

Case Study on Established the Occupational Competency Standard and Training Plan for the Quality Managers in SME

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Abstract : *As the competition of global economic gradually increased, sustainable learning has become the key issue of workers to survival in the workplace. Every individual and enterprise is in a global competitive system, only those who have the ability to compete can survive. Kaplan's balanced scorecard research experience tells us that the competency development of employees needs to be linked to the strategic goals of the company. Enterprises should provide opportunities for the employees to learn and grow. Thus, human resources become one of the important issues for enterprises. The present study conducted the quality control manager of small and medium metal products raw equipment factory as the subjects to investigate the basic knowledge and skills, and enables the enterprise to establish the talent standard. There were three important knowledge areas of the quality management tasks was discovered. The three important knowledge areas are the problem analysis and improvement ability, the customer complaint handling ability, and the communication ability. Moreover, handling horizontal plan ability was the threshold skill. Enterprises can establish an exclusive function model according to their own characteristics and strategic subjects based on the present study.*

Keywords: *Occupational competency standard, SME, Training plan, Adult and continuous learning.*

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I. Introduction

The national education level has a strong link with the country's economic development, and the most advanced countries were all valued the development of the people's education. Adult education has different learning needs with the development of life role and work. Employees should gradually increase their abilities with the growth of the enterprise. Therefore, the enterprise should provide the employees with the opportunity to learn so that the corporate strategic goals can be implemented to every employee's action.

However, Taiwan's geographical location is special. Taiwan is an island surrounded by the sea with a large population and small natural resources. The domestic enterprise scale above 97% is the small and medium-sized enterprise (SME). Export trade for economical development main origin. In 1970's Taiwan people depended upon the diligent special characteristic, the creation economical miracle, became one in Asia four little dragons. The industrial shape transforms by the past agriculture and the fishery into the present industry manufacturing industry and commercial service industry. Taiwan was the specialized generation of factory in the manufacture industry, in those days, we regarded the labor force was representing the productive forces. Therefore, with regard to manpower prefer to attention on physical labor work the value. The original equipment manufacturer (OEM) products are distributed all over the world, with the title of the world factory. Now this world original equipment manufacturer title, already gradually displaces by the mainland China and the ASEAN countries.

With such environment challenge, the enterprise must have the competitive power to be able to continue forever to manage. The enterprise must have fine and stable product and can have the enormous difference with other competitors. In order to can carry on the quality control effectively, the high achievements quality control personnel are key factor. Therefore, the appropriate talents are the capital of the enterprise rather than the resource. Through the function construction, we can understand the function difference of the employees, give proper focused training, and train the successful knowledge and skills of the trainees through education.

In the era of globalization, high-performing talents are gradually moving to advanced countries. We need to think about the purposes of education and training, in addition to the knowledge and skills required for current employees and new employees to perform their work. We should also provide employees with career development training within the organization. Enterprises should consider factors such as social culture, organizational strategy and employee characteristics to provide appropriate learning opportunities. Based on the characteristics and development strategies of SMEs in Taiwan, the present study established the occupational competency standard of quality management personnel, and based on the standard in training programs to

promote enterprise competitiveness.

II. Literature Review

The importance of adult learning from the development of modern science and technology had a large amount of information. Learning from historical evolution that is now less than five years of professional knowledge will be out of style, and changes in the work behavior in response to the global economy. Adult learning requires strategic approach, without strategic methods will lead learning unproductive. The present study use the concept of the balanced scorecard, the development of adult learning, encourage every adult learners improve work skills and standard of living.

Lifelong or adult learning is often caused by life events and role transitions. The reasons for adults to participate in learning activities are mostly based on career or work-related reasons. Salleha et al. (2015) indicated that the purpose of adult learners' learning is usually to improve their living condition and professional quality. Considering that most people involved in adult learning are in the work, and the adult learning process mainly focused on the workplace organization. At the organizational level, adult learning is designed to enhance knowledge and skills for career development, while competency-based learning is a strategy used to ensure that individuals acquire characteristics related to the tasks assigned to them to ensure the effectiveness of performing the assigned tasks.

