality gaps between service user segments, as previously explained.

Besides that, the low fulfillment of users' needs on sociological elements in Intellectual Property e-service is the main cause of the arising Intellectual Property e-service quality gap on the dimensions of providing support to the service users (Citizens Support). It happens because there is no complete and clear regulation in the current Intellectual Property service standards. Specifically, there are not any legal bases related to the management components of the help desk and complaints services. There are also absence of regulation related to the service guarantee component for service users in obtaining the quality information, responses to complaints or assistance needed and resolved properly, right on time as promised.

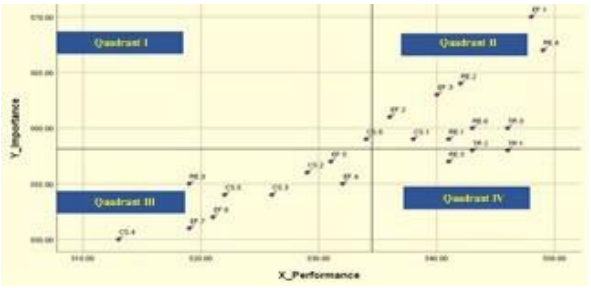
The absence of the important principles and components implementation in service standards, both in the service delivery process and the current Intellectual Property services management must become a top priority in service standards improvement. It is essential in order to further improve the quality of Intellectual Property services as a whole. Based on these conditions, it is important to improve the service standard policies that have been settled by giving more attention to the implementation of important principles and components in the arrangements, determination and implementation of public service standards and in accordance with the types and characteristics of the services provided. Moreover, it is an obligation that must be carried out by public service providers, whenever there is a change in policy or innovation in service delivery, the implementation of information technology in the service delivery process, changes in business processes, and other changes.[33]

**Intellectual Property E-services Quality Improvement Strategy**

This analysis have been conducted by using Importance Performance Analysis (IPA). It is done by mapping the average value (mean) of expectations and perceptions on all aspects used in measuring service quality into four quadrants of Cartesian diagram. By doing so, this analysis obtains an overview related to the aspects identified as the main priorities or the most needed improvement aspects in increasing the quality of current services. It also identifies aspects that become the main support for the achievement of service quality and contribute greatly to the community satisfaction. The results of this identification later on can be taken into consideration by Director General of Intellectual Property in determining strategies or steps to improve the service quality based on the priority scale determined by the current service users' needs and expectations.

The overall description of the Intellectual Property e-services (IPA) results is illustrated in the following diagram:

**Picture 2. Cartesian Diagram Intellectual Property *E-Services* IPA**




Source: Based on respondents data N:404, processed by the researchers.

The Intellectual Property e-services IPA illustration above shows that there is one (1) service aspect which includes in current service quality improvement priority (quadrant

33 *Ministry of State Apparatus Utilization and Bureaucratic Reform*, *Ministry of State Apparatus Utilization and Bureaucratic Reform of Indonesian Republic Regulation Number 15 of 2014 Concerning Service Standards Guidance*, vol. 15, 2014. 11.

I). Therefore, Improving the service quality needs to concentrate here in an aspect related to the ability of giving the trustworthiness and faith to the public in delivering the e-service (CS.6).

Meanwhile, there are nine (9) aspects which are identified as the main support of community satisfactory to the implementation of Intellectual Property e-service (quadrant II). Therefore, to improve the service quality which about to be done, it is necessary to give attention to the efforts of maintaining the performances that have been achieved in this aspects (keeping up the good work). The identified aspects include the following elements: the easiness aspect in finding the service website address (EF. 1); the fastness and easiness aspect in downloading the form and e-certificate (RE.4); the easiness and fastness in registering the service user's account (RE.2); the website conformity with the user's category needs and service type provided (EF.3); the clarity and the easiness of structures/contents on the service website (EF.2); the instructions or guidance availability related to the service usage steps which are complete and easy to be understood (CS.1); the availability of service website which can be accessed anytime (RE.1); the service website functions reliability which can be operated normally through any browsers (RE.6); and the data conformity aspect which is needed in applying the e-service application with the service requirements (TR.3).

