



Effectiveness of Program-Based Budget Absorption and Budget Growth Rate at National Institute of Science and Technology (INCT) for the 2019-2023 Fiscal Year

Augusto da Conceição Soares¹; José Cornélio Guterres²; Longinhos do Santos³

¹ Institute of Business (IOB), Timor-Leste

² Universidade da Paz (UNPAZ), Timor-Leste

³ Universidade Nacional Timor Lorosa'e (UNTL), Timor-Leste

<http://dx.doi.org/10.18415/ijmmu.v12i3.6724>

Abstract

The purpose of this research is to analyze the effectiveness of program-based budget absorption and the budget growth rate of the Nacional Institute of Science and Technology (INCT) in Timor-Leste and to assist the planning and finance section of the Nacional Institute of Science and Technology as a basis for information in decision making. be a consideration for future INCT budget allocations and this research also provides empirical contributions to financial management theory and will be a reference for future investigations. This study uses the data collection techniques documentation were collected the data through the financial reports of the Nacional Institute of Science and Technology (INCT for 2019-2023. The data was processed with the descriptive method were the effectiveness of program-based budget absorption is measured using the Mardiasomo (2007:129) and budget growth rate is measured using Halim formula (2012). The results indicate that the effectiveness of program-based budget absorption at the National Institute of Science and Technology in 2019 was rated as "Quite Effective." This rating remained the same for 2020 and 2021. However, in 2022 and 2023, the effectiveness improved to "Effective," with an average effectiveness level of approximately 89.98%, classified as "Quite Effective." Regarding the budget growth rate, there was a decrease of -0.19% in 2020, followed by an increase of 0.98% in 2021. In 2022, the growth rate decreased again by -0.14%, but in 2023, it increased slightly by 0.13%. The research results show that there are achievements with good performance indicators, but there are still obstacles. There are spending programs that are partially realized and several other programs that are also not realized because the budget allocation is insufficient and the realization is not optimal so they do not reach the expected targets.

Keywords: *Effectiveness Program-Based Budget Absorption; Budget Growth Rate*

1. Introduction

Timor-Leste is on a path to become an upper-middle-income country by 2030, driven by the vision and mission that all citizens will live securely, decently, and prosperously. This goal is articulated within the National Strategic Development Plan (Plano Estratégico do Desenvolvimento Nacional, PEDN) for

2011-2030, which outlines a long-term development framework focusing on five key sectors: 1) **Social Capital**: This includes improving health, education, and social inclusivity to enhance the quality of life for citizens, 2) **Infrastructure Development**: Developing robust infrastructure is essential for economic and social growth, providing the necessary connectivity for trade, tourism, and service delivery. 3) **Economic Development**: Emphasizing the diversification of the economy beyond oil, fostering sustainable agriculture, tourism, and private sector investment. 4) **Institutional Framework**: Establishing effective governance and institutional capacity to support development initiatives and ensure transparency and accountability. And **Economic 5) Context and Macroeconomic Direction**: Addressing macroeconomic challenges and ensuring a stable economic environment conducive for growth

The ultimate target for Timor-Leste, as defined by the PEDN, is to create a prosperous nation by 2030 where poverty is eradicated, and every citizen has access to essential services such as health care, education, and economic opportunities. The Government of Timor-Leste has committed to enhancing its budget management systems in order to effectively implement the five key sectors outlined in the 2011-2030 National Economic Development Plan (PEDN). Following the recommendations from the OECD's budget management roadmap study, the government is advised to maintain a program-based budgeting approach across all public entities and to establish a Medium Term Expenditure Framework (MTEF) to align budgeting with national strategic objectives.

In 2021, the Timor-Leste Ministry of Finance initiated a pilot program for program-based budgeting, which was fully implemented in 2022. This initiative aims to strengthen the connection between budgeting processes and the country's strategic planning efforts, ensuring that financial allocations directly contribute to the achievement of the PEDN's goals

The program-based budgeting approach is intended to enhance the effectiveness and efficiency of public expenditure by linking it to specific outcomes and outputs defined in the national strategy. By doing so, it helps ensure that resources are directed toward priority areas as identified in the PEDN, by creating a coherent financial framework that supports sustainable development over the next decade. Thus, the implementation of program-based budgeting and MTEF not only reflects a commitment to improved fiscal governance but also aims to foster economic growth and development in key sectors vital to the prosperity of Timor-Leste.

Good Governance and Democracy can start from the absorption of the government budget, and the effectiveness of Program-Based Budget Absorption will help the growth of the national economy and the welfare of society. There are three important roles that the government must play, namely transparency, accountability, Good Governance, becoming the nation's true wealth in the strength of its people with a vision and goal of maximizing overall health, guaranteed and prosperous education, building a just and progressive society, stimulating and alleviating poverty (Tamasoleng, 2015).

Mardiasmo (2009:61) reveals that budget is a statement regarding the estimated performance that need to be achieved in a certain period stated in the financial measures, while budgeting is a process or method for preparing a budget. The Financial Management in the public sector includes planning, implementation, administration, pioneering and budget accountability. Furthermore, budget effectiveness and efficiency are defined: "Efficiency is the achievement of maximum output with certain inputs or the use of the lowest inputs to achieve certain outputs. Efficiency is a comparison of output/input associated with performance standards or set targets". Then, "Effectivity is the level of achievement of program results with the set targets. In simple terms, effectiveness is a comparison between outcome and output.

According to Biswan and Grafitanti (2021), budgeting is a means to achieve performance targets, which is the focus in the implementation of performance-based budgeting. The consideration of resources or inputs is no longer emphasized in the concept of budget preparation; instead, the focus is on the performance targets that will be achieved. It is expected that this will create effective and efficient activity

implementation with the use of available inputs. Performance-based budgeting aims to create effectiveness, efficiency, and accountability in the implementation of public expenditure budgets with clear outputs and outcomes that align with national priorities.

In this research, the author intends to examine aspects of the effectiveness of program-based budget absorption and the level of budget growth rate at the National Institute of Science and Technology (INCT) from the implementation of performance-based budgeting and this research is expected to show the level of effectiveness of program-based budget absorption from implementation as well as dig deeper into possible challenges faced and solutions that will be implemented on the research object to support the implementation of effective performance-based budgeting, so that through performance-based budgeting, the author hopes to show how public financial management can be optimized, while considering transparency and accountability in every budget step

The National Institute of Science and Technology is a legally constituted public institution with administrative, financial and patrimonial autonomy, as well as scientific and editorial autonomy. Its main mission is to continue to advance scientific and technological progress in Timor Leste by exploring emerging opportunities in all fields of science and technology that have the potential to reach the highest international standards in knowledge creation and stimulate its dissemination and practical application, while development factors and improving the welfare of the population are regulated in the INCT Statute article 04 of Decree Law no. 5 of 2023 dated March 8, the first amendment to Presidential Decree no. 23/2014 dated 3 September.

