

Collaborative Governance Budgeting:

Strategy for ICT education funding the frontier, outermost, and disadvantaged regions In Indonesia

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Abstract— Indonesia has a disparity to access in education that is caused by differentiation location particularly in rural areas. Disparity to access in education is in the form of the use of information and communication technology. On the other hand, the education decentralization that can be accessed, reducing the gap among areas regions and create equitable education. The main factors causing this are the limited funds owned by the local government and continued synergy between government agencies. This paper aims to provide information about strategy for education funding, especially the frontier, outermost, and disadvantaged regions. This paper uses qualitative methods with data collection techniques for qualitative analysis of literature accompanied by a qualitative critical technical analysis. This useful study is a collaborative governance budgeting as a strategy that can be used to reduce the ego sectoral between government institutions that are associated with ICT facilities in education.

Keywords : collaborative, governance, budgeting, education, ICT

I. INTRODUCTION

In January 2018, President Joko Widodo stated that the government whom he led must begin with a focus on improving Human Resources [1]. By improving the quality of human resources, it would bring an advantage for Indonesia in the global demographic and competitive in the future. The manifestation of Indonesia's human resource development can be demonstrated through decentralization of education which has a positive effect on students [2]. In Korea, decentralization of education through political and economic aspects provides the power for local people to increase income and ability conducting education more effectively.

In Indonesia, decentralization of education has been carried out since the reformation. Educational autonomy in primary and secondary education (elementary, middle and high school) is different from universities. It is inseparable from the responsibility of the local authorities. Some certain areas that are rich in natural resources are extremely ready to carry out education autonomy. On the other hand, there are also many regions that have not / are not ready to do that. The lack of preparation is not only in education funds, but also the responsibilities and views of community (including officials) on education.

Fiscal decentralization in education sector aims to optimize the implementation of construction and the results to reduce regional disparities. Currently, there is still a disparity in the

Gross Participation Rate and the result is to diminish basic education between regions [3].

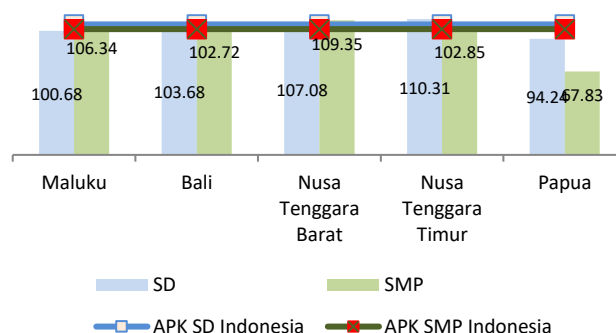


Figure 1. Angka Partisipasi Kasar SD SMP Provinsi Maluku, Bali, NTB, NTT

Based on the APK data, Maluku, Sulawesi, Papua and Nusa Tenggara are still limited in accessing education. The APK of those regions is still under the national APK. One of the access to education needed today is accessing information and communication technology (ICT).

The application of ICT and e-learning in education system can function as an increase in teaching potential and learning process [4]. It is vitally important to introduce ICTs and the internet to students and educators due to the rapid increase of the current technological developments. The new ICT for teaching is a technology that allows to improve learning outcomes in educational techniques [5]. The use of telecommunications and informatics technology in education will also be able to assist intellectual development where access to existing knowledge and social aspects can be easily carried out since communication are no longer restricted by regions.

The efforts to penetrate ICT into education have been done by Indonesia through work program commitments in educational institutions such as the Ministry of Education and Culture. The Strategic Plan 2015-2019 which is called Renstra states that the use of ICT is hugely needed in education. This term has also done by other countries such as the education minister of Malaysia, where the standards and quality of education are determined by the use of ICT in the classroom [6].

But in facts in the foremost, outermost, and least developed regions the use of ICT is limited. The condition of internet penetration in Indonesia is not evenly distributed, especially in

B. Education decentralization concept

The debate about decentralization has long been a feature of public administration [16]. For example, in the United Kingdom, the 1215 Magna Carta, who calls for more power to citizens, can be interpreted as the first request for decentralization. After this historic event, the argument about decentralization became the center of debate among political philosophers including Adam Smith, John Stuart Mill, and Jeremy Bentham. Basically, decentralization is closely related to the distribution of power between various levels of government. This is defined as devolution of power and resources from central authority to other local authorities [18].

