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Internet Access Equity Policy

Is Internet Access Equity Policy through Universal Service Obligation (USO) Funds effective?

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***Abstract*—Indonesia has a disparity in internet access caused by differences in regional factors, especially in geographically difficult areas to reach. The disparity in internet access is narrowed by the existence of programs through Universal Service Obligation (USO) funds. However, the researchers found that the equalization program for internet access using USO funds had not been effective, especially in the education sector. This paper aims to provide an evaluation of USO-funded programs. This paper uses qualitative descriptive methods with review literature data collection techniques accompanied by qualitative critical analysis techniques. The important finding of this study is that the internet access equalization program has not been effective as evidenced by the ineffectiveness of this program in the education sector. Researchers suggest optimizing the internet access equalization program through USO funds to improve the quality of education**

Keywords-collaborative; governance; USO funds; ICT; education

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 allocated of government funds for education increased from 10-15% to 20% of the state budget. However, several studies state the size of the budget does not give an increase in student learning. It is known that the education budget is use for teacher certification and school operational help (BOS).

Bayu Kharisma in the "Impact of School Operational Assistance (BOS) Program on School Dropouts in Indonesia: DID Analysis" said that BOS is a government-funded fund given to all students needed to study in schools to subsidize operational schools [2]. The aim is to free education costs for students who cannot afford the cost of access to basic education. The government spends 10 percent to 15 percent of the state budget for education from 2001 to 2008. In the past, the number increased by 20 percent and continued to increase until 2017. Last year, the total education budget reached Rp.416.1 trillion.

Freelance researcher and International University Liaison Indonesia lecturer Ben Laksana assessed that BOS policy did not have significant impact on students [3]. Much BOS have been use for teacher salaries, a little BOS is intended for the poor. That is worrying because there are also many studies that show the poor, even though they have access to schools, not just the school access they need. But, they need money to buying books, buying other equipment, buying other things that support their education such as internet access.

Provision of access to information in the 3T area through the Re-Design program "Universal Service Obligation" provides internet access to 122 districts from 24 provinces in Indonesia which have been stipulated in the Indonesian Presidential Regulation Number 131 of 2015 as Disadvantaged Regions in 2015. 2019. However, out of the 122 districts, there were 35,478 elementary, junior and senior high school, vocational, and 12,988 (36.60%) schools in the 3 T area that did not yet have their own internet connections or around 63.40 percent of schools in the 3T area were connected internet [4].

The application of information and communication technology (ICT) and e-learning in the education system can function as an increase in teaching potential and learning processes [5]. It is very important to introduce ICTs and the internet to students and instructors because now the development of technology has developed rapidly. New Information and Communication Technology (ICT) to teach is technology that allows to improve learning outcomes in educational techniques [6]. The use of telecommunications and informatics technology in education will also be able to help intellectual development where access to existing knowledge can be easily carried out and social aspects caused by communication are no longer limited by the region.

Efforts to penetrate ICT into education have been carried out by Indonesia through work program commitments in educational institutions such as the Ministry of Education and Culture. The strategic plan (Renstra) of the Ministry of Education and Culture 2015-2019 states that the need for the use of ICT in the education sector. This is also done by other countries such as the Malaysian Ministry of Education, where the standards and quality of education are determined by the use of ICT in the classroom [7].

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 those regions. Based on survey data on penetration and behavior of Indonesian in 2017, the internet users are limited to Java, Sumatra and Kalimantan.

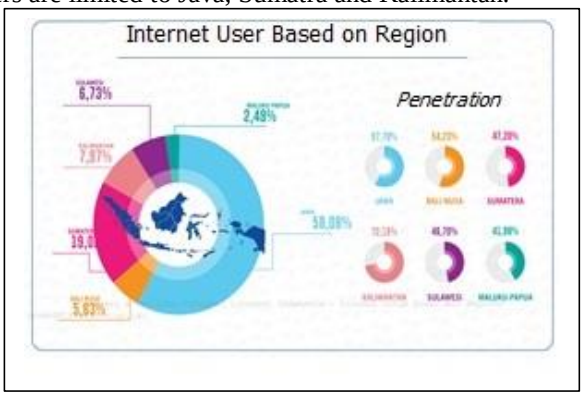


Figure 1. Iinternet users based on region in Indonesia [8]

This data depicts the limitations of the internet in areas which are outside Java and Sumatra. Regions on the islands of Sulawesi, Maluku, Papua and Nusa Tenggara have low ICTs.

