Improving Productivity And Quality Of Japan And Singapore, Lessons Learned For Vietnamese Seafood Industry

Khanh Cuong Luu[1*], Thi Thanh Tam Nguyen[2], Thi Sofia Nguyen[3], Ha Chi Doan[4], Thi Phuong Thanh Nguyen[5], Tuan Anh Luong[6],

Abstracts:
Enhancing productivity and quality (P&Q) is critical to supporting the development of industries and services, ensuring quality economic growth. In particular, this is an indispensable step in the process of developing Vietnam's economy. The enhancement of P&Q has the potential for Vietnamese industries to compete in international markets and global value chains. Japan and Singapore have different approaches to designing and implementing national movements for P&Q improvement. Both countries initially learned management knowledge and technology from abroad, but later developed their own models and systems to improve P&Q through testing, customization, and institutionalization. Eventually both Japan and Singapore succeeded in popularizing the P&Q movement nationwide. Based on the analysis of the P&Q improvement process of Japan and Singapore, this study is expected to provide useful experiences for P&Q training in Vietnam.

Keyword: Quality productivity, training on quality productivity, seafood industry.

[1*]University of Economics – Technology for Industries
[2]Academy of politics region I, Vietnam
[3]Foreign Trade University, Vietnam
[4]University of Kinh Bac, Vietnam
[5]Academy Of Policy and Development
[6]Faculty of Real Estate and Natural Resources Economics, National Economics University, Vietnam

***Corresponding Author:** Khanh Cuong Luu
*University of Economics – Technology for Industries. Email: lkcuong@uneti.edu.vn

1. Introduction

The quality of products and services is the decisive factor of the strength of the business and the industry and creates customer satisfaction and trust. Higher productivity in business gives businesses an advantage as it can improve operational efficiency and competitiveness in target markets. Therefore, improving quality productivity (P&Q) is crucial to support the development of industries and services, ensuring quality economic growth. In particular, this is an indispensable step in the process of developing Vietnam's economy. The enhancement of P&Q has the potential for Vietnamese industries to compete in international markets and global value chains.

Japan imported the P&Q movement from the United States (US) and Europe in the post-World War II era. Japan was quick to absorb and develop this as its own management practice. Compared to the original U.S. model, the adapted approach emphasizes process orientation, worker engagement, and pragmatism. The P&Q Control Movement (QCC) was established to lay out how to manage businesses and show that workers can collectively change mindsets to improve their productivity. Based on its experience, Japan supports the introduction of this approach to many developing countries through private channels such as intra-company technology transfer and support to local suppliers, as well as through public channels such as official development assistance (ODA) and guidance for various organizations.

The Singapore government launched the nationwide P&Q Movement in 1981, under the strong initiative of Prime Minister Lee Kuan Yew. Singapore recognizes the importance of improving the work ethic of its personnel and asks the Japanese government to transfer P&Q enhancement knowhow. JICA implemented the first comprehensive technical cooperation project in Singapore from 1983 to 1990. Singapore has embraced the Japanese P&Q model and established its own institutional mechanism for the P&Q Movement in the country. Singapore's P&Q campaign is not only promoted in business but also in the public sector, tied to the training curriculum.

Based on the analysis of the P&Q improvement process of Japan and Singapore, this study is expected to provide useful experiences for P&Q training in Vietnam.

2. Theories framework

2.1. Concept

2.1.1. Quality

Quality is a philosophical concept that refers to the characteristics of a thing and its relative stability in relation to other things, according to the Vietnamese Encyclopedia.

Quality is generally understood by managers as the level of design, production, sale, and use that results in maximum customer satisfaction. This definition states that there are four ways to express quality:

- Quality: Customer satisfaction level
- Cost: The total cost of designing, manufacturing, consuming and disposing of the product.
- Delivery: Deliver the product at the appropriate time, especially if it is a semi-finished product.
- Safety: Items must be safe to use everywhere, with anyone, including during production, consumption and handling.