2.1 Adult and Continuous Learning

Human society is made up of a group of organisms, and everyone is influenced by social culture and environment. Everyone is involved in learning at different stages of the process. if you leave school on one day, you will stop your planned study. Training, like participation, cannot be disassociated from its wider social and economic context, or institutional frameworks. It is closely linked to history, tradition, industrial and commercial development, the nature of product markets, managerial structures and education, labor markets, industrial relations and shop-floor organization (Edwards et al.,2013).

Adult learning includes individuals who have work experience or are still working. Salleha et al. (2015) stated within the scope of an organization, adult learning is mostly continuous learning which purpose is enhancing knowledge and skills towards achieving career development. It encompasses several programs for the enhancement of competency consist of knowledge, skills, and abilities. Adult learning or andragogy is one of the important aspects of nation building. Adult learning is often linked to economic value. From the perspective of national development, adult learning has creative value and improves production efficiency. Therefore, a competency model is established for each job, as the basis of adult learning training, and then enhance the competitiveness of enterprises, so that national economic growth. Enterprise human resources development provides an important opportunity for adult learning.

2.2. Competency Models and Human Development

The productivity of employees is initially thought to depend on the level of innate intelligence, so many companies use intelligence tests as a tool to select employees. However, the results show that intelligence and job performance are poorly correlated. McClelland (1973) have published a journal article "Testing for competence rather than for intelligence". Emphasizes "not to be supposed only then to select basis of the personnel by the intelligence quotient achievement, should pay great attention to the actual influence study achievements ability" (Li, 2008; Li, 2009). McClelland (1973) further developed the Job Competence Assessment Method, which attempts to change the past emphasis on job analysis and job descriptions. Ability to identify high performance factors from supervisors and those with good work performance.

Mirabile (1997) think competency is identified as knowledge, skill, ability or certain characteristic of individuals, associated with high performance on a job including problem-solving, analytical thinking or leadership. McLagan (1989) also indicated that the construction of competency models can find high performance workers more effectively than the job description (Yang, 2003), through the establishment of functional models, it can bring performance and output to the organization.

Spencer and Spencer (1993) proposed "ice-berg model", is often discussed and applied. Spencer & Spencer (1993) holds that functions should include five elements: skill, knowledge, self concept, personality and motives. As shown in Figure 1:

- (1). Motives: the idea that a person continues to desire something and then puts it into action.
- (2). Personal characteristics: refers to the characteristics of the body and the continued response to the situation or message.
- (3). Self concept: about a person's attitude, value and self-impression.
- (4). Knowledge: refers to a person's expertise in a particular field.
- (5). Skills: the ability to perform tangible or intangible tasks.

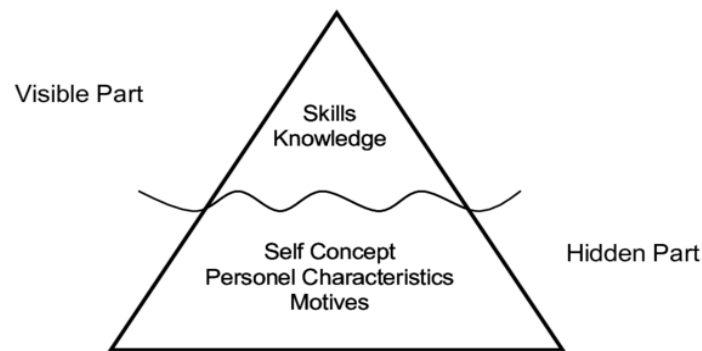


Figure 1. The Ice-berg Model of Competence (Spencer & Spencer, 1993)

Among them, the competency of knowledge and skills belong to the explicit part of the ice-berg model above the water surface, is inclined to be easily perceived and visible. It can be developed through training, and its learning outcomes can be measured. Self concept, personnel characteristics, and motivates are the hidden parts of the iceberg model deeper below the water surface, which is the part of the individual that is difficult to change for a long time. It very difficultly carries on the transformation with the training development way, moreover very difficult to weigh (Yang, 2003; Li, 2008; Zhao, 2010). Each scholars has their own views on the definition of competency, develop a functional model of high performance output. From the perspective of human development, the competency establishment must reflect the core values of the company, the prospect, the mission and the service strategy. That is, the competency needs to be able to reflect the specificity of the enterprise and use to appraise staff's work performance. Therefore, the functions discussed in the present paper are the knowledge and skills required to perform the work, and can be observed and can achieve effective work results through education and training.