In 2022, the National Institute of Science and Technology (INCT) developed a Strategy Plan to not only continue the work developed in previous years, but also a guiding document that seeks to align the vision and mission by finding increasingly effective and efficient ways to promote and stimulate science, innovation and technology in Timor-Leste. In this regard, the INCT Strategic Plan, which is naturally based on the United Nations Sustainable Development Goals (SDGs), and also closely aligned with the actions foreseen in the Timor-Leste Strategic Development Plan 2011-2030.

The Government of Timor-Leste has undergone a continuous reform process in Public Financial Management since gaining independence, and its approach reflects the commitment and progress achieved in national development. Despite several weaknesses and challenges, the governance and structural system of Public Financial Management reflects the government's ongoing commitment to the vision of modern nation building and institutional development in line with international standards. Therefore, planning the state revenue and expenditure budget and the effectiveness of program-based budget absorption are very important to achieve the dream targets and the importance of the rate of budget growth every year.

On the other hand, (Pollitt, 2004) notes that program-based budgeting is different from the traditional line items budget approach in preparing, evaluating, and presenting the budget. Rather than focusing on what is purchased (personnel spending, goods and services spending and capital spending), the advantage of program-based budgeting is that it focuses on the expected results from the services and activities carried out by the government. In this case, the emphasis is on achieving long-term goals and their coverage of the wider community as well as linking income and expenditure with multi-annual programs that are structured hierarchically and evaluate investment output results.

INCT has started using program-based budgeting in 2021 until now which has been included in the system in the future (dbF), but there needs to be an evaluation of the effectiveness of program-based budget absorption and the budget growth rate which is not very good in budget allocation so that it can hinder INCT's priority programs which have been prepared based on the strategic planning of the 2022 - 2030 INCT.

INCT faces various phenomena in budget allocations, but the Timor - Leste government does not yet have a high commitment in prioritizing INCT's role in making the government's program based on

PEDN-2011-2030 a success. This can be seen from the 2019-2023 INCT State Revenue and Expenditure Budget (OGE) allocation as in the table below.

Table 1
INCT Expenditure Budget, 2019 -2023

Year	Budget (\$)
2019	358,865.00
2020	289,164.00
2021	573,591.00
2022	490,824.00
2023	552,177.00

Sumber: Timor-Leste Budget Transparency Portal www.mof.gov.tl / INCT Budget Report

Based on Table 1, it can be seen that overall there is fluctuation in the INCT state revenue and expenditure budget for 2019-2023. The state income and expenditure budget from INCT is allocated to finance expenditure budgets such as Salary & Wages, Goods & Services, Minor Capital, and capital development.

Based on this phenomenon, the obstacle experienced so far at INCT is that it has never carried out an evaluation of the effectiveness of program-based budget absorption and the level of budget growth, so it has not been able to measure financial performance, as we know the level of effectiveness of budget absorption as reflected in INCT's priority programs, and have planned programs or activities in accordance with the Vision and Mission contained in the Strategic Plan that has been prepared. Furthermore, the rate of budget growth reflects changes in increasing work performance, because an increase in the budget shows that more work programs can be funded and can achieve the expected results.

Orleaes, Wiagustini and Soares (2019) conducted research entitled Analysis of the Effectiveness of Budget Absorption and the Growth Rate of the Revenue and Expenditure Budget of the Ministério De Saúde Timor-Leste for 2015-2019, the results of the research showed that the effectiveness of the ratio of the revenue and expenditure budget for 2015-2019 was generally effective with an absorption rate of 93%. However, there is a level of absorption that fluctuates every year with budget absorption below 50% and above 100% and analysis of program-based budget absorption at the program level is not included due to the lack of data obtained for this research. Furthermore, Epifani, Soares and Wia Agustin (2019) The growth ratio of the income and expenditure budget for 2015-2019 fluctuated in the range of quite successful to very successful or categorized as very successful because it was above 90 to >100%.

The budget absorption level refers to the portion of actual expenditure against the (budgeted) target. This is a good benchmark for determining the efficiency and effectiveness of an area. The absorption level shows the regional ability to finance joint projects and activities, macroeconomic capacity and administrative performance. Budget absorption is supported by quality planning, organization and expenditure control tools. Budgets ensure the efficiency and effectiveness of limited allocated resources. The budget is a management and regulatory tool used to manage public funds effectively with the aim of optimizing financial realization performance targets efficiently. Siegel and Allison (2011) stated the importance of the budget on the goals and targets. According to Carreira (2019), budget absorption entails the proper resource allocation and efficiently achieve the public finance management goal.

Budget absorption is roadmap and a yardstick that enable the limited resources allocated to be reflected in expenditures. Budget is a tool that ensures that the planned and conceptualized ideas are practical implemented Olaye and Oladipupo, (2014). Budget absorption forms the basis of comparison based on the targets, actual results, and variance. This initiates the corrective measures if necessary (Sharma, 2012).

The problem faced is that the absorption capacity of the budget allocation and its realization has become a routine problem every year, it tends to fluctuate, that the absorption of the expenditure budget and the growth rate of the INCT budget for 2019 - 2023 are still not considered good, because there are still programs that are not implemented well due to the minimal budget allocation that has been determined each year to INCT, based on the initial planning and expenditure budget submitted to the Ministry of Finance.

Based on the problems that have been described, the research wants to only focus on the effectiveness of program-based budget absorption and the growth rate of the expenditure budget in INCT from 2019 to 2023.

Formulation of Problem

In the background description the formulation of problems are:

1. How the the Effectiveness of Program-Based Budget Absorption of the National Institute of Science and Technology in Timor-Leste.
2. How the budget growth rate of the National Institute of Science and Technology?
3. What are outputs has being delivery and challenges facing in period of implementing the budget?

Research purpose:

4. To analyse the the Effectiveness of Program-Based Budget Absorption of the National Institute of Science and Technology in Timor- Leste.
5. To analyse the budget growth rate of the National Institute of Science and Technology?
6. Identify outputs and challenges facing in period time of implementation the budget and

Theoretical and practical benefits.

To assist the National Institute of Science and Technology as a basis information for decision making to taking consideration for the future budget allocation to the INCT and to contribution to the empiric study and it will be serve as references for the future investigation.

2. Literature Review

Public Sector Budget

The Public financial reform is based on the principles of good governance and sound governance where good governance includes: accountability, democratic, responsibility and the rule of law and sound governance principles include: process structure, cognition and values, constitution, organization and institution, management and performance, policy sector, international globalization forces and ethics, accountability and transparency (Franzmad, 2004). Bastian (2006) 5 financial system: Line item budgeting, Incremental budgeting, Planning Programing Budgeting system (PPBS), Zero based budgeting and Performance budgeting system (PBS).