Garvin (1987) segmented quality into the following eight component dimensions:

(1) Performance: refers to the operational characteristics of the item;
(2) Reliability: reflects the likelihood that a product is ready for use or damaged within a specific period of time;
(3) Serviceability: means the speed, accessibility, and ease of repair or repair of the item;
(4) Conformity: means the degree to which the products supplied meet pre-published standards; (5) Durability: measures the expected availability of a product during its expected operating cycle before it deteriorates;
(6) Features: basic functions or secondary features, complementing the basic functionality of the product;
(7) Aesthetic: reflects a personal judgment about how the product looks, feels, sounds, tastes, or smells; and

(8)C perceived quantity: closely identified with the manufacturer's reputation.

2.1.2. Productivity

Although productivity is considered one of the most important factors affecting the competitiveness of a manufacturing company, many experts argue that productivity is often underestimated due to many people overlooking it in the production process (Singh et al., 2000; Broman, 2004). The reason for this may be that productivity definitions lack general consistency. Although widely used, the term productivity is often misunderstood, leading to reduced productivity or even a reversal of successful decision-making (Tangen, 2002).

The very early emergence of the term yield was used by Quesnay (1766) in the Journal de l'Ag Agriculturalure more than two centuries earlier. Since then, it has been applied in various cases, especially in relation to economic systems (Tangen, 2002). It has been argued that productivity represents one of the most important fundamental variables governing economic productive activities (Singh et al., 2000). Grossman (1993) discusses productivity improvement as one of the key competitive advantages of the business in the following way: Companies need to recognize that increasing productivity is one of their primary weapons to gain cost and quality advantages over competitors.

For most goods, labor is the only factor of production measured by relative expenditure. So, labor productivity is a commonly used metric. However, labor productivity is a measure of partial productivity, which does not distinguish between technological improvements and the contribution of other factors of production, such as input costs. Therefore, a measure of labor productivity based on total output may increase due to outsourcing or improvements in capital used in the production process. In this case, labor productivity will increase with an increase in the cost of services or other inputs.

2.2. The role of quality productivity

The importance of improving quality productivity for an economy has been widely acknowledged. P&Q can improve living standards over time and productivity depends almost entirely on workers' ability to raise products (Jorgenson and Vu, 2009). Quality can strengthen the position and long-term development of the enterprise in the market. When reliable, high-quality products meet the wishes of consumers, businesses will build a positive brand and win the trust of customers. As a result, the company's position and reputation are enhanced, which has a significant influence on customers' purchasing decisions.

Considering each industry and within each business, increasing productivity is a primary means of offsetting increases in input costs, such as hourly wages or raw materials. Improving productivity is considered the most promising strategy for reducing costs. Without improvements based on other technologies and production processes in the provision of services, the prices of products and services will exceed consumer demand or product quality will erode under pressure to reduce costs. The idea of productivity evolves over time and includes not only performance indicators. The debate over the role of P&Q has broadened its focus to all social issues, including quality improvement, hunger eradication, poverty alleviation, job security, environmental protection, and natural resource conservation. This productivity strategy demonstrates that when a business adopts a productivity improvement program, its impact extends to the country and its people.

Regardless of industry — manufacturing, mining, services, entertainment, transportation, tourism, and banking of all sizes — P&Q plays an important role. Productivity enhancement must be coordinated with all managerial tasks, including operations, finance, human resources, engineering, and marketing, in for-profit, non-profit, and state-owned enterprises.

3. The world situation of quality productivity training

3.1. Experience in improving quality productivity in Japan

Japan has implemented a national program to learn foreign manufacturing management technology to boost industry since the early 1900s when American methods of scientific management were introduced. Well-known

books such as F.W. Tailor's Principles of Scientific Management (1911) and F. Gilbreth's Motion Studies (1911) have been translated into various forms, and are widely studied and practiced among both academia and entrepreneurs in Japan. This is a time when Japan is making efforts to strengthen its national industrial capacity as well as its strength strong military. Based on decades of accumulated experience, Science Management originated in the United States has evolved into the Japanese Efficiency Improvement Modality, a person-centered approach (Tsutsui, 2001). Then World War 2 ended. Japan surrendered and completely lost its production capacity. Japan's national movement to improve P&Q was driven by a sense of urgency for postwar economic recovery to catch up with world industry. The devastation of World War 2 has made it difficult for both the government and the corporate sector to improve quality and productivity for exporting processed products. At the time, 'Made in Japan' was considered to mean 'cheap and low quality', and improving quality and productivity was at the top of the national agenda. Japanese business and government leaders were eager to learn from the P&Q control methods developed in the United States, as well as the labor management model promoted by the British Productivity Council at the time.