Another problem in equalizing internet access in Indonesia is the high basic internet tariff for eastern Indonesia, especially in remote areas. Regions in Indonesia have internet tariff gaps that are too high. The government's efforts to minimize the internet tariff gap are by providing subsidies using USO funds. Remote areas in Indonesia have different internet financing structures. Some programs of the ministries of communication and informatics using USO funds include the provision of backbone via Palapa Ring; internet access for villages; and provision of Base Transceiver Station (BTS) in the blank spot area.

This study focuses on evaluating and analyzing the use of USO funds for equitable internet access in Indonesia. Researchers evaluated the use of USO funds to provide access in remote areas of Indonesia. This paper is expected to be able to provide an overview of the effectiveness, change, and systematic of USO funds through the programs carried out by the Ministry of Communication and Information.

II. LITERATURE REVIEW

A. Policy Evaluation

Evaluation, according to Scriven "is the process of determining the merit, worth, and value of things, and evaluations are the products of that process" [9]. Scriven's definition of evaluation highlights the idea that evaluation is a process to determine merit. This definition is rather general and applies to various types of evaluation. Rossi, Lipsey, and Freeman provided a more specific definition for program evaluation: it was the "use of social research methods to systematically investigate the effectiveness of social intervention programs in ways that are adapted to their political and organizational environments and are designed to inform social action to improve social conditions" [10]. Similarly, Chen defined it as "the application of evaluation approaches, techniques, and knowledge to systematically assess and improve the planning, implementation, and effectiveness of programs" [11]. Comparing Rossi et al.'s and Chen's definitions of program evaluation, three keywords stand out—"effectiveness," "improvement" and "systematic." The three keywords differentiate the paradigm of program evaluation and the paradigm of traditional scientific, social research.

Program effectiveness is at the core of program evaluation. According to Gibson, understanding effectiveness is an assessment made in relation to the achievements of individuals, groups, and organizations [12]. The closer they are to the expected achievement (standard), the more effective they are.

Systematics is a form of business to describe and formulate things in the context of a logical and orderly relationship so as to form a comprehensive, whole and integrated system capable of explaining various series of causes and effects related to a particular object. Improvement is an attempt to restore the condition and function of a certain condition to function again. Improvements were made to measure the program whether it was still working or not.

B. Internet Access Equity Policy

Accessibility Telecommunications and Information Agency (BAKTI) Policy The Ministry of Communication and Information Technology for equal distribution of internet network accessibility in Indonesia, especially the Outermost, Disadvantaged, and Leading (3T) regions has been encouraged since Press Release No. 212 / HM / KOMINFO / 08/2018 September 3, 2018 Regarding Equitable Internet Access, Accelerating Human Resource Development.

Information and communication technology (ICT) has contributed greatly to social and economic improvements, such as higher employment and productivity, increasing access to higher quality of life [13]. In improving the quality and equitable access to education there needs to be new innovations by applying information and communication technology. Indonesia with the largest archipelagic country and consisting of 34 provinces certainly has access to different disparities, some of which are easy and difficult due to regional factors. Therefore, the existence of information and communication technology is very helpful in accessing geographical areas that are difficult to reach. The main reason for the application of ICT for education in Indonesia is increasing national competitiveness, improving the quality of state resources and human resources and in order to gain access to quality education [14]. The implementation of ICT in the world of education has also become a concern of the international community. The World Summit on the Information Society (WSIS), which was initiated by the International Telecommunication Union (ITU), has made educational ICT standards, namely 50% of educational institutions, research and research centers have been connected with ICTs and the level of e-literacy of at least 50%.

