

## **PERFORMANCE MANAGEMENT SYSTEM DESIGN BASED ON BALANCED SCORECARD IN PT. KRAKATAU TIRTA INDUSTRY**

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**Abstract**—*The business environment is growing very fast including water business. Investment in clean water becomes more open to private national and foreign. Technology developments in the field of clean water grow fast both in terms of water quality and efficiency so the competitions become very important issue. The company wants its business remains sustainable so it not just focuses on the financial performance but also focus to all aspects affecting the long-term business viability. This problem can be solved by using a framework that can align the business situation, the company's vision, strategy and operational objectives also monitor the realization. One framework that can meet the needs is the balanced scorecard (BSC). BSC consists of four perspectives: financial perspective, customer perspective, internal process perspective and learning and growth perspectives. Research has been done in this final project resulted performance management system design based on the balanced scorecard in PT. Krakatau Tirta Industri. Application of BSC is focused on achieving sustainable financial growth with emphasis to the completion of the raw water shortage problems and business development. Execution is the key step that PT. KTI has an objective goal to encourage employees to have high productivity in their strategy map. Strategy map than deployed to the division level that all available resources are used to achieve the targets set in order to achieve the company's vision as a world class water supply company. Application BSC is expected to support the achievement of the company's vision to provide good value to consumers; businesses develop and improve internal processes become more efficient and effective, workforce competency development as demanded changes, effective organization and good organizational culture. Application of balanced scorecard requires commitment and participation of all parties, especially top management. Monitoring and evaluation should be carried out periodically by top management in order to produce feedback to achieve its targets.*

*Keywords: Performance management system, balanced scorecard, feedback.*

### **1. Introduction**

PT. Krakatau Tirta Industri (hereafter PT KTI) is a provider of water that has a vision of "World Class Water Supply Company". Performance achievements of PT. KTI until 2011 has not shown the performance of the leading world-class companies. From the results of examination of Malcolm Baldrige Criteria for Performance Excellence in 2011, PT. KTI as stipulated in Opportunity for Improvement (OFI), performance achievements of PT. KTI has not shown the performance of the leading world-class companies, goals have not been clearly defined, and there is no system that can facilitate deployment. Under these conditions, the authors make a final project that can solve these problems.

PT KTI, was established on February 28, 1996. The Company and its plant located at center water purification, Jl. Ir. Sutami Kebonsari Citangkil Cilegon. The company started commercial operations in 1978 as the Department of Water Supply and Distribution, supporting unit for PT Krakatau Steel (PT KS). Shares of PT. KTI 99.99% owned by PT KS and 0.01% owned by PT Krakatau Industrial Estate Cilegon (PT.KIEC). The scopes of activities of the company are:

1. Procurement of raw water for its own needs or others

2. Establish and operate a water treatment plant, including waste water
3. Running trade items related to points a and b and other general merchandise, including products other parties
4. Running a business consulting and supervision in the field of water technology and / or wastewater.

PT. KTI by the number of employees in the year 2012 as many as 151 people have performance in the period 2007 to 2012 is quite good, although in 2008 and 2009, the global financial crisis affecting the production of the majority of PT. KTI customers. This good performance has not been reflected in the development of the business that is still stagnant in Cilegon and still in the field of clean water with a stagnant capacity.

Water business opportunities in Cilegon wide open with the expansion of PT. KS & group and the development of industries zone that require considerable additional water. On the other side, PT. KTI has limited water sources so that if there is no other effort will be a deficit.

Table 1 Projected needs and the availability of water

No	DESCRIPTION	2012	2013	2014	2015	2016
<b>A</b>	<b>RAW WATER NEEDS</b>					
	Sales (lt/s)	1.099	1.417	1.883	2.253	2.656
	Production (lt/s)	1.121	1.446	1.922	2.299	2.710
	Raw Water (lt/s)	1.130	1.457	1.936	2.316	2.731
<b>B</b>	<b>RAW WATER RESOURCES</b>					
	Krenceng Reservoir (lt/s)	425	425	425	425	425
	Cidanau River (lt/s)	1.375	1.375	1.375	1.375	1.375
	<b>TOTAL (LT/S)</b>	<b>1.800</b>	<b>1.800</b>	<b>1.800</b>	<b>1.800</b>	<b>1.800</b>
	<b>RAW WATER SHORTAGE</b>					
<b>A</b>	<b>(LT/S)</b>			<b>136</b>	<b>516</b>	<b>931</b>