2.3 Education Training and Balanced Scorecard

In a perfectly competitive market, usually competitive companies regard manpower as the basis of success rather than labor cost. Human development should be compatible with the development of the enterprise. That is, when the development of the two sides is inconsistent, the weaker party will be eliminated. One may be that the talents leave the enterprise, and the other may be the enterprise dismissal. In either case, both parties lose the power of stability.

In the early days, Taiwan's manufacturing industry was dominated by OEMs. The development of enterprises mainly focused on production technology, hard-working manpower and the inflow and outflow ratio of control funds. The consumption and waste generated in the production process were included in the payment of customers. Therefore, in the case of a large surplus, the focus of the operation is on production and market growth. However, as the market becomes more competitive and the protection of manpower policies, enterprises face market development and profit reduction, and human development and The importance of corporate strategy planning.

Kaplan and Norton (1992a) found in analog devices case- "corporate scorecard". It is an innovative measurement tool that measures the speed of improvement in continuous improvement activities. In addition to traditional financial measures, it also includes performance metrics related to delivery time, process quality and cycle time, and new product development effectiveness. Kaplan and Norton (1992b) proposed The "balanced scorecard" management tool mainly discusses "the future measurement method of organizational performance", connecting customer value with corporate mission and vision to develop corporate strategy, and transforming corporate strategy into action indicators for implementation on each employee (Kaplan & Norton, 1996).

The balanced scorecard revolves around four facets: financial perspective, customer perspective, internal business process perspective, and learning and growth perspective, as shown in Figure 2. These perspectives represent three major stakeholders of any business (shareholders, customers and employees), thereby ensuring that a holistic view of the organization is used for strategic reflection and implementation (Fernandesa et al., 2006).

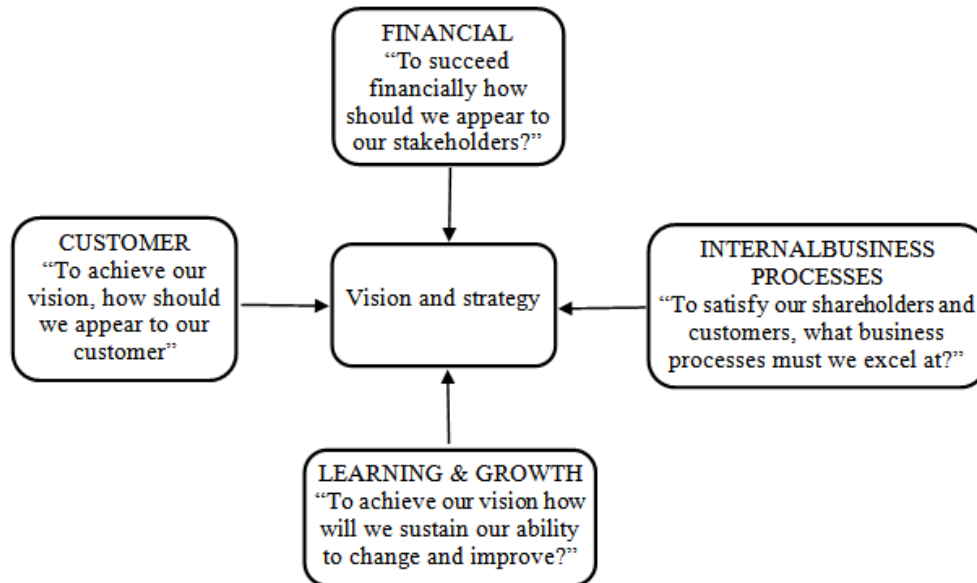


Figure 2. Balanced scorecard framework (Kaplan & Norton, 1996)

The balanced scorecard system clearly tells us that human resource development must be sufficient to support customer value proposition. The value of an employee depends on how much knowledge and skills can be contributed. SMEs in Taiwan are limited by their organizational characteristics, relevant training activities often fail to carry out a series of analysis and strategic planning on the needs of the organization, the conditions of talents, and the subjects environment (Yang & Yu, 2011). The balanced scorecard system provides a human capital development process, identifying strategic job families from the execution of key processes, and then designing the functions that the position group should have is called strategic competencies, including expertise, technology, and talent. As shown in Figure 3 (Huang, 2006).

