

ISO 9001:2008 of Manufacturing Companies in Cavite Export Processing Zone

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Abstract

This study aimed to determine the impact level of ISO 9001:2008 Quality Management System to the management of the manufacturing companies in Cavite Export Processing Zone. The study employed 526 employees consisting of 35 top level managers, 145 middle level managers and 346 supervisors from the 74 randomly selected manufacturing companies. The data was gathered through a survey questionnaire consisting of the (a) Individual Profile, (b) Company Profile and (c) Principles of Quality Management System. Descriptive research approach was used in the study. Data were treated using weighted mean for responses and Independent T- test for determining significant differences of the level of impact of QMS when respondents were grouped according to their profile. Results revealed Very High Impact rating on all 8 principles of QMS. Results also revealed significant difference in age and systems approach to management. Customer Focus, Leadership, Systems Approach to Management and Factual Approach to Decision- making have significant differences in of educational attainment of managers. Customer Focus, Leadership, Involvement of People, Continual Improvement, Factual Approach to Decision- making and Mutually Beneficial Supplier Relationship have significant difference to managers' management position level. It is recommended that continuous related training and education of human resources for the continual operation and improvement of existing QMS must be employed highly recommended that companies must adopt this set of standards.

Keywords : *Quality Management System, ISO 9001:2008, Cavite Export Processing Zone, Continual Improvement, Customer Focus, Factual Approach To Decision Making, Manufacturing Companies, Process Approach, System Approach To Management, Mutually Beneficial Supplier Relationships,*

INTRODUCTION

Quality control started as early as Middle Ages during the rise of the guilds. The era of Industrial Revolution had brought more labor specialization as well as the rise of machines which are benefitting nowadays. Quality assurance deal with assuring quality has been practiced and observed to specialized tasks performed by workers. The modern concept of Quality Assurance emerged during the World War II as practiced on inspecting and testing of munitions for the war. Quality assurance includes “the processes and procedures that systematically monitor different aspects of a service or facility”. Quality assurance aims “to identify and correct problems or variances occurred outside established standards or requirements” (Hooper, 2001; Poo, 1985; Smith, nd.).

Quality Control and Quality Assurance are areas covered by the Quality Management System. The Professional Evaluation and Certification Board defined Quality Management System as “the set of interrelated or interacting elements to establish policy and objectives for an organization and to achieve those objectives with regard to quality” (www.pecb.com).

The International Organization for Standardization (ISO, 2008) published the ISO 9001 which specifies requirements for QMS wherein organizations are required to consistently provide products that will meet the customer's satisfaction and its statutory and regulatory requirements. All the requirements stated by the organization are generic and applicable to all types of organizations regardless of their types, sizes and products (Walker & Johnson, 2009; To, et al., 2011 as cited by Psomas, et al., 2012).

ISO 9001 establishes a basic set of quality system requirements necessary to ensure that the process is capable of consistently producing products that meet the customer's expectations (Thilakarathne & Chithrangani, 2014). The eight quality management principles on which the QMS are based are as follows:

- Principle 1 – Customer focus
- Principle 2 – Leadership
- Principle 3 – Involvement of people
- Principle 4 – Process approach
- Principle 5 – System approach to management
- Principle 6 – Continual improvement
- Principle 7 – Factual approach to decision making
- Principle 8 – Mutually beneficial supplier relationships

The ISO 9001:2008 is one of the Quality Management Standards first published in 1987 designed to help organizations in ensuring that all requirements were met by the customers and stakeholders. It covers five (5) Clauses which include Quality Management System, Management Responsibility, Resource Management, Product Realization and Measurement, Analysis and Improvement (Lachapelle & Hundozi, n.d). The importance of quality is the main concern of ISO 9001:2008. Only those companies who put out the best products and services efficiently that succeeds. An organization can identify the root of the problem and find a solution adopting the Quality Management System, therefore improving efficiency and profit can be maximized. In the development of the ISO 9001:2008 Quality Management System (QMS) has seen many companies willing to implement and get certification so as to improve quality delivery according to W.M. Goriwondo, et al, 2012) due to the globalization phenomenon; certification to ISO 9001 becomes a prerequisite. The intended outcomes of the application of these frameworks and models are the greater effectiveness of the organizational systems, leading to greater productivity and enhanced stakeholder satisfaction (Okwiri & Mbeche, 2014).

