Performance management system design of inspection bodies in Indonesia using *Analytical Hierarchy Process* method

(*Perancangan sistem pengukuran kinerja lembaga inspeksi di iIndonesia menggunakan metode Analytical Hierarchy Process*)

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Abstrak. Demi meningkatkan pertumbuhan ekonomi melalui pembangunan infrastruktur di Indonesia, Pemerintah setuju untuk meningkatkan proyek-proyek strategis dengan urgensi tinggi untuk diimplementasikan dalam jangka pendek. Total investasi proyek yang mencapai IDR 4.183 trilliun harus dikontrol dan dikelola dengan baik, di sini Lembaga Inspeksi dibutuhkan. Jumlah Lembaga Inspeksi di Indonesia yang terdaftar di Komite Akreditasi Nasional (KAN) berjumlah 169 lembaga. Dari total Lembaga Inspeksi tersebut ternyata yang aktif dan memiliki sertifikat ISO 17020 dan masih berlaku adalah 120 Lembaga, sementara 44 Lembaga Inspeksi lainnya telah dicabut izin opersionalnya, dan 5 Lembaga Inspeksi lainnya dibekukan. Melihat fenomena ini timbul pertanyaan, mengapa 26% dari total seluruh Lembaga Inspeksi di Indonesia dicabut izin operasionalnya dan 3% lainnya dibekukan? Padahal keberadaan Lembaga Inspeksi ini sangat strategis dan dibutuhkan dalam membantu mengawasi pelaksanaan proyek pembangunan nasional, terlebih dengan potensi keuntungan yang besar, yaitu 1% dari nilai total proyek nasional? Penelitian ini menggunakan metode *Balanced Scorecard* dengan pembobotan *Analytical Hierarchy Process* (AHP). Hasil pengukuran kinerja pada perusahaan jasa inspeksi pada tahun 2020, yang terbesar adalah kinerja keuangan, diikuti berturut-turut kinerja pelanggan, pertumbuhan dan pembelajaran, dan proses bisnis internal. Rata-rata pencapaian kinerja perusahaan jasa inspeksi adalah 57,76% artinya kinerja perusahaan/lembaga inspeksi saat ini masih belum cukup baik. Untuk menguji kepuasan karyawan disebarkan kuisioner kepada 23 responden dari 4 perusahaan inspeksi yang dipilih secara acak dari berbagai jabatan dari manager hingga inspektor lapangan, hasilnya masih relatif baik yaitu 3.99 dari skala 5.

Kata kunci: AHP, b*alanced scorecard*, ISO 17020, kinerja lembaga inspeksi.

Abstract. *In order to increase economic growth through infrastructure development in Indonesia, the Government has agreed to increase strategic projects that are urgent to be implemented in the short term. The total project investment which reaches IDR 4.183 Trillion must be controlled and managed properly, this is where the Inspection Body is needed. The number of Inspection Bodies in Indonesia registered with the National Accreditation Committee (KAN) is 169 institutions. Of the total inspection bodies, 120 are active and have ISO 17020 certificates, while 44 other inspection bodies have their operational licenses revoked and 5 other inspection bodies have been suspended. Seeing this phenomenon, the question arises, why 26% of the total inspection bodies in Indonesia have their operational permits revoked and the other 3% are frozen? Whereas the existence of this Inspection Agency is very strategic and needed in assisting the supervision of the implementation of national development projects, especially with the large potential benefits, namely 1% of the total value of national projects? This research uses the Balanced Scorecard with Analytical Hierarchy Process (AHP) weighting. The results of performance measurement at inspection service companies in 2020, the high score is financial performance, second place is customer performance, at learning and growth is in third place, and the last position is internal business processes. The average score of the inspection service company's performance is 57.76% which means that the performance of the inspection body/company is currently not good. To test employee satisfaction, a questionnaire was conducted on 23 respondents from 4 inspection companies who were randomly selected from various positions ranging from managers to field inspectors, the results were still quite good, namely 3.99 from 5 scale.*

Keywords: AHP, Balanced Scorecard, ISO 17020, Performance Improvement.

1   Introduction

The Government of Indonesia through the Priority Infrastructure Provision Commitee (KPPIP) selected a list of projects that were considered strategic and urgently needed and facilitated the project implementation. By providing this facility, they hoped the strategic projects could be implemented quicker (Komite Percepatan Penyediaan Infrastruktur Proyek, 2020).

In the Middle of 2016 to early 2017, evaluation and selection of strategic projects and mechanisms for accelerating its development had been carried out. The results of the evaluation and selection are contained in Presidential Regulation No. 58 of 2017 regarding the amendment to Presidential Regulation No. 3 of 2016 regarding the Acceleration of National Strategic Projects Implementation.

KPPIP's National Strategic Project (PSN) Evaluation and Selection was began in August 2016 and completed at the KPPIP Ministerial Meeting on February 10, 2017. The results of the process were reported to the President in April 2017.

Based on the Presidential Regulation No. 58 of 2017 regarding the amendment to Presidential Regulation No. 3 of 2016 regarding the Acceleration of National Strategic Project Implementation, it was decided that 245 National Strategic Projects (PSN) plus 2 programs, i.e the electricity program and the aircraft industrial program (Komite Percepatan Penyediaan Infrastruktur Proyek, 2020)

For a total of 245 projects and 2 programs that included in the PSN list, a total estimation financing in the amount of IDR 4,197 Trillion is needed with funding sources coming from the State Budget in the amount of IDR 525 Trillion, from BUMN/D in the amount of IDR 1,258 Trillion, and from Private in the amount of IDR 2,414 Trillion .