Regarding the second priority for quality improvement, there are nine (9) identified aspects (quadrant III) include the following; the fastness aspect of the employee personnel in help desk in responding the complaints or questions delivered by the user service (CS.4); the punctuality of the service completion based on the information given (RE.3); the accurate and latest information availability (EF.7); the information availability about the service process progress (service status) (EF.6); the availability and the easiness in finding the information related to the standards or service procedures (CS.5); the facility availability in applying the help and complaints – help desk (CS.3); the availability and easiness in finding the comprehensive information on the Frequently Asked Questions page or FAQ (CS.2); the availability and easiness in finding the information related to the standards or service procedures (EF.5); and the availability of effective menu/feature search (EF.4). The performance quality improvement in those aspects can be done after succeeded in improving the quality on the priority aspects and strengthen the main aspects which are the current community satisfactory support.

Next, this paper identifies several aspects which can be re-communicated in relocating the current resource because they are considered excessive (possible overkill). There are three identified aspects (quadrant IV) as follows: the website ability aspect in adapting to any kind devices (RE.5), the data and account security guarantee (TR.1), and the service website security setting (TR.2). The resources owned by these aspects can be alternated to other aspects which need more priority to be improved or much more important in supporting the current community service (for example, service aspects of quadrant I and II).

The results from this identification show that the service quality improvement priority faced by Director General of Intellectual Property is very vital aspects. Even though gaining the public's trust perception is rather difficult, it is highly needed in order to achieve the whole level of community satisfactory over all the conducted service process. As in the e-government service quality discourse, building the public's trust is the key of success from the e-government service implementation to public as a whole. As have been stated by Carter and Belanger in their study, trustworthy is one of the most

important predictors toward the community's intention to use the e-government service continuously.[34] Moreover, Thompson, et al., in his study reported that the trustworthy affects toward the public's attitude and perception to various dimensions of conducted service quality, including information quality, the system quality and the service process quality itself. Therefore, the community perception toward the e-government service quality depends on the faith and the trust owned by the community. Hence, according Thompson et al, the government as the organizer of public service website-based needs to take the correct actions in building community's faith and trust perception.[35]

There are various efforts that can be done in improving public trust toward the conducted e-service quality. One of them is building the faith to all service users segment that any information related to the conducted service includes and is not limited to the procedures or service standards, the service use guidance, and the service progress (applied service status). Whether it is provided on the website, or delivered through the help desk personnel, the information that the service users obtained can be trusted and believed by them. It is also important to give the easiness and the same opportunity to all service user segments in obtaining the qualified information, to response to their complaints and also to deliver the help request which all are settled well, punctual as promised. As has been explained by Isaac, conceptually, the e-government service has a function to improve the public access, private, internal employee of the government organization itself and other government agencies toward the information and service conducted.[36]

Therefore, the website-based e-government service quality is not only limited to facilitate the service process, but also including the information and communication to all its service users.[37] As has been emphasized by Urban et al., the very important factor in building the user's trust perception toward the service is by creating the faith and trust based on the provided information given on the website.[38]

Hence, the important strategy needed in improving the current Intellectual Property e-service quality is the needs in optimizing the various aspects related to the service user's support as the sociological needs. This is one of the important elements/aspects that must be fulfilled in conducting the e-government service, especially in improving the community trust toward the conducted e-services. Moreover, the implementation of Director General of Intellectual Property e-government seen from the Government to Citizen (G2C) is included in the e-governance, e-service, and e-knowledge category.[39]

Undoubtedly, the performance improvement in those aspects will reduce the emergence of external factors which can violate the efficiency and effectiveness of

34 Lemuria Carter and France Bélanger, "The Utilization of E-Government Services: Citizen Trust, Innovation and Acceptance Factors," *Information Systems Journal* 15, no. 1 (2005): 5–25.

35 Thompson S.H. Teo, Shirish C. Srivastava, and Li Jiang, "Trust and Electronic Government Success: An Empirical Study," *Journal of Management Information Systems* 25, no. 3 (2008): 99–132.

