Public Service Innovation Policy at The Communication and Informatics Department of East Java Province through Total Quality Management (TQM) Practices

Assyari[1*], Rudy Handoko[2], Arif Darmawan[3]

Doktoral Study Program Of Administration Scine, Faculty of Social Political
Universitas 17 Agustus 1945 Surabaya

Corresponding author: aassyari911@gmai.com

Abstract: In an effort to improve the quality of public services, the Ministry of Communication and Information (KOMINFO) has held a One Day Service (ODS) or public service automation. The results of the implementation of the ODS have had a significant impact on accelerating the service process, but complaints about discrepancies or discrepancies in data are still common, the president even issued Presidential Regulation no. 39 of 2019 concerning one Indonesian data as a result of gaps in data between government agencies and data provider agencies such as the Central Statistics Agency (BPS). So the purpose of this study is to analyze data integration efforts and their constraints, as well as to design a data integration approach model that is seen as more effective and optimal. This descriptive qualitative research collects document data and interviews with informants who are employees at Kominfo regarding data integration efforts, and the analysis is carried out using a member check and FGD triangulation approach. The results of the research show that the process of integrating data is still not optimal, constrained by problems of coordination between agencies that have not been well established, and Kominfo is still focused on aspects of strengthening technological infrastructure, as well as the readiness of several agencies to supply data. Model construction analysis found that the total quality management (TQM) approach led to an increase in the potential of the Ministry of Communication and Informatics to carry out collaboration and collaboration to obtain data, analyze and publish data needed by society, organizations and the industrial sector. This integration can be carried out optimally when using integrated management, namely TQM.

Keywords: Data integration, Total Quality Management, the Ministry of Communication and Informatics

INTRODUCTION

The Office of Communication and Informatics and Coding (Diskominfo and Coding) is an agency engaged in the field of communication and informatics which includes telecommunications, communication tools and information dissemination, telematics, and electronic data processing. Diskominfo also has the function of coordinating and developing Regional Apparatus Operations (OPD) and carrying out other tasks of the Regional Head according to their main duties and functions (Anatan, & Ellitan, 2009). The Office of Communication and Informatics is the implementing element of the Regional Government, which is led by the Head of Service and has the task of carrying out local government affairs in the field of communication and informatics based on decentralization and assistance assignments (Tui, Ilato, & Katili, 2022). The functions and duties of the Diskominfo have many fields in carrying out their duties, one of which is in the management of public service information. In the field of public service information management, Diskominfo is responsible for all incoming and outgoing data as information to the public (Siswanto, 2020). This is motivated by the very rapid development of information where between one country and another it seems that there is no distance that separates it, so that the exchange of information and data is so easy to do.

The President emphasized that there were differences in data between those presented by the Ministries and the Central Statistics Agency (BPS), so the President ordered that incidents of data differences between Ministries/Institutions be stopped immediately. The President appointed only one data source, namely the Central Bureau of Statistics, other Ministries/Institutions so that they would no longer produce data just because it was project oriented. Through Presidential regulation number 39 of 2019 concerning one Indonesian data, it mandates that in order to achieve integrated planning it is necessary to be supported by data that is accurate, up-to-date, integrated, accountable, easy to access, and shared and managed together, integrated and sustainable. However, this condition is constrained by fundamental problems such as uneven development which has led to inequality, development that is not focused and results-oriented, wasteful and inefficient use of budgets, and a high level of corruption among elements of the state apparatus (Khan, 2021). This condition is difficult to resolve as a result of government policies that are often not on target because they are not supported by reliable data. The root of the problem is because government agencies that produce data are not connected to one another, so data consolidation is predominantly done manually, which causes the risk of incorrect data to become very high. As an important milestone for solving the problems faced by the Indonesian nation, the Government needs to build integrated data between Government agencies, so as to speed up and increase the effectiveness of decision making. Data integration is a process of combining two or more databases to make it easier to share and analyze, which in the end can be considered by top management in making decisions.

The soaring need for data services and high standards of quality and speed, require a strategy to meet the needs of each national broadband. Since the end of 2014, telecommunications service providers have continued to expand 4G LTE services so that they can be accessed throughout Indonesia. The growth of areas covered by 4G signals continues to increase. In 2020, 4G services have been present in 70,670 villages/kelurahans in Indonesia out of a total number of 83,218 villages (based on 2016 Dukcapil data). Based on processed data from the Ministry of Communications and Informatics, out of 12,548 villages/kelurahan that have not yet had 100% 4G signal service, there are 3,435 villages/kelurahan which are included in non-3T areas and 9,113 villages/kelurahan which are included in 3T areas. This data is processed based on Population and Civil Registration data (Dukcapil) which refers to changes in Permendagri Number 56 of 2015 to Permendagri Number 137 of 2017 concerning Codes and Data of Government Administration Areas. With the development of regional divisions and the updating of spatial data by the Geospatial Information Agency every year, the data will be readjusted and strived to cover 100% according to the Ministry of Communication and Information's target going forward.