However there was a change based on Presidential Regulation No. 56 regarding the amendment to Presidential Regulation No. 58 of 2017, it was decided a change to be 223 National Strategic Projects (PSN) plus 3 programs, i.e the electricity program and the aircraft industrial program as well as economic equality.

The total project investment that reaches IDR 4,183 Trillion must be controlled and managed properly for its use and absorption, the activities of the Inspection Body or supervision is needed here. The wide scope of inspection covers almost all project activities, from construction of road infrastructure, construction of electric railways, construction of building project, housing, until port construction and power plant construction, all of them must be supervised by a third-party, in this case the Inspection Body.

According to the Chairman of the Indonesian Inspection Companies Association (APITINDO), the average value obtained by his association members is around 1% of the total project value (Kontan.co.id, 2018). If the value of the national strategic project reaches IDR 4,183 Trillion, meaning that 1% of that amount is IDR 41 Trillion, a quite-large amount that can be enjoyed by all members of the Inspection Bodies Association.

The number of Inspection Company or Inspection Body in Indonesia that registered in the National Accreditation Committee (KAN) as Inspection Bodies in accordance with ISO 17020 standard are 169 companies/Bodies. From 169 Inspection Bodies, it turns out only 120 companies that still active and have valid ISO 17020 certificates, while 44 other Inspection Bodies have their operational lecense irevoked and 5 other Inspection Bodies are suspended.

Table 1 List of Inspection Bodies registered by KAN

List of Inspection Bodies in Indonesia	
Total of Active Inspection Bodies	120
Total of Suspended Inspection Bodies	5
Total of Revoked-License Inspection Bodies	44

Source: (KAN, 2020)

Looking at the phenomenon in the table above, the question arises, why 44 Inspection Bodies, equivalent to 26% of the total number of Inspection Bodies in Indonesia, have their operational permit revoked, and the other 3%, that is 5 Inspection Bodies, are suspended, what has really happened? Even though the existence of these Inspection Bodies are very strategic and needed to

help supervising the implementation of national development projects, especially with the potential of quite-large profit, namely 1% of the total value of national project?

Today's measurement of inspection body performance generally still uses traditional measurement which focuses on the financial side only. As time goes by, where the development of the business world is increasingly modern, dynamic, and wide open in the global competition, it is not sufficient if the performance measurement only focuses on the financial side, a more thorough and comprehensive company performance assessment is needed. In the theory of Balanced Scorecard (Kaplan, Robert S; Norton, 1992) states that to obtain good financial performance result, non-financial performance also needs to be considered, because financial performance result also closely relates to non-financial performance. If the non-financial performance has increased significantly, the financial performance will also increase itself.

According to (Mulyadi, 2014), by conducting a company's performance assessment, it is hoped that can help the company to evaluate whether the implemented company's performance has been in accordance with the initial planning properly or not yet.

The performance evaluation model, and the stages to do it thoroughly are contained in the Balance Scorecard approach model (Paul R. Niven, 2008). According to him, the Balanced Scorecard provides a management framework that capable of translating organizational strategy into interrelated measures. These interrelated measures can be seen through the 4 perspectives contained in the Balanced Scorecard. The 4 perspectives contained in the Balanced Scorecard are; 1) Financial Perspective, to answer the question of how to achieve financial success, how the company should be seen by its shareholders, and etc; 2) Customer Perspective, which is used to answer the questions in achieving the company's vision, how the company should be seen by its customers, and etc; 3) Internal Process Perspective, used to answer the question of how to satisfy shareholders and customers of the company, in which business process the company must be excellent; and 4) Learning and Growth Perspective, used to answer the question of how to achieve the company's vision and mission, how the company should maintain its existence and its ability to change and improve itself.

According to (Sari & Arwinda, 2015) in their research at the Jamsostek Belawan Medan branch using the Balance Scorecard method, that by measuring the company's performance properly and honestly, it can be used as the basis for the strategy that the company will set in the long-term. The calculation result of the company's Balanced Scorecard got a total score of 56.25% in the 5%<TS<65% category, this condition, according to the criteria table, was in poor condition. This research method was in line with (Winardi et al., 2019) where the Balance Scorecard can also be used for performance analysis at a gas turbine repair service company, PT. Kidang Kencana Sakti, where the result were company performance indicators found, namely; that the weight of each indicator for the financial perspective was 31%, the customer perspective was 45%, the internal business process perspective was 15%, the learning and growth perspective was 9%. With this result, the highest weight score of the result of this study was coming from the customer perspective.

According to (Maylangi Sitorus et al., 2017), the use of Balanced Scorecard is very appropriate to develop the organizational strategies in an effort to improve organizational performance in facing global competition, from performance measurement in an organizational at Poris Indah High School using the Balanced Scorecard has provided an overview of the overall performance of the organization. The result of performance measurement of the financial perspective at this school were found in the economic, effective, and efficient categories. The result of customer perspective performance measurement also had a very satisfied category, which included facilities, infrastructure and school reliability. The results of performance measurement of the internal business processes perspective were in accordance with government regulations, however, it was found that the services for alumni were still in poor category.

In research at a sugar factory at PT Madubaru (Susetyo, 2014) using the Balanced Scorecard method found that: 1) The benchmark that under performed including Working Capital Turn Over (WTCO) with an average of 19.80%. 2) 30 Key Performance Indicators were identified that can describe the condition of the company. 3) the weighting result of the Key Performance Indicators for the company's stakeholders could be seen in the order of priority, i.e: customer stakeholder, investment stakeholder, labor stakeholder, supplier stakeholder, and community stakeholder.

