Utilization of Big Data in Realizing The Optimization of Tax Revenues in The Era of The Industrial Revolution 4.0

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ABSTRACT: After the contraction due to the impact of the Covid-19 pandemic, the projected economic recovery was a determinant of tax revenues in 2021. *In the era of the Industrial Revolution 4.0, especially the field of tax revenue in the scope of all tax categories there is an e-system that becomes a supporting means in the form of tax application systems that have been provided by the government such as starting from e-SPT, e-registration, e-form, e-filling, and others.In terms of management, of course, synergy is needed between the rules, systems, and users of the application. This research aims to produce concepts recommended by researchers so that they can be applied and control from big data management that has previously been done by tax managers.The research method used is to use descriptive research methods through qualitative approaches.The data collection techniques used in this study, namely primary and secondary data.Primary data is obtained through interview techniques and documentation directly to employees of the Directorate of Information and Communication Technology at the Head Office of the Directorate General of Taxation in Jakarta, while secondary data is obtained through sources and scientific literature that are up to date and can be accounted for both physically and online.*

KEYWORDS-*Big Data, Tax Revenue, Industrial Revolution 4.0*

I. INTRODUCTION

During a pandemic, taxes are a good decision for the government in mitigating the impact of the Covid-19 pandemic. This was explained by the Minister of Finance, Sri MulyaniIndrawati (2021) said the realization of tax revenues only reached Rp 1,070.0 trillion, or 89.3% of the 2020 state budget target that had been changed through Presidential Decree 72/2020 worth Rp 1,198.8 trillion. The tax realization contracted 19.7% compared to last year. There are many provisions that have been issued in order to create optimization from the old and new tax bases. In response to this, the Directorate General of Taxes (DJP) always has the initiative in finding a database on new taxes. The implementation of Big Data to optimize digital transactions is indeed promising. Digital transactions in 2017 are estimated at Rp 102.67 trillion. Potential Value Added Tax (VAT) Rp 10.26 trillion. This potential can go up considering digital transactions to be the most secure alternative. The high volume of digital transactions through multie-commerce and multichannel payments can be parsed by big data. With artificial intelligence, big data will help regulators browse, complete databases, and analyze reported taxpayers or not. Big Data Analytics can optimize digital tax potential through 2 mechanisms, namely predictive analytics and secondly through tax credit ratings. Predictive analytics can be implemented to predict potential tax evasion and estimated tax revenues. To being useful for managing the tax potential of digital businesses, big data can be utilized in the administration of government. The implementation is related to public services and good management of data administration. Because Big Data technology includes characteristics and of these characteristics can be applied in the management of tax systems in Indonesia.According to Islah (2018) the characteristics of big data can be utilized to improve the services provided by the government for the community, especially in terms of tax supervision. Its utilization can also provide feedback or response from the community related to public services obtained. Feedback or response results can be used as a basis for policy preparation and improvement of public services, especially in the field of taxation and finding solutions to government problems related to data. In its implementation, the government can utilize data from various aspects that are integrated so as to provide convenience to the community to access services. These aspects can include population data and taxpayer data. The application of Big Data technology in an institution can be seen from the functions that are already available in its IT infrastructure, so that it can carry out work related to the application. With the tax service through digital taxpayers will expect the convenience of tax services supported through digital or online services. Through digital-based tax administration, tax authorities will have new, higher capabilities to support tax analysis and support data storage from tax-reporting organizations. In research conducted by Darono (2020) in Indonesia, Big Data Analytics as a pillar and strategic application in the development of information technology developed by the Directorate General of Taxes and then implemented using pilot projects, enterprise datawarehouse development, and implementation of data analytics with prioritized use cases such as disclosure of fraud related to tax invoices context tax administration. In addition,