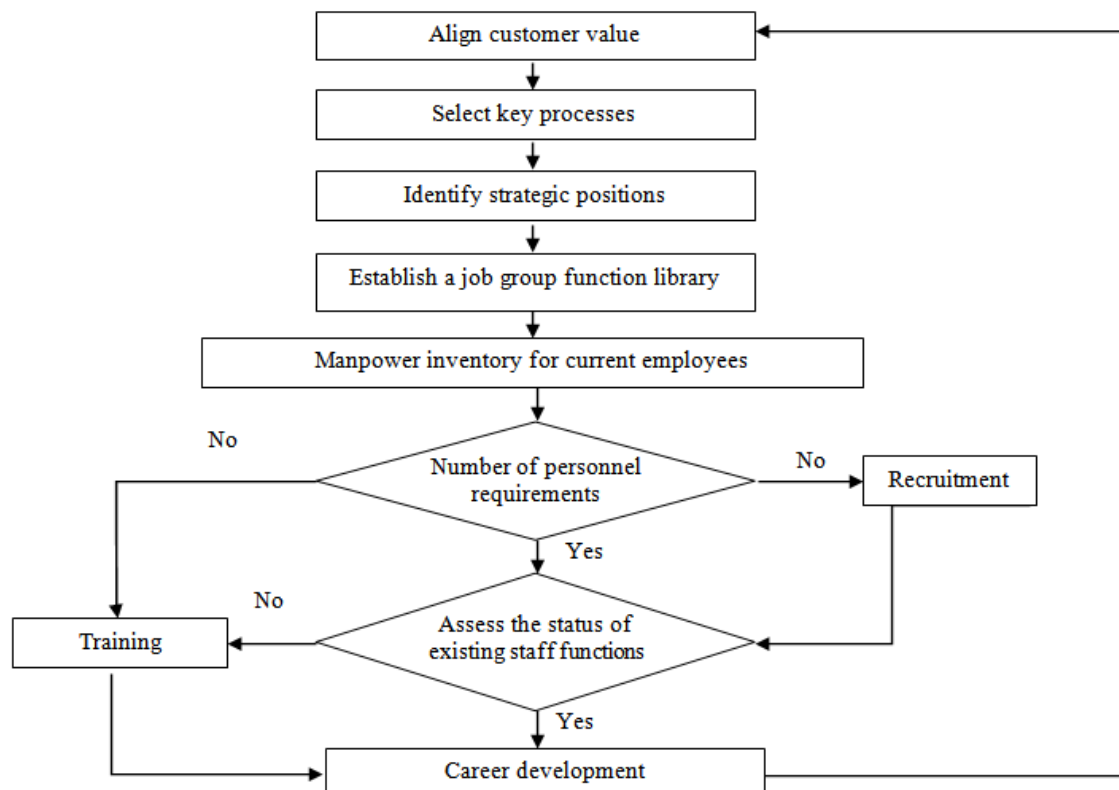


Figure 3. Human Capital Development Flow Chart (Huang, 2006)

If there is no education training for strategic planning, the learning needs of employees are mostly based on interest or development of second specialty, which may not improve the competitiveness of the enterprise. This research provides high-quality products to customers as a strategy, develops quality management personnel functions, and establishes their knowledge and skills. As the basis of employee education training program, employee technological reengineering enables it to realize customer value proposition.

2.4 Job Training Design

From the beginning of work, there is the concept of vocational training. The initial vocational training was a one-on-one training model. The master who knows the knowledge and skills of a job trains the apprentice, Teaching in a mentoring mode from generation to generation, and then with the growing and divisive demand, gradually evolved into organized and institutionalized vocational training centers or vocational schools. Many modern countries with advanced technical and vocational education, such as Germany, master and apprentices are still the main form of vocational training.

The school rationale is founded on the propagation of accumulated knowledge that is institutionalized in a symbolic (mainly linguistic) form. This is primarily achieved by teaching theoretically based and subject divided knowledge. The businesses have likewise developed a production rationale based on the logic of the market economy and severed the links to the rest of society. Cultivation of the production rationale in the workplace means that training and education is linked more closely to the demand for economic efficiency. The main criterion is that learning should be useful for carrying out production and in relation to the strategic plans of management.