Budget category and budget revenue in Timor-Leste according to public finance management law no.13/2009: 5 categories of Public expenditure such each: Salary & Wages, good & service, minor capital, capital development and Public Transfer fund and 2 source of budget revenue such each: domestic revenue and petroleum revenue.

Budgets have an important role in the organization's achievement process. This important role consists of at least five things (Carter, 2006), namely in terms of setting goals, informing about what must be given to achieve goals, motivating the desired performance, producing performance, and providing advice regarding when corrective action should be taken.

Furthermore, according to Bastian (2006), the budget preparation approach consists of the traditional/line item budgeting approach, the performance approach (incremental budgeting), Planning Programming Budgeting System (PPBS), Zero Based Budgeting (ZBB), performance oriented budgeting (performance budgeting), and Medium Term Budgeting Framework (MTBF). Line item budgeting bases budget preparation on the source of funds (receipt items) and the purpose for which funds are used (expense items). The traditional approach focuses on implementation and supervision. In the incremental budgeting approach, the expenditure and income budget system allows for budget revisions during the current year, which becomes the basis for determining budget proposals for the coming year period. This approach emphasizes budgeting on the measurable performance of activities and work programs, shifting the previous emphasis which placed great emphasis on expenditure items.

According to Biswan and Grafitanti (2021), the budget is a means of achieving performance targets, which is the focus in implementing performance-based budgeting. Consideration of resources or inputs is no longer an emphasis in the concept of budget preparation, but rather on the performance targets to be achieved, which are expected to create effective and efficient implementation of activities with the use of available inputs.

Effectiveness of Program-Based Budget Absorption

(Mardiasmo, 2007:129), stated that effectiveness is the level of achievement of program results with targets set simply. Effectiveness is a comparison of outcomes with output. Effectiveness indicators describe the range of consequences and impacts (outcomes) of program outcomes in achieving program goals. The greater contribution of output to achieving goals, means that there will more effective of the organization, program or activity. According to (Liang Gie, 2000), if someone carries out an action with a specific goal that they really want, then that person is said to be effective if it causes the consequences or has the intention they want. In other words, a result stated been achieved effectively if the results are truly in accordance with the plan, including the applicable of provisions. From several definitions of effectiveness, it can be concluded that effectiveness is the success or failure between the output and the goals or targets that must be achieved.

Effectiveness is the utilization of resources, facilities and infrastructure in a certain amount that is consciously set beforehand for produces a number of goods for the services it carries out. It is said to be effective if the activity process achieves the goals and objectives final policy. The greater the output produced towards achieving the specified goals and objectives, the more effective it will be work processes of an organizational unit. Scientific Journal (Bawuna, Kalangi & Runtu, 2016 : 595).

Effectiveness is related to the relationship between results expected results that are actually achieved. Effectiveness is the relationship between output and goals. The greater it is output contribution to goal achievement, the more effective it is organization, program or activity. Effectiveness is a relationship between output with goals or objectives that must be achieved. Activity Operations are said to be effective if the activity process achieves final policy goals and objectives (spending wisely) (Mahsun, 2006:182).

Budget absorption rate is share of actual expenditure out of the budgeted expenditure. Budget absorption ensures utilization and efficiency in the implementation of county resources. High absorption rate creates resource maximization through effectiveness of budget execution and utilization. so that a well-planned and implemented budget will result in the country's economic growth. Government performance is measured through its ability to utilize the allocated budget. The comparison of actual spending to target

spending (budget) is the absorption rate. The higher the absorption level, the higher the performance and vice versa.

Budget Growth Rate

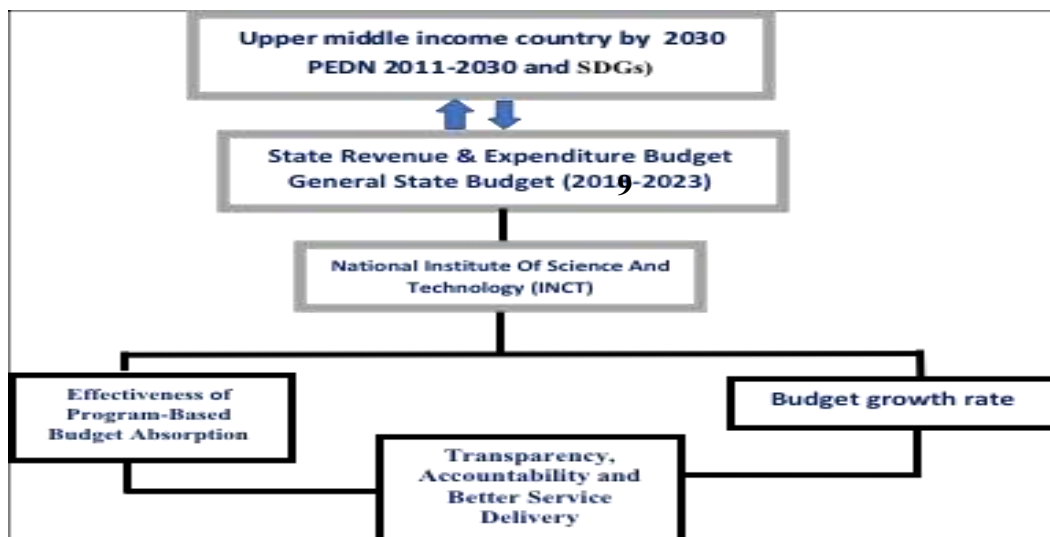
Budget growth rate refers to the rate at which a budget increases or decreases over a certain period. This rate is critical for assessing financial health, planning future spending, and ensuring that resources are aligned with policy priorities and operational needs.

The growth rate is the process of increasing output in the long term, if applied to the State budget Revenue and Expenditure, the growth rate of the State budget revenue and expenditure is the difference between the budget state revenue and expenditure for a certain year compared to the previous year's budget State. Halim (2007:291).

Budget growth rate is an important metric for understanding how financial resources develop over time. This provides insight into operational health, supports strategic planning, and promotes transparency in financial management. Accurately monitoring and analyzing these numbers can help organizations make the right decisions in the face of changing economic conditions and societal needs.

3. Conceptual Framework

Figure 3.1 Conceptual Framework



Based on the description of the conceptual framework explained above, this research will analyze the financial performance of the National Institute of Siensia and Technology, which is a process of assessing the level of progress and achievements in implementing work activities in the financial sector for a certain period of time by analyzing the effectiveness ratio and budget growth rate because the state expenditure and revenue budget is very important because the most important components of the larger planning system are long-term, medium-term and short-term planning where long-term planning has a vision, mission and goals to be achieved within a certain time period.

Thus, the preparation of the state expenditure and revenue budget from INCT cannot be separated from national planning and budget references such as: National Development Strategic Plan (PEDN 2011-2030) and Sustainable Development Goals (SDG's) or objetivos desenvolvimento sustentable (ODS), five-year government programs/Repelita and Fiscal year plans based on the final results "Jornada Orçamento".