based on the results of Campbell research (2016) in the Republic of Ireland shows that the era of Big Data can change the way policy and tax administration indirectly passes the planning and implementation stages gradually, from these changes there will be many advances and especially new applications and systems for data operations and data analytics. This can be combined with an increase in taxpayer requests for mutual information/feedback.When compared to the research by Atanasijević, et al(2018) in Serbia, Big Data analytics is the most advanced management technology since its introduction and use in risk management systems in the Tax Administration in Serbia, as it can include the development of algorithms based on so-called machine learning that can enable the introduction of artificial intelligence.Advanced research will include deep learning methods that will be analyzed on the behavior of legal entities using Big Data. In order to provide ongoing work on the introduction of these methods in tax revenue activities as well as relying on appropriate expertise, in 2018 the Serbian Taxation Office signed a Cooperation Agreement with Scientific Research Business with the Faculty of Science of the Novi Sad University, The project can detects the risk of embezzlement of individual income tax payments based on methods appropriate to the use of artificial intelligence. The aim of the project is to develop a series of risk indicators for tax evasion using methods on Big Data characteristics that can be applied to data at the Tax Office in the future for better activity direction as well as more optimal tax revenues and more well-organized tax administration data storage.A review of the results of previous research proves that there are several countries that have begun to utilize Big Data technology in the management of tax revenues and get the value of their benefits and routinely develop their research so that tax management by the government. Therefore, researchers argue that effective tax revenue is very important for central taxes and local taxes, especially after a deep contraction due to the impact of the Covid-19 pandemic, the projected economic recovery is a determinant of tax revenues in 2021.In supporting the need for financial financing independence, one of them is sourced from the demands of the development of the era in the era of the Industrial Revolution 4.0 where local taxes by realizing the budget of the target of local tax revenue optimally, especially the application of digitalization of taxation has begun to be applied such as the launch of online tax application which provides a system of e-registration, e-billing, e-filling, e-form, and e-tracking services.From the digitization that can be synchronized using Big Data, it is expected to be a focus for the government to achieve local tax revenue budgets that can be realized by means of effective implementation of local tax revenues and taxpayer compliance in carrying out their tax obligations.In order to support the creation of effectiveness of tax revenues and realize taxpayer compliance, it is expected that there needs to be coaching, counseling, supervision and further research related to the field of taxation, especially in terms of big data management to accommodate online data attached with details from all regions in Indonesia.

II.   LITERATUREREVIEW

2.1   e-Taxation Systems

The tax e-System is an electronic system provided by the Directorate General of Taxes or other parties appointed by the Directorate General of Taxes used by taxpayers to conduct electronic transactions. Taxes through online systems have been introduced since 2013 by the government through online tax payments through ATM. The type of tax that can be paid is still limited, the tax e-System can be divided into:

1.   e-Registration
2.   e-Billing
3.   e-Fiiing
4.   Pay Tax
5.   e-Form
6.   e-Fin
7.   e-NPWP
8.   Other online tax systems

All online tax systems that can be used need to have a large database that can be referred to as Big Data, because it will create the connectedness (integration) of all data so that tax monitoring can be done in its entirety as well as the speed of data processing.

2.2   Big Data

Big Data is a term given to data sets that are very large and complex, so it requires the use of technical architecture and innovative analytical methods to gain insights that can provide value. Big Data integrates automatically (linking by system) financial and nonfinancial data outside the tax apparatus into a nationally centralized tax data, then the process of matching (matching) the data of the transaction opponent with taxpayer data (Maryanto, 2017:14). Every few years there is an increase in the use of Big Data needs, the following are triggers in the development of Big Data including; Rapid Increase in Data Storage Capability, Rapid Increase in Data Processing Machine Capabilities, and Abundant Data Availability.