Yasinski (2014) argued the competency based technical training model is an optimal delivery system, affording adult learners greater flexibility in balancing their studies and personal responsibilities. This study uses the balanced scorecard concept development strategy, develop enterprise exclusive competency model according to strategy, combine adult learning with work training to ensure that everyone can learn and grow, ensure the effectiveness in carrying out the tasks.

III. Research Framework

The present study is conducted by competency interview method and Delphi method (Dalkey & Helmer, 1963). Collect information on the duties of quality control personnel in the public sector and private units and academic institutions, as well as interview the quality management supervisor of a particular company, complete the competency model of the quality management personnel of SME metal products OEM. Further invite experts and scholars to conduct the first draft of the Delphi method opinion survey competency model.

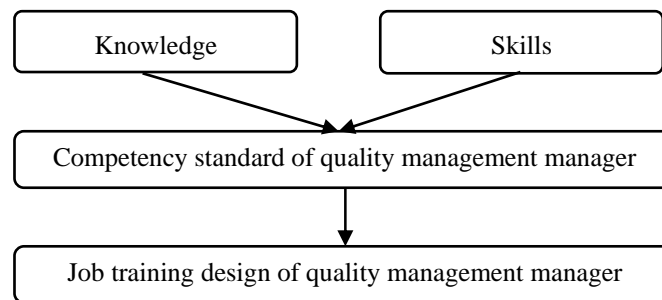


Figure 4. Research Structure of Present Study

The present study aimed to explore the competency model that Taiwan's SME metal products industry should have in quality management through literature analysis and domestic expert opinions. Figure 4 shows the research structure of the present study.

The Delphi method experts choose to must have the following two conditions :

- (1). In the SME metal products original equipment manufacturing plant in Taiwan, the quality control department, the quality work related departments and the business departments in contact with customers.
- (2). The experts all have more than 3 years of experiences, as shown in Table I.

Table I. List of Industry Experts

#	Name	Department	Position title	Profession	Experience
1	Mr. Liu	Technical	Assistant manager	New product development, introduction of mass production planning	18 year
2	Mr. Li	Quality assurance	Manager	Quality management	3 year
3	Mr. Chen	Quality assurance	Manager	Quality management	5 year
4	Mr. Li	Quality assurance	Assistant manager	Quality management	5 year
5	Miss. Yang	Quality assurance	Manager	Quality management, customer service	15 year
6	Mr. Chen	Marketing	Assistant vice president	Customer maintenance and development of new market	5 year

First interview the job responsibilities of the SME quality management personnel, and then collect the competency benchmark data of various industry quality related personnel announced by the Ministry of Labor of China's Ministry of Labor as the interview document of the Delphi expert, as shown in Appendix Table I. Appendix Table I as the first draft of the Delphi expert interview to conduct expert opinion interviews, and the experts' opinions were integrated back and forth for several rounds, gradually gaining consensus, as shown in Appendix Table II.

The differences between the two appendix tables are summarized as follows:

1. "Work Task T1-2 Execution Quality Assurance System" in Appendix Table I. The experts suggested that it should be revised to "Perform internal audit activities" to make it clearer, and delete its corresponding communication and coordination skills, process management (QC engineering drawings) skills, New site audit capacity (added), document processing capacity (added), file management capability (added).
2. Communication and coordination skills: Experts suggest that quality managers should coordinate and communicate with different departments. Should have cross-departmental communication and coordination skills more appropriate.
3. "Project Management" in Appendix Table I. The experts recommended project management to be dominated by higher-level managers, the general quality manager is only responsible for assisting the execution. Therefore, delete project management knowledge.
4. The failure mode and effects analysis, design failure mode and so on is mostly executed by R & D technical units in OEMs. It is not the responsibility of the quality control unit, so delete it.
5. Work Task T3-5 "Performing Product Quality Related Trend Analysis" in Appendix Table I. Experts suggested adding knowledge of "quality analysis methods". It is essential knowledge for performing this task.