In this regard, several studies on TQM can be used as a reference as well as a comparison with this research plan. So far, TQM has been used mostly in business organizations (private sector and BUMN). However, in terms of the concept of good governance (Good Governance) has relevance to the management of business organizations, the placement of TQM is considered urgent to study its implementation in the public information service sector. Several studies that can be used as a reference and the urgency of the importance of this research, refer to Nour's report (2018); Utami & Harahap (2018); Juan, Daniel, and Micaela (2012); Shit, et.,al (2021); and Majid (2020), who examines the implementation of TQM in several government agencies, both in managerial aspects (leadership), management administration, and HR issues. These researchers explicitly conveyed the importance of government agencies implementing TQM, and believed to be a solution in improving the quality of public services, but were constrained by HR competency gaps, the absence of regulations that set them, and relevant training to support TQM implementation. Likewise, Indonesia is currently required to no longer be limited to technology adoption alone, but is required to successfully implement e-government towards digital government through the one data program, which is expected to complete the data integration process using the TQM approach by Kominfo.

The One Data Indonesia program is implemented by integrating population data with data from other institutions. Like the KPU, Ministry of Social Affairs, National Police, Ministry of Trade, Ministry of Agriculture, Ministry of Industry, Ministry of PUPR and others, basic procedures are needed in these data integration activities. the basic procedures contained in the legal regulations can be carried out by all parties by including procedures for securing data and its processes in the implementation of the One Data Indonesia Program, so that it can monitor the implementation of data transactions that occur so that the program can be implemented properly. The use of big data has now become a world trend. For example, the use of big data for policy formulation and development planning. Food and Agriculture Organization (FAO); in China, big data is used to map poverty by utilizing Call Data Records which provides poverty data from economical and sustainable sources; Nepal uses cell phone data to map population movements; and in Haiti a group of volunteers analyzed information from Facebook, Twitter and text messages to provide emergency services after the Haiti earthquake. Indonesia has realized that the use of big data in government is very important, especially for decision making, policy formulation, and a reference for monitoring and evaluating activities. The Ministry of National Development Planning/*Bappenas* has used big data as a reference for policy analysis, provision of policy recommendations, and formulation of development plans (Khan, 2021).

With regard to this description, this study aims to describe the process of integrating data as one of the public service policies, as well as building a model through the TQM approach at the Ministry of Communication and Information (KOMINFO) in East Java. Through the TQM approach, it is hoped that education will be able to produce quality graduates and be able to improve quality on an ongoing basis. TQM considers that data products provided by KOMINFO in service assignments can be provided to the public as well as organizations and industries in accordance with certain quality standards. This service can be said to be satisfactory if it is in accordance with the wishes or exceeds the needs of the customer concerned. The importance of this preliminary study paves the way for further research regarding how policy analysis integrates data where researchers can utilize various data sources such as from social media to complement data collection by providing a faster, more affordable, and more efficient way of collecting real price data time.

METHODOLOGY

This research method uses in-depth analysis techniques, namely examining problems on a case-by-case basis because qualitative methodologies believe that the nature of one problem will be different from the nature of other problems. The final research report is designed in a flexible structure. Anyone involved in this form of research must adopt an inductive style of research perspective, focus on individual meanings, and translate the complexity of a problem (Creswell, 2010).

In this study the sampling or research informants were taken purposively, namely sampling with certain conditions, namely subjects who were seen as credible and knew well the various tasks, roles and functions of the Office of Communication and Informatics (Kominfo) in East Java with regard to data collection and distribution data. For this reason, the related parties who became the sampling or informants for this research were institutions that had relevant information needed by the public as a reference in making decisions and considerations or study needs. The selection of these informants took into account several important aspects in this research, namely informants from agencies with regard to data needed by the public as a reference for study activities, trade, and the implementation of the work activities of other agencies, both government and non-government organizations. Testing the credibility of the data was carried out by way of discussion and observation, which in this study used the triangulation approach (member check) which is the process of checking the data obtained by the researcher to the data provider, and studies using the reference approach, namely the existence of supporters to prove the data that has been found by researchers. For example, the Strategic Plan (RENSTRA) and Draft Changes to the Strategic Plan for Kominfo, East Java province.

Data mining on informants focused on optimizing public service innovations in the East Java Province Communication and Information Service (Infokom). The data will be used as a reference for reviewing and analyzing the management process and designing the TQM model as an effort to integrate data so that it can be described to build a more ideal implementation model and the results are measurable (Alwan, Ali, & Mahmood, 2021). The data collected is the Implementation of TQM which is part of the Ministry of Communication and Informatics strategy designed with reference to Presidential Regulation No. 18 of 2020, and by reviewing the results of the evaluation of performance achievements in the previous Ministry of Communication and Information Strategic Plan and Presidential Regulation no. 39 of 2019 concerning Indonesia's One Data is also an effort by the central government to accelerate data integration of all central and regional agencies. In addition, with the function of the Ministry of Communication and Information as a manager of public communications, the Ministry of Communication and Information also runs the Government Public Relations (GPR) program to carry out information dissemination of government priority programs and policies.

In preparing this study, FGDs were also conducted with stakeholders as well as staff of related Ministries and Institutions, namely the Office of Cooperatives and SMEs; Department of Trade, Ministry of Industry; Department of Maritime Affairs and Investment; Staff of the Ministry of Villages and PDT, Office of Tourism and Creative Economy; Agency for the Assessment and Application of Technology; Gojek, Blibli, Telkom and Bank Rakyat Indonesia. This discussion aims to obtain perceptions from various stakeholders, including representatives from the central government, regional governments, non-governmental organizations, academics, communities, business actors, and others regarding the implementation of digitalization and data integration policies.