According to UNESCO, ICTs can contribute to achieving universal education throughout the world, through the delivery 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, considering the potential of ICT itself in facilitating and optimizing student learning processes such as making concrete abstract concepts, bringing dangerous or hard-to-obtain concepts into the learning environment, displaying objects that are too large, displaying objects that cannot be seen with naked eye, observing rapid movements and others. In the broader context of the use of ICT in the world of education which is expanding learning opportunities, improving the quality and efficiency of learning, enabling independent and cooperative learning [15].

The important role of ICT in Education is 1.) Information Access: Technology plays a central role in students and teachers seeking information and is key to autonomous learning; 2.) Creativity and Self Expression: Information technology and communication also play the role of how students express themselves and reflect on their learning; 3.) Communication and Collaboration: Information and communication technology 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: information and communication technology also plays an important role in how administrators assess achievement learning outcomes for students so that 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 allocations [16].

C. Digital divide

Digital divide, the differential in access and use of information and communication technologies (ICT) represents an obstacle to the information society [17]. In the first years, the concept digital divide was commonly understood as the gap between those who have access to ICT and those who do not [18]. Consequently, it was implicit that the digital divide could be solved by simply providing access to ICT. Neglecting the fact that access is just the first step and does not guarantee continued use [19]. Later on, however, as researchers increasingly started to move beyond differences in

access, the initial definition was found narrow and the digital divide concept was expanded [20]. Presently the understanding of this subject includes not only the disparities regarding access, but also in the different ways of ICT use - named first and second digital divides, respectively [18].

D. Collaborative Governance

In general, collaborative governance appears adaptively or deliberately created consciously for the following reasons:

1) Complexity and interdependence between institutions
2) Conflicts between interest groups that are latent and difficult to suppress.
3) Efforts to find new ways to achieve political legitimacy [21]

Chris Ansell and Alison Gash 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"*

Based on Ansell and Gash's explanation above, it can be understood that the concept of Collaborative Governance is a type of governance. Collaborative Governance itself envisions a deliberative forum, in which the stakeholders involved can carry out a dialogue process to reach a consensus regarding certain public issues. There are at least four important aspects of Collaborative Governance, namely the existence of deliberative forums, plural actors including state and non-state actors, consensus-oriented, and related to public policy (orientation of public goods) [21].

Hogue explains that as a form of relationship and collaboration between organizations, collaboration is different from coordination and cooperation [22]. The difference lies in the nature of the purpose of cooperation and the form of dependence. Coordination and cooperation is an organizational effort from different parties to achieve common goals with static goals. Relations between organizations in coordination and cooperation are independent. In collaboration, all parties work together and build consensus to reach a decision that produces benefits for all parties.

Research conducted by Kirk Emerson, Tina Nabatchi, and Stephen Balogh in 2011, defined Collaborative Governance as follows:

> *We are collaborative governance systems that are broadly based on processes and public decision making and management that engage people across the boundaries of public agencies, levels of government, and / or the public, private and civic spheres in order to carry out public purpose that could not otherwise be accomplished.* [23]

Collaborative Governance is a process and structure of public policy making and management that invites people outside of public institutions, government levels, and / or the public, private, and civil society in order to achieve public goals. This understanding criticizes the notions of Ansel and Gash where Ansel and Gash only focus on "species rather than genus". This means that Collaborative governance provided by Emerson et al. Is more comprehensive. The three researchers model Collaborative Governance as follows:

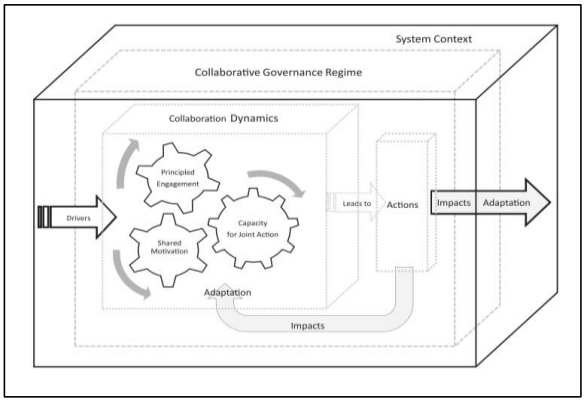


Figure 2. The Integrative Framework for Collaborative Governance [23]