IV. Results & Findings

The present study has obtain 2 new findings: First, with the same of the job title, in each SME, has different job content and authority distribution. It is hard to apply the same competency model to each enterprise. And these differences in production come from the type of business operations, the size of the company, and its positioning in the industry. Every company has different opinions on work processes, work methods, and work decisions. As the company expands in size, in the case of division of management rights, the professional knowledge and communication skills of quality management personnel become more important.

Second, in the case of SME of metal product OEMs, it mainly produces and processes design are for the customers, so it will pay more attention to the size specifications of the products rather than the functions. In other words, to the components which produces provides to the consumer what kind of use function as well as the use experience quality does not take the initiative to care. Under this situation, quality control personnel emphatically product system regulation quality stability as well as final product outward appearance and size. In the ability to work, must need to be able to view the drawing capabilities to do product size testing tasks. Needs to have knowledge of metal material, statistics, quality concept, and so on, as well as the problem analysis and improvement ability, can carry on the quality exception handling work. Need to have customer complaint handling ability, communication ability, in the face of customer complaints about product or delivery delay, only then may extinguish the customer question and provides satisfaction the service, and establishes the customer the trust to be able to continue to cooperate for a long time.

Each person at any stage has to continue learning activities to facilitate the individual to adapt to the needs of social change. When the market is changed from supply-oriented to customer-oriented, it will affect the business strategy of the enterprise, and also result in the function gap of employees. The present study explores the key functions required for the successful completion of work tasks by quality management personnel of SME of metal products OEMs. By this means, the important correlation between job training and learning and growth can be illustrated. By the difference of work awareness ability, the deficiency prompts people to study hard and

grow, which makes the development of their own ability and enterprise development strategy have a strong causal relationship and create economic benefits.

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Appendix Table I. First Draft of Competency Standards of Quality Management Managers

Job responsibilities	Work task	Work output	Behavioral indicators	Knowledge	Skills
T1. Implement and maintain a quality management system.	T1-1 Establish and maintain quality control department quality procedures / work instructions.	O1-1-1. Quality Assurance / Verification / Procedure / Work Instructions.	P1-1-1. According to the objectives set by the quality management system, it is ensured that the approved specifications, sampling instructions, and inspection methods are in compliance with the specifications for semi-product/intermediate product inspection.	Basic concept of quality. International quality assurance system. Process management.	System/resource integration capabilities. Scene audit capability. Clerical capacity. Document management capability. Data analysis capability.
	T1-2 Executive quality assurance system.	O1-2-1 QC control chart.	P1-2-1 Be able to implement quality control according to working documents of established quality assurance system.	Basic concept of quality. International quality assurance system. Basic concept of quality. International quality assurance system. Quality Control Organization and Standardization.	Communication and coordination ability. Process management (QC engineering drawing).
	T1-3 Implement quality management system training.	O1-3-1 Quality management system training materials.	P1-3-1 Perform education training for all staff who may affect quality in accordance with individual business requirements to ensure a basic understanding of the quality management system.	Basic concept of quality. International quality assurance system. Quality management Organization and standardization.	System/resource integration capability.
T2. Planning routine quality control inspection and audit inspection report	T2-1 Responsible for planning and performing instrument calibration.	O2-1-1 Instrument and equipment verification report.	P2-1-1 Responsible for planning and performing instrument and equipment calibration, ensuring the effectiveness of calibration and maintaining the calibration records.	Measurement system analysis. Calibration and management of measuring instrument.	Instrument check capacity. Report consolidation and management skills.
	T2-2 Review raw material inspection procedures and specification records	O2-2-1 Inspection and verification records of raw materials O2-2-2 Raw material inspection specification	P2-2-1 Ability to confirm and audit whether raw material inspection meets procedures and specifications.	Incoming inspection specification. Sampling system. Basic statistics Quality control.	Judgment ability. Statistical Analysis. Quality oriented. Communication and coordination ability.
	T2-3 Review process inspection results.	O2-3-1 Manufacturing control standard. O2-3-2 Process inspection confirmation and audit records.	P2-3-1 Be able to periodically review and review quality control inspection records for process output and quality specifications.	Sampling system. Statistical process control. Control chart and process capability analysis. Quality control.	Data analysis capability. Scene audit capability. Problem analysis and solution improvement ability. Inter-departmental communication and coordination.
	T2-4 Perform product completion inspection.	O2-4-1 Finished product inspection/audit record.	P2-4-1 Be able to verify that all audit items performed for final product are in compliance with product registration and specification	Sampling system. Basic statistics. Quality control.	Judgment ability. Statistical Analysis. Quality oriented. Communication and coordination.

