

# Determinants Influencing Financial Performance of Public Hospitals: The Case of Vietnam

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## Abstract

The study is conducted to investigate the impact levels of determinants on financial performance of public hospitals in the Northwest of Vietnam in the discipline of management accounting. Data are collected from 43 public hospitals in the Northwest of Vietnam. Regression analysis is employed for determining the impact levels of factors on financial performance of public hospitals in Vietnam. The results show that the impact levels of determinants on financial performance decrease from the factors of efficiency of revenue and expenses, efficiency of staff working, mission role, quality standard, satisfaction of service quality, quality of treatment, service supply, strategic planning, financial management efficiency, mission achievement, activity strategy planning; customer's expectations, ratio of doctor per patient. Based on the findings, some suggestions are given for improving financial performance of public hospitals in the Northwest in particular and public hospitals in Vietnam in general.

**Keywords:** Balanced Scorecard (BSC), performance, public hospital

## 1. Introduction

Northwest area is located in the mountainous part of Vietnam, complex and steep sloping from Northwest to Southeast. The East side of this area is separated by Hoang Lien Mountain and the west is separated by Song Ma Mountain, which covers an area of 5.6 million hectares with more than three million people.

According to the Decision No.1064/QĐ-TTg of the Prime Minister dated July 18, 2013 about development plan midland and northern mountainous region up to 2020, the four Northwest provinces include Hoa Binh, Son La, Dien Bien, and Lai Chau. Based on the report of the Northwest Steering Committee (2015), the Northwest is one of the regions with the slowest development of economics. In 2015, the rate of poor households is 2.7 times higher than that in comparison with other regions. The Northwest has rugged terrain, divided traffic which is difficult to travel. This is also one of the reasons for having poor infrastructure in the region. In social term, the Northwest region has 20 different ethnic groups, which are mainly Kinh, Thai, Hmong, Dao, Tay, Nung, Kho Mu, Mang, and La Ha. The educational level of the ethnic groups is not the same. The education and healthcare are poor in comparison with other parts of the country.

According to Ministry of Health (2016), the quality of health services in the region for the period from 2011 to 2015 has made a significant progress. There has been improvement in reproductive health care. Child malnutrition rates have been partly reduced and transferring patients from commune clinics to district clinics have been reduced. However, some weaknesses have been shown including designing and performing plans, low health service quality, low satisfactions from patients, poor human resources, low level of self-finance and (Vu, 2013).

According to the local people, the quality of health care and treatment in public hospitals has not met their expectations. In many cases patients have not been shifted to district hospitals so for having better conditions of service quality of treatments, many patients themselves go to better hospitals. So the question raised is that how to effectively manage the Northwest hospitals, what solutions need to improve the human resources, provide better health services, increase income & well-manage expenditures, and increase investment. Therefore, it is necessary to investigate the determinants affecting financial performance of public hospitals in the region. Through this study, some suggestions are given for improving the financial performance of public hospitals in the Northwest area of

Vietnam. In the scope of this study, we investigate the impact levels of determinants belonging to balanced scorecard (BSC) on financial performance of public hospitals in Vietnam.

## 2. Literature Review

According to Vu (2013), financial performance is understood as the extent to which the service is provided, the hospital contributes to the improvement of the patient's health in accordance with patient expectations and ensuring equality in the provision of medical care, regardless of payment methods and contributions to society. Ionete-Toplicianu et al. (2015) stated that financial performance reflects the optimal combination of efficiency and effectiveness. Hospital performance reflects the quality of medical action and the ability to manage resources available to people receiving appropriate health status, ensuring patient satisfaction.

In the study of Poister and Streib (2005), strategic planning is understood as a process management aligning with the desire of the organization and management tool strategies to provide system processes and create linkages with activities of the organization identified in the future. Kaplan and Norton (2001) affirmed strategic planning is a tool of strategic management and BSC is viewed as a tool to move the strategic plan of the organization into action with specific solutions. The BSC is a tool as means of assessing the performance of an external organization based on a traditional financial approach that also has non-financial measures to achieve its mission. BSC measures the performance of a nonprofit organization primarily through the acquisition of data from four aspects of the organization including customer; internal processes; training and development staff; and finance.