2.3   Tax Revenue

Tax Revenue is the amount of income tax installments that must be paid by the taxpayer for every

month of the current tax year (Sau, 2019:187).Based on research conducted by Kastolani (2017: 2), income tax revenue is income earned by the government derived from people's taxes. The income comes from people who are qualified to be subject to taxes and who carry out activities that are categorized as tax objects. The government's efforts to increase domestic revenues from the tax sector, among others, by changing the tax collection system from an official assessment system to a self assessment system that began to be implemented since the tax system reform in 1983 which is very influential for taxpayers by giving taxpayers confidence to calculate, pay, and report themselves the amount of taxes that should be owed. Researchers argue that the change in the tax system is intended to make taxpayers as independent subjects in fulfilling the right to participate in development financing and simplification and improved administrative efficiency in the field of taxation. The self-assessment system also requires taxpayers to be prepared for compliance testing on reported taxes.

III. METHODOLOGY

The subject of this study is The Management of Tax Data and Documents. Judging from its analytical approach, this study uses a qualitative approach. Based on the theory of (Kisworo, 2017: 68), research with a qualitative approach generally emphasizes the analysis of processes from thought processes in deductive and inductive related to the dynamics of relationships between observed phenomena and using scientific logic.In this study, it focuses more on answering the depth of the problems faced, namely the effectiveness of tax revenues and developing concepts to overcome the problems faced in the future through the optimal utilization of Big Data.Based on an in-depth approach, this study uses descriptive research methods, which according to Sugiyono (2018: 147) is a method used to describe or analyze a research result but not used to make broader conclusions. Descriptive analysis is used to answer the problem formulation that is the problem formulation of this research is to produce a concept in the form of recommendations from a comprehensive and in-depth view of Big Data in optimizing tax revenues. The primary data collection technique in this study has a reference from data obtained by researchers through interview techniques directly to employees from the Directorate of Information and Communication Technology at the Office of the Directorate General of Taxation, while secondary data is obtained through sources and scientific literature that are up to date and can be accounted for both physically and online. In addition, it uses secondary techniques in the form of books, journals, government publications, as well as other sites or sources that support the course of research.

IV. DATA ANALYSES AND INTERPRETATION

4.1 Analyses of Big Data in The Management of Tax Revenues

This research has a scope that prioritizes the concept of measurement for the utilization of Big Data. The scope of the study can be seen from the waterfall that has been compiled by researchers. Starting from the requirements / needs of the system users in the form of tax documents that have been described in the measurement of tax data.After analyzing the needs, it can be continued with a design / planning that will be prepared based on the application system that has been used for system development in its application as described in the support system measurement.In addition to the tax application system, the role of the system user as described in the measurement of the tax revenue process based on the receiving agency is central tax or local tax. Furthermore, in the implementation stage to maintenance is expected to be researched by the next researcher in the form of a new application system design in order to support tax supervision by the government.Big Data leads to the amount of data that is important and good management is done so that the data obtained by users can be analyzed in achieving insights that lead to better decisions. Data has been collected by researchers will be analyzed and discussed using descriptive methods that will then be continued with system design. The following will be explained descriptively which is associated based on phenomena, theories, and interview results with research subjects.This research begins with the e-System of taxation and the purpose of the use of information technology in taxation is to save time, easy, accurate, and paperless.

The use of information technology in taxation is expected to improve the quality of service to taxpayers, both in terms of quality and in terms of time so that it is more effective. From the existence of these systems, it requires a strategy in managing the data that will be generated, especially today online storage media is often used by service providers including tax services accessed by the public. Revenue from taxes mainly from the tax sector year-on-year, although in the previous year decreased due to the impact of the pandemic, but this year has increased again as before the pandemic. From the increase indicates that the development of technology that can be accessed by the public in terms of taxation, especially reporting tax returns until the deadline.Researchers argue that improving the performance of tax revenues requires good control and documenting techniques that are organized in accordance with the capacity of the size of the application provided so that there is no corrupt data or data that exceeds the specified capacity.