Sources : Rencana Jangka Panjang PT. KTI 2012 - 2016

The need of water in Indonesia rising rapidly, according to the MDGs by 2015 as many as 69% of Indonesia's population has access to improved drinking water. Exploitation of ground water in Jakarta is currently limited by applying high taxes. The private sector is now given the access in the water business so the chances getting open. Several issues can be profitable or threaten PT. KTI businesses depending on the steps taken by PT. KTI. PT. KTI requires good planning, including strategic objectives, indicators and work programs to be implemented and performance monitoring system. Under these conditions, the topic of the final project taken is to build a performance management system based on the balanced scorecard at PT. KTI.

## 2. Business Issue Exploration

### A. Conceptual Framework

Factors that affect the company's performance to achieve the vision set and described as follows:

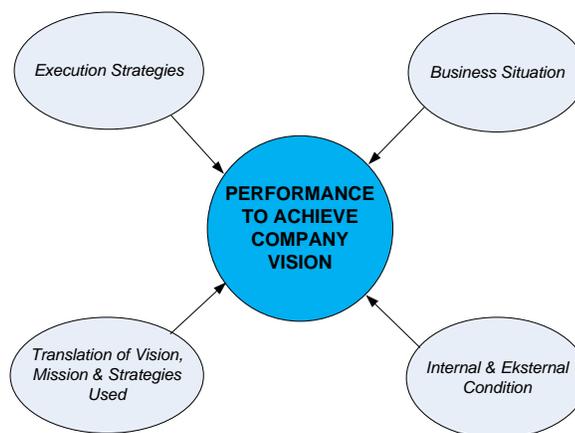


Figure 1. Conceptual Framework Scheme

Company vision achievement determined by several conditions as shown in Figure 2.1. Namely:

1. Business situation faced by companies both macro environment (PESTEL) and the industry environment.
2. Internal conditions related strengths and weaknesses of the company as well as external conditions related opportunities and threats to the company's business continuity
3. Translating vision into specific goals in order to inspire the human resources in the company as well as the strategies used.
4. Strategies excution, which in this factors are key because about 90% of companies fail to execute the strategy well.

### B. Method of Data Collection and Analysis

This study used descriptive method to study the case and review of action. According to Nazir (1985), Case study means there is only one object of the study is taken. Approach to examine the action is the same approach that was developed jointly between researchers with decision makers about the variables that can be manipulated and can be immediately used to determine policy.

### C. Analysis of Business Situation

#### a. Makro Environment Analysis

Macroeconomic conditions that triggered the world have been weakened by the primary financial turmoil in the euro area. Economic growth is a correction to be lower than previously predicted.

Table 2. World Real GDP Growth Projections (%)

Area	2010	2011	2012	2013	2014	2015
World	5.110	3.955	3.997	4.466	4.690	4.799
Advanced Economies	3.072	1.613	1.923	2.381	2.626	2.714
Emerging & Developed Economies	7.327	6.395	6.075	6.477	6.606	6.665

Sources : IMF, World Economic Outlook, Sept. 2011

- The growth of the national economy affected by the global economic slowdown, the sector of electricity, gas and water supply is expected to grow 1.3%.
- Political and legal conditions in Indonesia, private investment in water supply and waste more open with the release of the Minister of Settlement and Regional Infrastructure decision No. 409 in 2002. Standards of product quality of domestic water also increased from clean water to potable water with the release of Ministry of Health Decree No. 907/MENKES/SK/VII/2002. This will encourage water companies to upgrade or build new installation.
- Water treatment technology is growing rapidly. Conventional technology with the invention of the pulsator and lamella plate makes processing more efficient and effective. Utilization of membrane technology is growing rapidly due to the investment and operating costs getting cheaper and the quality is maintained. Membrane technology can be used to treat a variety of water quality.
- Indonesia's social culture is relatively advanced and increasingly critical to the quality of water consumed and waste water discharged into the river