*Customer perspectives:* Kaplan and Norton (2001) identified the customer perspective is to focus on methodology, organizational practices to develop values that meet the requirements of consumers. Based on the information assessed in terms of customers is the basis for determining performance measurements for the remaining perspectives such as internal process; training and development staff; finance. In a non-profit organization, the customer side will be more important than other perspectives because customer satisfaction is a testament to the achievement of the mission of the organization (Niven, 2008).

*Financial perspectives:* Financial perspectives as the result of organizational behavior expressed in terms of sustainable budget growth. Non-profit organization in aspects of finance will examine the effectiveness of using the best cost in terms of ensuring the benefits for customers. Niven (2008) also suggested that perspective of finance in the non-profit organization is indispensable because this aspect will collect information on the use of limited resources and funds from the state budget and donors to provide quality service.

*Internal process perspectives:* A term used in a non-profit organization to replace the internal business process of a business organization. Kaplan and Norton (2001) identified internal process perspectives are focused methods, practices expected by customers and stakeholders. Improving performance depends on improving internal processes.

*Training and development staff:* This aspect is used in non-profit organizations to replace the learning and growth aspects of a business. This aspect identifies development and training processes as institutional practices and methods for promoting innovation, organizational improvement and development (Kaplan and Norton, 2001). According to Niven (2008), in a nonprofit organization, the success and mission of the organization depend on the skills and competencies of the staff working for the organization.

According to the contingency theory, the determinants that influence financial performance of an organization include both internal and external determinants. Owen et al. (2001) also argued that the main factors that reduce financial performance of the organization are lacking of understanding of the external environment, strategic vision, link between customer and internal processes.

*For profit organizations:* There have been a number of studies that show the impact of BSC aspects on financial performance in enterprises. Sharabati and Fugaha (2014) showed the positive impact and the strong influence of four aspects as Customer, Internal Business Process, Learning and Growth, Finance to the financial performance of the Jordanian pharmaceutical industry. The impact of these four aspects on financial performance indicates 83.6%, in which the customer has the greatest impact on the financial performance of the business. Zuriekat (2005) based on the contingency theory and the BSC methodology provides a model of the research that identifies the determinants influencing the performance of the organization in terms of the BSC determinants.

### *For public sector and non-profit organization*

According to Moullin (2002), a well-designed performance measurement system will ensure that organizations deliver high quality, cost-effective services that meet the needs of users. However, performance measurement in the field of public services is complex as it involves multiple stakeholders. This study has identified the necessary

determinants affecting financial performance in the health sector in aspects of clinical process, patient satisfaction, and cost control.

There are different methods used in prior studies to demonstrate the positive relationship between strategic planning and the performance of non-profit organizations. Giffords and Dina (2004) also affirmed this relationship through a case-study. Smith (2008) also pointed a strong relationship between strategic planning and organizational performance through tissue manipulation in non-profit organizations. The concept of BSC is a tool that links strategic planning with mission, strategic planning as a guide to the mission of non-profit organizations.

Based on some basic studies conducted by Kaplan and Norton (2001), Niven (2003), Urrutia and Eriksen (2005), Owen et al. (2001) and Yang et al. (2005), Blackmon (2008), quantitative approaches were employed to examine the relationship between strategic planning and organizational performance through aspects of the BSC, in which the strategic plan comprises 6 attributes, mission consists of 15 attributes, customer aspect includes 11 attributes; internal process consists of 9 attributes; training and development includes 9 attributes; finance includes 5 attributes; dependent variable of financial performance is measured by means of 38 attributes. The results indicate that these independent variables have positive relationships to the dependent variable, namely, organizational efficiency, in which the financial factor with the coefficient  $\beta$  is the greatest in the regression equation, thus having the greatest impact on the factors influencing the financial performance of the nonprofit organization.

Franklin (2011) continued to inherit the quantitative research methodology and performance indicators to examine the interplay between strategic planning and performance based on five dimensions of BSC in nonprofit organizations. The results show that the strategic plan and aspects of the BSC are quite correlated. Therefore, the increased impact of strategic planning will increase the impact on financial performance. Besides, enhancement of the positive impact of the BSC aspects will actively promote the performance of non-profit firms.

