

# Lean TQM—innovating TQM to TVM (Total Value Management)

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## Abstract

The purpose of this research is to innovate TQM to be a real business management and enlarge its advantages. Why could TQM make Japan as No.1? TQM had a lot of advantages. We can find the real advantages of TQM by comparing it with traditional management models. We find the first advantage of TQM is “TQM can satisfy both internal value and external value.” The second advantage of TQM is “TQM manages not only results but also processes and origins.” The third advantage of TQM is “TQM manages not only entity value but also virtual value.” TQM had those advantages. But its central system was always around quality and those advantages could not be employed all over the business. How can we research the real central system of business management? Japanese analogized QC to company-wide including total function, total process, and total department. They created dispersed and passive inspiration in many dimensions, The methodology adopted is to lean the QC-analogized functions, processes, and departments in order to find their respective true meanings. In the practice of leaning, departments become internal entity value, functions become external virtual value, and processes become timing value. The result is that lean TQM becomes TVM (total value management). The advantages of TVM over TQM are: (1) satisfying business purposes, (2) merging other management models, such as IE, and VA/VE, (3) going from Red Ocean Strategy to Blue Ocean Strategy, and (4) elevating from building paths to overseeing the full view. If you practice TVM, you should win in many domains. Just winning by 1%, you should be No.1.

*Keywords:* Lean TQM, TVM, entity value, virtual value, timing value.

## **1. Introduction**

### **1.1. Where is TQM?**

In 1980, the book “Japan as No.1” was published. U.S. firms began to research what made Japan's ability to produce high-quality goods at competitive costs. They found Japanese companies carried out TQC. They started to learn TQC.

In 1990, they changed the name to TQM, because they found TQC suitable for business management. Many scholars started to publish their TQM papers. During 1990~2000, even over 400 TQM papers were published per year. But we could rarely find a TQM paper recently. Where is TQM? What's wrong with TQM?

I received a bachelor's degree in Business Administration and then served as a TQM consultant in Taiwan, R.O.C. My TQM teacher was the student of Japanese TQM master Dr. Ishikawa. Our TQM knowledge was from its origin, Japan. We knew the difference between Japanese TQM and American TQM. U.S. scholars just focused on continuous improvement and techniques employed. These were just small parts of TQM's advantages. When you have discussed these for several years, you could scarcely find anything else to discuss.

### **1.2. Is TQM a mature management model or an immature management model?**

Most TQM scholars are backgrounds of technology. They are interested in figures and techniques. They think TQM as a quality management model; then TQM is a mature management model. In a mature management model, we can focus on improvement and techniques employed. If we are backgrounds of Business Administration, we will think TQM as a business management model, then TQM is a developing management model. The larger parts of TQM's advantages should be its systems. But they are virtual and complex. We should apply system thinking to research its real advantages and its inspirations.

### **1.3. What are TQM's inspirations to business management?**

Why are TQM's systems virtual and complex? It is because TQM is formed from SQC technique to QC function and analogizes QC function to company-wide, including all processes, all functions, and all departments. They produce cross-technique, cross-function, and cross-system. They generate a lot of inspirations to business management. The procedure of TQM's cross-systems and its inspirations is as Table 1.

**Table 1.** The procedure of TQM's cross-systems and its inspirations.

technique	function	Analogy development	meaning	inspiration
SQC	QC	All processes: Result(past) Process(present) Origin(future)	Cross-technique	Timing value
		All functions: Quality Cost Delivery Morale Safety	Cross-function	Virtual value
		All departments: Production Sales Personnel Finance R&D	Cross-system	Entity value

## 2. Experimental Section

### 2.1 Researching the real advantages of TQM

Japanese analogized QC to company-wide, including total processes, total functions, and total departments. TQM actually was like a business management model, but its central thinking was still around quality system. That created some problems in practice.

(1) The top manager regarded TQM as a quality system; he didn't participate in it and ordered the QC department to carry it out.

(2) The other departments would appear to resist it.