According to Sasaki (2004), there are three stages in the process by which Japan turns foreign management technologies into strategic products for domestic enterprises. In the first phase, the U.S. government and the GHQ (Allied High Command) introduced American management methods, primarily through organizations such as the Japan Management Association (JMA) and the Japan Association of Scientists and Engineers (JUSE) (Sasaki 2004). The second phase was the construction of the Japan Productivity Center (JPC), established in the 1950s, inspired by the productivity movement that had been promoted by the United States in Europe. Phase three is direct technology transfer by individual Japanese companies since the 1950s.

In Japan, the private sector has taken the initiative to establish core organizations responsible for introducing, regulating, and disseminating methods for improving quality and productivity. According to Kikuchi (2011), three private, non-profit organizations have led this movement: JMA, JUSE, and JPC. JMA has contributed to promoting the 'noritsu' movement in Japanese industry. A Japanese word, 'noritsu' means effectively optimizing human capabilities, the full range of equipment and technology. JUSE contributes to quality improvement in Japan, placing greater emphasis on the transfer and dissemination of production management technology. JPC has contributed to the development of the productivity-enhancing movement from a macroeconomic and socio-economic perspective.

Private organizations play an important role in the three stages of technology transfer in Japan (Kikuchi, 2011). The top management of all three organizations has a strong sense of mission and commitment to developing companies and industries to realize Japan's post-war economic recovery. Their strong leadership plays an important role in introducing knowledge and technology from the United States and Europe, adapting them as well as disseminating P&Q improvement movements nationwide (Yanagihara et al., 2018).

Stage 1: Learning phase

At the initial stage of the learning process, many research teams were dispatched to the US and Europe. In addition, foreign experts are also invited to lecture. Lecture reports and notes were widely disseminated among members of the organization. Foreign books and documents are also translated and distributed to companies and researchers. In July 1950, the CEO of JUSE, took the initiative to invite WE Deming, a well-known American expert on statistical process control, to give a lecture on quality control. Deming organized a series of lectures and seminars, teaching the fundamentals of quality control to executives, managers and engineers of Japanese industries. The lectures inspired many participants, and JUSE immediately established the 'Deming

Prize' in 1951, with the aim of rewarding Japanese companies for major advances in quality improvement. The award ceremony is broadcast annually in Japan on national television. In 1954, J.M. Juran, another American expert, was invited to give a lecture on quality management. He also met with executives from ten well-to-do manufacturing companies in Japan. Juran emphasized the importance of quality control in the context of overall management and was taught at training courses for Japanese upper and middle management. This provides the basis for the All-Public Quality Control approach company that JUSE began introducing in the late 1950s.

During 1955–61, JPC received support from the U.S. government in a variety of activities, such as sending research delegations, inviting experts, gathering materials and information, and making films about technology. In addition, specialized group tasks (such as top management, industry-specific groups, small and medium-sized enterprises (SMEs), and labor unions) were dispatched. It is important to note that SMEs have actively participated in this effort. Upon return, briefings are closely held to share findings with those who did not travel abroad. About 170 volumes of Productivity Reports (1956-66) were published, based on mission summary reports. Even after U.S. assistance ended in 1961, Japanese research missions continued, with more than 40 missions dispatched annually until 1965 (funded by JPC and participating companies). The total number of study tasks and the number of participants were 568 and 6,072 respectively (JPC-SED, 2005). The participants came from key industries that became the driving force behind Japan's high economic growth in subsequent years (Yanagihara et al., 2018).