36 Filipe Sá, Álvaro Rocha, and Manuel Pérez Cota, "From the Quality of Traditional Services to the Quality of Local E-Government Online Services: A Literature Review," *Government Information Quarterly* 33, no. 1 (2016): 149–160, http://dx.doi.org/10.1016/j.giq.2015.07.004.

37 Saha, Nath, and Salehi-Sangari, "Success of Government E-Service Delivery: Does Satisfaction Matter?" EGOV 2010, LNCS 6228, pp. 204–215, 2010 208.

38 Glen L. Urban, Fareena Sultan, and William J. Qualls, "Placing Trust at the Center of Your Internet Strategy," *MIT Sloan Management Review* 42, no. 1 (2001): 39–48.

39 Trisapto Nugroho, "Analisis E-Government Terhadap Pelayanan Publik Di Kementerian Hukum Dan Ham (Analysis of E-Government to Public Services in the Ministry of Law and Human Rights)," *Jurnal Ilmiah Kebijakan Hukum* 10, no. 3 (2016): 294.

each e-service delivery process. Moreover, in general, some types of public concerns appear because the lack of trust. This lack of trust is in the form of users' worries towards the delivered information quality related to the policy and service conducted is accurate, valid, and punctual. In addition, service users also worry that there are other purposes from the policy and service given, aside from the community's best needs.[40]

The importance in improving the e-service quality in those aspects also has been suggested by many studies that have reviewed the implementation of e-government service. As has been stated by Centefelli, et al., and Aritonang in their study, e-government service website-based is not only designed to be sophisticated (only as the functional characteristic in pure technology artefact), but also importantly inserting the sociology element to fulfill the service user's social needs.[41] [42]

In addition to improve the public's intention in using the e-government service continuously, e-government service itself is essential to be improved since it is impossible to have an alternative website that can be accessed by the public to serve the same purposes.[43] Therefore, the identification results of this analysis can be considered in determining the precise Intellectual Property e-service quality which also accommodate the needs and hopes of the public current service user. By doing so, it is expected that the existence of Intellectual Property e-services is not only qualified but also trustworthy.

## CLOSING

### Conclusions

This research contains analysis and the discussion of the service quality measurement survey on the three types of observed Intellectual Property e-service. They are Brand Registration (www.merek.dgip.id), Patent (www.paten.dgip.go.id) and Copyrights (www.e-hakcipta.dgip.go.id). Based on the results of this research, it can be concluded that the implementation of Intellectual Property e-service in a whole is not yet fulfilling the current hopes and needs of the service users. The service quality gap that happens are mostly caused by the gap in the quality of support given to the community when they use the Intellectual Property e-service (citizens support). Meanwhile, reviewed from the regulations related to the arrangements, determinations, and the implementations of public service standards, regarding the standard policy of Intellectual Property service regulated through the Decree of Director General of Intellectual Property of the Ministry of Law and Human Rights Number: HKI-01.OT.02.02 of 2017 Concerning the Settlement of Intellectual Property Service Standards, this policy undoubtedly are not fully and clearly regulate the important components in the service standards. These important components include both the service delivery process and service management which specifically are in accordance with the types and characteristics of service implemented electronically. The system components, mechanisms, and procedures, and also the handling and the desk help service management are especially important to be regulated. In addition, it is also essential to provide the guarantee in obtaining

40 Teo, Srivastava, and Jiang, "Trust and Electronic Government Success: An Empirical Study." Journal of Management Information Systems / Winter 2008–9, Vol. 25, No. 3, pp. 99–131. 105-106.

41 Tan Chee-Wee, Izak Benbasat, and Ronald T. Cenfetelli, "Building Citizen Trust towards E-Government Services: Do High Quality Websites Matter?," *Proceedings of the Annual Hawaii International Conference on System Sciences*, no. February (2008). 6-7.

42 Dinoroy Marganda Aritonang, "The Impact of E-Government System on Public Service Quality in Indonesia," *European Scientific Journal, ESJ* 13, no. 35 (2017): 99.