Ghoneim and Baradei (2013) studied the impact of determinants on the performance of Egyptian non-profit organizations, the results show that the determinants including Strategic Planning, Mission, Regulatory Internal, Customer, Finance impact on the performance of a nonprofit organization. Factors of Staff training and development, Volunteers have no statistically significant impact on the performance of Egyptian nonprofit organizations.

Weerasooriya et al. (2014) studied the impact of determinants on financial performance of non-governmental organizations in Sri Lanka. Determinants influencing financial performance of non-profit organizations include strategic planning, internal processes, customer, training and development staff with statistically significance.

Thus, various studies have shown the determinants that influence organizational performance based on the BSC. Inheriting the results of the above studies, we develop a research model that determines the determinants affecting the performance of public hospitals in the Northwest of Vietnam.

### 3. Research Model

Based on the literature review of determinants affecting the performance in the method BSC indicated above, we design the research model as shown in Figure 1.

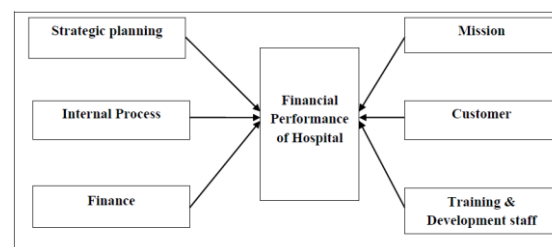


Figure 1. Research model

*Strategic planning:* Includes items reflect the way to make plan, standards and measures for strategic planning, the link between strategic planning and organizational mission.

*Mission:* Includes items reflect the link between mission and decision making, implementation of activities, priority order to fulfill mission and connection of mission, vision, value with strategy, the feasibility of the organization's strategy.

*Customer:* Includes items that reflect customer satisfaction on the quantity and quality of services provided, meeting the expectations and needs of customers.

*Internal process:* Includes items that reflect the ability to provide services, the quality of service provided, the process and organization of service delivery in accordance with quality and management standards.

*Training and development staff:* Includes items that reflect the work environment, employee humor, employee perception of the job, level of training that meets the requirements of the work and skills of the employee.

*Finance:* Includes items for measuring revenues, expenditures and managing the use of financial resources effectively.

*The dependent variable of financial performance:* It is measured by indicators in improvement, changes of financial and non-financial aspect of an organization.

## **4. Research Methodology**

### *4.1 Data Collection*

Primary data was collected based on both qualitative research and quantitative research.

First, qualitative approach: data were collected from interviews of board of directors and the health department; head of department, deputy head of department, patients in public hospitals in the Northwest.

This research aims to preliminarily remove inappropriate indicators and to add appropriate indicators of factors affecting hospital financial performance. The results of this step are used for the development of questionnaires in quantitative research.

Second, quantitative approach: Subjects answered a questionnaire survey are managers, board of directors of public hospitals in the area Northwest. In the questionnaire, we collect data of general information and specific aspects of BSC with Likert scale of 5 points from 1 is absolute disagree, 2 is disagree, 3 is neutral, 4 is agree and 5 is absolute agree.

In quantitative research, the two-stage study is preliminary research and widely studied formally. The preliminary study phase examines 100 of the above subjects of public hospitals in Son La province in order to further remove indicators that do not guarantee statistical reliability for each scale in each province. This is the basis for revising the survey questionnaire used for the extensive survey of public hospitals in the Northwest region. The number of valid questionnaires obtained from the extensive survey was used in the quantitative study at the formal stage of 428.

### *4.2 Scale Coding*

Based on qualitative research and preliminary survey, some attributes are excluded because they are not suitable in this context. As a result, 83 attributes in independent and dependent variables are below:

- + *Strategic planning:* Includes 7 attributes basing on the studies conducted by Blackmon (2008), Lee (2006).
- + *Mission:* Includes 15 observation variables basing on the studies conducted by Blackmon (2008), Lee (2006).
- + *Customer:* Includes 11 attributes, including 01 attribute developed from a qualitative study, 10 attributes based on research by Blackmon (2008), Urrutia and Eriksen (2005), Yang et al. (2005).
- + *Internal Process:* There are 17 attributes, of which 4 are based on Lovaglio and Vittadini (2012); 2 attributes based on the study of Chen et al. (2006); 2 attributes based on research of Peter et al. (2007); 8 attributes based on research of Blackmon (2008), Owen et al. (2005), Urrutia and Eriksen (2005), Yang et al. (2005).
- + *Training and Development of Staff:* Consists of 7 attributes based on the study by Blackmon (2008), Owen et al. (2005).
- + *Finance:* There are 12 attributes, of which 1 is attribute based on Perter et al. (2007), 2 attributes based on Walker and Dunn (2006), 4 developed from the qualitative research, 5 from Blackmon (2008).
- + *Financial performance:* Includes 14 attributes, of which 13 attributes based on the study of Blackmon (2008), 1 was developed from the qualitative research results.