Phase 2: Adaptation phase

At the second stage (adaptation/localization), various committees and working groups are formed, consisting of experts and researchers from industry, government and academia, to study the adaptability of foreign technologies and make the necessary adjustments. They conducted joint discussions and studies on P&Q training based on the industry-government-schools linkage. In some cases, pilot projects have been carried out at production sites to verify their adaptability and effectiveness (Kikuchi, 2011). The P&Q control movement initiated by JUSE is a good example of how P&Q control methods from the United States are regulated and disseminated throughout Japan. Businesses need to form working groups, usually larger than 3 people and working in the same place. In it, the supervisor acts as the team leader. They are tasked with identifying the cause of a defective product and the possibility of improving the product or manufacturing method. The initial objective of these activities is to enhance the managerial skills and leadership abilities of supervisors and frontline employees, encourage all employers to engage in improvement activities, and implement activities aimed at achieving company goals and policies.

JUSE brought together leaders and experts from all of Japan's top industries and universities to share its best practices. It was attended by Professor from the University of Tokyo and President of Musashi Institute of Technology. They were the ones who took the initiative to introduce the activities of the P&Q Control Movement (QCC) in 1962 and actively promoted quality management technology in companies. With the support of universities and business connections, Japan organized research committees, developing many journals such as 'Statistical Quality Control' and 'Gemba Circle and P&Q Control' (later renamed FQC Journal).

To promote the QCC movement, JUSE has created nationwide networks at the national, regional and provincial levels. At the central level, in 1962, the QCC Centre was established as the national registration system. Educational materials are developed and distributed through magazines and educational centers. FQC Magazine is a popular magazine that began quarterly publication in 1962 and became monthly in 1965. This journal contains information on case studies in P&Q control and serves as an important information sharing channel. Its price is set low (almost the price of

a pack of cigarettes) so that ordinary workers can afford it.

A large number of workers, including shop and office workers, were involved in these local-level activities. Through QCC's activities, a spirit of solidarity and mutual development has been formed among workers throughout the company. QCC activities are promoted by broadcasting training programs on radio/TV and publishing magazines. In this way, JUSE has successfully created organizations and mass networks for the QCC movement. The word is an activity introduced at the workshop level that was later developed into a nationwide movement in the 1960s. The basic principles of QCC activities are to respect humanity and contribute to the development of the company. To adapt and promote foreign technologies, JPC established the Productivity Research Institute in 1956. This research institute publishes productivity statistics and conducts productivity-related studies and surveys. This research included how to support the improvement of the productivity of SMEs, which led to the development and popularization of a 'cost accounting' system for SMEs in Japan at that time. Training programs for SME management consultants have been started. JPC also established four specialized organizations—the Japan Marketing Association, the Japan Industrial Engineering Institute Association, the Japan Consumers Association, and the Japan Packaging Institute—to study the validity and adaptability of new technologies and methods learned through overseas learning and research for application to Japanese economic context (Yanagihara et al., 2018). Membership of these organizations includes both the private sector and academia.

Phase 3: Scaling up

At the third stage, many measures have been mobilized to disseminate P&Q innovative technologies in companies and develop the capacity of the private sector to provide advice on methods and techniques to improve practical productivity. Japan's policy is to focus on the following tasks:

- P&Q guidance and consulting services
- Educational and training programs to teach technical skills and methods
- P&Q degree and certificate system
- P&Q Award System
- National campaigns through award ceremonies, conferences and seminars
- Newsletters and publications

Consulting services are a practical and effective form of technology transfer and dissemination. These services enable companies to acquire new technology by solving specific problems and providing onthe-job training (OJT) opportunities. Some businesses, notably JMA, have established a policy of financial independence from the Japanese government and have begun charging membership fees and research consultancy to fund their activities (Sasaki, 2004).

Subsequently, training and certification programs for P&Q consultants were also implemented. The number of consultants increased from 12 in 1946 to 55 in 1950 (Sasaki, 2004). Various training programs have been offered on technical skills and methods. The training courses are tailored to the level of each target group such as senior executives, middle managers and workers with different levels. In addition to training courses for each enterprise, Japan has developed training programs for different industries such as human resource management by rank (supervisor, middle and senior management), production process (lean manufacturing, TPM, TQM), management skills (factory management, balanced scorecard, ISO) and managerial skills by function (R&D), manufacturing, purchasing, supply chain management, office process improvement).