Our integrative framework for collaborative governance is depicted in Figure 2 as three dimensions, shown as boxes, representing a general system context (general system context), the collaborative governance regime (CGR), and collaborative dynamics and actions. Outermost boxes, represented by solid lines, represent the surrounding system context or host political, legal, socio-economic, environmental and other influences that influence and are influenced by CGR. This system context generates opportunities and constraints and influences the dynamics of collaboration at the beginning and over time. From this context system, drivers emerge, including leadership, consequential incentives, interdependence, and uncertainty, which help start and define CGR directives

III. RESEARCH METHOD

The purpose of this study was to find out the implementation of the internet access policy through USO funding and to evaluate the use of USO funding on that internet access implementation. 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 the implementation of equal access policies through USO funds.

IV. FINDING AND DISCUSSION

A. *Evaluation of the Internet Access Equitable Program through USO funds*

The government through BAKTI Kominfo (Communication and Information) will have high-speed satellite internet. Solutions for government needs to improve the quality of education and health services can use this multifunctional satellite. Minister of Communication and Information Rudiantara stressed that to create a generation of high competitiveness, internet connectivity was needed to change the pattern of teaching and learning in schools.

Provision of access to information in the 3T area through the Re-Design program "Universal Service Obligation" provides internet access to 122 districts from 24 provinces in Indonesia which have been stipulated in the Indonesian Presidential Regulation Number 131 of 2015 as Disadvantaged Regions in 2015. 2019.

In 2020, the Indonesian Telecommunications Accessibility Agency (BAKTI) launched the Merdeka Signal program for equal distribution of telecommunications access throughout the country. This is to answer the problem of telecommunications access that is still faced by Indonesia. At present there are still around 11% of areas in Indonesia that have not been touched by signals or blank spots located in 5,300 villages spread throughout Indonesia. The 3,500 of them are in the Papua region [24].

Currently the operator has an obligation to deposit USO funds of 1.25% of total revenue. It is difficult to realize that only 1.25% to build infrastructure in more than 5,000 villages. BAKTI is looking for a solution to how this financing can be increased without burdening the operators, considering that the operator's condition is currently being eroded by revenue. One strategy is that the government builds infrastructure for the internet that will be used by operators. The standard used is the standard operator SLA.

The erosion of operator income is inseparable from the weak regulation in the telecommunications sector. OTT is rampant.

a) *Effectiveness of the USO program*

Program effectiveness is at the core of program evaluation. According to Gibson [12], understanding effectiveness is an assessment made in relation to the achievements of individuals, groups, and organizations. The closer they are to the expected achievement (standard), the more effective they are. The effectiveness of the internet access equalization program through USO funds can be seen from the affordability of program equity.

Programs that use USO funds include the construction of internet infrastructure networks such as the construction of BTS. Construction was handed over to cellular operators appointed by the Directorate General of Post and Telecommunications, Ministry of Communication and Information of the Republic of Indonesia.

TABLE I. THE IMPACT OF USING USO FUNDS FOR CELLULAR OPERATORS

Cellular Operators	Use of USO Funds	Impact
XL Axiata	Operate the USO telecommunications network in 40 locations in 4 provinces	4 provinces covered by the internet
PT Telekomunikasi Selular (Telkomsel)	Operate the USO telecommunications network of 568 BTS in isolated areas in 14 provinces	14 provinces were covered by the internet, the use of the internet has not been comparable to the cost of infrastructure because of the small population

Source: Cellular Operators, Processed

Based on Government Regulation No. 7/2009 concerning Types and Tariffs for Types of Non-Tax State Revenues Applicable to the Ministry of Communication and Information, USO funds come from telecommunications operators with a levy amounting to 1.25% of the operator's gross income from the previous 0.75% (based on PP 28 / 2005). If seen from the trend of the amount of USO fund revenues, it decreased from 2016 from IDR 3 Trillion to IDR 2.5 Trillion. However, the absorption of USO funds increased sharply in 2016. This was due to the incessant development of BTS in the blank spot area.