Today, the Philippines continue to get its track to economic progress with the help of the government to continuously provide for the needs of its people. The government keeps on researching and developing possible ways to solve and increase employment rate at any sectors. Private sectors also became an integral part of the Philippine economy with its continuous increase in the numbers of investors.

The Philippine manufacturing industry remains as an important sector for employment opportunities, value- added generations and innovations. In 2018, though one of the main drivers of growth for the year, manufacturing industry suffered a slow- growth which only contributed 4.9% to the country's Gross Domestic Product (Philippine Statistics Authority, 2018). CALABARZON (Cavite, Laguna, Batangas, Rizal and Quezon) ranked second in terms of manufacturing industry.

The creation of Philippine Economic Zone Authority (PEZA) paved the way in the establishment of different companies with strict regulations and implementations of Quality Management System. It was created to provide assistance to foreign investors and entities in facilitating business operations in the selected areas in the country known as the PEZA Special Economic Zones. The agency is also ISO 09001:2008 certified. (www.peza.gov.ph)

In this modern day, there are many companies that offer different products and services. With the increasing, everybody assures that it offers the best products and services to satisfy customer satisfaction and needs. Sometimes, through the name and standing of the company, a company can automatically gain the trust of the consumers. The best way to show that a company is competitive is through its advantages and compliance to its promises. Hence, this study is conducted to determine the impact of ISO in certified manufacturing companies in Cavite Export Processing Zone in relation to the eight Quality Management Principles.

Statement of the Problem

As manufacturing companies and organizations are growing faster, the companies' responsibilities are also becoming bigger and bigger. Hence, the need for quality management became very critical in order to deliver the objectives and missions of the company and to provide satisfactions to customers or clients. With this, the ISO 9001:2008 was created to help the companies and organizations in setting up and facilitating quality management standards for the business. However, the impact of the ISO 9001:2008 is directly associated to the organization and company itself. Thus, this study wanted to determine further impact to the management as well. Also, researcher determined significant differences of the impact of QMS principles as participants were grouped according to their profile.

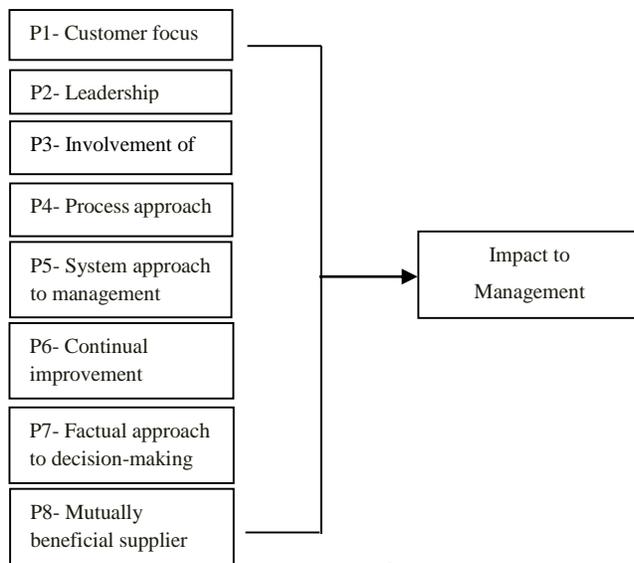
Objectives of the Study

The main objective of the study is to determine the impact of Quality Management System to the employees of various manufacturing companies in Cavite Export Processing Zone using the eight (8) principles of QMS.

Research Paradigm

This study used the 8 principles of Quality Management System developed by group of experts of International Organization for Standardization's Technical Committee on 1994. The researcher determines significant differences on the impact of each of the principles (*P*).

Figure 1. Research Paradigm



Hypotheses

The researchers aimed to prove the following hypotheses:

H₁: There is no significant difference in the impact of ISO 9001:2008 when grouped according to their profile.

METHODOLOGY

This study is descriptive in nature and used qualitative- quantitative approach. Quantitative method was used in presenting the results of the survey and qualitative for analyses and explaining the data.

Participants

There were 278 manufacturing companies within the Cavite Economic Processing Zone in Rosario, Cavite based on the list provided by the Office of the Economic Zone Authority. However, there were

only eight five (85) who were ISO 9001 certified companies in the zone, and only seventy four (74) were randomly selected as the respondents of the study.