(3) They could not get all the advantages of TQM.

Besides, scholars could not clearly explain the real advantages of TQM. They generally said that

quality was a long-term view and finance was a short-term view. A long-term view was better than a short-term view. Most businesses could not agree with it. That was another problem.

The great economist, Dr. Keynes, said: “In the long run, we are all dead”.

The purpose of this study is to innovate TQM to be a real business management model.

We can find the real advantages of TQM by comparing it with traditional management models.

### **2.1.1. TQM vs IE.**

IE is a successful management model; it has been called scientific management, and it has more techniques than quality system. What is the defect of IE? IE is mainly used to solve the internal requirements of business. Quality system solves both the internal requirements of business and the external requirements of customers. **This is the first advantage of TQM.**

### **2.1.2. TQM vs Finance**

Finance is popularly used in many management models, such as MBO, KPI, Performance management, and Budget management, etc. What is the defect of finance system management? Finance system just manages the results. Quality system manages not only results but also processes and origins. **This is the second advantage of TQM.**

### **2.1.3. TQM vs (IE+ Finance).**

Why can IE be closely combined with finance system? Why can quality system be not combined with finance system? What common characteristics do they have? Both IE and finance system are entity functions. Quality system is not only an entity function but also a virtual function. **This is the third advantage of TQM.**

## **2.2 Lean TQM— the evolution of TQM**

In TQM, many cross-techniques, cross-functions, and cross-systems have been developed. But its focus is still around quality. We can lean it by combining functions of the common characteristics as the following.

### **2.2.1. Total Department Management**

The subject of TQM includes all departments, such as production, sales, personnel, finance, and R&D. Their common characteristic is internal entity value. They create a department management axis representing internal entity value.

What is the difference between internal value and external value?

For example, QC is for satisfying design requirements; it is internal value. QA is for satisfying

customer requirements; it is external value.

### **2.2.2. Total function management.**

The functions of TQM include quality, cost, delivery, morale, and safety. The common characteristics of quality, cost, and delivery are external virtual values. The common characteristics of morale and safety are auxiliary virtual values. The auxiliary virtual value can be affiliated with external virtual values. They create a function management axis representing external virtual value.

What are virtual value and entity value?

Hong Kong economist, Dr. Chang, says: “The harbor can charge the ships. Who can the lighthouse charge?” The relationship of cause and effect between the harbor and the ships is clear. We say it is entity value. The relationship of cause and effect between the lighthouse and the ships is unclear. We say it is virtual value.

### **2.2.3. Total process management**

The common characteristics of process management include managing result, managing process, and managing origin. They represent managing the past, managing the present, and managing the future. The continuous improvement also represents managing the future. They create a timing management axis representing timing value.

## **3. Results and Discussion**

Lean TQM created three central axes. They were department management axis, meaning internal entity value, function management axis, meaning external virtual value, and timing management axis, meaning timing value.

Then Lean TQM became TVM (Total value management) as in Figure 1.