Qualification and certification systems have played an important role in training P&Q professionals, especially professional professionals involved in technology transfer. Some of the first established certifications are Quality Control Professional (JUSE), Management Consultant (JPC), and Certified Manufacturing Engineer (CPE).

The award system aims to recognise companies with outstanding achievements in improving

quality and productivity, or 'noritsu' in the industry, for example the Deming Award (JUSE), the Japan Quality Award (JPC) and the Excellence Award in Human Resource Development. The awards allow winning companies to improve their image and reputation, while motivating other companies to work hard to achieve excellence.

In conclusion, close cooperation and interaction between academia, industry, and government is a key feature of Japan's P&Q enhancement movement. First, Japanese scholars have made very important contributions theoretically and practically. They have been actively involved in the transfer and customization of management principles, tools and systems as well as the development of new ones, tools and systems. Secondly, there are a large number of well-known engineers and managers who have promoted P&Q enhancement activities at Japanese enterprises. Japanese companies have personnel with sufficient education, technical knowledge and enthusiasm to absorb foreign technologies and turn them into Japanese. Then, many companies have developed their own P&Q control systems.

3.2. Experience in improving quality productivity in Singapore

In contrast to Japan, Singapore's national productivity movement in the 1980s was primarily led by the government. It follows a top-down policy with the late Prime Minister Lee Kuan Yew as the main promoter. Initial results have been rolled out to many businesses – in both the public and private sectors – through government agencies. Singapore is the first country where JICA (Japan International Cooperation Agency) launched a joint venture called the Productivity Development Project (PDP) – to transfer Japanese know-how on P&Q innovation. With the strong commitment and leadership of the Prime Minister, the Productivity Movement was launched in 1981. Singapore mobilized Japanese experts in 1983–90 to absorb, scale and successfully institutionalize the P&Q Movement. Based on this experience, in the 1990s, Singapore proposed technical cooperation to improve productivity in developing countries.

The P&Q movement in Singapore developed in three phases: (i) the awareness phase (1981-85); (ii) the Action Period (1986-88); and (iii) ownership period (1989-90s). This classification is based on the views of Singaporean partners who have participated in the JICA-supported PDP.

Stage 1: Awareness Stage

This first phase aims to create widespread awareness of P&Q among business and workforce. The main focus is on promoting positive attitudes and promoting teamwork and recognition for companies and individuals. Specifically, Singapore has taken the following actions:

- Community education
- Dissemination of information and training
- Enhance company recognition
- Promote joint consultations between labour managers
- Promoting P&Q in the public sector

Public education includes the publication of data on productivity, communication support, and changes in schools and higher education institutions. To spread the spirit of effective work to the public, Singapore has created a mascot called Teamy The Bee, symbolizing hard work, teamwork and efficiency. The productivity campaign's slogans and posters have been created around the key message 'We Work Better Together'. The information and knowledge is trained at universities through P&Q study programs or libraries that bring together case studies on P&Q control practices. For enterprises, in order to reinforce the identification of employees with the company, various programs have been launched such as special awards for long-term employees, awards for employees with good productivity.

P&Q campaigns are also carried out on a national scale. Singapore has introduced the Productivity Movement to both the business and public sectors, aiming to have a broader impact on changing mindsets for communities. It is particularly noteworthy that Work Improvement Teams (WITs) have been implemented in the public sector as part of a public service reform agenda. The public sector was the largest employer in Singapore at

the time. WIT is a group of civil servants from the same working unit who, regardless of department status, meet regularly to solve problems, review opportunities for improvement, and develop problem-solving skills. The Institute of Civil Service of Singapore has provided various training courses to promote the WIT movement. WIT emphasizes participation, employee engagement, and management from the bottom up; team members worked together and focused on solving problems. While these features are common to the Japanese QCC movement, WIT has a wider scope than QCC Cwith their tools and techniques geared more towards service needs and applied to a variety of topics and projects. They are not limited to any particular level in the hierarchy of the organization.