This theoretical study and previous research are similar as expressed by (Taufik et al., 2021) in the literature review, this gives us a lot of information about the result and performance achievement of planning and implementing the Balanced Scorecard that has been prepared previously. So on the basis of theory and previous research, we are expected to be able to make estimation where the company needs adjustment to planning activities in an effort to control the company on an ongoing basis.

2   Method

The Balanced Scorecard is a system that allows organization to multiply the benefits and advantages of a better service at one time through performance measurement from various aspect. The Balanced Scorecard combines several performance measurements, namely financial side with operation and customer. According to (Kaplan, Robert S; Norton, 1992), The purpose of Balanced Scorecard is to measure organizational performance which can be viewed from four aspects, which are: *customer*, internal organizational process, learning and growth innovation, as well as from the financial side.

In this research using BSC, which was to measure company performance, 4 main perspectives were used, they were financial variable, customer variable, business process variable, and learning variable, that can be described as follows:

Financial Variable

The financial aspect performance indicator is selected as a strategy that generally reflects the profit and wealth of the organization, i.e the fund availability, the ability to pay debts, and whether investment realization has been as expected. These things will help shareholders and organizational leaders in making decisions regarding the financial strategy (Soemohadiwidjojo, 2015). The financial aspect performance indicators in this study used 3 (three) strategies, which were: Profitability Ratio, Liquidity Ratio, and Effectiveness Ratio.

Customer Variable

Customer Perspective according to (Sousa et al., 2020) is a perspective oriented to customer satisfaction because they are the consumer of services produced by the organization. In other word, "the organization must pay attention on what the customers want". The customer perspective in the Balanced Scoreboard identifies how the condition of their customers and the market segment that the company has selected to compete with their competitors. The segment that they have selected reflecting the existence of these customers as their source of income. In this perspective, measurement was carried out using 5 (five) main indicators, because these five indicators reflected the performance of the Marketing Department. The five indicators were new customer, customer retention rate, number of customer complaint, customer growth rate and average sales.

Internal Business Process Variable

Internal Business Process perspective is a series of activities that exist within the organization to create service quality in order to meet customer expectation (service excellence). This perspective describes the business process that managed to provide services and values to shareholders and customers. In this perspective, the company measures all activities that have been carried out by the company, either managers or employees to create a service that can provide certain satisfaction to customers and shareholders.

In this case, according to (Hendrayanti, 2019), the company focuses on 5 (five) main business processes because these five were the main focus of improvement for the internal company and a problem that often occurred within the company. The five indicators are: number of new service (scope of service extension), on time lead time, number of service defect, number of repetitive work (re-work), and on time delivery.

Learning and Growth Variable

Learning and Growth perspective (the process of learning and growth), is "describing the ability of the organization to make improvement and change by utilizing the internal resources of the organization". The continuity of an organization in the long-term according to (Dewantara &

Samopa, 2017) highly depends on this perception (human resources). A perspective that assesses how important it is for a business organization to continue to pay attention on its employees, monitor employees' welfare and improve employees' knowledge. In this perspective, there are 5 (five) important categories that must be considered for measurement because these five things are important indicators for the sustainability of the company. The five indicators are employee satisfaction index, carrying capacity of technology, employee turnover rate, average overtime cost, and employees' attendance level.

Data collection technique uses the primary and secondary data, the primary methods are; 1) Observation method, which is the method of collecting data by observing and making direct observation on business process and all company activities. 2) Interview method, by asking question directly (question and answer) with company management, i.e Director, Manager, Shareholder, and interview with company's field officers and inspectors. 3) Questionnaire method, is a set of questions that logically relate to the research problem and each question has answers that have meaning in testing the hypothesis. Meanwhile, the secondary data are; Financial report data, customer data, employee data, operational cost data and overtime cost data.

Employee Satisfaction Index, which is measured using a questionnaire that distributed to all employees from supervisor to operator level. This questionnaire was developed by (Cellucci & DeVries, 1978) in "*Measuring Managerial Satisfaction A Manual for the MJSQ Technical Report II*" (*Center for Creative Leadership*) by having a focus on salary satisfaction, promotion, co-worker, superior and job, as in Table 2.

Table 2 Variable, Dimension, and Indicator of the Employee Satisfaction Questionnaire

Variable	Dimension	Indicator	Question item
Employee satisfaction	Satisfaction with salary	Salary, allowance, and bonus are as expected	Question No. 1-5
	Satisfaction with promotion	Have a career ladder	Question No. 6-10
	Satisfaction with co-worker	Have support from co-worker Able to have teamwork with co-worker	Question No. 10-14
	Satisfaction with superior	Get attention and support from superior Having motivation	Question No. 15-19
	Satisfaction with job	Enjoying the job, loyalty to the company	Question No. 20-24

Before making a measurement, performance measurement design is carried out first in order to form a performance measurement model that is in accordance with the requirement by the Inspection Body. The stages of designing performance measurement include the perspective of the Balanced Scoreboard, the Strategic Objective of the Inspection Body, identification of business process, and the formulation of Key Performance Indicators (KPIs).

In the designing process, the Strategic Theme and Strategic Objective are grouped into four Balanced Scorecard perspectives. Strategic Theme is the main objective of each perspective that will be carried out to achieve the Inspection Body's mission. Strategic Theme in each perspective makes it easier to determine Strategic Objective.