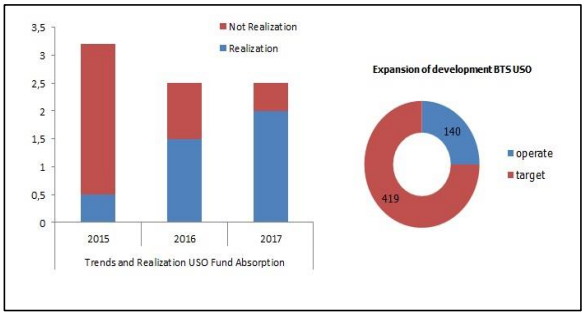


Figure 3. Large Trends and Realization of USO Fund Absorption [25]

b) *Systematics of the USO program*

Systematics is a form of business to describe and formulate things in the context of a logical and orderly relationship so as to form a comprehensive, whole and integrated system capable of explaining various series of causes and effects related to a particular object. The executor of the construction of the USO network is the network provider of the DLD service permit, so the network in the USO region will be directly integrated into the existing national network. The economical reason is that the USO region is non-commercial, which is certainly the implementation of its telecommunications network that is non-commercial (minimum for a certain period of time). Then it will be very inefficient and illogical on a business basis if the executor of the construction of the USO network is a small organizer that is still business profit oriented.

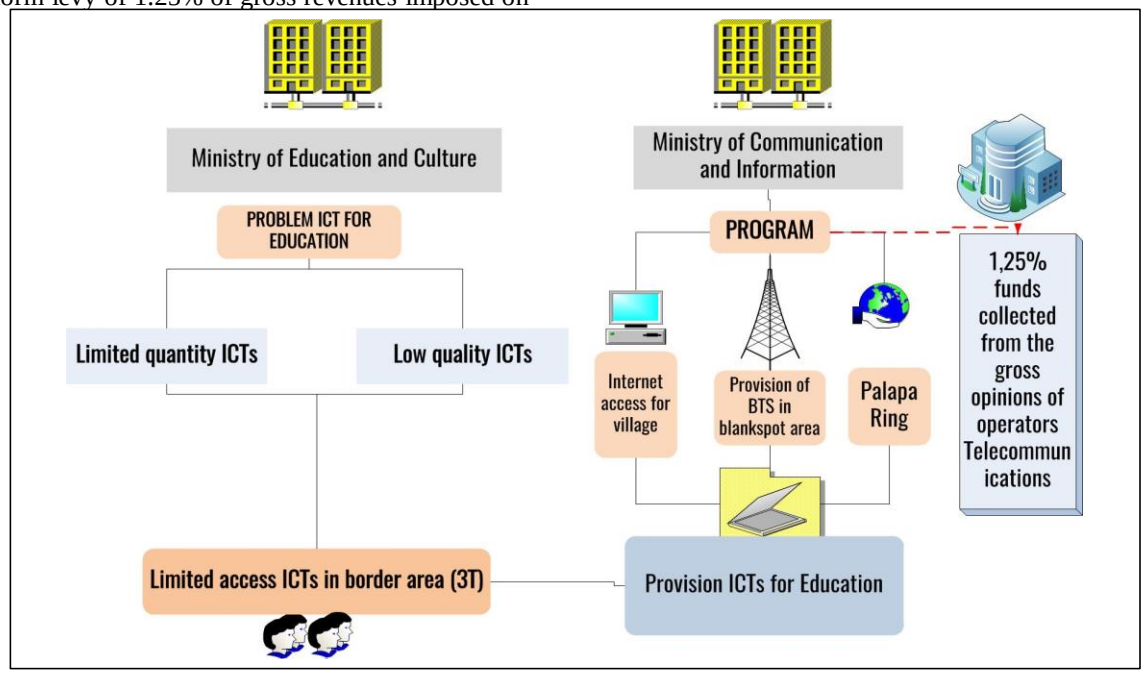
At present, the implementation of BTS development in the blank spot area has been carried out by large cellular operators such as XL and Telkomsel. With the participation of large companies in the development of using USO, it can show systematic change and good cooperation between the government and the private sector in organizing internet access evenly in Indonesia.

c) USO program improvement

Improvement is an attempt to restore the condition and function of a certain condition to function again. Improvements were made to measure the program whether it was still working or not. There are a number of notes submitted by the Indonesian Telematics Society (Mastel) at a public hearing of the Commission I DPR-RI USO and PNBP working committees on October 27, 2015, including changes in the form of USO contributions from the Network to Dana. With a uniform levy of 1.25% of gross revenues imposed on all operators, the network organizers who built the USO region on their own initiative were double burdened. Supposedly, if we adhere to the principle of justice, the value of investment in the USO region is calculated as USO's contribution.