Phase 2: Action Phase

At the action stage, the focus shifts from promoting the national P&Q to promoting the enterprise level. This phase aims to translate productivity 'awareness' into concrete action in the workplace through participatory business programmes . It focuses on improving human resource management skills , and the operational efficiency of companies. In 1986, the Singapore Government established the Management Guidance Centre to manage various management consulting schemes for local companies. Specific programs and activities implemented by the Center include:

The 'Model Company Project' is jointly implemented by Japanese experts (JICA) and Singaporean partners and provides support to companies. This has paved the way for on-the-job training (OJT) for employees to equip them with relevant skills. Singapore allows the private sector to participate in PDP training scholarships in Japan. Those who are trained become Singapore Associates or Introductory Consultants. A team of more than 200 consultants has been set up to assist Singapore in further research into P&Q in key industries. In 1986, the Government introduced the 'Sector-Based Support Programme' to raise productivity levels in six priority sectors and assist companies in improving the P&Q. These industries include food manufacturing, restaurants, hotels, retail, textiles, and finance. Under the management of the Management Guidance Centre, Singapore has supported businesses, especially SMEs, to improve business efficiency and manage P&Q.

Stage 3: Mastery phase

By 1989, businesses and individuals were actively involved in the P&Q Movement. Thus, the ownership phase aims at self-sustaining national movement to ensure that P&Q raising habits form part of the work ethic. Public and private and community organizations are encouraged to join the P&Q Movement. The government has launched various initiatives to promote productivity improvements at the enterprise level, including:

Singapore has pushed the private sector to lead P&Q campaigns every year and business owners are encouraged to chair the campaign steering committee. The Singapore P&Q Awards were introduced in 1994 and are awarded to private sector companies as well. The Productivity Activist Scheme was launched in 1996. The programme aims to develop a network that allows member companies to compare their productivity with their counterparts and improve their skills and techniques

In addition, programs related to P&Q and human resource management content have been promoted at various higher education institutions to train the future workforce to be aware of P&Q. In schools, the formal curriculum is geared towards teamwork lectures, person-to-person relationships, and P&Q has been introduced in various forms, such as teamwork effectiveness, moral education, and school essays on P&Q (Woon and Loo, 2017). Singapore has partnered with many reputable organizations including multinational corporations to establish training centres and develop P&Q training programmes for various industries.

4. Experience and lessons for Vietnam

Japan and Singapore have different approaches to designing and implementing national movements for P&Q improvement. In Japan, such a national movement was initiated with

strong ownership of private organizations. JMA, JUSE, and JPC are specific examples of a three-stage technology transfer process in Japan. With their support, Japanese companies have learned and established internal production management systems. Schools, professionals and businesses are all enthusiastic about learning and they have worked closely to improve P&Q, enhancing the competitiveness of the country's economy. It can be said that private organizations play an important role in the process of improving P&Q in Japan.

Singapore's experience confirms the importance of senior leadership who have a vision in initiating, spreading and sustaining the P&Q Movement. The establishment of monitoring mechanisms and coordination of responsibilities for the implementation and monitoring of P&Q promotion activities is also important. P&Q campaigns in Singapore have worked effectively with strong participation and support from stakeholders (public sector, trade unions, employers and universities). They have organised major awareness campaigns, conducted training and mentoring programmes to upskill them, and developed manuals and training materials. Singapore's experience also suggests that the three phases of the Productivity Movement – awareness, action and mastery – can be a useful reference for a country where awareness of P&Q is low. Singapore has spent 5 years raising awareness, by conducting major campaigns to popularize P&Q culture to the public.