The top management, managers/department heads, and supervisors of the representative companies were the participants of the study. The total number of respondents was 526 composed of 35 top level managers, 145 middle-level managers and 346 supervisory levels. There were 11 respondents who did not disclose their level of managerial position

Instruments

The researcher used a self- constructed questionnaire validated by experts in the field of management composed of management professors and industry practitioners. The instrument was composed of two (2) parts:

Part I: Respondents and Company’s Profile. It contained the age, sex, highest educational attainment, level of managerial position of the respondents and number of years accredited and nature of business of the company.

Part II Assessment on the Impact of ISO 9001:2008 which determines how the standards impacted the employees on business operations of their company in terms of quality management system. This section was based and uses the eight (8) principles of Quality Management System. The researcher also used the 5- point Likert’s Scale to assess the responses of the respondents (see Table 1).

Table 1. Likert’s Scale

Scale	Range	Level of Impact
5	4.21 – 5.00	Very High
4	3.41 - 4.20	High
3	2.61 – 3.40	Moderate
2	1.81 – 2.60	Low
1	1.00 – 1.80	Very Low

Statistical Treatment

Statistical Package for Social Sciences (SPSS) version 22.0 was used to generate accurate and reliable data.

For the analysis, the researcher used the following statistical treatments:

- a. Frequency and Percentage-** used to present the distribution of the respondents’ profile.
- b. Weighted Mean-** used in determining common responses of certain indicators. It is a mean of a set of values that has different way o value of importance.

$$wm = \frac{\sum fx}{N}$$

Where: *f*= frequency or weighting factor
wm= Weighted Center
N= total population

c. T-test- used to determine significant differences between studied variables. In this study, it was used in determining significant differences between the demographic profile of the respondents and the level of impact of the eight principles.

$$t = \frac{(x_1 - x_2)}{\sqrt{\frac{(s_1)^2}{n_1} + \frac{(s_2)^2}{n_2}}}$$

RESULTS AND DISCUSSIONS

This research work produced a number of significant findings that supported the objectives of the research work.

Descriptive

The demographic profiles of the respondents were projected in Table 2.

Table 2.
Distribution of Respondents' Demographic Profile

Age	F (N= 526)	%
21-30 years old	146	27.76
31-40 years old	273	51.90
41-50 years old	93	17.68
51 years old and above	14	2.66

Sex	F (N= 526)	%
Male	224	42.59
Female	302	57.41

Highest Educational Attainment	F (N= 526)	%
Masters Graduate	21	3.99
College Graduate	464	88.21
Vocational Graduate	24	4.56
High School Graduate	17	3.23

Majority of the respondents were at age 31-40 year old and mostly were female. Also, 88.21% were college graduate and only 21 respondents (3.99%) had Master's Degree.

Table 3.
Distribution of Companies' Profile

Number of Years Accredited	F (N= 74)	%
Less than 6	31	41.89
7-12	25	33.78
13-18	14	18.92

19 and above	4	5.41
Nature of Business	F	%
Electronics	27	36.50
Printing	3	4.05
Industrial Services and Equipment	1	1.35
Clothing	3	4.05
Motor Vehicles and Parts	3	4.05
Others	37	50.00

With regards to company profile (Table 3), most companies were accredited for 6 years and below (41.89%) while others were 7-12 years (33.78%), 13-18 years (18.92%) and only 5.41% accredited for 19 and above. Majority of the selected companies were in line with electronics (36.50%), some were printing, clothing and motor vehicle and parts, all with 4.05% respectively. Noticeably, 37 (50%) of the selected companies were not in the mentioned product line.

Assessment on the Impact of ISO 9001:2008

The assessment for the impact of Quality Management System was based on the responses of the managerial employees in the eight principles of QMS. Responses were also based on their perception on how QMS has impacted their company and organization. Researcher would like to note that the manufacturing companies involved in this study were mostly certified by TUV Rheinland, TUV SUD and TUV NORD, governing bodies for ISO certification in the Philippines, however headquarter is in Germany.