4. Research Method

Type and Scope of Research

The type of research used in this study is descriptive which is studied quantitatively, According to (Uma Sekarang & Roger Bougie. (2016), the quantitative descriptive research method is a method that aims to create a picture or description of a situation objectively using numbers, starting from data collection, interpretation of the data as well as its appearance and results.

Based on the existing problems, this research is a qualitative descriptive research that is the calculations of financial data obtained from the finance department. Particularly, the calculation of the rate of effectiveness of absorption of funds is based on the Mardiasomo formula (2004:4) and the ratio of the budget growth rate is based on the Halim formula (2007: 291).

Research Sites

This research was conducted at National Institute of Science And Technology in Timor-Leste

Population and Sample of Research

Population of this study is the reports on the absorption of National Institute Of Science And Technology (INCT) for the period of 2019 to 2023. The data was collected from the government financial management system, the Free Balance system and from the report on the National Institute of Science And Technology. Sampling of data was carried out by census that the researcher observed all reports regarding budget absorption from 2019 to 2023.

Type and Source of Data

The data used for this research is based on secondary data collection. Financial reports of the National Institute Of Science And Technology for 2019 to 2023 was collected from the Ministry of Finance website at www.mof.gov.tl as well as the financial statements for 2019 to 2023 was directly collected from the National Institute Of Science And Technology.

Research Variable Identification of Variables

This research was carried out in accordance with scientific expectations, and it is necessary to understand the various elements that form the basis of a research. In this research, the variables to be measured are the effectiveness of budget absorption and the growth rate.

1) Effectiveness of Budget Expenditure

Effectiveness is the level of achievement of program results with targets simply effectiveness is a comparison between the realization and target Mardiasmo (2004:4)

2) Growth rate absorption of Budget Expenditure

The growth rate is the process of increasing a long-term output. If this applies to the state expenditure, then the growth rate of the state budget and expenditure is the difference between the expenditure budget of a certain year compared to the previous year's budget. Halim (2012).

Method of Data Collection

The data collection method used was a non-participant observation, where the collection of financial data of the National Institute Of Science And Technology were conducted through online search at the

Ministry of Finance Website www.mof.gov.tl as well as collection directly from the National Institute Of Science And Technology.

Method of Data Analysis

This research is a quantitative descriptive study focuses on the effectiveness of absorption of expenditure, and the rate of growth of budget and expenditure of the National Institute Of Science And Technology.

1) Effectiveness Ratio of Budget and Expenditure

The effectiveness of budget absorption is the realization of the National Institute of Science And Technology expenditure compared with the targets established in 2019-2023 using the formula from Mardiasmo (2007:129):

$$\text{Effectiveness} = \frac{\text{Realisation of Revenue and Expenditure}}{\text{Target Revenue and Expenditure}} \times 100\% \dots (1)$$

The Effectiveness Ratio is measured using the criteria for the level of budget effectiveness based on the criteria from Mahmudi (2016:141):

Percentage	Criteria
.....>100 %	Very Effective
90%-100%	Effective
80%-90%	Quite effective
60%-80%	Less Effective
.....< 60%	Not Effective

Source: Mahmudi (2016:141)

2) Expenditure Growth Rate

The growth rate is the process of increasing a long-term output. If this applies to the state expenditure, then the growth rate of the state budget and expenditure is the difference between the expenditure budget of a certain year compared to the previous year's budget. Halim (2012) provides the following formula:

$$G_x = \frac{X_t - X(t-1)}{X(t-1)} \times 100\% \dots (2)$$

Explanation:

G_x: The annual growth rate of revenue and expenditure

X_t: State revenue and expenditure of a particular year

X(t-1): Previous year's state revenue and expenditure

5. Results of Research

Result of the analysis – Effectiveness ratio of National Institute of Science and Technology Expenditure for year 2019 to 2023.

Based on the results of the calculation of effectiveness using the Mardiasomo formula (2004:4).

$$\begin{aligned} \text{Year 2019} \quad \text{ER} &= \frac{309,938.00 \times 100\%}{358,865.00} = 86.37\% \\ \text{Year 2020} \quad \text{ER} &= \frac{233,954.00 \times 100\%}{288,164.00} = 80.91\% \\ \text{Year 2021} \quad \text{ER} &= \frac{518,486.00 \times 100\%}{573,591.60} = 89.70\% \\ \text{Year 2022} \quad \text{ER} &= \frac{471,100.73 \times 100\%}{490,842.00} = 95.98\% \\ \text{Year 2023} \quad \text{ER} &= \frac{535,219.00 \times 100\%}{552,177.00} = 96.93\% \end{aligned}$$

Criteria from Mahmudi (2015) are the level of budget effectiveness at the National Institute of Science and Technology as shown in the table below.

Table 5.1

Effectiveness ratio of INCT 2021-2023

Year	Budget (US\$)	Actual expenditure(US\$)	Effectiveness (%)	Criteria
2019	358,865.00	309,938.00	86.73	Quite Effective
2020	289,164.00	233,958.33	80.91	Quite Effective
2021	573,591.60	518,486.00	89.70	Quite Effective
2022	490,824.00	471,100.73	95.98	Effective
2023	552,177.00	535,219.00	96.93	Effective
Five-Year Average Rate	2,264,621.60	1,529,479.06	89.98	Quite Effective

Discussion:

For the 2019 Fiscal Year, INCT received a budget allocation of \$ 358,856.00 with an absorption of \$309,938.00 and a budget effectiveness level of 86.73% using the calculation formula Mardiasmo (2007:129): “Quite effectiveness 80%-90%”.

It can be assumed that INCT is very careful in budget planning and always adheres to legitimate planning foundations such as the public finance law (Lei gestão finanças publica) and is guided by public budget procedures and annual budget absorption rules. The results of this analysis show that INCT has not optimally realized its budget well based on the 3 existing main programs, which can be shown in the table below.