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Job responsibilities	Work task	Work output	Behavioral indicators	Knowledge	Skills	
			requirements.			
T3 Implement corrective and preventive measures.	T3-1 Assist to handle customer complaint related to quality.	O3-1-1 Customer complaints exception handling record.	P3-1-1 Make a detailed record of the complaint handling list, and properly handle the customer complaints related to quality.	Customer relationship management.	Customer complaint handling ability. Problem analysis and improvement ability. Logical reasoning ability. Risk analysis capability.	
	T3-2 Inspection and testing of non-conforming products (including customer complaints and nonconforming products).	O3-2-1 Unqualified product quality exception handling record.	P3-2-1 Responsible for the inspection and testing of non-conforming products, and accurate cause analysis and responsibility judgment, and timely report to the department manager as the basis for improving the quality system.	Information analysis. Project management.	Customer complaint handling ability. Problem analysis and improvement ability. Logical reasoning ability. Risk analysis capability.	
	T3-3 Analysis of the reasons and tracking of non-conforming products.	O3-3-1 Nonconforming product inspection test record.			Statistical process control. Process failure mode. Design failure mode. Basic statistics.	Problem analysis and improvement ability. Report writing ability. Analysis reasoning. Communication and coordination ability.
	T3-4 Establish corrective and preventive actions.	O3-4-1 Record of corrective and preventive actions.	P3-4-1 Establish effective corrective and preventive measures in compliance with customer and regulatory requirements.		Customer relationship management. Project management. Defensive management.	Customer complaint handling ability. Problem analysis and improvement ability. Logical reasoning ability. Risk analysis capability.
	T3-5 Perform product quality related trend analysis (including product inspection and testing, customer complaints, corrective and preventive measures...etc.).	O3-5-1 Product quality trend analysis statistical report.	P3-5-1 Regularly carry out quality index trend analysis of product inspection and testing, customer complaints and corrective and preventive measures, and timely provide trend analysis statistical reports to relevant authorities.		Customer relationship management. Project management. Defensive management.	Customer complaint handling ability. Problem analysis and improvement ability. Logical reasoning ability. Risk analysis capability. Briefing ability. Clerical capacity.

Appendix Table II. Occupational Competency Standards of Quality Management Managers