Table 4
Impact of ISO 9001:2008 in Customer Focus

Indicators	<i>wm</i>	Verbal Interpretation
1. Increased effectiveness in the use of the organization's resources to enhance customer satisfaction	4.65	Very High Impact
2. Improved customer loyalty leading to repeat business	4.42	Very High Impact
General Weighted Mean	4.53	Very High Impact

The practice of customer focus has been an integral part of the Total Quality Management (TQM). When looking at the impact, managers assessed this principle as Very High impact (4.53). Both the increased effectiveness in the use of resources to enhance customer satisfaction (4.65) and the customer loyalty which lead to repeat business (4.42) were rated as Very High Impact (see Table 4). Studies have shown that the objective of this principle is to attain customer satisfaction; however, it also has effect on other performance measures such as financial results (Lado et al., 2011); and employee satisfaction (Anaza and Rutherford, 2012; Chotekorakul and Nelson, 2013; Yaacob, 2014).

Table 5
Impact of ISO 9001:2008 in Leadership

Indicators	<i>wm</i>	Verbal Interpretation
1. People will understand and	4.37	Very High

be motivated towards the organization's goals and objectives		Impact
2. Activities are evaluated, aligned and implemented in a unified way.	4.39	Very High Impact
General Weighted Mean	4.38	Very High Impact

Leadership is another important factor in Quality Management System such that it includes the ability to motivate employees (Lussier, 2013). Evaluation, alignment and implementation of activities in a unified way impacted very greatly (4.39) in the organization. Understanding and motivating people towards organizations' goals and objectives have very high impact (4.37) both to people and organization (Naile & Selesho, 2014; Shamir, Zakay, Breinin, & Popper 1998). It is the responsibility of the leaders to plan individual actions and support subordinates in their realization (Misztal, 2010; Dearing, 2007). Leaders should create and maintain the internal environment in which employees can become fully involved in realizing the organization's objectives (Misztal, 2010; ISO 9000:2005).

Table 6
Impact of ISO 9001:2008 in Involvement of People

Indicators	<i>wm</i>	Verbal Interpretation
1. Motivated, committed and involved people within the organization	4.30	Very High Impact
2. People eager to participate in and contribute to continual improvement	4.25	Very High Impact
General Weighted Mean	4.27	Very High Impact

Another principle that is deemed critical and important in the TQM and QMS is the involvement of people in the organization. Motivation, commitment and involvement of employees have very high impact in the organization (4.30). Participation and contribution to the continuous improvement also have very high impact (4.25) as assessed by the manager respondents. Employees' participation and involvement is important such that the success of the organization and the business relies on the involvement of the people in the operations especially those in the lower level since they are directly involved in the production (Khan, Ali, & Hongqi, 2018; Dhafir, Ahmad, Burgess, & Canagassababady, 2006). Organizational commitment and job involvement are somewhat similar as both have effects on the organizational performance (Ekmekçi, 2011). Employees' satisfaction shall not be set aside because engaged employees tend to exhibit emotional job attachment (commitment) and higher productivity (Abraham, 2012; Shuck et al., 2011)

Table 7
Impact of ISO 9001:2008 in Process Approach

Indicators	<i>wm</i>	Verbal Interpretation
1 Lower costs and shorter cycle times through effective use of resources	4.34	Very High Impact
2 Focused and prioritized	4.27	Very High

improvement opportunities		Impact
General Weighted Mean	4.31	Very High Impact

With regards to process approach (Table 7), lowering costs and shorter cycle time through effective use of resources have very high impact (4.34) in the organization. Also, focused and prioritized improvement opportunities have very high impact (4.27) to the employees. As many researches pointed out, business process approach helps in reducing costs, flow time and to improve quality, productivity and efficiency of the operations in organization (Repa, 2012; Weske, 2012).

Table 8
Impact of ISO 9001:2008 in System Approach to Management

Indicators	<i>wm</i>	Verbal Interpretation
1 Integration and alignment of the processes that will best achieve the desired results.	4.51	Very High Impact
2 Ability to focus effort on the key processes.	4.41	Very High Impact
General Weighted Mean	4.46	Very High Impact

With regards to systems approach (see Table 8), managers rated Very High Impact in terms of integration and alignment of the processes to achieve desired results (4.51). The ability to focus effort on key processes also was rated very high impact (4.41). Most of the time, experience in the field has greater impact on managers approach to management.