Table 5.2
INCT STRATEGIC PROGRAMS FOR 2019

No	PROGRAM	PERFORMANCE INDICATOR	ACHIEVEMENT
1	Complete the governance bodies and disseminate the INCT	Complete the governance bodies	Objectives Partially Achieved
		Hiring of personnel for the operation of the INCT through a public competition	Objectives Partially Achieved
2	Inventory and registration of national scientific results.	Carry out teacher-researcher training, researchers, and scientific initiation training.	Objectives Fully Achieved
		Carry out exchange/mobility of researchers through joint research and other cooperation activities	Objectives Fully Achieved
		Hold a seminar to celebrate World Science Day for Peace and Development;	Objectives Fully Achieved
		Promote seminars, scientific debates and organize mathematics and Portuguese language olympiads – and annual awards to the best Timorese researchers.	Objectives Partially Achieved
		Continue to promote and reinforce pure and applied scientific research.	Objectives Fully Achieved
3	Promote scientific research capable of producing pure and/or applied knowledge	Create a scientific digital repository.	Objectives not achieved
		Collect, research and document all scientific publications, reports, books, videos, CDs and others related to Timor-Leste, whether by Timorese or foreign authors;	Objectives Partially Achieved
		Establish rules for accreditation of national scientific journals and recognition of intellectual property (Copyright and patent rights);	Objectives not achieved
		Carry out general and specialized technical training to manage and update the INCT repositior	Objectives not achieved
		Establish strategic partnerships with other foreign institutions to have access to publications.	Objectives Fully Achieved

Sources: INCT Performance Report 2019

Table 5.3
Budget allocation by category

Year	CATEGORY	ALLOCATION (\$)	REALIZATION (\$)	EFFECTIVENES %	Effective Level of Budgetary Absorption
2019	Salary & Wages	\$89,780	\$51,224	73.43	Less Effective
	Goods & Services	\$188,905	\$168,969	89.45	Quite effective
	Minor Capital	\$100,200	\$89,745	89.57	Quite effective
	Total	358,865.00	309,938.00	86.37	Quite effective

Source: Budget Realization Report (data processed 2024)

From the table above (5.2 & 5.3) it can be seen that by allocating the 2019 budget based on 3 main programs, INCT was able to achieve and properly realize the performance indicators that had been set in the main program, however there were still several programs that were partially implemented and some that were not implemented due to a lack of budget allocation for the program and the lack of resources at its disposal.

For the 2020 Fiscal Year, INCT received a budget allocation of \$289,164.00 with an absorption of \$233,958.33 and a budget effectiveness level of 89.70% using the calculation formula Mardiasmo (2007:129): “Quite effectiveness 80%-90%”.

It can be assumed that INCT is very careful in budget planning and always adheres to legitimate planning foundations such as the public finance law (*Lei gestão finanças publica*) and is guided by public budget procedures and annual budget absorption rules. The results of this analysis show that INCT has not optimally realized its budget well based on the 3 existing main programs, which can be shown in the table below.

Table 5.4
INCT STRATEGIC PROGRAMS FOR 2020

No	PROGRAM	PERFORMANCE INDICATOR	ACHIEVEMENT
1	Consolidation of Timor-Leste's national Science and Technology system	Expansion and consolidation of National and International Cooperation to reinforce research services and facilitate the mobility and exchange of researchers	Objectives Achieved Partially
		Human Resources - Carry out the training and qualification of teaching-researchers and researchers;	Objectives Achieved Fully
		Hold a seminar to celebrate World Science Day for Peace and Development;	Objectives Achieved Fully
		Start creating an ICT website to promote and disseminate ICT activities.	Objectives not achieved
		Promote seminars, scientific debates and organize mathematics Olympiads.	Objectives Achieved Partially
		Ensure the functioning of the structure of INCT's governance bodies	Objectives Achieved Partially
2	Research, Development and Innovation in strategic areas	Improve and consolidate the role of ICT Research Units (UPs) as leading ST&I units, acting as research units in strategic areas.	Objectives Achieved Fully
		Strengthen and expand the UPs' thematic networks and partnerships with other governmental and private institutions.	Objectives Achieved Partially
		It continues to foster, promote and reinforce pure and applied scientific research in strategic areas in accordance with the National Development	Objectives Achieved Fully

		Strategic Plan (PEDN) 2011-2030 and the goals set by the Sustainable Development Goals (SDGs).	
3	Creation of INCT legal frameworks	Develop legal diplomas, operational manual for the research ethics committee, regulations linked to foreign researchers and other regulations necessary to guarantee the quality of implementation of scientific research, accreditation of scientific journals, Copyright and Patent Law.	Objectives Partially Achieved

Sources INCT Performance Report 2020

Table 5.5

Budget allocation by category

Year	CATEGORY	ALOCATION \$)	REALIZATION (\$)	EFFECTIVENES %	Effective Level of Budgetary Absorption
2020	Salary & Wages	\$96,512.00	\$65,173.00	67.53	Less Effective
	Goods & Services	\$192,652.00	\$168,781.33	87.61	Quite effective
Total		289,164.00	233,954.33	80.91	Quite effective

Source: INCT Budget Realization Report (data processed 2024)

From the table above (5.4 & 5.5) it can be seen that by allocating the 2020 budget based on 3 main programs, INCT was able to achieve and properly realize the performance indicators set in the main program, however there are still obstacles, some programs were partially implemented and some were not implemented due to the lack of budget allocation for the program, lack of resources and also during the Covid 19 pandemic.

For the 2021 Fiscal Year, INCT received a budget allocation of \$ 573,591.60 with an absorption of \$518,486.00 and a budget effectiveness level of 89.70% using the calculation formula Mardiasmo (2007:129): “Quite effectiveness 80%-90%”.

It can be assumed that INCT is very careful in budget planning and always adheres to legal planning bases such as public finance law (*Lei gestão finanças publica no.13/2009*) and also in budget realization it is also very guided by “*primeira alteração à lei n.º 14/2020, de 29 de dezembro, orçamento geral do estado para 2021*” regarding public budget procedures and also rules for absorbing the 2021 budget. The results of this analysis show that INCT has not optimally realized its budget well based on the 3 existing main programs, which can be shown in the table.

Based on the 2021 annual program planning as stated in the *sistema dalam ba futur* (DBF), INCT has 2 main programs, 2 sub-programs and 3 activities. Overall, the budget system is program-based, the relationship between budget allocations to programs is as shown in the table 5below.

Table 5.6

Program National Institute of Science and Technology YEAR 2021

No	PROGRAM	SUB PROGRMA	ACTIVITY	PERFORMANCE INDICATOR	ACHIEVEMENT
1	Good Governance and	Institutional Management	Financial Management, Administration and Logistics	Approved Strategic Plan Executed budget Annual plan goals achieved	50% of annual plan goals achieved

	Institutional Management				
2	Higher education	National Institute of Sciences and Technology	Inventory and registration of national scientific production	Digital Repositories Study of the creation of the national scientific repository carried out and the collection of national scientific production is underway	Digital repository with ongoing study 60% of 1 study carried out and 100 scientific articles collected
			Surveys, research studies and applied science analysis	20 Research/studies carried out	Performance Not Achieved by Target (Only 17 Research Was Conducted)

Sources: *Sistema dalam ba Futuru (Annual Report), dbf 2021*

Table 5.7

Budget allocation by category

Year	CATEGORY	ALLOCATION (\$)	REALIZATION (\$)	EFFECTIVENES (%)
2021	Salary & Wages	96,512.00	85,363.00	88.45
	Goods & Services	427,749.60	385,663.00	90.16
	Minor Capital	49,330.00	43,460.00	88.10
	Total	573,591.60	514,486.00	89.70

Source: INCT Budget Realization Report (data processed 2024)

Table 5.8

Budget Allocation by Program

Program	ALLOCATION (\$)	REALIZATION (\$)	EFFECTIVENES (%)	Effective Level of Budgetary Absorption
Good Governance and Institutional Management	\$26,754.00	\$26,206.00	97.95%	Effective
Education and Training	\$546,837.00	\$488,280.00	89.29%	Effective
Total	\$573,591.00	\$514,486.00	89.70%	Effective

Source: INCT Budget Realization Report (data processed 2024)

From the table above (5.6, 5.7 & 5.8) it can be seen that by allocating the 2021 budget based on categories and programs, INCT is able to achieve and realize very well the performance indicators that have been set in the two main programs (good governance and institutional management, and Higher Education), INCT was able to achieve and properly realize the performance indicators that had been set in the main program, but there were still obstacles, some programs were partially implemented and some were not implemented due to a lack of program budget allocation, lack of resources and the Covid 19 pandemic so that the budget could not be used properly, especially in the budget for minor capital.