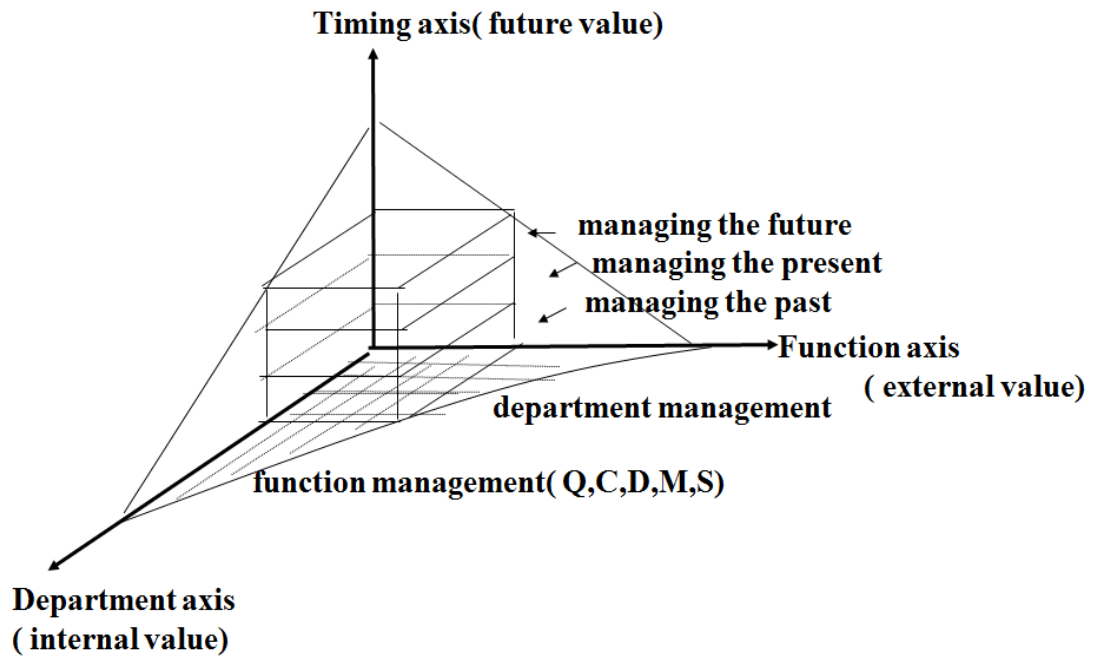


Figure 1. Lean TQM became TVM (Total value management)

### 3.1. The advantages of TVM over TQM

#### 3.1.1. Satisfying business purposes

Business purposes are:

- (1) Supplying products and services for social requirements.
- (2) Business existence and development.
- (3) Employees’ life and growth.

TQM focuses on satisfying customer requirements; it is part of business purposes. TVM can entirely satisfy business purposes by three management axes, as shown in Table 2.

Table 2. TVM can satisfy business purpose

Business purpose by social view	Business purpose by business view	Content(example)	Suitable TVM management model
1. Supplying products and services for social	Customer external value and requirements	Quality, Cost, Delivery	Function management axis (Virtual value )

requirements			
2. Business existence (and development)	Business internal value and requirements	Department management of production, personnel, R&D, sales, and finance	Department management axis (Entity value )
2. Business (existence and) development	Timing value of present and future	Department control plan, Continuous improvement, Management by policy	Timing management axis (Timing value )
3. Employees' life and growth	Auxiliary value and requirements	Morale, Safety, Health, Education & Training	Function management axis (Virtual value )

### 3.1.2. Merging other management models, such as IE, VA/VE

The main axis of TVM is value.

TPS (Toyota production system) is the maximum development of IE. Lean Production is a new model of TPS. The main axis of Lean Production is a value stream. It is one of the value management models. It extends forward to the supply chain and back to the delivery chain. It is equal to the process deployment of a virtual value.

VA, VE, and VI are essentially value managements. VA is entity value, suitable for department management. VE is virtual value, suitable for function management. VI is future value, suitable for timing management

QC, IE, and VA/VE are eventually affiliated to value. Value can merge every kind of management model.

### 3.1.3. Going from Red Ocean Strategy to Blue Ocean Strategy

The main axis of TQM is continuous improvement. It is suitable for entering the highly competitive red ocean market.

The main axis of TVM is value. If your main axis is internal value, you would easily enter the highly competitive red ocean market. If your main axes are external value and future value, you would easily enter the low-competitive blue ocean market.

From the viewpoint of value management, Red Ocean Strategy and Blue Ocean Strategy are the two sides of the same object. It depends on your choice.

**3.1.4. Elevating from building paths to overseeing the full view**

The logic of the development of knowledge space is from building paths to overseeing the full view.

Traditional management consists of many individual paths. TQM is a connecting path. TVM can oversee the full view of business management by gathering traditional individual paths and TQM’s connecting path as in Table 3 and Figure 1.