RESULTS AND DISCUSSION

Big Data Program Integration and Implementation Policy

The Ministry of National Development Planning/Bappenas in collaboration with Global Pulse Lab Jakarta has implemented the use of big data several times. First, direct projection (nowcasting) of food prices in Indonesia using social media signals. This activity explores Twitter data to project directly (nowcast) or provide real-time food prices with output in the form of statistical models of daily price indicators for four food commodities: beef, chicken, shallots and chilies. When this model is compared with official food prices, the results are almost correlated so that real-time social media signals can be used as one of the basis for daily food price statistics.

Data integration is the process of combining data from several different sources to provide users with a single, unified view. Integration is the act of bringing together smaller components into a single system so that they can function as a single unit. In an IT context, it brings together disparate data subsystems to build broader, more comprehensive, and more standardized systems across multiple teams, helping to build unified insights for all. Data integration helps significantly consolidate all data types, considering their growth, volume, and all their various formats. Combining this to work from a single data set allows businesses to help internal departments see business strategy and decisions head-on, and generate actionable and compelling business insights for short and long term success. As an integral part of the data flow, integrating integration plus data ingestion, processing, transformation, and storage will help Kminfo's work in aggregating data regardless of its type, structure, or volume (Khan, 2021).

One common type of data integration is data ingestion, in which data from one system is periodically integrated into another system. According to Hidayat (2020), another type of data integration refers to a specific set of processes for data warehousing called extraction, transformation, and loading (ETL). ETL consists of three phases:

a. Extract data from multiple sources and move it to the staging area.

b. Transforming or converting data and then reassembling it into a format suitable for loading into the data warehouse.
c. Load transformed data into an analytical data warehouse environment.

Data integration tools are software-based tools that ingest, combine, transform and transfer data from source to destination, perform data mapping and cleaning. The added tools have the potential to simplify work processes in every public service agency directly or indirectly. However, until now this process is still not running smoothly, for which each agency must first identify the attributes that make it a good data integration tool.

Given the need for a government that can respond to issues quickly but still accurately, Big Data has the potential to make this happen. Then, in the current era, problems are increasingly complex and technological disruptions have occurred, requiring new approaches and methods to solve public problems. The use of data and information can improve the quality of public policies that are accurate and expected (based on real-time data) so that they are able to answer the current situation for the public. The potential use of Big Data is not just fantasy or just a seminar topic or the like but furthermore Big Data must really be utilized in making decisions, for example, the use of Big Data as a basis for policy formulation and development has been carried out in several countries such as China, Nepal , Haiti, even to international organizations such as the Food and Agriculture Organization (FAO).

Siswanto (2020), explains that Big Data can be a source of information for the process of analyzing the mapping of problems that occur in society in various sectors. The results of this analysis can be developed and linked to other spectra in a comprehensive manner and can be used as a basis for decision making and implementation. In addition, Simbala, Manengkey, and Pangerapan (2018), explained that the potential for Big Data in policy formulation is very prospective because this step can simultaneously monitor the impact of the resulting public policies (evaluation).

The implementation of Big Data is carried out in the formation of data by the government and digital archiving activities which continue to increase. One of the reasons for this to happen is the rapid growth of gadget devices and applications (Samudra, Salahudin, & Taufikurahman, 2022). Information that has been contained digitally is very much needed in policy making by the government as the formulator and implementer of policies, because of course this information is needed to make the best possible decisions based on existing considerations. At present it can be said that the use of Big Data in public policy has begun to increase, but its optimization and equity still need to be improved, because there are still many government bureaucracies that still use conventional methods instead of using existing Big Data (Marthalina, 2022).

In order to move towards the use and utilization of Big Data as an instrument in decision-making to become part of public policy policies, adequate data infrastructure is needed. Until now, it can be said that Indonesia still does not have adequate data infrastructure. A centralized data system is needed to make it easier for stakeholders to make decisions. It doesn't stop there, data security is still an important homework in Indonesia. Talking about cyber security in Indonesia, there is a special agency, namely the National Cyber and Crypto Agency (BSSN) which has the task of carrying out cyber security effectively and efficiently by utilizing, developing and consolidating all elements related to cyber security. Even so, data leaks are not uncommon so that it requires further policies from the DPR and the government in guaranteeing and ensuring data security in Indonesia.

When referring to the development agenda, the direction of the bureaucratic reform policy focuses on strengthening the internal institutions of government agencies to address strategic issues that will become problems in the next 5 (five) years (Ayuningtyas, 2020). According to the BPK, the Ministry of Communication and Information's internal monitoring system is still weak. The professionalism and competence of ASN still needs to be improved, especially since the Ministry of Communication and Information is not included in the 6 ministries that have implemented a merit system well based on a study from the State Civil Apparatus Commission (KASN). In addition, based on a study

by the Institute for State Administration (LAN), overlapping tasks and functions were found between central government agencies. The implementation of the Ministry of Communication and Information's Programs and Activities is a derivative of the strategic goal of the Ministry of Communication and Information, namely "Improving the Quality of Governance of the Ministry of Communication and Information". The Bureaucratic Reform Program (RB) aims to create a clean and accountable bureaucracy, an effective and efficient bureaucracy, and a bureaucracy capable of providing quality public services (Khan, 2021), as well as within the Ministry of Communications and Informatics. The achievements of the RB indicator were obtained from the results of an assessment by the Ministry of State Apparatus Empowerment and Bureaucratic Reform (Ministry of PAN and RB) on the implementation of RB within the Ministry of Communication and Informatics, but in its implementation until the end of 2020 the Ministry of PAN and RB has not announced the results of the RB of the Ministry of Communication and Information so that the values listed is based on the 2019 assessment (Marthalina, 2022).