Table 9
Impact of ISO 9001:2008 in Continual Improvement

Indicators	<i>wm</i>	Verbal Interpretation
1 Performance advantage through improved organizational capabilities.	4.32	Very High Impact
2 Alignment of improvement activities at all levels to an organization's strategic intent.	4.30	Very High Impact
General Weighted Mean	4.31	Very High Impact

In terms of continual improvement (Table 9), performance advantage through improved organizational capabilities (4.32) and alignment of improvement activities at all levels to an organization's strategic intent (4.30) were both rated Very High Impact by the managers. The International Organization for Standardization suggests developing and deploying processes to implement improvement projects throughout the organization. Since the continuous improvement requires a company-wide focus to make better the operation performances, it is necessary that the organization or firms' activities shall involve everyone from the top managers to the employees (Khan, Ali, & Hongqi,

2018; Evans & Lindsay, 1999; Deming, 2012; Dhafir, Ahmad, Burgess, & Canagassababady, 2006; Prybutok & Ramasesh, 2005).

Table 10
Impact of ISO 9001:2008 in Factual Approach to Decision Making

Indicators	<i>wm</i>	Verbal Interpretation
1 An increased ability to demonstrate the effectiveness of past decisions through reference to factual records.	4.42	Very High Impact
2 Increased ability to review, challenge and change opinions and decisions.	4.32	Very High Impact
General Weighted Mean	4.37	Very High Impact

In quality management system and/ or any other managerial systems, effective decisions must be always based on the data and information analysis (Kučerová & Lestyánszka Škúrková, 2013). When looking at the assessment in terms of factual approach to decision making, managers rated Very High Impact in terms of increased ability to demonstrate the effectiveness of past decisions through reference to factual records (4.42). Increased ability to review, challenge and change opinions and decisions was also rated Very High Impact (4.32).

The principle of factual approach in decision making suggests that effective decisions shall be based on accurate data and information. In quality management system and/ or any other managerial systems, effective decisions must be always based on the data and information analysis (Kučerová & Lestyánszka Škúrková, 2013). In order to meet this principle, it is necessary to collect accurate and reliable data using appropriate statistical tools and method of data collection and analysis.

Table 11
Impact of ISO 9001:2008 in Mutually Beneficial Supplier Relationships

Mutually Beneficial Supplier Relationships	<i>wm</i>	Verbal Interpretation
1 Increased ability to create value for both parties.	4.37	Very High Impact
2 Flexibility and speed of joint responses to changing market or customer needs and expectations.	4.22	Very High Impact
General Weighted Mean	4.29	Very High Impact

Supplier relationship is another important principle in Quality Management System and n Supply Chain Management. With regards to its impact, increased ability in creating value for both parties (4.37) and flexibility and speed to respond in changing markets, customer needs and expectations (4.22) were rated Very High Impact. Studies have pointed out that flexibility, response speed and customer satisfactions have significant relationship with Supplier Relationship management and Supply Chain (Prajogo et al., 2012; Chen and Paulraj, 2004).

T-test Analyses

The researcher conducted a T- test analysis to determine significant differences between the variables studied and to prove the hypothesis. The demographic profile of the respondents was used as the dependent variables while the principles (*P*) of QMS were the independent variables.

Table 11
T- Test for Significant Difference

	<i>P1</i>	<i>P2</i>	<i>P3</i>	<i>P4</i>	<i>P5</i>	<i>P6</i>	<i>P7</i>	<i>P8</i>
Age	0.063	0.116	0.078	0.232	0.043*	0.074	0.447	0.447
Sex	0.415	0.734	0.324	0.127	0.234	0.855	0.472	0.553
Educational Attainment	0.004*	0.011*	0.131	0.087	0.036*	0.184	0.009*	0.448
Management Position Level	0.038*	0.019*	0.004*	0.273	0.092	0.005*	0.006*	0.005*

* Significant at .05 level.

Based on the data in Table 11, results showed that age has significant difference in terms of System Approach to Management but insignificant to all other seven principles. This may imply that the approach to management varies in generations. Books and articles claim that members of millennial generation are more socially conscious and less loyal to employers than members of the Generation X (Zable & Biermeier- Hanson, Baltes, et al., 2017). Similarly, management styles also were factors in varying systems approach to management which may be due to biological age effect (Walter & Scheibe, 2013), generational effect (Mannheim, 1970; Zemke, Raines, & Filipczak, 1999), experience effect, and seniority effect (Korac- Kakabadse, Kakabadse, & Meyers, 1998).