Numerous literatures clarify the definition and conceptual features of decentralization of education. Decentralization is the transfer of decision-making authority, responsibility and duties from the central government to sub-national institutions. Thus, in this paper, decentralization of education refers to the devolution of political and fiscal authority from the central government to the sub-central government. Political decentralization derived from political science theory includes mobilization, participation and aggregation of interests [19] [13]. Citizens can control their significant educational problems by choosing representatives who pursue their own interests. In addition, fiscal decentralization derives from economics relevant to determine how much resources are expected to be allocated at each level of government to maximize social welfare [13].

C. Improving access and quality of education through ICT

ICT have greatly contributed to social and economic improvements, such as employment and higher productivity, increasing access to better quality of life [20]. In improving the quality and equitable access to education, new innovation is needed by applying information and communication technology. The existence of ICT is very helpful in accessing geographic areas that are difficult to reach. The main reason for the application of ICT for education in Indonesia is to increase national competitiveness, improve the quality of state and human resources and in order to gain access to quality education [21].

According to UNESCO, ICTs can contribute to achieve universal education throughout the world, the announcement of teacher education and training, enhancing professional skills, encouraging lifelong learning, and the potential to reach people who are outside the formal education process. The use of ICT in education is very important because of its potential in facilitating and optimizing student learning processes such as making concrete abstract concepts, bringing concepts that are dangerous or difficult to obtain into the learning environment, displaying objects that are too large and cannot be seen with naked eye, observing the fast movements and others. In the broader context, the use of ICT in the world of education is to expand learning opportunities, improve learning quality and efficiency, enable independent and cooperative learning [22].

The important role of ICT in education is 1.) Access to Information: Technology plays a central role in students and

teachers seeking information and the key for autonomous learning; 2.) Creativity and Self-expression: ICT also plays a role in how students express themselves and reflect on their learning; 3.) Communication and Collaboration: ICT provides more opportunities to communicate and collaborate especially for those who are less fortunate in gaining access to education 4.) Student achievement and Learning Outcomes: ICT also plays an important role in how administrators assess achievement of learning outcomes for students so that the results can be collaboratively analyzed by educational institutions to find areas that need to be improved and identify patterns and decisions involving curriculum and budget allocation [23].

D. Collaborative governance

An important component of the term collaborative governance is "governance." Many studies have developed the definition of governance, but the definition is still limited to what can be done by the government and falsified by it, but not comprehensive. For example, Lynn, Heinrich and Hill [24] interpret government broadly as a legal, rule, judicial regime, and supported administrative practices to limit, prescribe and activate the provision of public goods.

Chris Ansell and Alison Gash [25] provide a clear definition of Collaborative Governance, namely: "A governing arrangement where one or more public agencies directly engage non-stet stakeholders in a collective decision-making process that is formal, consensus-oriented, and deliberative and that aims to make or implement public policy or manage public program or assets"

There are at least four important aspects of Collaborative Governance, namely the existence of deliberative forums, multiple actors including state and non-state actors, consensus oriented, and related public policies [25]. Hogue explains that as a form of relations and cooperation between organizations, collaboration is different from coordination and cooperation [26]. Coordination and cooperation are the efforts of organizations from different parties to achieve a common goal with static goals. Inter-organizational relations in coordination and cooperation are independent. In collaboration, all parties work together and build consensus to achieve a decision that results in benefits for all parties.

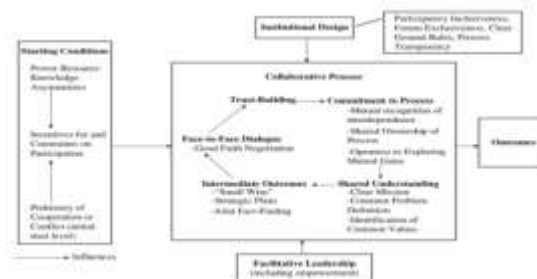


Figure 3. Collaboration Governance Process Model

III. RESEARCH METHOD

The purpose of this paper is to provide funding strategies for basic education in border areas or 3T (*frontier, outermost, and*

disadvantaged regions) by optimizing and synergizing sources of income for institutions outside education. This process of budget synergy is called collaborative budgeting governance. Hence, this research uses descriptive qualitative method, where data collection is done by literature review. The analysis is used with critical analysis of the contents of existing literature and data. Critical discourse research method is one example of the application of qualitative methods conducted explanatively. By using this critical discourse analysis method, the analysis will focus on linguistic aspects and contexts related to the aspect. Critical analysis is carried out by interpreting data related to fiscal decentralization in border areas or 3T in particular.