Constraints of Data Integration in Kominfo East Java

Most public service institutions, both administrative and trade services, may not yet realize the importance of data integration, but data integration is a process that should be used by the software development and IT operations (DevOps) team at the Ministry of Communication and Information (KOMINFO). One example is how institutions, for example the Department of Transportation think about technology for the future and new ones that can facilitate the process of carrying out their work tasks. Continuing to think about how a team from the Department of Transportation can build, test, and deploy applications as the key to the success of a DevOps program, from experimentation to tactical operational deployment, the Department of Transportation needs programs and applications that serve their audience well or receive poor public service performance ratings. . In this case Kominfo has the task of integrating data into application strategies and gaining insights through the process, this helps every government agency with the latest and most accurate technological tools.

There are several obstacles in the data integration process that has been carried out by KOMINFO since 2020-2023 now as follows.

Table 1. Constraints and Impact of Communication and Information Services on the Community

Constraint	Impact on Society
Data source	When it can't find what it needs, the public will often waste time. This affects productivity because the public may have pools of data that others may not have access to or can use the insights from the data to build better strategies.
Quality and Time	Collecting data continuously will make institutions have a lot of data all the time. In addition, if there are no standards for data maintenance and entry, data provider institutions will collect a lot of data that is inaccurate, obsolete, duplicate, and insufficient. Kominfo needs options that help manage inconsistent data.
Mixing	Having data combined with (and depending on) other sources, especially data that has been published in previous years, it can make it difficult to use it for other purposes that are up to date. For example, population survey data for the purposes of the general election 2 years ago, was adapted as data for disaggregating demographic data.
Format and Data Source	Not all institutions have applications for multiple data teams, including service data, types of services, required documents, and logistics. Because these tools are accessed, managed, and maintained across

	multiple teams, data formats may be inconsistent across teams. Even something as simple as typing in a telephone number can cause certain institutional data to be misaligned.
Software	Even if you have used an integration solution, the relevant institutions that should provide data will not necessarily use the right type of solution or even the solution itself in the right way. Kominfo still needs to make sure to explore what is needed to be accomplished by data integration and the timing.
Data Volumes	Every government institution, related to public services or those concerning the public interest, certainly has a lot of data. If you don't have a plan regarding how and when to collect data, then each of these institutions will get a lot of information that is not needed but are not ready to bury the information that is needed.
Regulation is required	Each institution feels that they are not obligated to collect and update data according to their field of work assignments to share with Kominfo because there are no stipulations from the central and regional governments.

President Joko Widodo (Jokowi) will issue a policy that requires the integration of one data within the government environment so that data overlap does not occur again. Policy making often creates polemics because of differences in data within the government. Central Level Indonesia One Data Secretariat Coordinator Oktorialdi explained that data overlap is a classic problem that continues to be addressed. One of the efforts to improve is the issuance of Presidential Regulation (Perpres) Number 39/2019 concerning One Indonesian Data. Oktorialdi (Doramia, 2020), explained that each ministry and agency issues various data according to their field. Ministries or agencies often use their own data in various analyzes and policy making. Obstacles arise when there are differences in data across ministries and agencies, either due to differences in data collection methodologies or other factors. For example, regarding food commodities, there are often differences in data between the Ministry of Agriculture and the Central Statistics Agency (BPS).

The above problems are basically caused by the following factors:

a. Inadequate leadership commitment: the fact that until now data integration has not been realized on a massive scale, indicates that leadership commitment at a level below the President is still not strong enough. This is to be expected because of the strong mentality of silos in the leadership ranks under the President whose layers are still long (Ministers/Deputy Ministers, echelon I officials, echelon II, echelon III, echelon IV, even executors). The silo mentality, which can be in the form of sectoral egos that want to win alone, always want to show themselves and consider other agencies as inferior, an interest in projects to benefit themselves and their group, or the entanglement of complicated thinking patterns, can appear at every layer of position;

b. Weak Policy/Regulation: The government has not yet had laws and regulations governing the development of data integration nationally. The government is currently drafting a Presidential Regulation (RPerpres) on the Implementation of an Electronic-Based Government System (SPBE) through the PAN-RB Ministry and is also drafting a Presidential Regulation on One Data Indonesia through Bappenas. On the one hand, the existence of the two Draft Perpres (Perpres) shows the enthusiasm of the Government to have strong regulations related to the implementation of e-government. But on the other hand it also has the potential to become an obstacle to the smooth development of e-government due to the emergence of asynchronous policies and overlapping governance;

c. Institutional: The Ministry of Administrative and Bureaucratic Reform has an echelon I Deputy for Institutional and Administrative Affairs which, among other things, carries out the function of "formulating policies in the field of government management, administering government administration, and developing the implementation of an electronic-based government system". The Ministry of Communication and Informatics has a Directorate General of Informatics Applications which among other things carries out the function of "formulation of policies in the field of eGovernment, e-Business, and information security management, improvement of informatics application technology and infrastructure and informatics empowerment". The existence of these two government agencies is very vulnerable for the development of e-Government in Indonesia. In addition, the Government also has a National ICT Council, whose position and role in the development of information and communication technology for the Government are unclear.