Sex has no significant differences in all eight principles. These means that managers of either sex received and perceived equal impact of Quality Management in the organization. Ekmekci (2011) stated that gender alone has no effect but the work experience is the reason. However, some studies were contradictory to the results in terms of sex. Aranya et al. (1986) stated that males are more committed than females to companies because of the role of male in the eyes of society. The “job model” theory, on the other hand, is contradictory which suggests that women suffer from discrimination, and they are more committed once at work.

When looking at the T-test results for educational attainment, results showed significant differences in Customer Focus (0.004), Leadership (0.011), System Approach to Management (0.036), and Factual Approach to Decision- Making (0.009). These mean the level of education of managers are seemed different when it comes to handling customers, motivating employees, approach to management and making decisions for the company.

Lastly, management position level differs in Customer Focus (0.038), Leadership (0.019), Involvement of People (0.004), Continual Improvement (0.005), Factual Approach to Decision- making (0.006) and Mutually Beneficial Supplier Relationship (0.005). These imply that different management level have different approach to handling customer, leadership and styles, management approach, evaluation of evidences for decision- making, approach to continuous improvement of company and handling suppliers for companies’ mutual benefits.

CONCLUSIONS

This study was conducted to determine the level of impact of ISO 9001:2008 to the management of selected manufacturing companies in Cavite Export Processing Zone. The assessment was based on the 8 principles of Quality Management System. The selected manufacturing companies were have been

Certified by various ISO certification bodies. Managers as the respondents of this study in deed had a qualified experience in the industry as evident by their demographic profiles.

In terms of the assessment on the impact, all principles in the Quality Management System found to be with Very High Impact to management. These mean that the management of these manufacturing companies have been affected by their operations specifically when dealing with their clients, employees and productions. Managers continued to strive on operations considering the goals and objectives of the company. Customer satisfaction is the top priority of the management and the company to gain more trust and customer loyalty. Regardless of the leadership styles these managers have employed in their organization, motivating and leading subordinates from top level to those involved in direct productions are important to create harmonious environment. Motivation is one way to engage employees into work and become committed. In process approach, the need for lowering the cost and response time is deemed critical and very important. Performance advantage through improved organizational capabilities is also important for continuous improvement of the company and organization. Keeping up records is important for future reference and viewing as factual evidence for decision- making. Flexibility and speed in response to emerging market trends, customer preferences and expectations is necessary.

With regards to significant differences, age systems approach to management has significant difference in terms of age which suggests different approach to management as part of generational effect and/ or seniority. Sex, on the other hand has no difference in impact of the Quality management System to the managers. Customer Focus, Leadership, Systems Approach to Management and Factual Approach to Decision- making have significant differences in of educational attainment of managers. Customer Focus, Leadership, Involvement of People, Continual Improvement, Factual Approach to Decision- making and Mutually Beneficial Supplier Relationship have significant difference to managers' management position level.

RECOMMENDATIONS

With the rise of the manufacturing industry in Cavite and in the country, it is important to gain and adapt the ISO 9001:2008 to implement Quality Management System in the organization and in the company. All employees of the company shall always bear in mind that aside from continuous improvement of the business, it is the customer satisfaction that is the main concern and goal of the company. Companies shall see the benefits of the ISO 9001:2008 in their operations especially when discovering costs and efficiency savings. These companies shall have a multidimensional vision that can meet and satisfy the existing and potential needs of all the interested parties. The companies should make their commitment visible by providing resources and rewarding participation in the ISO project. Setting goals on various levels and use metrics to measure performance is necessary. Companies should measure what customers think about the company and its products or services and the importance of management's periodical evaluation if the company still meets all ISO 9001 requirements. Management should also conduct continuous related quality management systems training and education of human resources to raise their skill level for continual operation and improvement of QMS.

FURTHER STUDIES

Since this study focused on the impact of SIO 9001:208 on the management, the researcher recommends further study on the benefits and effects of QMS to both employees and the company. In this, the company and the management will be able to determine such aspects of benefits and effects and will be able to design blueprints for further improvement of the company in relation to the standards and companies' goals and objectives.

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