### *4.3 Data Processing*

428 valid questionnaires are updated and processed in the following steps: Firstly, we test the reliability of the scale, accept attributes with confidence of Cronbach's Alpha > 0.6, and remove attributes with a coefficient of correlation less than 0.3. Then, Exploratory Factor Analysis (EFA) is employed to extract the significant and convergent variables with load factor > 0.5 and  $0.5 < K_{OM} < 1$ , with Bartlett's test having Sig < 0.05

and a 50% deviation. In the next step, we conducted a regression analysis assessing the impact of determinants on financial performance of hospitals. The higher value of Beta is, the higher impact of financial performance is.

## 5. Results and Discussion

Basing on the results of Cronbach's Alpha, coefficients are from 0.774 to 0.940, meaning the reliability of variables in the model. Based on the reliability of the above scales, we conducted an analysis of the EFA for eliminating attributes with load factor  $<0.5$ , resulting in 13 convergent and isolated factors, having loading coefficient loading from 0.558 to 0.868 (see Appendix No. 1), coefficient KMO = 0.876 so factor analysis is appropriate. Bartlett's test of Sig  $<0.000$  and a Total Variance Explained of 71%  $> 50\%$  meaning that 71% of the variation in data is explained by the 13 determinants.

We then examined Cronbach's Alpha of the attributes in 13 groups of determinants according to EFA. The results were satisfactory, in which one group's Cronbach's Alpha is 0.606, while the other determinants Cronbach's Alpha are quite high, in the range of 0.734 - 0.918 (see Appendix No. 1).

Results of regression models with  $R^2 = 0.485$ , meaning that 48.5% change of the dependent variable (financial performance of hospitals) is explained by the 13 independent variables include:

+ *Strategic planning*, two determinants of Strategic planning methods (KHCL01); Activity Strategy planning (KHCL02).

+ *Mission*, there are two factors of Mission role (SM01) includes 6 attributes; Mission achievement (SM02) includes 3 attributes.

+ *Customer* consists of 3 determinants of Expectations of customers (KH01) consists of 4 attributes; Satisfied with the quantity and quality of service (KH02) include 4 attributes; Ability to provide (KH03) consists of 2 attributes.

+ *Internal process*, there are three determinants of Quality of treatment (QTNB01) includes 4 attributes; Doctor/patient (QTNB02) consists of 2 attributes; Quality Standards (QTNB03) includes 2 attributes.

+ *Training and development staff*, there is one factor is the performance of employees (HQNV) consists of 4 attributes.

+ *Finance*, there are 2 determinants of Effective financial revenue and expenditure (TC01) includes 8 attributes; Overall financial management efficiency (TC02) consists of 3 attributes.

By running regression model,  $F = 27.989$ ,  $Sig = 0.000 < 0.05$ , so there is a premise to have a linear relationship between the dependent variable of hospital financial performance with the independent variables.

The results of the regression model of factors influencing hospital financial performance obtained in Table 1 are as follows:

Table 1. Regression results in the research model

Model		Unstandardized Coefficients		Standardized Coefficients)		Collinearity Statistics		
		B	Std. Error	Beta	T	Sig.	Tolerance	VIF
1	(Constant)	0.469	0.199		2.350	0.019		
	TC 01	0.226	0.051	0.235	4.414	0.000	0.470	2.127
	TC 02	0.038	0.032	0.053	1.167	0.244	0.635	1.575
	SM 01	0.124	0.042	0.134	2.991	0.003	0.665	1.504
	SM 02	0.038	0.034	0.050	1.115	0.266	0.656	1.525
	QTNB 01	0.065	0.032	0.087	1.999	0.046	0.705	1.418
	QTNB 02	-0.056	0.027	-0.084	-2.063	0.040	0.810	1.234
	QTNB 03	0.086	0.036	0.108	2.354	0.019	0.627	1.594
	KH 01	0.034	0.039	0.040	0.868	0.386	0.629	1.590
	KH 02	0.123	0.052	0.123	2.360	0.019	0.488	2.049
	KH 03	0.072	0.036	0.091	2.032	0.043	0.658	1.520
	HQNV	0.123	0.043	0.128	2.865	0.004	0.667	1.498
	KHCL01	-0.145	0.091	-0.065	-1.585	0.114	0.798	1.253
	KH CL02	0.142	0.084	0.067	1.702	0.090	0.864	1.157