4.2 Analyses Measurement of Tax Data

The results of interviews that have been conducted with the Data and Taxation Governance Unit

Section, the renewal that is always carried out by the Directorate General of Taxes in the form of reforms not only in its tax regulations but in the service of the community is also further improved because it adheres to the vision of the Directorate General of Taxes, namely "To Become the Best State Revenue Collection Institution to Guarantee State Sovereignty and Independence". With this vision can foster a spirit to serve the community, especially increasing tax revenues. Today information technology related to the internet has been widely used in various sectors of life because the use of electronic means over the internet is part of the taxation renewal, especially in the field of tax revenue in the scope of all tax categories and all seen from the tax e-system that has been provided by the government as it starts from e-registration, e-form, e-filling, and others. The existence of the e-system is very helpful to facilitate all affairs and does not take time and space / space order that is much in matters regarding taxation. From the results of the interview, it can be added about the in-depth focus of Big Data that is now applied related to data science, data mining, and data processing. The management of Big Data in the field of tax revenue, especially during pandemics, involves more infrastructure and data mining or data processing techniques that are more sophisticated than in previous years.Based on the results of the interview, researchers recommend four important element concepts that are central to the assessment of the utilization of Big Data, including:

1.   Measurement of Tax Data Used

Measurement of Big Data can be a document used in the implementation of the update of the core system of taxation administration that has been established by the Directorate General of Taxes, including:

a.   Registration of Taxpayer Principal Number. The main document is a Registered Certificate or registration form of the Taxpayer's Principal Number.

b.   Changes in taxpayer data. The parent document is a letter notification of data changes or a taxman data change form

c.   The Inauguration of Taxable Entrepreneurs (PKP). The parent document is the PKP confirmation letter or PKP confirmation form.

d.   Repeal of PKP. The parent document is the PKP revocation letter or pkp revocation application form

e.   Application for Electronic Certificate (Sertel). The parent document is a sertel request form or news field research event in the framework of sertel activation.

f.   Removal of NPWP. The parent document is the npwp removal decree or npwp removal application form.

g.   Taxpayer transfer. The parent document is a transfer letter or taxpayer transfer application form.

h.   Documents related to non-effective taxpayer status. The parent document is a non-effective taxpayer determination notice or a non-effective taxpayer determination application form.

2.   Support System Measurement

In addition to improving the performance of services to the community, the tax support system can also answer various tax issues at the local government level. Because, there are still many examples of cases, such as fraud practices and tax leaks, to the still weak mapping of tax potential. To overcome the hasl the need for a good supporting application system.

3.   Measurement of Tax Revenue Process

In tax revenue, there are two collections that are distinguished based on the collection agency, namely Central Tax and Local Tax. Central Tax is a tax collected and managed by the central government while the Regional Tax is a tax collected and managed by the local government. Related to the procedure of collection of Local Taxes that are the authority of the provincial government and the district / city government, including:

a.   Taxes can be paid by the Taxpayer after the Taxpayer obtains a Local Tax Decree or other documents that are equated. This method is included in the official assessment system.

b.   Taxpayers perform calculations, payments, and reporting personally or on their own in accordance with taxes owed through the Regional Tax Notice (SPTPD). This way goes into the self assessment system.

4.   Human Resource Measurement

In applying Big Data technology, human resources are needed that are ready to adapt to new systems, especially users, both internal and external parties with analytical expertise in understanding the applications of the support system provided. A lot of literature has been provided to be able to support this, especially for those who do not understand the concept of tax reporting through the online system.By following these measurements it is expected that the system on Big Data will work by taking data from family tree, what types of goods are owned, wealth owned, and bank account accounts, so that it will improve taxpayer compliance. For the concept can be several categories of storage, including the type of taxes that have not been and have been paid all displayed into one, so to check the taxpayer has paid or has not will be very easy. With this measurement tax supervision will be realized, so government tax revenues are predicted to increase.

4.3   Discussion of Findings

After knowing the user / user in the use case, then for the depth of the measurement of tax data can be stored online on a special website processing Notification Letters whose system management is carried out by

the Information System section of the Directorate General of Taxes in charge of managing Tax Notice Data. Where the data is the personal information of the taxpayer in fulfilling his obligations.The Directorate General of Taxation information system is an information system in the administration of taxation in the modern office environment of DJP by using hardware and software connected to a network of work at the head office. The main purpose of the establishment of this DJP information system is mainly expected to produce a taxpayer profile that can be a support tool for the creation of accurate taxpayer data by mobilizing the participation of various parties in monitoring taxpayer data through automatic notification on taxpayer accounts. Which at the end goal / output is used as final decision making based on tax revenues received by the government.