The Strategic Theme that used in each perspective includes Revenue Growth (Finance), Market Share Growth (Customer), Service Excellence (Internal Business Process), and Human Resource Capability (Learning and Growth). The determination of Strategic Theme refers to the main superior programs of the Inspection Body.

Balanced Scorecard perspective according to (Kaplan, 2009) always has a perspective that becoming priority goal. The Inspection Body sets the customer's perspective as a priority goal. The inspection Body's program has the responsibility to contribute to the company's profitability, therefore from a finance perspective, it also gets special attention in preparing the map of company's strategy.
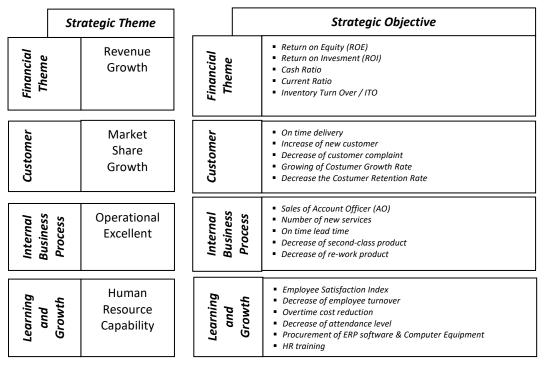
Strategic Theme		**Strategic Objective**	
Financial Theme	Revenue Growth	*Financial Theme*	▪ *Return on Equity (ROE)* ▪ *Return on Invesment (ROI)* ▪ *Cash Ratio* ▪ *Current Ratio* ▪ *Inventory Turn Over / ITO*
Customer	Market Share Growth	*Customer*	▪ *On time delivery* ▪ *Increase of new customer* ▪ *Decrease of customer complaint* ▪ *Growing of Costumer Growth Rate* ▪ *Decrease the Costumer Retention Rate*
Internal Business Process	Operational Excellent	*Internal Business Process*	▪ *Sales of Account Officer (AO)* ▪ *Number of new services* ▪ *On time lead time* ▪ *Decrease of second-class product* ▪ *Decrease of re-work product*
Learning and Growth	Human Resource Capability	*Learning and Growth*	▪ *Employee Satisfaction Index* ▪ *Decrease of employee turnover* ▪ *Overtime cost reduction* ▪ *Decrease of attendance level* ▪ *Procurement of ERP software & Computer Equipment* ▪ *HR training*

Figure 1 *Strategic theme* and *strategic objective.*

In the early stage of making the design for the performance planning of the inspection body, a Strategic Theme is grouped for each perspective. The Strategic Theme has a function as a guide for determining the Strategic Objective. The selection of Revenue Growth and Increase Market Share strategy as a Strategic Theme from a financial perspective and a customer perspective is based on the general vision of the Inspection Body Company, namely Integration Expansion and Growing business portfolio.

Based on the results of interview with the expert of Inspection Body, the both perspectives are two priority perspectives. Referring to the current global condition of the company , where the company is struggling to increase revenue amid business competition and national economic recession condition due to the COVID 19 pandemic. This research was conducted on 1 (one) Inspection Companies in Jakarta, in the period of January 2020 to December 2020. Using face-to-face health protocol that regulated by the government and through the online meeting, and using an electronic system for filling the forms.

The Inspection Body's company objective was to capture the largest number of market at the beginning. For the Internal Business Process perspective, the selected Strategic Theme was Operational Management Excellence with all operational processes related to internal and external stakeholder of the company. The Inspection Body could run smoothly without any obstacles and distractions. From the perspective of Learning and Growth, the selected Strategic Theme was Human Resource Capability. From the perspective that shelters the resources at the Inspection Body, it was hoped that it would produce human resources who had competence in their respective field so that they would be able to carry out the work professionally.

In selecting a strategy, thing needs to be considered is the conformity with the vision and mission of the Inspection Body. From various data such as strategic planning and the result of preliminary interview with 4 (four) experts of the Inspection Body's management, so that the company's strategic objectives are drawn up as in Table 3.

Table 3 The nine strategic objectives of Inspection Body

Variable		Strategic Objective
Finance	K1	Increase profitability ratio
	K2	Improving liquidity ratio
	K3	Increase effectiveness ratio
Customer Performance	P1	Customer satisfaction
	P2	Sales effectiveness
Internal Business Performance	B1	Innovating (development of new services)
	B2	Increase efficiency
Growth and Learning Performance	T1	Increase the productivity of human resources (HR)
	T2	Have a commitment and support for technology and systems

Source: PT ASRI UTAMA IP&S Management Vision & Mission (2019)

To measure the performance of the Inspection Body with the Balanced Scorecard, a series of provisions that indicate the objective, benchmark, target, and assessment scale were needed. The used assessment scale was a Likert's scale, with the determination of the assessment are; Score 5: Very good, Score 4: Good, Score 3: Average, Score 2: Bad, Score 1: Very bad. In measuring the performance using the interval scale that applied by four managements of Inspection Body, the KPI assessment scale is almost relatively the same, the KPI from PT ASRI UTAMA IP&S is shown in the Table 4.