43 Teo, Srivastava, and Jiang, "Trust and Electronic Government Success: An Empirical Study." 105.

qualified information, responses, and the solving of every complaint or the assistance needed every time the users face problems in using the Intellectual Property e-service.

Several aspects can be identified as the result of this study. Those aspects show the improvement priority of Intellectual Property e-services quality. These aspects majorly are related to faith and trust of the service user towards e-services Intellectual Property implementation. Users' faith and trust become the very vital aspect, In addition to function as the success key in implementing e-services to fulfill the user's hopes in a whole, faith and trust aspect even can influence the public perceptions on other aspects of service quality. Therefore, improving the current Intellectual Property e-services quality means it is necessary to prioritize the quality of support given to the service users. It includes the improvement on the current service standard policies, by giving attention to the important components both in the delivery process and Intellectual Property e-services management.

By determining the improvement strategies of the service quality which focus on those matters, the public's trust perception is expected to be improved and the public's worry caused by the lack of trust are expected to be reduced. In turn, the results from this research will be more beneficial, especially in fulfilling the expectations and needs of the current service user community. By considering the results of this study, it can also be beneficial for the community satisfactory improvement in a whole and speeding the existence of excellent, qualified, and trusted performances of Intellectual Property services.

**Suggestions**

Based on the research data, analysis and conclusions, there are some suggestions that can be used as Director General of Intellectual Property considerations in determining the precise Intellectual Property e-service quality improvement strategies. By doing so, the service quality improvement is in accordance with the expectation and also the needs of the current service user. Thus, it is necessary to:

1. Optimize the maturity level of the Intellectual Property e-services capability related to the support that is needed by the service users. Whether in the information area, interactions, and transactions:
   a. The main improvement in the information area: Improving the availability and easiness in finding the accurate, latest information on the e-service website. It includes and is not limited on the information related to service procedures, the guidelines in using the service website, the progress status of the service applied, and also the information in the Frequently Asked Questions(FAQ) list.
   b. The main improvement in the interactions area:
      § Improving the search feature functions on service website. It includes and is not limited on the easiness of using the search feature in order to find the Intellectual Property data which has been registered or still in the investigation process, and also to find any information related to the implemented service.
      § Improving the easiness in finding and accessing all the interactive communication facilities provided (e.g. call center, live chat, email, social media) on the implemented e-service website.

c. The main improvement in the transactions area:
   - § Maximizing the delivery functions of e-certificate service which can be downloaded directly by all users on e-services website.
   - § Improving the service website functions which can make the service users easily correct their data input, or in suggesting the data correction of published e-certificate service product.

2. Strengthening the E-Goverment Policies and Management

   Besides improving the maturity in the e-service capability functions, the efforts in improving the service quality need to be accompanied by the strengthening of the implemented e-service management policies. The offered recommendations in this area are as follows:

   a. It is necessary to have the settled standards in managing various help desk and complaints facilities (e.g. call center, live chat, email, social media). It can be done by composing the service level agreement agreed by all the working units of technical functions organizer and also the management support functions;
   b. Determining the service level agreement document which has been composed and agreed into the internal regulations (General Director of Intellectual Property Regulation).

3. Periodically doing the observation and evaluation for improving the service quality.

   The service quality improvement that has been conducted needs to be reviewed. It is done to see whether the service quality improvement has succeeded in fulfilling/surpassing the expectations of the service users' community. If it is not, does the community's expectation increase? Or is there a new gap? Therefore, specifically reviewing the quality of Intellectual Property e-service through the gap model is necessary to be done.

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## Regulations

Act Number 25 of 2009 concerning Public Services.

Minister of State Apparatus Utilization and Bureaucratic Reform Regulation Number 15 of 2014 concerning service standard guidelines.

Minister of Law and Human Rights Regulation No. 42 of 2016 concerning Electronic Intellectual Property Application Services.

Director General of Intellectual Property of the Ministry of Law and Human Rights Decree Number: HKI-01.OT.02.02 of 2017 concerning the Determination of Intellectual Property Service Standards.