The analyses of tax data in order to achieve good and organized big data management, it can be explained based on the following images:

1.   Users can interact with the system for the first time by registering the Taxpayer's Principal Number

2.   Taxpayers can login first, to perform various activities: Make changes to taxpayer data, Strengthen Taxable Entrepreneurs, Revoke Taxable Entrepreneurs, Apply for electronic certificates, Delete Taxpayer Principal Numbers, Make taxpayer transfer, Upload documents related to non-effective taxpayer status. From each activity carried out by the user or taxpayer, each produces a data. If the number of taxpayers who interact with the system in large quantities, then the data generated will be greater.

3.   Every activity carried out by the Taxpayer, will be checked along with confirmation by the Tax Service Office

4.   The unit of the data analyst can process the data in large quantities in the database using various algorithms, so that the data that has been processed can have an information that is realized in a format that is easy to read such as graphs, so that the information can be easily understood by stakeholders, namely the Head of the Tax Service Office and the Directorate General of Taxes.

5.   The Head of the Tax Service Office and the Directorate General of Taxes who have obtained information based on data from various tax service offices in Indonesia with large amounts of data and have been processed by data analysts can be used for decision making (Decision Maker).

6.   The data that has been processed, can create a system to provide notifications automatically to taxpayers, for example so that taxpayers to be able to immediately report annual tax returns either through the application ocial media whatsapp or telegram, or short messages or SMS (Short Message Service).

V.   CONCLUSION

Based on the results of research and discussion based on qualitative research using primary data collection techniques through interviews and secondary through literature analysis in the form of books, journals, government publications, and other sites or sources that support the course of this research. As outlined in the previous chapter, researchers can conclude that government problems related to data,Big Data management through technical grouping should be implemented immediately so that tax authorities will have new higher capabilities to support tax analysis and support data storage from tax-reporting organizations. The utilization of Big Data can answer the constraints of the realization of tax revenues affected by the Covid-19 pandemic. In the era of the Industrial Revolution 4.0 can be seen especially the field of tax revenue in the scope of all tax categories there is an e-system that becomes a means of support in the form of tax application systems that have been provided by the government such as starting from e-registration, e-form, e-filling, and others.In terms of management, of course, synergy is needed between the rules, systems, and users of the application. To overcome these problems there are concepts recommended by researchers so that they can be applied and controlled by the management of Big Data that has previously been done by tax managers.Among them are four elements concepts including the measurement of tax data used, measurement of support systems, measurement of tax revenue process, measurement of human resources. Because of the four concepts will be very helpful in analyzing the effectiveness of Big Data, especially what constraints occur in its utilization. It is expected that Big Data on the tax system can create a variety of policies that are faster, accurate, and low cost with various tax revenues made.

The use of Big Data that uses information using an analytic approach, so that the results become more structured. In addition to the use of Big Data is expected to be used for other public services, because by using analytics from Big Data will be able to transform external data into transparent and accountable information. It will then help translate that information into a policy that will help the government's performance. It is recommended from data that is stored in a database or what we can call Big Data, the data can be processed with various algorithms and can be found a new knowledge or data mining so that it can be used as a recommendation for interested parties.It is also expected that in technical implementation outside the scope of research the tax manager can provide automatic notifications if the taxpayer has not fulfilled his obligation to pay taxes, so that it can provide notifications automatically either through Whatsapp / Short Message Service (SMS) / Telegram media in order to improve compliance from taxpayers. For data management is expected to be able to perform governance techniques on data sets that have been processed, it can be estimated by the tax

manager whether the taxpayer will pay tax obligations or not based on historical data in previous years.

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