Table 4 Financial Ratio Measurement Scale

Scale	Category	Score
KPI.1 – Return on equity turn over	ROE Increase 95.26%	5
	ROE Increase 16-24%	4
	ROE Increase 11-15%	3
	ROE Increase 6-10%	2
	ROE Increase of 0-5%	1
KPI.2 – Return on investment turn over	ROI Increase > 25%	5
	ROI Increase 20%	4
	ROI Increase 15%	3
	ROI Increase 10%	2
	ROI Increase 5%	1
KPI.3 – Cash ratio Increase	Cash ratio Increase > 25%	5
	Cash ratio Increase 16-25%	4
	Cash ratio Increase 11-15%	3
	Cash ratio Increase 10-6%	2
	Cash ratio Increase 0-5%	1
KPI.4 – Current ratio Increase	Current ratio Increase > 25%	5
	Current ratio Increase 16-25%	4
	Current ratio Increase 11-15%	3
	Current ratio Increase 6-10%	2
	Current ratio Increase 0-5%	1
KPI.5 – Inventory turn over - ITO	ITO Increase > 2,30	5
	ITO Increase 2,21-2,30	4
	ITO Increase 2,16-2,20	3
	ITO Increase 2,11-2,15	2
	ITO Increase 2,10	1
KPI.6 – Total aset turn over - TATO	TATO Increase > 30%	5
	TATO Increase 25%	4
	TATO Increase 20%	3
	TATO Increase 15%	2
	TATO Increase 10%	1

Source: PT ASRI UTAMA IP&S Management Decision Division Data (2019)

Table 5 Customer Measurement Scale

Scale	Category	Score
KPI.7 – On time delivery	Earlier delivery	5
	On time delivery 96 – 100%	4
	On time delivery 91 – 95%	3
	On time delivery 88 – 90%	2
	On time delivery 87%	1
KPI.8 – New customer Increase	New customer Increase > 20	5
	New customer Increase 16-20	4
	New customer Increase 11-15	3
	New customer Increase 6-10	2
	New customer Increase 0-5	1
KPI.9 – Decrease number of customer complaint	Number of customer complaint 0 – 5	5
	Number of customer complaint 6 – 10	4
	Number of customer complaint 11 – 15	3
	Number of customer complaint 16 – 20	2
	Number of customer complaint 21 – 25	1
KPI.10 – Growing of Customer Growth Rate	Growth Rate > 40%	5
	Growth Rate 31-40%	4
	Growth Rate 21-30%	3
	Growth Rate 11-20%	2
	Growth Rate 5-10%	1
KPI.11 – Minimize the Customer Retention Rate	Level of Customer Retention Rate 0 – 5%	5
	Level of Customer Retention Rate 6 – 10%	4
	Level of Customer Retention Rate 11 – 15%	3
	Level of Customer Retention Rate 16 – 20%	2
	Level of Customer Retention Rate 21 – 25%	1

Source: PT ASRI UTAMA IP&S Management Decision Divison Data (2019)

Table 6 Internal Process Business Measurement Scale

Scale	Category	Score
KPI.12 – Increase the average sales of Account Officer (AO)	Sales of AO > 9.000.001	5
	Sales of AO 8.500.001 – 9.000.000	4
	Sales of AO 7.500.001 – 8.500.000	3
	Sales of AO 6.500.001 – 7.500.000	2
	Sales of AO 5.000.000 – 6.500.000	1
KPI.13 – Increase number of new service	Number of new service > 20	5
	Number of new service – 20	4
	Number of new service 5 – 10	3
	Number of new service 2 – 5	2
	Number of new service 1 – 2	1
KPI.14 – On time lead time	On time lead time > 100%	5
	On time lead time 80 – 90%	4
	On time lead time 70 – 80%	3
	On time lead time 60 – 70%	2
	On time lead time 50 – 60%	1
KPI.15 – Decrease number of second-class service	Second-class < 50 kasus	5
	Second-class 40 – 45 kasus	4
	Second-class 30 – 35 kasus	3
	Second-class 20 – 25 kasus	2
	Second-class 10 – 15 kasus	1
KPI.16 – Decrease number of re-work service	Re-Work < 50 kasus	5
	Re-Work 40 – 45 kasus	4
	Re-Work 30 – 35 kasus	3
	Re-Work 20 – 25 kasus	2
	Re-Work 10 – 15 kasus	1

Source: PT ASRI UTAMA IP&S Management Decision Division Data (2019)

Table 7 Learning and Growth Measurement Scale

Scale	Category	Score
KPI.17 – Increase of employee satisfaction index	Employee satisfaction index > 80%	5
	Employee satisfaction index 75 - 80%	4
	Employee satisfaction index 70 - 75%	3
	Employee satisfaction index 60 - 65%	2
	Employee satisfaction index < 55%	1
KPI.18 – Decrease of employee turn over	Employee turn over rate <1% of total employee	5
	Employee turn over rate 1-2% of total employee	4
	Employee turn over rate 3-4% of total employee	3
	Employee turn over rate 5-6% of total employee	2
	Employee turn over rate 7-8% of total employee	1
KPI.19 – Overtime cost reduction	Overtime cost reduction per year > 10%	5
	Overtime cost reduction per year > 9%	4
	Overtime cost reduction per year > 8%	3
	Overtime cost reduction per year > 7%	2
	Annual overtime cost reduction > 6%	1
KPI.20 – Increase of employee's attendance	Attendance rate 100%	5
	Attendance rate 95%	4
	Attendance rate 90%	3
	Attendance rate 85%	2
	Attendance rate 80%	1
KPI.21 – Web-based Application Development & addition of computer equipment	Time needed of 3 months	5
	Time needed of 6 months	4
	Time needed of 9 months	3
	Time needed of 12 months	2
	Time needed of > 12 months	1
KPI.22 – HR training	ROI > 125%	5
	ROI 105 – 125%	4
	ROI 80 – 100%	3
	ROI 50 – 75%	2
	ROI 50%	1

Source: PT ASRI UTAMA IP&S Management Decision Division Data (2019)

After all perspectives from BSC and KPI had been identified, the next step was to determine the targets which set by the company management based on the past data achievement analysis with the following result.