b. Analysis of Industry Attraction

- Barriers to entry is high because of the cost of investment in the water industry is big and water resources are limited and the required distribution network over the pipeline so customers can instantly receive water at the site. Water industry is likely monopolistic due in one area usually supplied by one company.
- Bargaining power of suppliers is medium: Supplier of chemicals for the water industry is a lot but there are a lot of chemicals that monopolized as chlorine gas but there are substitutes although the price is slightly more expensive.
- Bargaining power of buyer is weak due to the provider of water to one area usually only 1 or 2 companies.
- The threat of substitute products is medium, the replacement product derived from the processing of waste water and sea water but the cost is quite expensive and its quality depends on the technology used. Switching costs are quite expensive because they have to build a new plant with very expensive though currently getting cheaper.
- Strong competition with the permissibility of private and foreign companies managing water resources. The private company engaged in the service of clean water in the Cilegon area there are 6 companies and the largest capacity is still owned by PT. KTI. PT. KTI capacity currently 1800 l / sec, while the other companies under 150 l / sec.

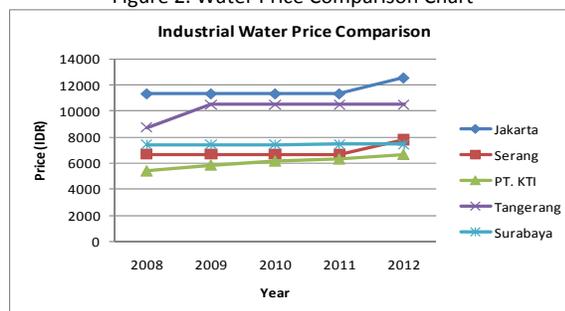
c. Internal and External Analysis

1. Internal Analysis

Critical factors in Category of Strength

PT. KTI water price still competitive compared to other companies in the Jakarta and Banten Area.

Figure 2. Water Price Comparison Chart



PT. KTI still has considerable idle capacity around 42% or 840 l / sec. The quality, quantity and continuity of water supply can be maintained for 24 hours. PT. KTI has been standardized by ISO 9001: 2008; ISO 17025 and MBCFPE. Working capital sufficient the health rate is triple A for 5 consecutive years. PT. KTI is a pioneer in recycling waste water in Banten region and has concern for people and the environments are high.

Critical factors in Category of Weakness

Performance management system implemented by PT. KTI has not been able to push toward the achievement of the vision, the age of the production equipment and distribution network has 33 years of experience marketing to the outside Cilegon still minimal, the professionalism of the employees have not been evenly and many will retire, PT. KTI not used to seek external funding, the cost is quite high salaries and operating experience WTP membrane and water demine still minimal.

2 Analysis of External Factors

Critical factors in Category of Opportunity

Opportunity of PT. KTI to develop business including Cilegon industrial estate growth is quite high, the private sector was given the opportunity to invest and manage water resources, a decline in the quality of the environment so the trend of recycle wastewater began open, membrane technology is increasingly competitive and can be used to treat water with wide range of quality.

Critical factors in category of Threat

Threats to disrupt the business of PT. KTI among others, limited water sources, especially in the dry season, the influx of national and foreign companies in the water business, political and economic developments that are less stable, the price of chemicals showed a trend of rising, the customers who already using sea water / wastewater for water supply substitution requirements and the demand of the people in getting a job.

Solution Map

From the analysis of the business situation, business opportunities owned by PT. KTI is still wide open, but cannot be captured properly. This is evident from stagnant business growth despite the financial performance is good every year. This condition occurred because the company has not been able to translate the results of the business situation analysis in the strategic objectives and the strategies used. This problem can be solved by using the tools (framework) that can align several things, one of them is balanced scorecard. Solution map using the BSC framework can be described as follows:

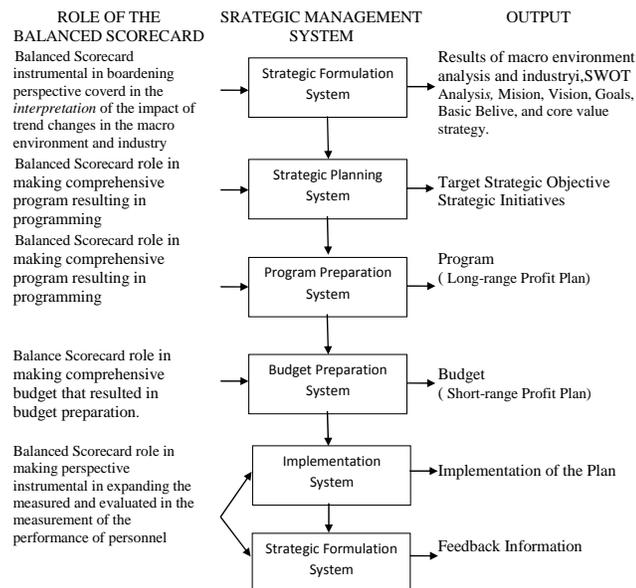


Figure 3. Solution Map Using BSC Framework

Source : Mulyadi, 2005

### 3. Business Solution

#### A. Alternative of Business Solution

Companies can motivate management and employees at PT. KTI to devise and implement strategic need performance management system. The system must be able to accommodate a variety of ideas from personnel, mobilize and focus the capabilities and commitment of all personnel of PT. KTI in building the future in order to achieve the company's vision. Some existing performance management systems based on Dermawan (2006) include SMART, PMQ, PWCM, QPMM, BSC and PRISM. Performance management system that is used at the final project is Balanced Scorecard (BSC). PT. Krakatau Steel from 2011 wants its subsidiaries began to adopt the system in stages.

The concept of balanced scorecard developed by Robert. S. Kaplan and David P. Norton (1996). According to Suwardi Luwis & Prima A Biromo 2011 BSC is defined as a performance measurement system that helps companies translate vision and strategy into action, using financial and non financial indicator that have a causal relationship.

The scope of problems solving at the final project is limited to some of the following:

1. Formulation of a strategy consisting of vision, strategy analysis and strategy formulation
2. Plan a strategy that consists of a strategy map, size / targets and strategic initiatives
3. Plan a strategy that consists of a strategic map and balanced scorecard
4. Alignment strategies on a sampling unit by taking on one of the division

Problem-solving methods used in the final project is adapted from Mulyadi, 2006 can be described as follows:

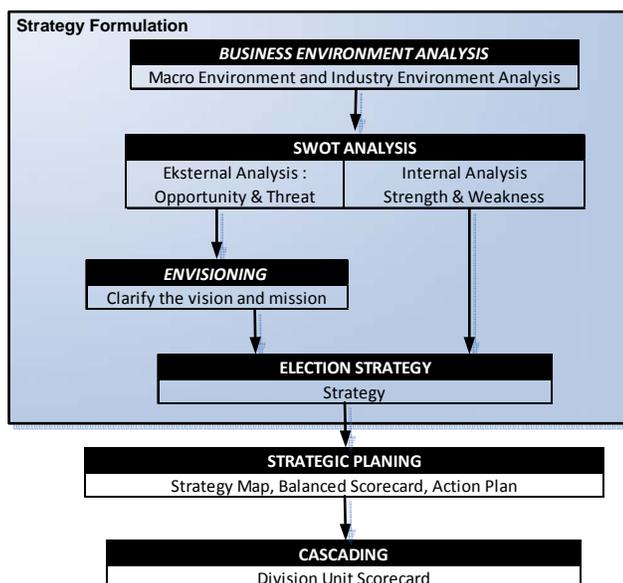


Figure 4. Problem Solving Methodology

#### B. Analysis of Business Solution

##### a. Envisioning Visi

Vision as a "World-Class Water Supply Company" which is targeted to be achieved by 2020, is proposed to be made the following milestones:

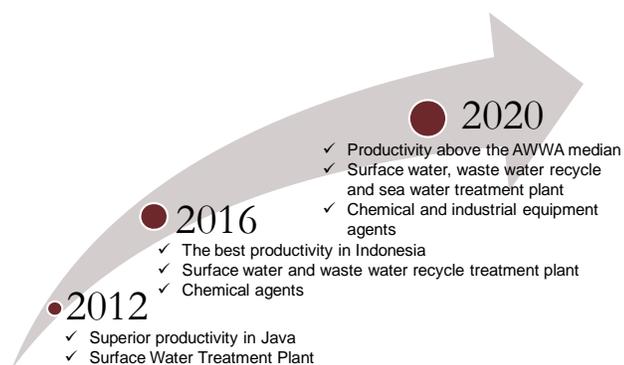


Figure 4. Milestone Achievement of PT. KTI Vision

Vision goal will become clear guidelines, so proposed target and indicators referring to benchmarking data of the American Water Works Association (AWWA), 2006.