Utoyo (Doramia, 2020) explains a data down to the bank's business which is a risk management business. New data comes from new devices and there is a lot of that data everywhere. Even data continues to grow, no longer a warehouse but in terms of volume, variety, velocity, veracity, and value. Big Data will Transform Indonesia People, Industry, Government is considered important because this data contributes to decision making. Of course, talk about how data can help all parties in making better decisions.

In addition to the existence of external and internal causes that support successful performance, it is also possible that there are several causes that can result in failure to achieve performance for several targets. The causes of failure and alternative solutions that have been carried out include: The quantity of Human Resources (HR) is insufficient, the number of HR owned compared to the workload carried out by the Ministry of Communication and Informatics for the Community and the Government is not balanced. The activity of implementing ecosystem solutions is a program that must take place and be accompanied for one fiscal year. The task of the person in charge of the activity is to provide a solution to every obstacle encountered from the ecosystem solution program being implemented. The availability of data and information is not yet optimal to support the process of planning and policy making. So that an alternative solution planned for 2021 is to increase coordination activities with Ministries/Institutions/Regions/Agencies to obtain data and information that can support the planning process and future policy making. Efforts to efficiently use human resources have been implemented through the involvement of various parties in managing activities such as the use of third party services in carrying out activities, the use of experts, curation teams, and resource persons.

Construction of the TQM Model as a Data Integration step

The Ministry of Communication and Informatics Strategic Plan for 2020-2024 (Ministry of Communication and Informatics Strategic Plan for 2020-2024) was prepared with reference to the national development agenda according to Presidential Regulation Number 18 of 2020 concerning the 2020-2024 National Medium Term Development Plan (RPJMN). In addition, it also refers to the development of global Information and Communication Technology (ICT) by incorporating elements of technological developments in conducting a management, implementation, and utilization strategy map in the ICT field. In the new normal era, the need for an adequate internet connection is the primary need of the community. Business actors, industries and economic sectors are urged to transform digitally so that their businesses can continue to operate. This situation encourages the Ministry of Communication and Informatics to accelerate the provision of ICT infrastructure and accelerate the national digital transformation in the next 5 (five) years.

As a regulator, the Ministry of Communication and Informatics encourages the completion of ICT-related policies and regulations, whether in the form of laws, presidential regulations, or ministerial regulations, by increasing coordination with relevant stakeholders. To carry out the function of coordinating public communications, the Ministry of Communication and Informatics will orchestrate the management of public communications involving central and regional government officials. This is

pursued by building an effective and organized management of public communications as well as building a solid team for government policy dissemination and responsiveness in countering hoaxes. Finally, in efforts to improve the quality of internal management governance, internal HR competencies will be improved, implementing Bureaucratic Reform and performance accountability and encouraging innovation in budgeting planning, such as in designing strategic program or project financing schemes.

As an important milestone for solving the problems faced by the Indonesian nation, the Government needs to build integrated data between Government agencies, so as to speed up and increase the effectiveness of decision making. Data integration is a process of combining two or more databases to make it easier to share and analyze, which in the end can be considered by top management in making decisions. At present, massive use and utilization of data has been carried out as a consequence of being part of the world's digital community. This phenomenon creates a new style for the public, namely the ability to access data and information quickly and accurately. At this point, the government should also realize that it can respond to public issues and problems in an accurate and timely manner. Big Data becomes important and very useful if it can be combined with proper analysis, many efficiency things can be done, such as determining the root causes of problems and failures in almost real-time to detecting irregularities (cheating, errors, errors) that can harm the organization (Dorami , 2020). So the construction of the Telecommunication Monitoring Center Telecommunication services are factual services whose deficiencies cannot be covered by public communications, except by increasing the Quality of Service (QoS) at the Ministry of KOMINFO. With the construction of an integrated telecommunications monitoring center, the government can monitor all service performance in near real time, infrastructure distribution and coverage of telecommunications services, Quality of Services (QoS), Quality of Experience (QoE), as well as public complaints against telecommunications infrastructure and services. Thus, it is hoped that it can overcome all the problems that are happening at this time and can become big data that can be used for making various decisions.

In order to encourage ICT to become a catalyst that can increase national competitiveness, of course the layer that is very important to participate in digital transformation is the community itself. Communities as individuals must acquire sufficient literacy to want to adopt technology, use digital technology for daily life, utilize technology for income, and to improve the quality of life. In the order of industrial growth in the digital era, people as individuals must also be able to adjust their own abilities and competencies, so that they can be absorbed in industries that need them. From the government side, this community literacy must be accompanied by a healthy and safe internet quality, and guarantees of data security and privacy for the community (Marthalina, 2022). So the TQM approach is considered quite ideal and effective to be applied to meet the needs of data and communication access mediated or provided by the KOMINFO Service in each Region. This can be described in the following scheme.
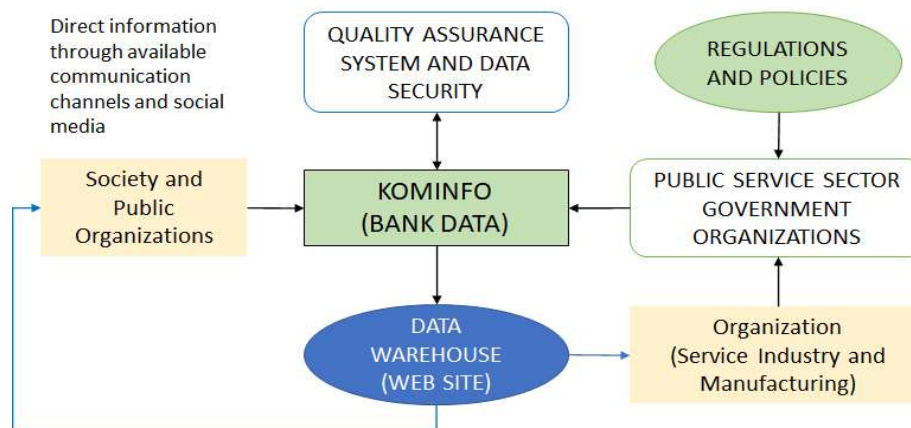