Despite these differences, some common lessons to be gained as well as common methods and tools to successfully implement the P&Q enhancement process are still drawn from the experiences of these two countries. Both countries initially learned management knowledge and technology from abroad, but later developed their own models and systems to improve P&Q through testing, customization, and institutionalization. Eventually both Japan and Singapore succeeded in popularizing the P&Q movement nationwide. In particular, learning and adapting are key to this process. What specific mechanisms and factors have enabled Japan and Singapore to launch, implement and sustain such national movements? The experience of Japan and Singapore shows that the following six elements are critical to the successful design and implementation of a national movement on P&Q:

First, the national commitment to enhancing P&Q is indispensable. For the P&Q to be an effective national programme, nationwide participation is needed to achieve economic and social progress, including the active participation of business, industry, workers, government, academia and the general public. To coordinate and sustain the P&Q movement, Strong commitment by higher-level officials, organizations and individuals is required. In Singapore, there has been strong commitment and participation of the nation's highest leadership; Prime Minister Lee Kuan Yew's deep concern was decisive for the P&Q Movement to spread and become deeply ingrained in society. In Japan, the sense of urgency to achieve post-war economic recovery and improve the quality of Japanese industrial products is something that political and business leaders have always wondered about, and even the public. It was business leaders who took initiatives to establish organizations responsible for improving P&Q, with a supporting role of public policy.

Second, strong infrastructure and institutions are essential for a country to implement P&Q training. This includes the establishment of core organizations (such as national productivity organizations, QCC centers) responsible for implementing and coordinating various activities related to P&Q improvement. Since P&Q improvement depends on both the national level (economic and structural policies as well as the quality of public administration) and the micro level (the quality of management, expertise and labor resources), the institutional mechanism to support the national movement should include both of these aspects. Moreover, support institutions and mechanisms must be created at the central and local levels. This may include the establishment of a high-level national council with a central ministry or agency assuming the role of the leading organization (or national

productivity organization), the secretariat of the national council, and regional, district, and community-level mechanisms to promote the P&Q. These organizations must be linked to wider members of society, namely key stakeholders such as government, business (including associations and business chambers), labour and universities. Such mechanisms will provide channels to disseminate awareness of productivity and translate that awareness into action in workplaces and educational institutions.

Third, awareness campaigns at the grassroots level play an important role. In both countries, annual campaigns have been carried out to promote the theme of P&Q, campaigns by governments or business leaders have been developed, nationwide P&Q programs, and P&Q control groups have been formed in the workplace. Especially in Singapore, The government places priority on public awareness campaigns in the first 5 years to promote attitudes, spread positive values and P&Q culture. Widespread awareness campaigns were conducted not only among workers and managers but also government officials and politicians, professionals, students and the general public. Japan and Singapore have developed clear incentive and recognition mechanisms that have been implemented at national and local levels. Various communication tools have been mobilized, such as television, public speeches by high-ranking government officials or business leaders, and national conferences. In addition, award programs have shown effectiveness in stimulating workers' interest in best practices in an effort to enhance P&Q.

Fourth, teaching materials, curricula and counseling should be standardized and well designed to train P&Q professionals. These include curricula, courses, textbooks, manuals, visual aids, electronic content, TV shows, movies, and stories depicting successful countries, companies, and individuals. They can be translated from foreign sources or created by domestic experts and made available to the public through media, publications and web portal websites. It is also important to provide education and training systems at the national and local levels that teach both theory and practice of P&Q to students and businesses, as well as a higher training system for their lecturers.

Fifth, there should be a combination of industry, academia (including universities, centers) and government that is also important. The experience of Japan and Singapore confirms that such linkages work effectively for: (i) studying international practices; (ii) create a new P&Q model best suited to the domestic context by selecting, adapting and combining foreign methodologies; and (iii) conducting practice-oriented and applied training. Such linkages will also be useful in cultivating a team of suitably trained graduates to meet the industry's manpower needs.

Finally, it is necessary to develop a private sector consultancy team to sustain the national P&Q movement on its own. The national movement must continue for a long enough time, often more than a decade or more, with increasing development. Japan does not face major issues with sustainability or private sector capacity development—thanks to the existence of a dynamic private sector and core institutions (JPC, JUSE, and JMA). Moreover, professionals and top managers of the business have sufficient knowledge to understand the relevant skills and techniques. Factories also have workers who are able to absorb new management technologies. As for Singapore, the national movement can be initiated and led by the government through the authorities. However, it must be transferred gradually to the private sector to remain sustainable. Such efforts are critical to promoting a sense of ownership of the P&Q movement at businesses and individuals.

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