Table 8 PT ASRI UTAMA IP&S KPI's Target

Symbol	KPI	Target
KPI.1	ROE turn over	ROE Increase 15%
KPI.2	ROI turn over	ROI Increase 20%
KPI.3	Increase of cash ratio	Increase of cash ratio 15%
KPI.4	Increase of current ratio	Increase of current ratio 25%
KPI.5	Inventory turn over	Increase of Inventory turn over > 2,30
KPI.6	Total asset turn over	Increase of total asset turn over 25 %
KPI.7	On time delivery	Earlier Delivery
KPI.8	Increase number of new customer	15 costumers
KPI.9	Decrease number of customer complaint	No complaint
KPI.10	Increase of Costumer Growth Rate	Costumer Growth Rate 25%
KPI.11	Decrease of Costumer Retention Rate	Costumer Retention Rate 5%
KPI.12	Average sales of Account Officer Increase	9.000.000
KPI.13	Increase number of new service	New service growth rate 10%

Symbol	KPI	Target
KPI.14	On time lead time	100%
KPI.15	Decrease number of second-class service	Maximum 10%
KPI.16	Decrease number of re-work service	Re-Work 5%
KPI.17	Increase of employee satisfaction index	79,7%
KPI.18	Decrease of employee turn over	2% of total employees
KPI.19	Overtime cost reduction	10% per year
KPI.20	Decrease of attendance rate	95%
KPI.21	Web-based application development (AUIPS) and computer equipment	Time period of 6 month
KPI.22	HR training	Training 5 (Five) times a year

Source: PT ASRI UTAMA IP&S Management Decision (2019)

3   Result and Discussion

Based on the results of descriptive statistical analysis, showing that the respondent's assessment of employee job satisfaction with a mean achievement of 3.99 (good category). Respondent's assessment of employee job satisfaction indicator which focused on: salary satisfaction shows a good score with a mean of 3.93 (good category), the item with the greatest contribution is 'received allowance is more than adequate'.

Respondent's assessment of the next indicator of employee job satisfaction focused on: promotion shows a good score with a mean of 3.90 (good category), the item with the largest contribution is 'if working well, employee employee will get be promoted'. The indicator is focusing on: co-worker shows good score with a mean of 4.14 (good category), the item with largest contribution is 'enjoying work with co-worker'.

The indicator focused on: superior shows good score with a mean of 4.04 (good category), the item with largest contribution is 'superior (manager) continues to support'. The indicator focused on: the job shows a good score with a mean of 3.94 (good category), the item with the largest contribution is 'satisfied with the job so far and will stay in the organization and satisfied to be promoted after the work results'.

Table 9 Employee satisfaction **f**requency

Indicator	Respondent's Answer					Average
	1	2	3	4	5	
Focusing on: Salary Satisfaction						
The organization pays the salary to me better than competitors	0	0	8	9	6	3.91
My salary is sufficient, suitable with my responsibilities	0	1	6	7	9	4.04
The allowance that I receive is more than sufficient	0	0	3	15	5	4.08
The bonus that i receive is more than sufficient	0	1	10	5	7	3.78
Enjoying life, with the salary, bonuses, and allowance that i receive	0	1	9	6	7	3.83
Mean score: Focusing on: Salary Satisfaction						3.93
Focusing on: Promotion						
Happy with the basic/procedure of promotion that used by the organization	0	1	8	11	3	3.69
Promotion is rare in the organization	0	0	8	7	8	4.00
If i work well, i will be promoted	0	0	8	6	9	4.04
I am satisfied with my progress level so far	0	0	6	15	2	3.83
I am satisfied being promoted after my work performance	0	0	7	10	6	3.95
Mean score: Focusing on: Promotion						3.90

Indicator	Respondent's Answer					Average
	1	2	3	4	5	
Focusing on: Co-workers						
Many of my co-workers support me	0	0	8	7	8	4.00
Many of my co-workers help my job	0	1	2	15	5	4.04
I enjoy working with my co-workers	0	0	5	7	11	4.26
I am satisfied with my promotion by my co-workers' help	0	0	5	7	11	4.26
Mean score: Focusing on: Co-workers						4.14
Focusing on: Superior						
My supervisor (manager) is supportive	0	0	1	16	6	4.22
My supervisor (manager) helps the work	0	1	7	6	9	4.00
I enjoy my work with my supervisor (manager)	0	1	8	5	9	3.95
My supervisor (manager) gives a lot of motivation	0	1	4	11	7	4.04
My supervisor (manager) is happy for the suggestion	0	2	3	11	7	4.00
Mean score: Focusing on: Superior						4.04
Focusing on: Job						
Happy and enjoy with my job	1	2	3	10	7	3.86
Very happy with my work result so far	1	1	3	13	5	3.86
Satisfied and enjoy with my job because a lot of progress for the organization	0	2	5	8	8	3.95
Satisfied with my work so far and I will keep it for the organization	0	2	5	6	10	4.04
Satisfied being promoted for my work result	0	2	2	13	6	4.00
Mean score: Focusing on: Job						3.94
Mean score: Employee Satisfaction						3.99

Source: Primary Data (2020)

Before measuring the performance of the BSC, it is necessary to determine the weight using AHP against each Perspective, Strategic Target and KPI. The results of calculations using Super Decision software can be seen in the Table 10 and Table 11.