Figure 1. Data Integration Scheme with TQM Approach

The TQM approach as the scheme within the Ministry of Communication and Informatics in this case seeks to create a balanced ecosystem to maximize the role of the triple helix (government agencies, private sector, and educational institutions) to become facilitators and accelerators supporting the digital economy. In addition, collaboration between recruiters/companies that require skills, education service providers, policy makers, and the community also needs to be woven more closely to bridge the gap between demand and demand. This scheme contains content regarding the roles and duties of KOMINFO to implement the ICT Literacy Program which is very strategic in supporting HR development for advanced Indonesia (Indah, & Hariyanti, 2018) because the gap between ICT development and HR readiness must be taken seriously and carried out massively and comprehensive. ICT literacy is the key to the readiness of Indonesian human resources to face the era of digital transformation and the fourth industrial revolution. Kominfo initiated and facilitated the implementation of the Cybercreative Digital Literacy National Movement (GNLD) which aims to accelerate Digital Literacy in various regions in Indonesia. GNLD Sibercreation functions as a forum for collaboration, coordination and work synergy with multiple stakeholders to promote Digital Literacy advocacy and education in a comprehensive and sustainable manner, but this work plan is not going well, many obstacles are caused by the operational management system at KOMINFO itself (Marthalina, 2022).

If studied in depth, it can be seen that the main factor that supports success is partnership with various stakeholders in the National Cyber-Creative Literacy Movement for the implementation of the Digital Literacy Program. In the Digital Literacy National Movement, there are 109 stakeholders from academics, business, community and government who are active in educating digital literacy in the community. Some stakeholders have also had very good grassroots movements. With good cooperation from the Digital Literacy Program managers and these stakeholders, the output of the Digital Literacy Program can be achieved even exceeding the set targets. Another supporting condition is the change in people's behavior, which has moved from offline to online activities due to the ongoing Covid-19 pandemic.

The use of big data is very prospective because this approach is very useful for tracking and monitoring the impact of government policies, for capturing local and global socio-economic crises, for helping disaster mitigation, and for analyzing issues in the framework of better policy recommendations. Total Quality Management (TQM) as an approach to improve quality systematically using many dimensions and has been widely applied by many companies with the aim of improving performance, such as quality, productivity and profitability (Juan, Daniel, & Micaela, 2012). TQM (Total Quality Management) in concept organization is seen as a system that has input, process and output. Products are the result of a process that combines at least four elements, namely machines, methods, materials, and people (Alwan, Ali, & Mahmood, 2021). Inspection of the final results of a system in Total Quality Management (TQM) is not the only best way to achieve quality but better quality is realized through continuous process improvement, in line with process improvement (Sallis, 2008).

According to Flynn et. Al. (Marizka, Zauhar, & Sukanto, 2019), there are eight indicators of TQM, which, when projected within the East Java Kominfo environment, can be explained as follows.

a. Top Management Support, fully responsible for the products or services offered to the public or organizations that need data. Top Management has always been a leader who can provide motivation to all data provider institutions, which in this case requires a Regional Head regulation to provide direct instructions to each institution under them.
b. Quality Information, information about data quality from KOMINFO must be available and the information must be part of the management system.
c. Process Management, a systematic approach in which all resources in KOMINFO and related agencies as data sources should be used efficiently and effectively to achieve the desired performance.
d. Product Design, all departments must participate in the design process and work together to achieve a suitable product design.

e. Workforce Management, workforce management has guidelines on the principles of: training, worker empowerment and teamwork.

f. Supplier Involvement, long-term relationships with data sources, both the private sector, communities and other social organizations that must be established and KOMINFO must be able to work with each element to help improve quality.

g. Customer involvement, customer needs and community satisfaction are needed to identify community needs and satisfaction levels.

h. Employee Empowerment, specific measurements regarding employee empowerment include cross-departmental (cross-functional) levels and teamwork used; the level of employee autonomy (ASN) in making decisions, the level of employee interaction with customers, and the extent to which the employee proposal system is used.

Total Quality Management is a management approach to an institution, focusing on quality and based on the participation of all human resources (Cohen, 2021) and aimed at long-term success through customer satisfaction and providing benefits to members of its human resource institutions and society. TQM is also translated as a customer-oriented approach that introduces systematic management changes and continuous improvements to an institution's processes, products and services (Marizka, Zauhar, & Sukanto, 2019). The TQM process has specific inputs to the wants, needs, and expectations of customers, processing inputs within institutions to produce goods or services which in turn provide satisfaction to customers or society. Deming (Sallis, 2008) as the originator of this theory states that the adoption of Total Quality Management will help institutions to maintain their competitiveness, eliminate inefficiencies in the organization, help concentrate on market needs, achieve maximum performance in all fields, and meet the needs of all stakeholders.