IV. FINDING AND DISCUSSION

A. Educational Policy Criticism

There are 6 basic education policies that have been implemented in Indonesia since 2004 starting from the government of Susilo Bambang Yudhoyono. First, teacher certification, aims to improve the ability and quality of teachers by improving teacher welfare. This policy is very expensive due to the overruns budget. The result, De Ree, *et al.* did find that certification programs increase teacher satisfaction and reduce the incidence of teachers holding outside jobs [27].

The second policy is School Operational Assistance (BOS). BOS is central government assistance to schools. In 2014, BOS spent USD 2 billion or 7% of the total education budget. BOS grants can affect education participation and learning through three channels: increasing funding and reducing household burden; direct support to poor students; and strengthen school-based management. The World Bank found little influence on BOS on reducing household education spending. In contrast, most funds are used to hire more teachers.

Third, competency tests. As part of the teacher certification program, the government introduced teacher competency tests. After much encouragement from the teacher union, the first teacher competency test was given in 2012, covering pedagogical knowledge and content knowledge. The results, with an average of 47 (out of 100), are disappointing by a threshold of 65. Although controversial and criticized by many parties - those who do not believe teachers should be tested to those who think that the test does not really measure skills that are important to teachers, for the first time the government has a mapping of teacher's level of knowledge. As a diagnostic tool, competency testing is invaluable.

Fourth, Teacher Professional Development in the position. With UKG results, the government has the ability to map teacher weaknesses, to the individual level. To improve the quality of service teachers, the government implements a teacher professional development program in a position called the Learning Teacher, which has now been renamed Sustainable Development Professionalism. Now, we do not know the rigorous evaluation of the program, either on the quality of implementation or related to its impact on teacher knowledge, teaching practices, or student learning outcomes.

Fifth, One Year Professional training for Pre-service Teachers. This new program, called Teacher Professional Education (PPG) which is started in September 2017, aims to improve the quality of teacher candidates. For this reason, part of the PPG program is subsidized by the government. Despite the rigorous selection process and some changes in the curriculum, the program is still too new to evaluate. However, depending on a selective acceptance system is quite encouraging. If strictly enforced, it can indeed have the potential to improve the quality of teaching, and ultimately produce better learning outcomes.

Sixth, computer-based testing. The hallmark of the Indonesian education system is a high-stakes national exam for junior and senior high school level. Students must pass this exam to graduate. In addition, the local government regularly uses the passing level of national examinations as a measure of the quality of education. The result is rampant cheating. The government has tried to overcome this problem. In 2016, the Ministry of Education and Culture removed the performance in the national exam as a requirement for graduation. In contrast, school-based examinations determine whether a student is a graduate. Although this policy effectively turns national exams into diagnostic tools (formative assessment) rather than summative evaluation tools, cheating on national exams remains rampant. Another problem is the test of students using computers. While the conditions of ICT distribution in Indonesia have not been evenly distributed.

The condition of ICT is still a problem in the world of Indonesian education both in terms of quantity and quality.

Border problems	ICT for education	Problems between institutions
<ul style="list-style-type: none"> 187 border districts still have problems with limited access to information, telecommunications and broadcasting infrastructure. the high cost of telecommunications and its signals from neighboring countries that are stronger than local signals and the small number of BTSs built due to limited road infrastructure and electrical energy 	<ul style="list-style-type: none"> 10,473 junior high schools and senior high schools throughout Indonesia require the availability of internet access, e-literacy and the need to increase HR skills and competencies in the field of communication and information technology Not only students but teachers / teaching staff also need ICTs and the internet to access exams, modules, and so on. 	<p>The integration of e-gov database and services of central and regional governments has not yet been implemented, the interconnection between SKPD / service in the regions is faster, more convenient and efficient service delivery through internet, portals, websites, e-mail, and so on.</p>

Figure 4. Map of Border ICT Problems or 3T

The problem of the use of ICT in the frontier, outermost and least developed regions is hampered by the availability of both network and technical facilities. This can be demonstrated by 187 sub-districts that have limited access to information. The lack of BTS in those regions causes the backwardness of information and technology to become an unbroken vicious circle. Consequently, students and the public are not familiar with internet access. On the other hand, ICT has an important role in education for both educators and students.