The dependent variable: Financial performance hospital

Based on the results of Table 1, the dependent variable "Hospital performance" was determined:

$$\begin{aligned} \text{Financial Performance} = & 0.469 + 0.235 * TC01 + 0.053 * TC02 + 0.134 * SM01 + 0.050 * SM02 + 0.087 * QTNB01 - \\ & 0.084 * QTNB02 + 0.108 * QTNB03 + 0.040 * KH01 + 0.123 * KH02 + 0.091 \\ & * KH03 + 0.128 * HQNV - 0.065 * KHCL01 + 0.067 * KHCL02 \end{aligned}$$

VIP coefficient < 3, so no multicollinearity among independent variables is existed. In Table 1, variables with sig < 0.05 have statistically significance including determinants of TC01, SM01, QTNB01, QTNB02, QTNB03, KH02, KH03 and HQNV. The majority of these determinants have positive impacts on the financial performance except except the ratio of doctors. The remaining determinants including TC02, SM02, KH01, KHCL01 and KHCL02 with Sig > 0.05, so there is no statistical significance in the impact assessment on the financial performance of the public hospitals in the Northwest.

In addition, the above regression equation shows that the factor Effective financial revenue and expenditure (TC01) have the coefficient  $\beta = 0.235$  which is the largest, thus the factor that has the greatest influence on the dependent variable of financial performance public of hospitals in the area. The remaining determinants have significant effects on financial performance the public hospitals with decreasing impacts of The effectiveness of the staff; Mission role; Quality standards; Satisfied with the quantity and quality of service; Quality of treatment; The ability to provide; Strategic planning methods; Overall financial management efficiency; Mission achievement; Activity strategy planning; Expectations of customers; Structure doctor /patient.

## 6. Recommendations

Based on the results, eight determinants of TC01, SM01, QTNB01, QTNB02, QTNB03, KH02, KH03, HQNV are statistically significant and affect the financial performance of the Northwest hospitals. Seven factors have positive impacts on hospital financial performance; On the other hand, QTNB02 has a coefficient  $\beta < 0$ , thus negatively impacting hospital financial performance. The study model has explained about 49% variation of hospital financial performance by independent variables in the regression analysis.

Based on the results of the analysis of the regression model, combined with the results of interviewing hospital managers and other stakeholders, some suggestions are given for improving the financial performance of public hospitals in Northwest as follows:

*First*, the efficiency of revenues and expenditures (TC01): It is necessary to increase the use of budget in the budget plan and economical usage of expenditures, especially economical usage of administrative costs, cost allocation. Hospitals need to increase the patient's satisfaction, thereby boosting the attraction of patients to increase revenues. Revenues from fees increase will help hospitals in the region increase financial autonomy, which increase the rate to ensure funding for regular activities, under the ownership of units of public service by the Decree No.16/2015/ND-CP dated 14/02/2015.

*Second*, mission (SM01): To focus increase financial performance, public hospitals set priorities in order to achieve their mission goals. In order to improve efficiency, it is necessary to promote the development of a strategy in association with the mission of hospitals in the region, in which one of the important roles of the Northwest hospital mission is to provide health care for people in remote areas, ethnic minority areas where many poor people living there, and natural conditions, infrastructure and access to health services are unfavorable.