Job responsibilities	Work task	Work output	Behavioral indicators	Knowledge	Skills
T1. Implement and maintain a quality management system.	T1-1 Establish and maintain quality control department quality procedures/ work instructions.	O1-1-1. Quality Assurance / Verification / Procedure / Work Instructions.	P1-1-1. According to the objectives set by the quality management system, it is ensured that the approved specifications, sampling instructions, and inspection methods are in compliance with the specifications for semi-product/ intermediate product inspection.	Basic concept of quality. International quality assurance system. Quality control seven major methods seven major methods. Organization and Standardization.	System/resource integration capabilities. Scene audit capability. Clerical capacity. Document management capability. Data analysis capability.
	T1-2 Perform internal audit activities.	O1-2-1 Internal quality audit plan and related records.	P1-2-1 Implement internal quality audit according to quality audit plan, and the audit unit corrects the effectiveness of preventive measures.	Basic concept of quality. International quality assurance system. Quality control seven major methods seven major methods. Organization and Standardization.	Scene audit capability. Clerical capacity. Document management capability. Data analysis capability.
	T1-3 Implement quality management system training.	O1-3-1 Quality management system training materials.	P1-3-1 Perform education training for all staff who may affect quality in accordance with individual business requirements to ensure a basic understanding of the quality management system.	Basic concept of quality. International quality assurance system. Quality management organization and standardization. Education and training.	System/resource integration capability. Be familiar with the quality management system provisions.
T2. Planning routine quality control inspection and audit inspection report	T2-1 Responsible for planning, supervising and managing instrument and equipment calibration.	O2-1-1 Instrument and equipment verification report.	P2-1-1 Responsible for planning and performing instrument and equipment calibration, ensuring the effectiveness of calibration and maintaining the calibration records.	Measurement system analysis. Calibration and management of measuring instrument.	Instrument check capacity. Report consolidation and management skills.
	T2-2 Review raw material inspection procedures and specification records	O2-2-1 Inspection and verification records of raw materials O2-2-2 Raw material inspection specification	P2-2-1 Ability to confirm and audit whether raw material inspection meets procedures and specifications.	Incoming inspection specification. Sampling system. Basic statistics Quality control seven major methods seven major methods.	Judgment ability. Statistical Analysis. Quality oriented. Inter-departmental communication and coordination skills.
	T2-3 Review process inspection results.	O2-3-1 Manufacturing control standard. O2-3-2 Process inspection confirmation and audit records.	P2-3-1 Be able to periodically review and review quality control inspection records for process output and quality specifications.	Sampling system. Statistical process control. Control chart and process capability analysis. Quality control seven major methods seven major methods.	Data analysis capability. Scene audit capability. Problem analysis and solution improvement ability. Inter-departmental communication and coordination.
	T2-4 Supervise and manage product completion inspection.	O2-4-1 Finished product inspection/audit record.	P2-4-1 Be able to verify that all audit items performed for final product are in compliance with product registration and specification requirements.	Sampling system. Basic statistics. Quality control seven major methods.	Judgment ability. Statistical Analysis. Quality oriented. Inter-departmental communication and coordination skills.
T3	T3-1	O3-1-1 Customer	P3-1-1	Customer relationship	Customer

Job responsibilities	Work task	Work output	Behavioral indicators	Knowledge	Skills
Implement corrective and preventive measures.	Assist to handle customer complaint related to quality.	complaints exception handling record.	When customers return goods, they can distinguish and control the returned goods, and record the exception handling list in detail, and properly handle customer complaints related to quality.	management. Control of returned goods.	complaint handling ability. Problem analysis and improvement ability. Logical reasoning ability. Risk analysis capability.
	T3-2 Inspection and testing of nonconforming products and analysis of causes of nonconforming products (including customer complaints and nonconforming products).	O3-2-1 Unqualified product quality exception handling record.	P3-2-1 Responsible for the inspection and testing of non-conforming products, and accurate cause analysis and responsibility judgment, and timely report to the department manager as the basis for improving the quality system.	Quality control seven major methods seven major methods. Control chart and process capability analysis. Information analysis. Metallic material.	Customer complaint handling ability. Problem analysis and improvement ability. Logical reasoning ability. Risk analysis capability. Measure instrument operation ability.
	T3-3 Analysis of the reasons and tracking of non-conforming products.	O3-3-1 Nonconforming product inspection test record.	P3-3-1 It is possible to coordinate the relevant units to carry out quality abnormality elimination and emergency improvement measures for production abnormal conditions and quality abnormalities, and to track and confirm the processing so that the production can be continued.	Statistical process control. Basic statistics. Project management across functional groups.	Inter-departmental communication and coordination skills. Problem analysis and improvement ability. Logical reasoning ability. Measuring instrument operating capability. Report writing ability.
	T3-4 Establish corrective and preventive actions.	O3-4-1 Record of corrective and preventive actions.	P3-4-1 Establish effective corrective and preventive measures in compliance with customer and regulatory requirements.	Customer relationship management. Defensive management. Project management across functional groups.	Customer complaint handling ability. Problem analysis and improvement ability. Logical reasoning ability. Risk analysis capability.
	T3-5 Perform product quality related trend analysis (including product inspection and testing, customer complaints, corrective and preventive measures...etc.).	O3-5-1 Product quality trend analysis statistical report.	P3-5-1 Regularly carry out quality index trend analysis of product inspection and testing, customer complaints and corrective and preventive measures, and timely provide trend analysis statistical reports to relevant authorities.	Customer relationship management. Defensive management. Project management across functional groups. Quality analysis method.	Customer complaint handling ability. Problem analysis and improvement ability. Logical reasoning ability. Risk analysis capability. Briefing ability. Clerical capacity.

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