Table 3. Indicators and Targets Achieving Vision

PERSPEKTIF	INDICATOR	LEVEL	AWWA
Financial	Return on Assets	Median	Min. 2,2 %
	Debt Ratio	Median	Maks. 0,39
PERSPEKTIF	INDICATOR	LEVEL	AWWA
Customer	Customer Complaints	Median	12
	Water Distribution System Integrity	Median	36,7
Internal Process	Water Compliance Rate	Median	100 %
	Distribution Losses	Median	8,4 %
	O&M Cost	Median	\$1.428 /MG IDR. 3.584 / M3
Learning & Growth	Employee Training Hours	Median	20,1 h/people/years
	Employee Productivity	Median	Min. 0,28 MGD 386.868 M3

The advantages of the existing facility are competitive price and able to maintain the quality, quantity and continuity for 24 hours. To maintain this advantage continuously, the strategy that suitable to be

applied is **cost leadership**. Future business development at PT. KTI rests on the mastery of water treatment technology to treat the raw water from various water sources to produce quality products according to customer needs. Appropriate strategies to be applied to the development plan of PT. KTI are **Focused differentiation**.

Strategy Map proposed applied in PT. KTI is:

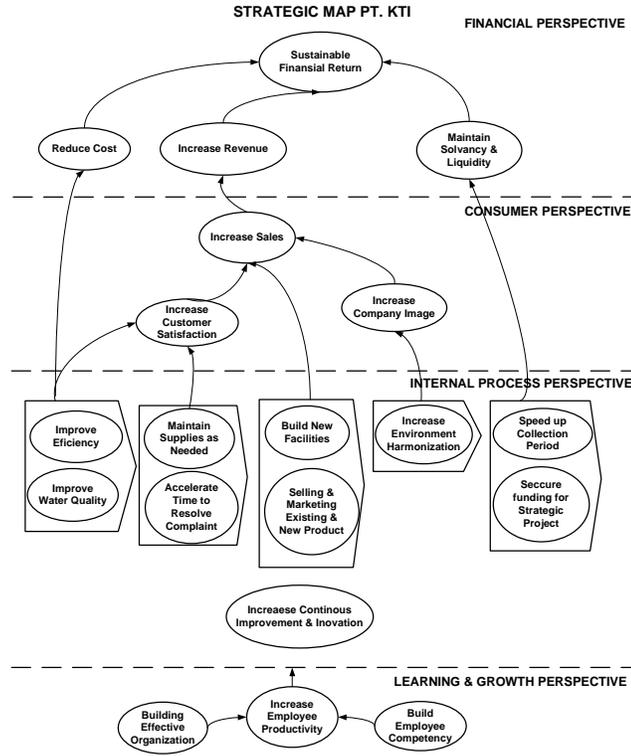


Figure 5. Strategic Map of PT. KTI

After Strategic objectives in the strategic map have been prepared, next step is determining key performance indicator.

Table 4 Strategic Objective and Strategic Initiative

STRATEGIC OBJECTIVE	STRATEGIC INISIATIVE
<b>Customer</b>	
1. Sales Increase	Conduct an assessment of water supply to areas Gerem and Outside Cilegon
2 Improve Customer Satisfaction	Have a good relationship with customer
	Perform installation and network maintenance and control of quality and service
3. Company Image Increase	Applying the concept of community Development in accordance with law
<b>Internal Process</b>	
1. Product Quality Increase	- Water quality checks at regular intervals and consumers WTP
	- Creating paterns reservoir

	operations and effective Cidanau
2. Operation Effective Increase	- The patern of operation and searching competitive supplier
3. Build Facilities	- Recycleof KS waste water, Cipasauran and Cidanau (Multiyear's)
4. Maintain Supply as needed	- Improve the reliability and upstream vertical integration
5. Speed up the coplation time the complaint	- Appointment of officers on duty and standby personnel
6. Sell and market product	- Relationships with the players in the water industry
7. Harmonization and environmental increase	- Identify needs and monitoring the realization
8. Collection Period increase	- Giving a reward to customers in a timely and late in the payment
9. Securing Funding for Strategic Projects	- Ensuring the availability of funds and alternative funding source used
10. Improvement and inovation increase	- Making a quality day
	- Sending Winners in internal level to the national / international level
<b>Learning &amp; Growth</b>	
1. Improve Employee Productivity	- Education and training of personnel based strategic job
2. Building an effective organizational	- Consinyering and regular discussions with consultants
3. Raise a Workforce Competence	- Improved functionality for coaching & mentoring head of division
	- Training and education based on gap competency