*Third*, the quality of treatment (QTNB01): This is very important factor affecting the financial performance of public hospitals of the region in particular and the public hospitals of Vietnam in general. Because the hospital is a health care provider with the primary responsibility of examining and treating the disease, the results indicate that this factor has a great impact on hospital financial performance. The quality of services should be reflected in the following indicators: Reduced rates of referrals, which means that the ability of hospitals in mountainous areas to improve their treatment can be limited to cases beyond the scope of treatment must transfer; Quality of service is also evident in cases where the surgery has reduced the length of treatment and hospitalization, the quality of treatment shown through the results of surgery to reduce the rate of complications. However, to improve efficiency through improved quality of services provided, it is necessary to improve the skills of medical staff, technicians, and meet the demand for medicines and medical supplies used in medical examination and treatment.

*Fourth*, the ratio of doctors (QTNB02): This factor has a negative impact on efficiency but at a weak level. The rate of doctors/citizens in the region is 5.5, in 2016 is 7.4 (the national ratio is 8.0). Thus, the proportion of doctors/ten thousand people has increased significantly in the past five years, but has not contributed to improve the financial performance of hospitals in the region.

*Fifth*, service quality standards (QTNB03): This factor indicates that quality standards and service delivery affect the financial performance of hospital operations. The treatment of hospitals in the region is mainly hospital of class III, compared to the hospitals of class I and II, many standards of staff, facilities and environment will not equal. Therefore, the compliance with quality standards, procedures and methods of service delivery is very important, contributing to the good financial performance of medical examination and treatment services for the initial basis.

*Sixth*, satisfaction in service in quantity and quality (KH02): This factor has a positive impact on hospital financial performance. As a result, if hospitals improve the quality and quantity of services to meet the demand of patients, there will be an increase in the satisfaction and expectation of patients, so hospital financial performance will be improved in the region. The number of services should be diversified with different types of services to meet the needs of medical examination and treatment in the form of examination and treatment as required.

*Seventh*, finding services for meeting patients' expectations (KH03): This factor has a positive impact on hospital financial performance. Therefore, the hospital needs to actively explore the desire, the demand of service users to meet and bring more satisfaction, the more impact on improving and improving hospital financial performance.

*Eighth*, productivity of staff (HQNV): This factor has a positive impact on the financial performance of the hospital. For health services this is a very important factor. The effectiveness of the service delivery depends on the quality and effectiveness of the service provider, staff, doctors and nurses in the hospital. Therefore, it is necessary to promote the efficiency of the quality of medical workers who have enough information to solve and make the best decisions in their works. To improve the efficiency medical personnel, it is necessary to strengthen the professional level, specialized management according to the results of works. In addition, to gain highly productivity, medical workers need to have a detail working plan, clear job objectives.

Through qualitative and quantitative research methods, we made regression of determinants affecting the financial performance of public hospitals in the Northwest. This result is the scientific basis to help managers have solutions to improve the financial performance of public hospitals in the Northwest in particular and public hospitals in Vietnam in general. Research has shown that determinants influencing financial performance of public hospitals in the Northwest based on BSC including financial and non-financial determinants. Therefore, in order to improve the financial performance of public hospitals in the region, in addition to financial-focused solutions, it is necessary to focus on non-financial solutions.

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**Appendix 1. The Cronbach Alpha Factor Coefficient and the Load Factor of Each Determinants**

Variable	Component													Cronbach'Alpha	Variable indicator	Factor names		
	1	2	3	4	5	6	7	8	9	10	11	12	13					
TC4	.792																	
TC5	.751																	
TC2	.729																	
TC6	.727																	
TC1	.702																	
TC3	.666																	
TC7	.622																	
TC13	.558																	
SM7	.819																	
SM8	.793																	
SM4	.746																	
SM5	.745																	
SM9	.722																	
SM6	.605																	
KH15		.868																
KH14		.835																
KH16		.748																
KH13		.711																
QT12			.767															
QT11			.708															
QT16			.668															
QT13			.631															
KC23				.829														
KC22				.758														
KC21				.724														
KC25				.709														
KH19					.730													
KH18					.673													
KH20					.665													
KH21					.637													
DT25						.804												
DT26						.696												
DT24						.667												
DT27						.641												

Variable	Component													Cronbach'Alpha	Variable indicator	Factor names		
	1	2	3	4	5	6	7	8	9	10	11	12	13					
SM14								.821										
SM13								.804										
SM15								.788										
TC16									.781									
TC14									.781									
TC15									.682									
KH22									.620									
KH23									.748									
QT18										.865								
QT19										.849								
QT30											.662							
QT31											.657							
KC45											.751							
KC44											.688							

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