Table 10 AHP Weighting calculation between perspectives

Criteria	Weight
Finance	0.341140831
Customer	0.286454735
Internal Business Process	0.219900135
Growth and Learning	0.152504299

Source: AHP Weight Calculation using SuperDecicion ver 3.2.0 (2020)

The next step is to calculate the company's BSC. First of all collect all company report data from a financial perspective, customer perspective, business process perspective and learning & growth perspective, from this performance report then translated into a scale scoring system, multiplied by the weighting of AHP, and the results are in Table 12.

Table 11 Calculation of AHP weighting between strategic targets

Perspective	KPI	Criteria	Weight
FINANCE	1,2	Increase profitability ratio	0.142857143
	3,4	Improving liquidity ratio	0.571428571
	5,6	Increase effectiveness ratio	0.285714286
COSTUMER	7,8	Customer satisfaction	0.750000188
	9,10, 11	Sales effectiveness	0.249999812
INTERNAL BUSINESS PROCESS	12,13	Innovating (development of new services)	0.249999812
	14,15,16	Increase efficiency	0.750000188
LEARN AND GROWTH	17,18,19,20	Increase the productivity of human resources (HR)	0.750000188
	21,22	Have a commitment and support for technology and systems	0.249999812

Source: AHP Weight Calculation using SuperDecicion ver 3.2.0 (2020)

Table 12 Calculation of BSC on Finance and Costumer Perspective

Strategic Target	KPI	Scale of Score	Total Weight	Performance Score
Performance on Financial Perspective				
Increasing the profitability ratio	ROE turn over	3	0.032	0.097
	ROI turn over	2	0.016	0.032
			Performance total	13.00%
Increasing the liquidity ratio	Increase of cash ratio	1	0.146	0.146
	Increase of current ratio	4	0.049	0.195
			Performance total	34.11%
Increasing the effectiveness ratio	Inventory turn over	4	0.073	0.292
	Total asset turn over	3	0.024	0.073
			Performance total	37%
Total performance on Financial Perspective				84%
Performance on Customer Perspective				
Increasing the customer satisfaction	On time delivery	3	0.023	0.068
	Increase number of customer	1	0.137	0.137
	Decrease number of customer complaint	4	0.055	0.222
			Performance total	43%
Sales effectiveness	Growing of costumer growth rate	1	0.012	0.012
	Decreasing the costumer retention rate	4	0.060	0.239
			Total performance	25%
Total performance on Customer Perspective				68%

Source: Manual calculation using Microsoft Excel (2020)

Table 13 Calculation of BSC on Internal Business Process and Learn & Growth Perspective

Strategic Target	KPI	Scale of Score	Total Weight	Performance Score
Performance on Internal Business Process Perspective				
Doing the innovation	Increase of AO average sales	2	0.041	0.082
	Increase number of customer	4	0.014	0.055
			Total performance	14%
Efficiency of productivity	On time lead time	5	0.019	0.096
	Decrease number of second-class service	1	0.113	0.113
	Decrease number of re-work service	1	0.033	0.033
			Total performance	24%
Total performance on Internal Business Process Perspective				38%
Performance on Learning and Growth Perspective				
HR Increase	Increase of employee satisfaction index	4	0.017	0.069
	Decrease of employee turn over	5	0.009	0.043
	Overtime cost reduction	1	0.058	0.058
	Decrease of attendance level	5	0.030	0.152
			Total performance	32%
Carrying capacity of technology and system	Development of web-based AUIPS applications and computer equipment	4	0.010	0.038
	HR training	2	0.029	0.057
			Total performance	10.0%
Total performance on Learing and Growth Perspective				42%

Source: Manual calculation using Microsoft Excel (2020)

4   Conclusion

To achieve the company's vision, mission and objectives can be seen from nine strategic targets and 22 Key Performance Indicators (KPIs) which describe the current condition of the Inspection Body. The the highest weight is finance perspective, meaning that this company is very concerned with the financial side, while the perspective with the lowest weight is Learn and Growth meaning that the company's target has not been achieved and efforts need to be made related to what must be done to achieve the target.

The results of performance measurement at inspection service companies in 2020, the high score is financial performance 84%, second place is customer performance at 68%, learning and growth with a score of 42% is in third place, and the last position is 38% of internal business processes. The total score of the inspection service company's performance is 231% (with an average of 57.76%) which means that the performance of the inspection body/company is still poor and under the target. The results of this performance are influenced by many factors and to improve the company's performance, several programs are carried out as follows:

Financial Perspective

Several things must be done by the company/inspection body to fulfill the investor's demands, such as; sales Increase, work efficiency and other resources such as provision of working tools, efficient use of natural resources (electricity, gas, water, etc.). Efforts that can be made by the company to fulfill this short-term obligation are to increase service sales and for that the company needs to make innovations (development of new services) and reduces second-class services, so this is expected to be able to maintain and increase customer trust. The company needs to control the inventory of consumable inspection tools / materials, because the current trend is experiencing the overstock that getting longer they are not used, they will be expired and the material cannot be used anymore and must be discarded.