**Table 3.** TVM oversees the full view of business management

QC		Business management	
path	overseeing=TQM	path	overseeing=TVM
Control chart	(connecting system):	(individual system):	<b>1.Department management axis ( Entity value)</b> <b>2.Function management axis ( Virtual value)</b> <b>3.Timing management axis (Timing value)</b>
Sampling inspection		General management principle	
Process QC		Human behavior	
Quality control plan		Management techniques	
Project improvement		Production management	
Quality assurance system		Personnel management	
QFD		Finance management	
		R&D management.	
		Sales management.	
		---	
---	<b>1.Function management</b>	→	
---	<b>2.Management by policy</b>	→	
---	<b>3.Department normal management</b>	→	

**3.2. What are the characteristics of TVM’s three dimensions?**

**3.2.1. What are the characteristics of department management axis (internal entity value)?**

We generally use performance management in traditional department management. We use department control plan in TVM’s department management. Their difference is shown in Table 4.



**Table 4.** The difference between performance management and department control plan

	Performance management	Department control plan
1	The management items focus on finance.	The control items include Q,C,D,M,andS.
2	The management standard is set up by staff, upper manager or negotiation.	The control limit is the statistics of historical data.
3	The effect is good or no-good.	The effect is normal or abnormal.
4	The result is prized or punished.	If the result is abnormal, you should take an action to correct it. If the result is normal, but you are not satisfied. You should take it as an improvement project. That's a circle of continuous control and continuous improvement

### 3.2.2. What are the characteristics of function management axis (external virtual value)?

The function management axis represents virtual value. It actually includes cross-department internal virtual value, such as education & training. Because virtual is a strange word, we use external virtual value just to emphasize the main axis. In the same way, function management axis doesn't only have virtual function. There are three types of virtual value.

#### (1)Virtual function, such as QA function:

We should deploy its process, and establish control items in the key process, and appoint the responsible department and responsible person.

#### (2)Virtual character, such as product safety:

We should use QFD to transfer virtual character to entity items. And those items should be controlled at design and production.

#### (3)Virtual knowledge, such as statistics:

We actually live in a virtual world. When you have more virtual knowledge represent you have more advantage. Our virtual world is as Table5.

If you don't know statistics, you can't do QC; you can only do inspection.If you don't have a well-known brand, though you have good-quality products, you can't sell them at high prices.

**Table 5.** We live in a virtual world

Subject	Time	Distance	Temperature	Money	Language	Mathematics	Quality
Entity	Morning. Noon. Afternoon. Night.	Step	Cold. Warm. Hot.	Copper. Silver. Gold.	Oral language.	Arithmetic.	Defect.
Virtual	Hour. Minute.	Meter. KM.	<sup>0</sup> F <sup>0</sup> C	Paper cash. Credit card.	Computer language.	Statistics.	Brand.

### 3.2.3. What are the characteristics of timing axis(timing value)?

When QC analogizes to all processes, we find there are three phases: result, process, and origin. They represent managing the past, managing the present, and managing the future. Managing the present is better than managing the past, and managing the future is better than managing the present.

We can find timing value not only in continuous process characteristics but also in non- continuous process characteristics; as in Table 6.

The different timing value phases can be seen as advanced indicators to enhance business competitiveness.

**Table 6.** Timing values of different characteristics (for example)

Subject Timing value	Quality	Cost	Equipment	Education	Management
Managing the future	Design	Managerial Accounting	Preventive maintenance	Career planning	MBO/MBP
Managing the present	Quality control plan	Cost Accounting	Daily maintenance	Training before work	Department control plan
Managing the past	Final inspection	General Accounting	Breakdown maintenance	Failure training	Crisis/Failure handling

## 4. Conclusion

If you understand the principles of TVM, you can easily learn TQM and have more advantages.

### 4.1. Advantage in mobilizing the strength on the department level

A famous CEO said: “Employees only do the things you can manage.”

In the quality domain, we can manage by quality control plan. We can also create a department control plan to manage department. Every department and every level creates a department control plan in the entity value domain. You can create a No.1 in “the things you can manage.”