This is expected to achieve the main objectives (PEDN 2011-2030) which have been set in the *sistema dalam ba furturu (dbf)*, Education and Training: By 2030, the people of Timor-Leste will be educated and experienced, able to live long and productive lives and have access to quality education that allows them to participate in the economic, social and political development of our nation.

For the 2022 Fiscal Year, INCT received a budget allocation of \$ \$490,824.00 with an absorption of \$471,100.73 and a budget effectiveness level of 95.98% using the calculation formula Mardiasomo (2004:4). “Effectiveness 90%-100%”.

It can be assumed that INCT is very careful in budget planning and always adheres to legal planning bases such as public finance law (*Lei gestão finanças publica no.13/2009*) and also in budget realization it is also very guided by “*Decreto do Governo N.º 26 /2022 de 20 de Dezembro Primeira alteração ao Decreto do Governo n.º 13/2022, de 18 de janeiro, execução do Orçamento Geral do Estado para 2022*”, regarding public budget procedures and also rules for absorbing the 2022 budget.

Based on the 2022 annual program planning as stated in the *sistema dalan ba futur* (DBF), INCT has 2 main programs, 4 sub-programs and 7 activities. Overall, the budget system is program-based, the relationship between budget allocations to programs is as shown in the table below.

Tabel 5.9
Program National Institute of Science and Technology YEAR 2022

No	PROGRAM	SUB PROGRMA	ACTIVITY	PERFORMANCE INDICATOR	ACHIEVEMENT
1	Good Governance and Institutional Management	Good Governance <i>Better system transparency and administration accountability Executed budget</i>	Apoio Jurídico	5 Legal Frameworks prepared	Performance Not Achieved by Target
		Institutional Management <i>Annual plan goals achieved</i>	Financial Management, Administration and Logistics Planning, monitoring and statistics	100% Budget executed Quarterly reports sent and strategic plan prepared	Performance Achieved On Target
		Partnerships	Cooperation and partnerships	5Cooperation established	Performance Exceeds target
2	Education and Training	Sciences and Technology	Inventory and registration of national scientific production	Digital Repositories Study of the creation of the national scientific repository carried out and the collection of national scientific production is underway	Performance Achieved on Target Performance Acheved On Target
			Surveys, research studies and applied science analysis	15Research/studies carried out	Performance Not Achieved by Target (Only 12 Research Was Conducted)
			Promote and disseminate scientific and technological knowledge	events held and scientific knowledge recommended/disclosed	Performance Exceeds target

Source: Dalan Ba Futuru Monitorizasaun Dezempeñu (Anual) 2022

Table 5.10

Budget allocation by category

Year	CATEGORY	ALOCATION \$)	REALIZATION (\$)	EFFECTIVENES %
2022	Salary & Wages	128,768.00	110,154.40	85.54
	Goods & Services	362,056.00	360,946.33	99.69
Total		490,824.00	471,100.73	95.98

Source: INCT Budget Realization Report (data processed 2024)

Table 5.11

Budget Allocation by Program

Program	ALOCATION \$)	REALIZATION (\$)	EFFECTIVENES %	Effective Level of Budgetary Absorption
Good Governance and Institutional Management	\$212,045.00	\$193,057.34	91.05%	Effective
Education and Training	\$278,779.00	\$278,043.39	99.74%	Effective
Total	\$490,824.00	\$471,100.73	95.98%	Effective

Source: INCT Budget Realization Report (data processed 2024)

From the table above (5.9, 5.10 & 5.11) it can be seen that by allocating the 2022 budget based on categories and programs, INCT is able to achieve and realize well the performance indicators that have been set in the two main programs (governance and institutional management and Education&Training). INCT is able to achieve and properly realize the performance indicators that have been set in the main program, but there are still obstacles, there are programs that are partially implemented and there are also those that are not implemented due to a lack of program budget allocation and the 2 directors who are still vacant in the INCT organizational structure, resulting in the budget categories for salary and wages not being able to be realized properly.

This is expected to achieve the main objectives (PEDN 2011-2030) which have been set in the *sistema dalam ba furturu (dbf)*, Education and Training: By 2030, the people of Timor-Leste will be educated and experienced, able to live long and productive lives and have access to quality education that allows them to participate in the economic, social and political development of our nation.

For the 2023 Fiscal Year, INCT received a budget allocation of \$552,177.00 with an absorption of \$535,219.00 and a budget effectiveness level of 96.93% using the calculation formula Mardiasomo (2004:4). "Effectiveness 90%-100%".

It can be assumed that INCT is very careful in budget planning and always adheres to legal planning bases such as public finance law (*Lei gestão finanças publica no.13/2009*) and also in budget realization it is also very guided by "*Decreto do Governo N.º 26 /2022 de 20 de Dezembro Primeira alteração ao Decreto do Governo n.º 13/2022, de 18 de janeiro, execução do Orçamento Geral do Estado para 2022*", regarding public budget procedures and also rules for absorbing the 2022 budget.

Based on the 2023 annual program planning as stated in the *sistema dalam ba futur (DBF)*, INCT has 2 main programs, 3 sub-programs and 7 activities. Overall, the budget system is program-based, the relationship between budget allocations to programs is as shown in the table below.