BAKTI The Ministry of Communication and Informatics presents findings that the limitations of ICT are due to the lack of integration between government institutions in providing

ICT services. Synergy between institutions is not yet known with synergetic policy between the central government to local governments, yet synergetic program among government agencies, and yet synergetic delivery of ICT education in particular institutional. So this is the background of the need for collaborative governance as proposed by Ansell and Gash (2007). In this case the causes of the limitations of ICT in the foremost, outermost, and disadvantaged regions of education are the inability of groups, especially because of the separation of power regimes to use other institutional arenas to hinder decisions.

B. Collaborative governance budgeting education for the foremost, outermost, and disadvantaged regions

Thomson and Perry define collaboration as a process in which autonomous or semi-autonomous actors interact through formal and informal negotiations, jointly creating rules and structures that govern their relationships and ways to act or decide on common problems [29]. This means a process that involves shared norms and mutually beneficial interactions. In the ICT policy in the foremost, outermost, and disadvantaged regions for education, it can be done by collaborating between government agencies to achieve common goals.

The provision of ICT programs is related to technical, budget and resources. This paper emphasizes the importance of collaboration in budget management so that the budget is effective and on target based on the problems faced (money follow problem). Budget is a sensitive matter between state institutions. The importance of the budget can be seen in the formulation of the program and the budget ceiling. With the right program and effective financing, public problems can be overcome.

ICT in foremost, outermost and disadvantaged regions are citizen choice. When it is viewed from the division of the rise of governing by network Goldsmith [30], the demand for ICT public services in those regions is the demand of the community. The demand for ICT in education is very high so that the institutions compete to provide facilities. But in reality, the frontier, outermost, and underdeveloped regions have limited access and facilities because the required budget is quite high.

The Ministry of Communication and Information has implemented BAKTI program, namely internet access for villages, provision of BTS at Blankspot and Palapa Ring. These three programs support ICT program in education by the Ministry of Education and Culture. Then the illustration of collaborative governance budgeting can be seen in the following picture.

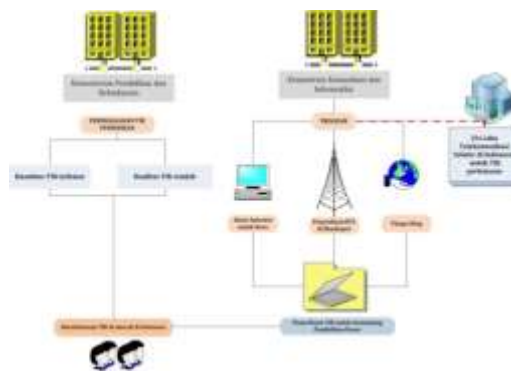


Figure 5. Collaborative Governance Budgeting Education for the foremost, outermost, and disadvantaged regions

The Ministry of Communication and Information and the Ministry of Education and Culture collaborate in organizing ICT in the foremost, outermost, and disadvantaged regions for education. The Ministry of Communication and Information through BAKTI organizes various ICT programs in the frontier, outermost, and disadvantaged regions, namely "palapa ring", "internet access for villages", and "provision of BTS in the telecommunication blankspot" especially in the region - remote, outermost areas that do not have a favorable economic and business scale [31]. Funding for these programs comes from USO funds collected from the gross opinions of operators. Telecommunications in Indonesia.

On the other hand, the Ministry of Education and Culture is a state institution designated to provide educational ICT facilities through the BOS Fund and other balancing funds, providing space for cooperation in the provision of ICT, while the Ministry of Communication and Information provides BTS, and internet access for the community, especially education.