The implications of TQM in the data integration process can be described in a comparison of the data integration system model as follows.
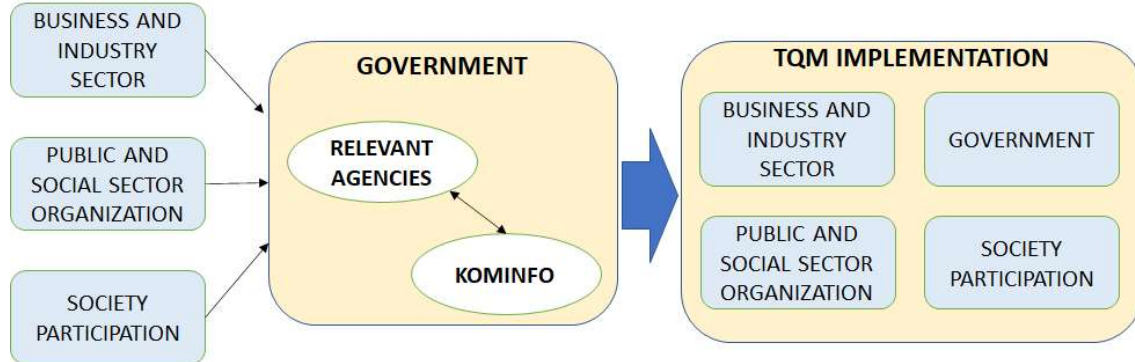

Figure 2. Communication and Information Data Integration Management Model and Proposed TQM Approach

TQM implementation is the goal or target of integrating business data resources, such as databases and files, business transfer and operational intelligence systems (Sallis, 2008). Total quality management (TQM) in the proposed model as in the initial scheme (Figure 1) is a management strategy aimed at embedding quality awareness in all processes within the organization. In accordance with the definition of ISO (International Organization for Standardization), total quality management is a management approach for an organization that is centered on quality, based on the participation of all its members and aims for long-term success through customer satisfaction and benefits for all members in the organization and society (Alwan, Ali, & Mahmood, 2021). The Total Quality Management process begins with the customer and ends with the customer as well. When understanding the concept of Total Quality Management, you must first understand the basic meaning of quality and management in order to obtain a clear picture of Total Quality Management (Nour, 2018).

The government through the Ministry of Communication and Information continues to make efforts so that the benefits of digitalization can be enjoyed by all residents in the Unitary State of the Republic of Indonesia by building telecommunications networks in areas that are financially unattractive for private parties to develop, among other things, due to the small population, difficult geographical environment (Outermost, Disadvantaged, Frontier/3T and Borders), and low community economic levels. As an affirmative policy, the Ministry of Communication and Informatics exists to ensure that development, especially in the telecommunications sector, reaches all regions of Indonesia without exception. As stipulated in Government Regulation Number 52 of 2010 concerning Telecommunications Operations, this Universal Service Obligation (KPU) is intended as an obligation to provide telecommunications networks and services in remote and/or undeveloped areas, especially those with great potential to support the economic sector and facilitate the exchange of information that needed to encourage development activities and governance.

The TQM approach as designed by researchers refers to the Minister of Communication and Informatics Regulation No. 1 of 2020, the Indonesian Cellular Telecommunications Association (ATSI) built a Central Equipment Identity Register (CEIR) system as a center for processing IMEI information and integrated the system with the Equipment Identity Register (EIR) system of all cellular mobile telecommunication network operators to be subsequently granted to the Government and jointly managed by the Ministry of Communication and Informatics, in this case the Ministry of Communication and Informatics, together with the Ministry of Industry. The CEIR system is connected to the EIR of all operators, the database for registration of equipment for passengers and goods shipped from abroad owned by the Directorate General of Customs and Excise, the Ministry of Finance, and the database for Import and Production Product Registration Certificates belonging to the Ministry of Industry of the Republic of Indonesia.

The dynamics of using media and information and communication technology have changed the way society and government access information sharing or communication aspects (Cohen, 2021). This condition requires adjustments in government information and communication services so that the ideals of building and educating the life of the nation can be realized. This is indeed a mandate from Law no. 14 of 2008 concerning Public Information Disclosure which guarantees the rights of citizens regarding all information regarding plans for making public policies, public policy programs and processes and reasons for government policies. This means that government communication must be carried out in order to build an image of effective, democratic and reliable governance, as an effort to gain public trust. In order to be able to answer these challenges, the development policy directions in the 2020-2024 RPJMN document explain that the government will build public information and communication openness through strengthening Government Public Relations (GPR). Government Public Relations (GPR) is a program that aims to ensure that the public knows what the government is doing and participates in development.