Tabel 5.12
Program National Institute of Science and Technology Year 2023

No	PROGRAM	SUB PROGRMA	ACTIVITY	PERFORMANCE INDICATOR	ACHIEVEMENT
1	Institutional Functioning and Development	Institutional Functioning <i>Improve transparency and accountability indices in the functioning of public administration</i>	Legal Support	3 Legal Frameworks prepared	Performance Achieved on Target
		Institutional Development <i>Annual plan goals achieved</i>	Financial Management, Administration and Logistics Planning, monitoring and statistics	100% Budget executed Quarterly reports sent and strategic plan prepared	Performance Achieved on Target
			Cooperation and partnerships	5 Cooperation established	Performance Exceeds target
			Infrastructures Administrative buildings	constructed buildings ToR prepared and feasibility study completed	Performance Achieved on Target Performance Not Achieved by Target
2	Education and Training	Sciences and Technology	1. Inventory and registration of national scientific production 2. Surveys, research studies and applied science analysis 3. Promote and disseminate scientific and technological knowledge	50 Number of scientific articles collected 12 Research/studies carried out Events held and scientific knowledge recommended/disclosed	Performance Achieved on Target Performance Acheved on Target Performance Not Achieved by Target

Source: Dalan Ba Futuru Monitorizasaun Dezempeñu (Anual) 2023

Table 5.13
Budget allocation by category

Year	CATEGORY	ALOCATION \$)	REALIZATION (\$)	EFFECTIVENES %
2023	<i>Despesas com Pessoal</i>	173,431.00	\$535,219	96.93
	<i>Acquisicao de Bens Correntes</i>	11,150.00		
	<i>Acquisicao de Servico Correntes</i>	326,212.00		
	<i>Acquisicao de Bens de Capital Movel</i>	21,384.00		
	<i>Acquisicao de Bens de Capital Fixo</i>	20,000.00		
	Total	552,177.00		

Source: INCT Budget Realization Report (data processed 2024)

Table 5.14
Budget Allocation by Program

Programa	ALOCATION \$)	REALIZATION (\$)	EFFECTIVENES %	Effective Level of Budgetary Absorption
Good Governance and Institutional Management	\$286,511.00	\$281,498.39	98.25%	Effective
Education and Training	\$265,666.00	\$253,720.28	95.50%	Effective
Total	\$552,177.00	\$535,218.67	96.93%	Effective

Source: INCT Budget Realization Report (data processed 2024)

From the table above (5.12, 5.13 & 5.14) it can be seen that by allocating the 2022 budget based on categories and programs, INCT is able to achieve and properly realize the performance indicators that have been set in the two main programs (Institutional Function and Development, and Education & Training). INCT is able to achieve and realize well the performance indicators that have been set in the main program, but there are still obstacles, there are programs that are partially implemented and there are also those that are not implemented due to a lack of budget allocation for science and technology programs.

This is expected to achieve the main objectives (PEDN 2011-2030) which have been set in the *sistema dalam ba furturu (dbf)*, Education and Training: By 2030, the people of Timor-Leste will be educated and experienced, able to live long and productive lives and have access to quality education that allows them to participate in the economic, social and political development of our nation.

Result of Analysis – Budget Growth Rate of National Institute of Science and Technology for year 2019 to 2023.

The growth rate of the National Institute of Science and Technology Budget for the period of 2019 to 2023 is calculated using the formula and criteria of Halim (2007:291).

$$\text{Year 2020} \quad \text{GR} = \frac{289,164.00 - 358,865.00}{358,865.00} \times 100\% = -0.19\%$$

$$\text{Year 2021} \quad \text{GR} = \frac{573,591.00 - 289,164.00}{289,164.00} \times 100\% = 0.98\%$$

$$\text{Year 2022} \quad \text{GR} = \frac{490,824.00 - 573,591.60}{573,591.60} \times 100\% = -0.14\%$$

$$\text{Year 2023} \quad \text{GR} = \frac{552,177.00 - 490,842.00}{490,842.00} \times 100\% = 0.13\%$$

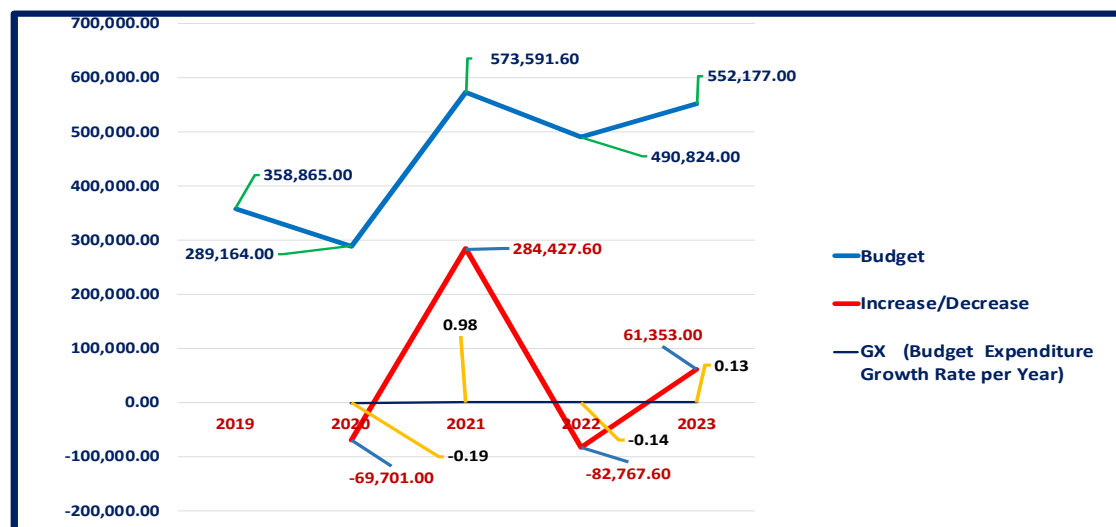
Budget Growth Rate at the National Institute of Science and Technology as shown in the table in the Table below.

Table 5.15
Budget Growth Rate of INCT 2021-2023

Year	Xt (Budget Revenue and Expenditure in certain year) (\$)	X (t-1) Revenue and Expenditure of previous year (\$)	Increase/ Decrease	GX (Budget Revenue and Expenditure Growth Rate per Year)
2019	358,865.00			
2020	289,164.00	358,865.00	-69,701.00	-0.19%
2021	573,591.00	284,427.00	284,427.00	0.98%
2022	490,824.00	573,591.60	-82,767.00	-0.14%
2023	552,177.00	490,824.00	61,353.00	0.13%

Source: Analysis report 2019-2023 using Halim formula

Figur 5.1 Growth Rate Chart (\$)



Discussion on the Result of Analysis – Budget Growth Rate for 2019 – 2023

Based on table 5.15 and figure 5.1 above, it can be seen that the budget growth rate from 2019 to 2023 has increased and decreased. From 2019 to 2020 the INCT budget growth rate decreased by -0.19%, from 2020 to 2021 the INCT budget growth rate increased by 0.98%, from 2021 to 2022 the INCT budget growth rate decreased by -0.14%. and From 2022 to 2023 there will be an increase with a budget growth rate of 13%. It can be seen that INCT's budget has not increased, so it has not been able to achieve the expected results in accordance with INCT's mission.

Despite this marked increase in the final year of analysis, the overall trends point to a rather inconsistent growth pattern that may hinder the realization of INCT's goals and mission. Although the budget reflected a substantial uptick from 2022 to 2023, the earlier years' contractions reflect potential challenges in maintaining consistent funding and resource allocation, vital for achieving projected outcomes. The interruptions and varying growth rates signify that INCT has not been able to secure a stable

positive financial trajectory that aligns with its mission. Continuous budgetary unpredictability could undermine efforts to implement strategic initiatives, ultimately affecting overall performance and attainment of goals aligned with INCT's objectives.