The collaboration process can be illustrated by adopting Ansell and Gash's collaborative governance process model [25]

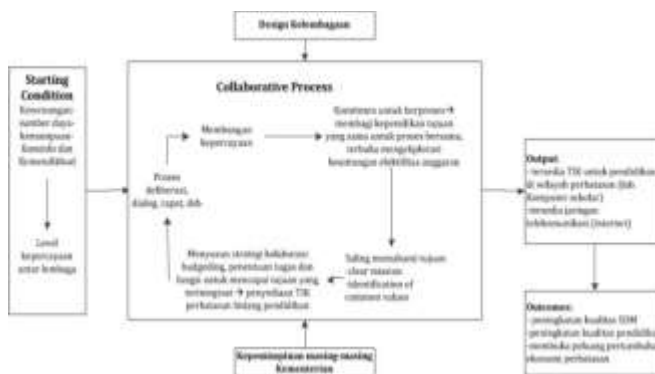


Figure 6. The Collaborative Governance Budgeting Process for Education in Frontier, Outermost, and Underdeveloped Regions

The collaboration process between these two institutions can be started from the initial conditions where each institution identifies resources, authority, and capabilities. This power identification serves to increase trust between institutions through resources including the budget. Carrying out tupoksi

according to the budget set in an integrated manner has implications for the effectiveness of program outcomes.

The next process is a collaborative process in which inter-agency deliberates for the division of tasks in accordance with the laws and regulations. If there are similarities in tasks which then have implications for the budget program, then eliminating one program. This helps the effective program to be implemented (there is no disparity). Access to equity and justice is highly emphasized in the penetration of ICT in education in the foremost, outermost, and disadvantaged regions.

The collaboration process is influenced by the leadership of each ministry and institutional design. The vision and mission of the ministry leaders in the field of ICT implementation in the frontier, outermost, and disadvantaged regions of Indonesia should be in the same direction and strong. Leadership has a major influence on the success of the initiative. Similar to institutional design. From the collaboration process will produce output in the form of computer labs of each school along with internet access for both students and the community. This internet access and computer can be used in carrying out educational activities. In the long term, internet access and ICT can improve the quality of human resources because of the equal distribution of access to education facilities

V. CONCLUSION

The existence of fiscal decentralization of education provides a great opportunity to optimize the provision of fair and equitable education. It also provides a great opportunity to manage budget with the principle of money follow problem. The most effective way as one of the budget principle strategies is by Budgeting collaborative governance strategy. Integrating similar budgets for the same missions, especially equity and quality justice and access to education in the leading, outermost, and disadvantaged regions of Indonesia.

The real example of the application of collaborative governance budgeting is the procurement and implementation of ICT in basic education in the frontier, outermost, and disadvantaged regions. The Ministry of Communication and Informatics through BAKTI organizes various ICT programs in those regions namely "palapa ring", "internet access for villages", and "provision of BTS in the telecommunication blankspot". Funding for these programs is from income tax/profit of cellular operators in Indonesia. However, the provision of ICTs has not focused on education. Hence, the existence of collaborative governance budgeting between the Ministry of Education and Culture and BAKTI, the implementation of ICT in education in the frontier, outermost, and disadvantaged regions can be realized. The benefits obtained, the Ministry of Education and Culture and the central/regional government are not confused anymore to allocate additional budgets for ICTs, while BAKTI can organize programs on target.

REFERENCES

[1] <http://nasional.kompas.com/read/2018/01/03/16514421/2018-jokowisingin-pemerintah-fokus-tingkatkan-sdm> retrieved September,29 2018

[2] Jeong, et al. 2017. Education decentralization, scholl resources, and student outcomes in Korea. *International Journal of Aducatonal Development* 53 , 12-27

[3] Kemdikbud. 2017. *Ikhtisar Data Pendidikan dan kebudayaan 2017/2018. Pusat data dan statistik pendidikan dan kebudayaan Jakarta 2017*

[4] Nikolic, et al. 2018. Appraisal and review of e-learning and ICT systems in teaching process. *PhysicaA: Statistical Mechanics and Its Applications*

[5] Tvenge, N., and Matinsen, K. 2016. Selection of ICT-tools for Manufacturing Education. *Procedia* 41 1096-1100

[6] Umar and Hassan. 2015. Malaysian Teachers Levels of ICT Integration And Its Perceived Impact On Teaching and Learning. *Procedia-Social and Behavioral Sciences* 197

[7] Suwandi.2012. Arah Kebijakan Pemanfaatan dan Penyaluran Dana Pendidikan pada Era Otonomi Daerah. *Jurnal Pendidikan Teknologi dan Kejuruan*. 21 (2) 167-177

[8] Ministry of Finance, 2018. <http://kemenkeu.go.id> retrieved September,29 2018

[9] <http://setkab.go.id/apbn-2018-total-anggaran-pendidikan-rp444131-triliun-terbanyak-di-kemenag-rp52681-triliun/> retrieved September,29 2018

[10] <https://finance.detik.com/berita-ekonomi-bisnis/d-3738100/dana-pendidikan-lebih-banyak-untuk-gaji-ketimbang-bangun-sekolah> retrieved September,29 2018

[11] De Mello, L. 2000. Can Fiscal Dezentralization Strengthening Social Capital?. *IMF Working Paper*. WP/00/129

[12] Barankay dan Lockwood. 2007. Decentralization and the productive efficiency of government: evidence from Swiss cantons. *Journal of Public Economics*. 91 (5) 1197-1218.