Customer Perspective

In an effort to meet this target, inspection company needs to open new relationships/networks to various foreign customers such as; Korea, Japan and China, as we know, the three countries are very intensive in carrying out construction work in Indonesia, surely besides some countries from other European and Asian continents, as the foreign players, of course they need inspection services from national inspection company. And another important thing is creating a tool for handling customer complaint through a web-based application so that the complaint handling is quicker and more precise.

Internal Business Process Perspective

In the internal business process is a series of activities that exist in the company's internal business that having focus on service results by using effective time (on time lead time) and good quality. Efforts that can be made by the company are to review the Standard Operating Procedure (SOP) and increase the training for new employees / inspectors.

Learning and Growth Perspective

To meet customer expectations and improve employees' competence and efficiency, Inspection Company is recommended to find an IT web-based programme to manage the Information System. This application has many benefits, besides to facilitate the company's operations, there are also many training materials that can be learned by all employees, for all the services provided by the company. This system can be accessed through the internet network, so that all employees can learn flexibly anytime and anywhere.

Suggestions for further research is to put more emphasis on government regulations, because inspection companies are very vulnerable on dynamic changes of government policy. Then a design can be made to measure the compensation that will be given to employees as a follow-up to the performance achievement.

Reference

Cellucci, A. J., & DeVries, D. L. (1978). *Measuring managerial satisfaction: A manual for the MJSQ (No. 11)*.

Dewantara, P. Y., & Samopa, F. (2017). Perencanaan Strategis Sistem Informasi / Teknologi Informasi Di Balai Riset dan Standardisasi (Baristand) Industri Surabaya. *Jurnal Teknologi Proses Dan Inovasi Industri*, *2*(2). https://doi.org/10.36048/jtpii.v2i2.3211

Hendrayanti, E. (2019). Analisis Kinerja Perusahaan dengan Pendekatan Balanced Scorecard. *Optimal: Jurnal Ekonomi Dan Kewirausahaan*, *13*(1), 57–72.

KAN. (2020). *Direktori Klien Laboratorium Kalibrasi*. Kan.or.Id. http://kan.or.id/index.php/documents/terakreditasi/doc17020/sni-iso-iec-17025/laboratorium-kalibrasi

Kaplan, Robert S; Norton, D. P. (1992). The Balanced Scorecard - Measures That Drive Performance / Robert S. Kaplan, David P. Norton. Tt -. *Harvard Business Review TA -*, *70*(1), 71. https://doi.org/00178012

Kaplan, R. S. (2009). Conceptual Foundations of the Balanced Scorecard. *Handbooks of Management Accounting Research*, *3*, 1253–1269. https://doi.org/10.1016/S1751-3243(07)03003-9

Komite Percepatan Penyediaan Infrastruktur Proyek. (2020). *Proyek Strategis Nasional*. Kementerian Koordinator Bidang Perekonomian Republik Indonesia. www.kppip.go.id

Kontan.co.id. (2018). *Apitindo minta industri inspeksi teknik tidak dibuka untuk dimiliki asing*. https://industri.kontan.co.id/news/apitindo-minta-industri-inspeksi-teknik-tidak-dibuka-untuk-dimiliki-asing

Maylangi Sitorus, T., Fitri Ikatrinasari, Z., Buana, M., Selatan No, J., & Selatan, J. (2017). Pengukuran Performance Management Sma Poris Indah Menggunakan Balanced Scorecard. *Jurnal PASTI Volume XI No. 2, 149 - 159*, *XI*(2), 149–159.

Mulyadi. (2014). *Sistem Terpadu Pengelolaan Kinerja Personal Berbasis Balanced Scorecard* (4th ed.). STIM YKPN.

Paul R. Niven. (2008). *Balanced Scorecard Step by Step for Government and Non Profit Agencies*. John Wiley & Sons, Inc.

Sari, M., & Arwinda, T. (2015). Analisis Balanced Scorecard Sebagai Alat Pengukuran Kinerja Perusahaan Pt. Jamsostek Cabang Belawan. *JURNAL RISET AKUNTANSI DAN BISNIS Volume 15 No.1/ Maret 2015*, *15*(1), 52–64.

Soemohadiwidjojo, A. T. (2015). *Panduan Praktis Menyusun KPI Key Performance Indicator*. Raih Asa Sukses (Penebar Swadaya Grup). https://books.google.co.id/books?hl=en&lr=&id=NQyoCgAAQBAJ&oi=fnd&pg=PP1&dq=pengertian+KPI&ots=MSyDWEHlem&sig=0o7_yj2jPOtB_vUnhWtuR5Lzpts&redir_esc=y#v=onepage&q&f=false

Sousa, T. B. De, Melo, I. C., Oliveira, P. H. De, & Lourenço, C. M. (2020). *Balanced scorecard for evaluating the performance of supply chains : A bibliometric study. 8*(March), 294–313.

Susetyo, J. (2014). Pengukuran Kinerja dengan Menggunakan Balanced Scorecard dan Integrated Performance Measurement System (IPMS). *Jurnal Teknologi*, *7*(1), 56–63. https://doi.org/10.1016/j.knee.2013.10.006

Taufik, D. A., Purba, H. H., & Hasbullah, H. (2021). Balanced Scorecard: Literature Review and Implementation in Organization. *Operations Excellence: Journal of Applied Industrial Engineering*, *13*(1), 111. https://doi.org/10.22441/oe.2021.v13.i1.012

Winardi, A. W., Sulistyo, I. B., Kusmayanti, I. N., & Pd, M. (2019). *Designing of performance measurement system pt kidang kencana sakti by using balanced scorecard. 6*(2), 6274–6281.