GPR implementation is carried out in accordance with Presidential Instruction Number 9 of 2015 concerning Management of Public Communications. Through the Presidential Instruction it was explained that the Working Cabinet should absorb public aspirations, and speed up the delivery of information about government policies and programs (Indah & Hariyanti, 2018). In this regard, the President instructed the Ministries and State Institutions to: Especially for the Ministry of Communication and Informatics to be given a special task as the coordinator of public communication management who acts as the coordinator of public communication managers so that information content related to government programs and policies can be integrated in one "frame" (Ayuningtyas, 2020) through a single narrative that uses the same data and communication point of view, and institutionally can synergize information in the government horizontally and vertically, and can capture people's aspirations as policy input synergistically (Hidayat, 2020), with the following roles.

a. Delivering data and information related to the implementation of duties and functions to the Minister of Communication and Information on a regular basis;

b. Disseminate to the public single narrative and other supporting data compiled by the Ministry of Communication and Informatics related to government policies and programs;
c. Delivering all government policies and programs on a cross-sectoral and cross-regional basis to the public quickly and accurately;
d. Conveying information through various communication channels to the public in an appropriate, fast, objective, good quality, national perspective, and easy to understand manner related to government policies and programs.

In addition to carrying out information dissemination that is media placement in nature, the Ministry of Communication and Informatics also carries out information dissemination through channels that are owned and managed by themselves. The purpose of these owned media channels is as a trusted source of information from the government as well as a means of disseminating government narratives, countering hoax news narratives, as well as a means of public education. Based on the survey results of Samudra, Salahudin, and Taufikurahman (2022), it can be seen that even in a pandemic, the majority of respondents already know various information on government priority programs included in the research. The media used by the respondents to obtain this information also varied, according to the availability of communication channels in the area where the respondents lived. The majority of people know public information about government programs from the official social media accounts of related government institutions as well as conventional mass media such as TV and newspapers (Trisnani (2018). Government public information media are perceived mostly by respondents as good and trusted news sources (Tui, Ilato, & Katili, 2022). Media content for delivering information is considered informative and accurate by the majority of respondents. The majority of respondents are interested in reading reliable information and presented in the form of articles followed by videos and infographics. According to Ayuningtyas' report (2020), that the majority of the public agree that program information the government priority that they receive can increase their knowledge and is appropriate for dissemination using existing communication channels.In addition, the majority of respondents who receive government priority program information are quite satisfied with the availability and speed of delivery of priority program information on the communication channel they use. they use. In addition, according to Samudra, Salahudin, and Taufikurahman (2022), the Government's social media and online media can be used as companion dissemination media that strengthen and enrich information content that has been conveyed in conventional media. Of course, the implementation of public information management needs to be measured to find out the extent to which this implementation has been achieved. Measurement of the implementation of public information management is also one of the performance indicators of the Ministry of Communication and Informatics which can be measured by looking at access to public information, quality of public information, and public satisfaction with access and quality of public information.

CONCLUSION

Big Data does have great potential to become an instrument in public policy in Indonesia, but it needs to be strengthened in terms of implementation in order to create public policies that benefit the wider community. Not only that, Indonesia also needs data integration infrastructure and creates and guarantees data security through the Personal Data Protection Bill (RUU) through the legislative channel as well as strengthening enforcement and coordination of data protection from executors, namely the executive. The public can also participate and speak out loud in recommending, supervising, drafting and ratifying these two bills so that the resulting regulations can be a solution to various problems related to data security that have occurred recently.

The TQM approach is the collaboration and cooperation needed by the Ministry of Communication and Informatics to obtain data, analyze and publish data needed by society, organizations and the industrial sector. This integration can be carried out optimally when using

integrated management, namely total quality management (TQM). In data management, it is part of information resource management that helps companies so that their information resources accurately reflect the physical system they represent. Data TQM activities include collecting data, maintaining and duplicating data integrity tests, storing data, maintaining data, securing data, organizing data and searching data. In this process, the development of inputting data for a company from physical to electronic using a database system so that it can be integrated into a system created to meet data management needs. This interconnected database can be accessed quickly and anywhere connected by the database system itself.

Recommendation

For the Central and Provincial Governments, the existence of regulations to accelerate the issuance of laws and regulations to cover the implementation of e-Government, to synchronize the Presidential Regulation on SPBE and the Presidential Regulation on One Data Indonesia with the correct positioning. The government also needs to designate the Ministry in charge of communication and informatics as the National CIO and the Central Statistics Agency as the lead in the development of One Data Indonesia and assign the Head of Service in charge of communication and information as the Regional CIO. The government also needs to review the existence and role of the National ICT Council. For every government agency in the province of East Java, Leadership Commitment also requires a strong commitment from the ranks of Leaders at all levels to suppress sectoral egos, prioritize coordinative actions and work methods that are simple, result-oriented, mobilize, ensure contributions, and improve the competence of capable human resources. compile, analyze, and support data integration efforts.

Considering the constraints, such as data security, policy makers need to create a data control office that is responsible for overseeing the collection and management of data for public policy. In addition, policy makers provide citizens with an easy way to have control over their data, as well as improve compatibility across the public sector when it comes to storing personal data. Kominfo East Java also still needs to encourage the change agents who have been appointed to make an action plan accompanied by the change targets to be realized. Furthermore, the action plan is monitored and evaluated periodically so that it can accelerate change, namely the General Secretariat Change agent becomes a role model and produces innovations that benefit the organization and the community. The Change Agent also plays the role of socializing the Values of the Ministry of Communication and Informatics Proactive Serving. As an alternative, you can develop the MANTRA application that has been built by the Ministry of Communication and Information to become a Government Service Bus.

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