The domains of virtual value and timing value are fuzzy and chaotic. Employees don’t have any responsibility. From the TVM system we can deploy virtual value and timing value to entity process and give responsibility to the employees. Then we can strengthen our competitiveness.

### 4.2. Advantage in connecting systems on the enterprise level

The entity value is to enhance execution advantage. The virtual value is to enhance market competitiveness. The timing value is to enhance business competitiveness.

In TVM’s connecting systems, when one of them is the leader, it will stimulate and strengthen another and produce enterprise advantage, as in Figure 2.

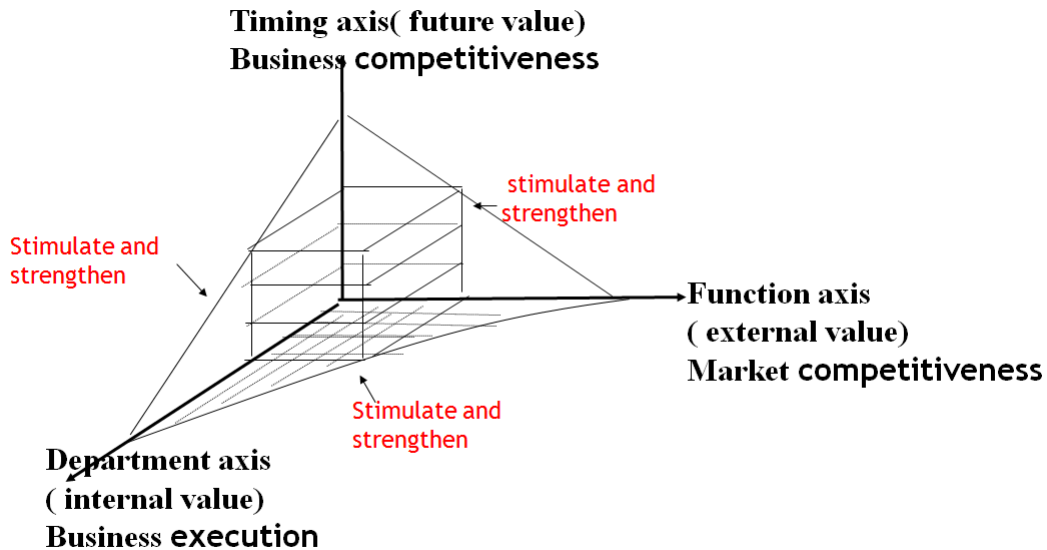


Figure 2. In TVM’s connecting systems, the leader will stimulate and strengthen another.

### **4.3. Advantage in overseeing the full view on the CEO level**

**Theory of Wooden Bucket**--The water level should depend on the shortest board.

“The CEO only does the things he can see” is more important than “Employees only do the things you can manage”.

The CEO used to prefer some functions because of his knowledge, experience, and character. That shall fall into the “Theory of Wooden Bucket” and it lacks entire competitiveness. If the CEO knows the TVM’s three dimensions, entity value, virtual value, and timing value, he can oversee the full view of business management. He should not fall into the Theory of Wooden Bucket, and the company can acquire entire competitiveness.

### **4.4. Advantage in continuous discipline on the system level**

The main advantage of TQM is continuous improvement. The continuous improvement is just an aggregate of points.

The discipline of TVM system is an aggregate of surfaces. It includes three dimensions and all functions. Its influence on business should be long-term and wide-spread.

TVM has more advantages than TQM.

Disciplining in TQM is behind Japan

Disciplining in TVM is ahead of Japan

### **4.5. Winning by 1%; you should be No.1**

A team of professors they were expert at mathematics in MIT. They developed a formula to count the cards. That can get a 51% winning rate in blackjack. Only 1% advantage, but all the casinos in the world were scared and rejected them to gamble.

Think about the winning percentage of TVM over you. And think about the winning percentage of TVM over TQM. By practicing TVM, you should happily head for No.1 tomorrow.