B. Program Collaboration of Internet Access Equity through USO funds for education

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 [26]. 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.



Source : researcher, 2019

Figure 4. Collaborative Governance Budgeting Education for the foremost, outermost, and disadvantaged regions.

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 [27], 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 Blank spot 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 figure 4.

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 blank spot" especially in the region - remote, outermost areas that do not have a favorable economic and business scale [28]. 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 Ansel and Gash's collaborative governance process model [21]

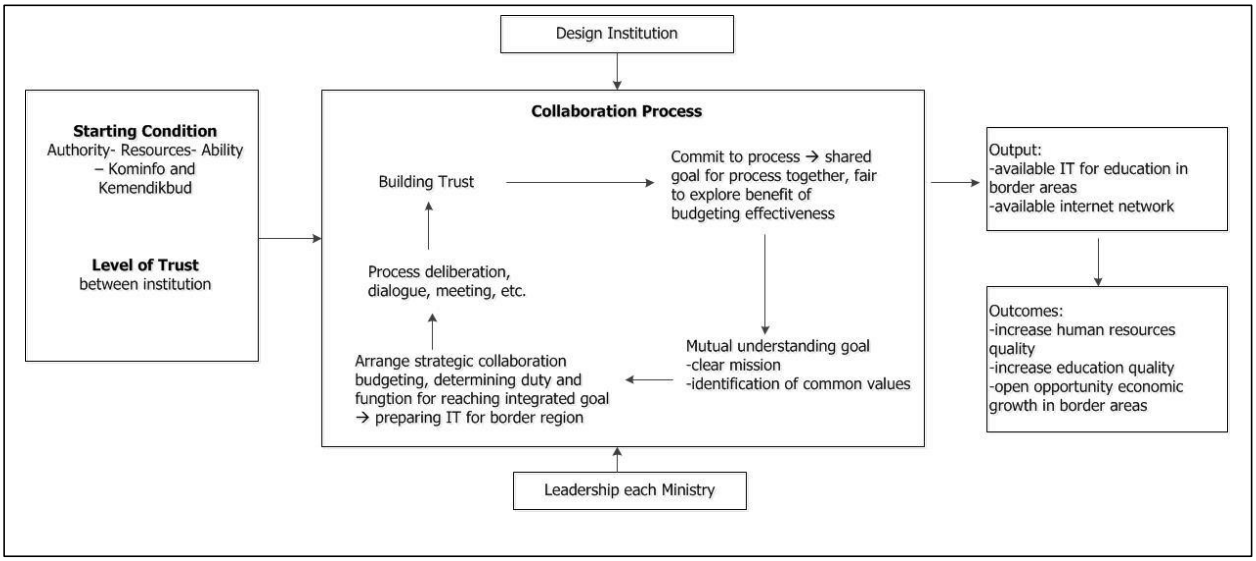


Figure 5. The Collaborative Governance Budgeting Process for Education in Frontier, Outermost, and Underdeveloped Regions

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 main duties and functions (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 evaluation of the implementation of the USO fund program shows that it has been effective in organizing internet access evenly, but has not been effective in using internet access. One of the causes of the ineffectiveness of the use of internet access is that internet usage has not been optimal for certain fields such as manufacturing and education. So the authors provide recommendations on the use of the internet through USO funds to be used in the education sector. One way to use the internet through USO funds for the education sector is to collaborate on the use of the internet to improve the quality of education.

VI. IMPLICATIONS AND LIMITATIONS

This study is limited to discussing the use of USO funds for ICT in Indonesia. This paper has not specifically discussed Cost Benefit Analysis of USO funds usage. In the next study,

researchers can examine the Cost Benefit Analysis of the use of USO funds specifically for education.

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