Performance measurement system that is approved based on appraisal valuation in PT. KTI are :

1. Far below the target percentage of <75% with a maximum appraisal value C1
2. Approaching the target with a value > 75% - <85% of the appraisal value between B3 - B2
3. Meet the target with a value of > 85% with the appraisal value between B1 - A1

After corporate level balanced scorecard formed, the next step is followed by cascading to the division level. Division Strategy Map is based on the adoption of the strategic map of the company which is relevant and review the results of divison stakeholder expectations (horizontal division job), Prima A Biromo (2012).

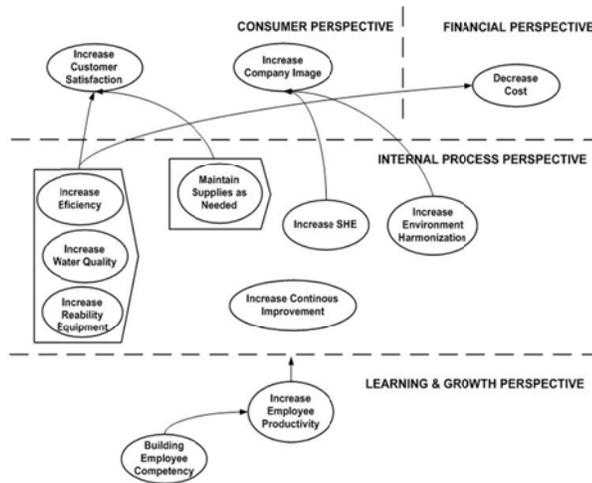


Figure 6. Sample of Operation Division Strategy Map

#### 4. Conclusion and Implementation Plan

Implementation of a performance management system based on the balanced scorecard is expected to help the company in achieving the vision of the company as a world-class water supply company marked with the productivity of employees in 2020 to achieve profit that increased fourfold.

The activities to be done to build a balanced scorecard include:

Table 5. Activities in Building Performance Management System PT. KTI

N O	DESCRIPTION OF ACTIVITY	PARTICIPANTS	SCHEDULE REALIZATION
<b>1</b>	<b>Initiation BSC Development</b>		
	a. Workshop BSC development company and division level	BOD, Division Head & Superintendent	May 2012
	b. Determination of PIC and BSC implementation team	BOD	June 2012
<b>2</b>	<b>Strategy Formulation</b>		
	a. Define the vision, mission, culture and strategic objectives	Commissioner, BOD, Divison Head	Jule-Sept 2012
	b. Analysis and strategic formulation	Div. PK	May-June 2012
<b>3</b>	<b>Strategic Planning (strategy map and BSC)</b>	BOD, Head of. PK & SMO	October to December 2012
<b>4</b>	<b>Cascading strategy map and BSC</b>	The Division Head & BSC Team	January 2013
<b>5</b>	<b>BSC Dashboard</b>		
	a. Construction of the dashboard (not routine)	Tim (Department of IT & SMO)	Jan-July 2013

	b. Adjustment dashboard	Tim (Department of IT & SMO)	January-February
<b>6</b>	<b>Alignment of human capital</b>	Superintendent PPO	January to December
<b>NO</b>	<b>DESCRIPTION OF ACTIVITY</b>	<b>PARTICIPANTS</b>	<b>SCHEDULE REALIZATION</b>
<b>7</b>	<b>Alignment of financial resources</b>	Superintendent AB	July - Dec
<b>8</b>	<b>Monitoring and evaluation</b>		
	a. Operational	Per Division	January to December
	b. Strategic	BOD & The Division Head	Every 3 month
<b>9</b>	<b>Strategic Clarification</b>	BOD, Head of. PK & SMO	July - Sept

The budget needed include:

1. BSC Training for corporate and division level IDR. 100 million,-
2. Making a web-based BSC dashboard IDR. 150.000.000, -

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