[13] Schneider. 2003. Decentralization: Conceptualization and Measurement. *Studies in Comparative International Development*. 38 (3) 32-56.

[14] Bordignon et al. 2004. Fiscal federalism and lobbying. *Journal of Public Economics* (92) 2288-2301

[15] Bardhan, P. and D. Mookherjee. 2005. Decentralization, Corruption And Government Accountability: An Overview. For 'Handbook of Economic Corruption' edited by Susan Rose-Ackerman,Edward Elgar.Revised, June. <http://people.bu.edu/dilipm/publications/decorr.pdf>

[16] Pollitt, et al. (eds). 2005. *The Oxford Handbook of Public Management*. Oxford University Press.

[17] Jimenez-Rubio, D., 2011, "The Impact of Fiscal Decentralization on Infant Mortality Rate: Evidence From OECD Countries", *Social Science and Medicine*, Vol 73, Hal 1401-407

[18] Martínez-Vázquez, J. dan McNab, R.M., 2015, "Fiscal Decentralization, Macrostability, and Growth", *Hacienda Pública Española/Revista de Economía Pública*, Vol 179, Hal 25-49

[19] Rondinelli, Dennis A., James S. McCullough, and Ronald W. Johnson. 1989. "Analyzing Decentralization Policies in Developing Countries: A Political-Economy Approach." *Development and Change* 20, 1: 57-87

[20] <https://www.uny.ac.id/berita/peran-tik-dalam-meningkatkan-kualitas-pembelajaran> retrieved September,29 2018

[21] UNESCO "ITC in Education" May 16, 2011. Available at <http://www.unesco.org/new/en/unesco/themes/icts/mission/>

[22] Siahaan, sudiman (2010). *Pemanfaatan teknologi informasi dan komunikasi dalam pembelajaran*. Jakarta : Pustekkomdiknas

[23] <https://itstillworks.com/role-information-communication-technology-education-1419.html> retrieved September,29 2018

[24] Lynn, Lawrence E., Carolyn J. Heinrich, and Carolyn J. Hill. 2001. *Improving governance: A new logic for empirical research*. Washington, DC: Georgetown Univ. Press.

[25] Ansell, Chris and Alison Gash. 2007. "Collaborative Governance in Theory and Practice". *Journal of Public Administration Research and Theory*. 18(4). 543-571. <https://sites.duke.edu/niou/files/2011/05/Ansell-and-Gash-Collaborative-Governance-in-Theory-and-Practice.pdf>

[26] Hogue, Teresa. 2003. Building Collaboration, Stronger Families Learning Exchange. *Bulletin* No. 3 p.6-8 diakses dari

The 2nd International Conference on Informatics for Development 2018

- <http://www.aifs.gov.au/sf/pubs/bull3/rm/html> retrieved al october, 7 2018
- [27] De Ree, *et al.* 2017. "Double for Nothing? Experimental Evidence on an Unconditional Teacher Salary Increase in Indonesia." *Quarterly Journal of Economics*, qjx040, <https://doi.org/10.1093/qje/qjx040>
- [28] Fahmi, et al. 2011. *Teacher Certification in Indonesia: A Confusion of Means and Ends*. Working Paper in Economics and Development Studies No 201107. Bandung: Padjadjaran University
- [29] Thompson, Perry and Miller. 2007. *Conceptualizing and Measuring Collaboration*. *Jurnal of Public Administration Research and Theory Advance Access published December 1, 2007 in Partnering with the Senior's Sectors*". *Local Government Studies*. 38 (2). 161-181
- [30] Goldsmith, Stephen. And Eggers, William D. 2004. *Governing by network*. Brookings Institution Press.
- [31] https://www.kominfo.go.id/content/detail/13310/2018-bakti-targetkan-dana-uso-rp-27-triliun/0/sorotan_media retrieved october, 7 2018