Therefore, while the 13% increase for 2023 is encouraging, it raises important questions about sustainability and planning for future fiscal years. A more consistent budget assurance strategy may be necessary to enhance INCT's capability to meet its ambitious targets in the forthcoming years. This indicates that INCT must address underlying financial planning issues to secure the stability needed for effective project execution and achievement of strategic vision.

6. Conclusions, Limitation and Recommendations

Conclusions.

The effectiveness of program-based budget absorption in 2019-2023 is generally "Quite Effective" with an average absorption rate of 89.98%. However, there is an absorption rate that fluctuates every year, namely: In 2019 the budget absorption rate was 86.3% in the "quite effective" category, in 2020 the budget absorption rate was 80.91% in the "quite effective" category, in 2021 the budget absorption rate was 89.70% in the "quite effective" category, in 2022 the budget absorption rate was 95% in the "effective" category and in 2023 the budget absorption rate was 96% effective category

The budget growth ratio for 2019-2023 fluctuates in the range of moderately successful to successful: in 2020 the budget growth rate decreased by -0.19%, in 2021 the budget growth rate increased by 0.98%, in 2022 the budget growth rate decreased by -0.14%, in 2023 the budget growth rate experienced an increase of 13%.

National Institute of Science and Technology with budget allocations that fluctuate every year, and budget allocations that have not been prioritized by the country, however INCT remains committed to achieving short-term, medium-term and long-term targets with levels of achievement in accordance with the performance indicators in the program, where each target has reached above 90% and there are still several targets that need to be implemented in future implementation.

Limitation and Recommendation

Based on the research results and their implications, it is recommended for INCT to maintain the level of effectiveness of budget absorption and budget growth, but budget absorption at the item level needs to be increased.

This research lacks data so that the analysis carried out is only limited to analyzing budget absorption and budget growth rates, although the analysis of budget absorption at the program and sub-program level in (Sistem dalam ba Futuru) is still incomplete, therefore further research suggests conducting an in-depth study of performance results in detail and looking at the comparison of budget absorption with the output produced during a certain period of time, especially in the main science and technology programs, and It is recommended that the National Institute of Science and Technology be prioritized in increasing budget allocations by the government.

Acknowledgement

I would like to extend my sincere appreciation to the President of the National Institute of Science and Technology (INCT) and the head of the planning and monitoring department for their invaluable assistance in facilitating the data necessary for the successful completion of this research.

References

- Abdallah, S. (2018). *Effect Of Budgeting On Financial Performance Of County Government Of Kwale In Kenya*.
- Biswan, A. T., & Grafitanti, I. D. (2021). Reinterpreting Performance-Based Budgeting Based on Public Sector Budgeting Implementation Studies. *Jurnal Manajemen Perbendaharaan*, 2(1), 35-56.
- Brumby, J. (2019). Survey Budgeting reforms in OECD member countries. *Survey Budgeting reforms*.
- Bastian, I. (2006). *Akuntansi sektor publik: Suatu pengantar*. Jakarta: Erlangga
- Bawuna, N. N, Kalangi, L, Runtu, T. 2016. Analisis Efektivitas Kinerja Penerimaan Pajak Daerah Dan Retribusi Daerah Terhadap Pendapatan Asli Daerah Di Kabupaten Siau Tagulandang Biaro, *Jurnal Berkala Ilmiah Efisiensi* 16 (04) : 1-11
- Carreira, D. (2019). *The budget execution of the diversity policies in the Lula and Dilma governments: obstacles and challenges the budget*. Carreira, D. (2019). The budget execution of the diversity policies i *Revista Brasileira de Educação*, 24.
- Erick Kipkirui (2020) *Effects Of Budget Absorption On Performance Of County Governments In Kenya*
- Halim, A. &. (2013). *Factors Influencing the absorption of local government budget*. Indonesia.
- Halim, Abdul. 2007. *Akuntansi Sektor Publik: Akuntansi Keuangan Daerah*. Jakarta: Salemba Empat.
- Hanafi dan Halim. (2012). *Analisis Laporan Keuangan Edisi Keempat*. Yogyakarta : STIM YKPN. Lei gestão finanças publica no.13/2009
- Liang Gie, T. (2000). *Administrasi Perkantoran Modern*. Yogyakarta.: Liberty.
- Mardiasmo. 2009. *Akuntansi Sektor Publik*. Penerbit ANDI Yogyakarta.
- Mahmudi. 2016. *Analisis Laporan Keuangan Pemerintah Daerah*. Sekolah Tinggi Ilmu Manajemen. Yogyakarta
- Mardiasmo. 2007. *Analisis Laporan Keuangan Pemerintah Daerah*. Sekolah Tinggi Ilmu Manajemen YKPN. Yogyakarta
- Mahsun, Mohammad. 2006. *Pengukuran Kinerja Sector Public*. BPFE. Yogyakarta
- Orleaes, Wiagustini and Soares (2019) *Analysis of the Effectiveness of Budget Absorption and the Growth Rate of the Revenue and Expenditure Budget of the Ministério De Saúde Timor-Leste for 2015-2019*. Vol 3 (2021): The 3rd International Conference On Economics And Business 2021
- OECD, Timor-Leste Governance Roadmap: Rewiew and Update, March 2019-special focus on gender budgeting and alignment of the government's performance budgeting system on the sustenaible development Golas.
- Primeira alteração à lei n.º 14/2020, de 29 de dezembro, orçamento geral do estado para 2021”

“Decreto do Governo N.º 26 /2022 de 20 de Dezembro Primeira alteração ao Decreto do Governo n.º 13/2022, de 18 de janeiro, execução do Orçamento Geral do Estado para 2022”

Decreto-Lei N.º 1/2023 de 25 de Janeiro Execução do Orçamento Geral do Estado para 2023.

Pollitt, C. a. (2004). *Public Management Reform. A Comparative Analysis, 2nd ed.* Oxford: Oxford University Press

Plano Estrategico do Desenvolvimento Nasional PEDN 2011-2030

Relatorio Dezempeñu INCT, tinan 2021-2023 iha Dalan ba Futuru-RDTL (dbf-RDTL)

SDG’s Roadmap, 2017. Timor-Leste Roadmap for the Implementation of the 2030 agenda and the SDGs.

Tamasoleng, Adelisting. 2015. Deskriptif, Anggaran Berbasis kinerja, Kendala- kendala. Jurnal Riset Bisnis dan Manajemen. (online) Vol. 3, No. 1. (<http://scholar.google.co.id/>, diakses pada 9 Maret 2018).

Uma Sekarang & Roger Bougie. (2016). *Research Methods for Business: a Skill-buliding approach*

Copyrights

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).